

# Toolkit

## for Public-Private Partnerships in Roads & Highways

VERSION MARCH 2009



**PPIAF**  
PUBLIC-PRIVATE INFRASTRUCTURE ADVISORY FACILITY

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# Purpose of the Toolkit

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**The Toolkit for Public-Private Partnerships in Roads and Highways is to assist transport sector policy makers in low- and middle-income countries in implementing procedures to promote private sector participation and financing in the development of their road and highway sector.**

Except in a few totally state-controlled economies, private firms are already involved in road design, construction, maintenance or operation. Conventional procurement practices which are widely applied by public sector organizations throughout the world entail the outsourcing of works and services under individual contracts. Public-private partnerships (PPP) provide an alternative partnership model between the public and private sectors in which a private firm provides a global service with sufficient autonomy and incentives to produce efficiency gains for the benefit of all parties and in particular of road users.

PPP is not a panacea for public sector procurement. It cannot replace conventional procurement and public funding methods but instead should be viewed as complementing them in those cases where it can prove to be an efficient alternative. The public sector shall need to assess the role of PPP in a highway development program and determine the desired scale and pace for development of PPP projects. As the level of PPP develops, the role of the public sector will in turn transform from that of a service provider to a facilitator, requiring reform of its institutions and of the economic, financial and legal system.

It is thus important to define where PPP can be used effectively in highway development. Much of highway development and maintenance activity may not be considered suitable for PPP in the short to medium-term. A step-by-step approach is generally followed in order to allow sufficient time to consolidate political and public acceptance and to implement reform processes, building from the experience of initial projects. Initial implementation of projects with a lower level of private participation, such as performance-based contracts, may represent the best course of action and enable a PPP program to be initiated with little or no reform of structures and institutions. However, in some cases, the scale of required investments and the need for private funding may drive a more radical approach.

A public-private partnership should be seen as a genuine alliance, requiring a partnership approach from both the public and private sectors which must adapt and comply with clear, stable and neutral rules. This in itself represents a challenge for any public administration.

Finding the appropriate private partner requires market sounding and conducting a sound procurement process. Competitive bidding is the only way to safeguard community

interests by reducing the risk of corruption and abuse of its dominant position by the private party.

The contract between the parties ensures objectivity and fairness within the partnership. It requires precision to reflect a necessarily complex situation and clearly state the commitments of each party and how the risks are to be shared, as well as sufficient flexibility to take account of the inevitable changes occurring during the project life.

Ready-made solutions do not often work for PPP because each project is unique. Success depends precisely on the ability of the policy makers to take account in their choices of the specific nature of the local context.

**The Toolkit for Public-Private Partnerships in Roads and Highways** is intended to be a key reference guide for public authorities in developing countries for the development of their PPP programs in the highways sector. However, much information on the subject is readily available, notably through the internet, and the Toolkit has not vocation nor pretends to be a unique reference on the subject. It does aim, however, to be a complete and coherent guide for the PPP development to assist public authorities in PPP policy development and project preparation as well as in the sourcing and monitoring of external expertise.

The Toolkit provides guidance for public sector authorities in the definition of strategy and policy for PPP, the definition of the characteristics of PPP projects and the stages for their preparation as regards:

- the tasks (scope of work) entrusted to each party
- the level of autonomy left to the private actors and the way their performance is assessed
- the possibility and implications of including several road sections in a single contractual package
- the risk allocation principles and mechanisms
- the cost recovery system (general, specific taxes or direct road user charges)
- the financial scheme based on a government budget, private financing or a combination of both

The Toolkit presents concepts and methods for PPP which allow the required flexibility of approach for application in low- and middle-income countries, ranging from performance-based maintenance contracts to large-scale BOT highway concessions. Each public sector authority shall need to determine the degree to which such methods may be implemented, given the prevailing environment, and define the particular characteristics of its own PPP program.

# Summary of the Toolkit

The Toolkit for Public-Private Partnerships in Roads and Highways provides guidance for public sector authorities in the definition of strategy and policy for PPP, definition of PPP projects and stages for their preparation.

The Toolkit is presented in six modules summarized below, each presenting a specific subject matter for the development of PPP. Each section provides links to other sections for sourcing of additional material on a given subject. Sitemap, Glossary and Search functions are provided separately on the Toolkit main page.



## Module 1: Overview and diagnosis

### Choosing the PPP route and defining a strategy

**Module 1: Overview and Diagnosis** provides an overview of PPP, their application within highway development programs and the process for the definition of a PPP strategy.

It presents the following:

**Defining the partnership** assesses the nature and scope for PPP in highways and the main types of PPP and their principal characteristics. It includes the advantages and drawbacks of PPP as opposed to conventional procurement.

**Overview of PPP experience** provides a historical perspective of PPP development, presents the PPP databases, notably the PPI data base for developing countries, examines current trends in PPP and defines the efficient application of PPP for highway development and maintenance.

**Key Players and Roles** presents the actors in PPP projects, comprising the public and private sectors, finance sector, insurance and export credit agencies and international institutions.

**Enabling PPPs** describes the process to achieve an enabling environment for PPP, a requirement for the implementation of any PPP project or program. However the nature of the enabling environment depends on the scale and complexity of the PPP projects to be implemented; the diagnosis assists public authorities in determining the required reforms to achieve an enabling environment.

**PPP Strategy** outlines the process for obtaining an enabling environment through the PPP policy framework. It introduces the main steps of a national PPP program and defines a development path for PPP.

## Module 2: Key Components

### Concepts and characteristics of PPP projects

**Module 2: Key Components** presents the principal characteristics of PPP projects and describes the process of tailoring the PPP project to its environment.

The key components of PPP projects are presented under five main headings.

**Scope** explains the importance of packaging PPP projects in order to implement them successfully covering scope, autonomy and pooling. It also considers the potential influence of packaging on competition.

**Risk** describes the four steps needed to define risk sharing, one of the main issues when considering PPP: (1) risk identification reviews the most common risks in PPP projects, (2) risk assessment provides an overview of tools to evaluate the risks, (3) risk allocation gives the main principles to share risk between the public and private sector with a focus on the allocation of traffic risks, (4) risk mitigation explains the tools available to mitigate those risks.

**Revenues** covers revenue and payments to the private sector, also known as the process for cost recovery. PPP may require a variety of revenue sources comprising the public financial support that may be required for a successful PPP implementation as well as user charges from the conventional methods (toll booth, vignette etc) to the latest toll collection systems (electronic tolls, free flow, heavy vehicle charge system).

**Finance** describes the methods for capital mobilization, both from the public and private sectors and including the emergence of infrastructure funds. It describes financial structure and financial assessment principles, including the weighted average cost of capital (WACC). Financial modeling is explained with an overview of the main financial indicators used to assess PPP projects and introduction to the financial models provided in Module 6 Tools.

**Public Accounting** provides a description of the impact of PPP on the State budget and their accounting treatment. In particular the issue of on or off-budget accounting is discussed.

## Module 3: Policy and Planning

### Road planning, policy objectives and PPP policy framework

**Module 3: Policy and Planning describes the public sector functions under PPP in order to ensure protection of the public interest. It includes the definition of the PPP policy framework**

Module 3 provides assistance to the public sector to provide the appropriate national and sub national planning framework to give their PPP policy and projects the best chances of success. It introduces the national or macro level of planning for PPPs, the obligations they impose on the public sector in particular and the need for PPP planning and policy frameworks to facilitate implementation of PPP projects. It provides public authorities with an important set of tools at the macro level before considering legal and contract requirements in Module 4 and finally PPP implementation in Module 5. The content of Module 3 is presented under three main headings as follows:

**Sector Planning and Strategy** describes highway sector and network planning, technical standards, maintenance strategies and sustainability principles and tools, and introduces PPPs within the sector planning process.

**Promoting and Protecting the Public Interest** describes the two key important public functions within PPP development of (i) promoting and accelerating socio-economic development and (ii) protecting the public interest. It introduces user and community perspectives including public participation, social and environmental safeguards including identifying and mitigating the negative impacts arising from for example land acquisition and the need for resettlement and on the environment, as well as including both positive and negative impacts on the poor. It also includes road safety.

**PPP Policy Framework** describes why and how the Public Sector can provide the appropriate frameworks and environment for PPPs. It describes the various frameworks needed for successful PPP implementation including policy, regulation and regulatory bodies, risk, financial and institutional/governance (refer Module 5 for PPP project implementation). It includes sector institutional reforms and HRD/ training and enhancing the capacities of the private sector including contracting, advisory services and financing.

## Module 4: Laws and Contracts

### Legal, legislative and contract bases for PPP

**Module 4: Laws and Contracts examines the legal and regulatory environment to PPP. It provides a framework for diagnosis and reform and provides the basis for preparation of PPP contracts.**

Module 4 defines the legal framework that can facilitate the successful implementation of PPPs in the road sector. It contains the two main elements of such a framework found within any legal system in the world: laws and regulations on the one hand and contracts on the other hand.

**Legislation** considers the institutional framework that fosters private investment in infrastructure. Legislative Framework explores host country's legislative provisions when promoting and implementing a PPP in infrastructure; other sections address the issues of modification and adaptation of such a framework and assessment of this legal framework.

**Contracts** explores what can be a maze of contractual arrangements involved with such a PPP and addresses the issues regarding contract formation, contract types and provisions, other agreements, guarantees and bonds and the renegotiation and adaptation of contracts.

The broader the scope of work, the more complex are the PPP contracts, which determines the risks and responsibilities of each actor involved in the project. For instance, if only maintenance of a road is required, the work involved can usually be done by a single shareholder project company without the need for additional project financing; however, if the scope is to include the construction of a new road, several different actors will share responsibilities and risks and there will most probably be a need for substantial project financing from commercial lenders and international financial institutions.

The information provided herein does not constitute, and shall not be construed as, legal advice. All parties should seek advice from their own legal consultants familiar with their particular circumstances.

## **Module 5: Implementation and Monitoring** **Stages in PPP development from project identification to contract management**

**Module 5: Implementation and Monitoring** provides a comprehensive approach to implementing a highway PPP at the project level through a description of the key stages for development of PPP projects from project identification, preparation, tendering and contract monitoring and renegotiation.

At an implementation level, Module 5 can be considered as the central part of the Toolkit by advising and guiding public sector users on the whole process for a given PPP project and by referring when necessary to other Modules, which provide for the required strategy, policy framework and legal and regulatory environment for PPP development.

Module 5 describes the five key stages in the process from selection of projects, through contract award and until the transfer back of the facilities to the public authority. The stages allow for each PPP project to be individually tailored to its particular characteristics and environment, essential for successful implementation.

- **Stage 1:** Identification, Prioritization and Selection of the PPP Project.
- **Stage 2:** Due Diligence and Feasibility Studies. This process includes activities and studies to ensure the selected project is well designed and can be successfully tendered and implemented.
- **Stage 3:** Procurement. This stage includes prequalification of bidders and the bidding and bid evaluation process and includes a section on Unsolicited Bids.

- **Stage 4:** Contract Award. This stage gives advice on dealing with the preferred bidder(s).
- **Stage 5:** Contract Management. This deals with the construction and/or operation periods of a project including transfer back if relevant.

Additional sections are included on Amendments to Contracts, including Renegotiation, and Dispute Resolution, Use of Advisors and Dialogue Process.

In particular, the importance of the role of the Transaction Advisor is highlighted in order to obtain sound advice, geared to the users' particular needs and requirements, essential when developing and implementing PPP project contracts with long durations. Advisors can help avoid costly political and financial mistakes related to PPP projects.

## Module 6: Tools

### Case studies, financial models, bibliography, key issues, Toolkit files

**Module 6: Tools** provides complementary references and features to the Toolkit modules as well as specific functions to assist the presentation and dissemination of Toolkit related materials.

**Case studies** present both well and lesser-known examples of PPP on all five continents and which comprise the range of PPP options from performance-based maintenance contracts to highway BOT concessions. The case studies present either the specifics of a particular PPP project (seven project case studies) or the development and application of policy and strategy for PPP projects and programs (six country case studies).

**Financial Models** are intended to familiarize non-financial users with the basics of project finance and better understand the key parameters which affect the financial viability of a highway project. Two models are proposed, a graphical model as a pedagogical tool for financial simulation and a numerical model for an initial project analysis at pre-feasibility level of possible PPP options, including possible toll rates and subsidy levels.

**Bibliography** is the key reference source for documents included in the toolkit. Each document listing includes the principal reference details, main topics addressed in the document and links to relevant document sources, including pdf file, weblink and publisher website. All pdf files are integrated in the toolkit for easy reference.

**Key issues:** This section facilitates consultation of the Toolkit on a number of key issues related to PPP development, particularly with respect to those subjects included in several sections of the Toolkit. For each key issue, a series of questions guides the user to the related section of the Toolkit. The section also provides a brief summary of other World Bank toolkits which may assist in certain aspects related to PPP development in the highway sector.

**Toolkit files** allows the download of the complete Toolkit in PDF version and of all Toolkit figures for professional-level outputs for consultation, reports and presentations, as well as of the complete CD-Rom version with CD cover and label.

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## **Financial models**

Graphical Model for Financial Simulation of Highway PPP Projects - User guide  
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## Glossary and Abbreviations

# List of Revisions

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# Credits

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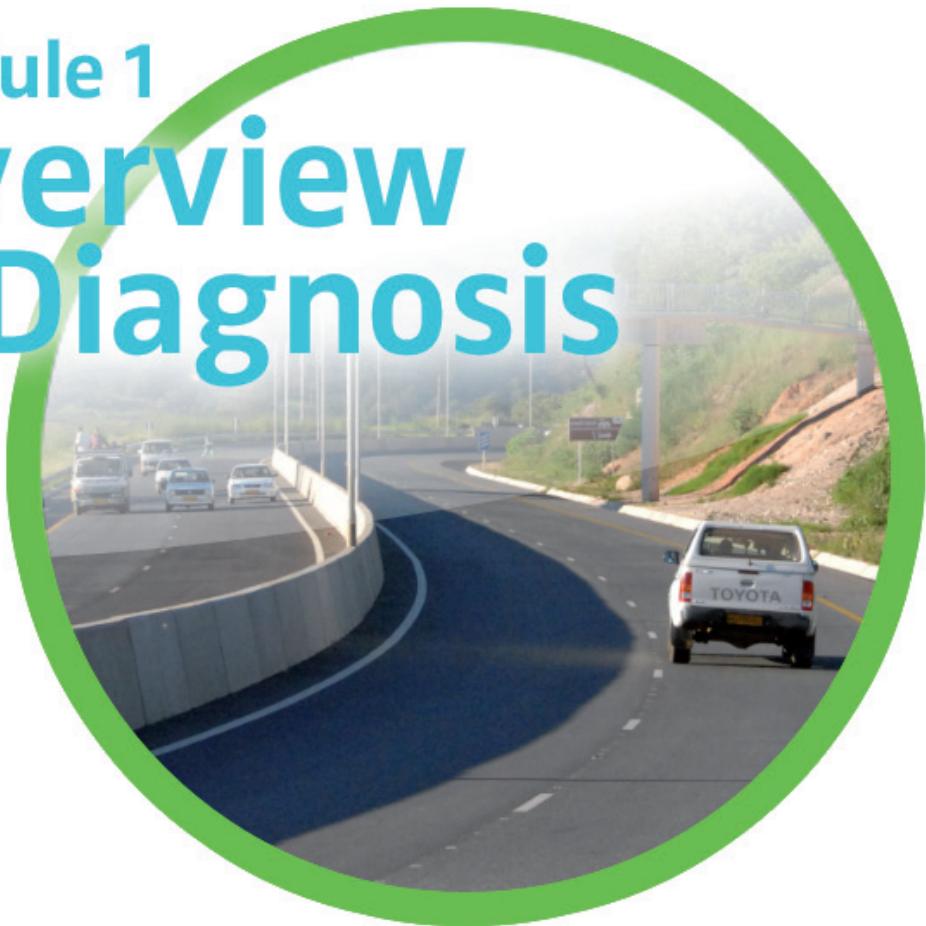
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# Module 1

# Overview & Diagnosis



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# Module 1: Overview and diagnosis

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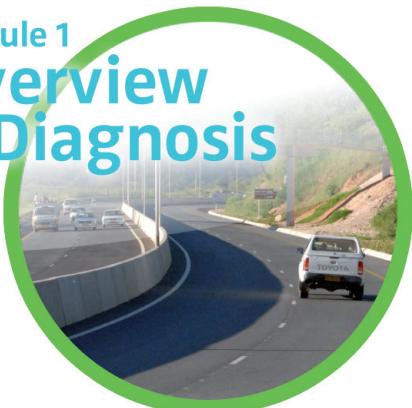
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## Module 1 **Overview & Diagnosis**



### Choosing the PPP route and defining a strategy

Public-private partnerships cannot be implemented in isolation. They must form part of a national highway program and be implemented within the context of national policies for private participation in the public sector. They must respond to a specific history and heritage of relationship between the public and private sectors and a culture of public tradition related to private sector involvement in providing public infrastructure.

**Module 1: Overview and Diagnosis** provides an overview of PPP, their application within highway development programs and the process for the definition of a PPP strategy. It presents the following:

**Defining the partnership** assesses the nature and scope for PPP in highways and the main types of PPP and their principal characteristics. It includes the advantages and drawbacks of PPP as opposed to conventional procurement.

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**PPP Strategy** outlines the process for obtaining an enabling environment through the PPP policy framework. It introduces the main steps of a national PPP program and defines a development path for PPP.

# Defining the partnership

**Private sector involvement in highway development is firstly a political and policy issue. Governments need to understand the requirements of highway infrastructure and of their users in order to define the way in which private sector may assist in providing their response. The tailoring of this response needs to adopt an objective consideration of the genuine economic, political and strategic restrictions to private provision and the real concerns of road users and the public at large.**

The transport business strategy of the World Bank feeds into this assessment; by assessing the areas of policy development in the transport sector and provides a realistic indication of the areas and methods by which private sector participation may be encouraged.

This section 'Defining the Partnership' supports this objective view of the contribution of PPP in highway development by presenting the issues to be understood and addressed by policy-makers.

Many countries are uncomfortable with fully private owned or free-market operation of transport infrastructure. The discomfort arises from the presence of natural monopolies, the existence of market power due to exclusive location, the practical or economic difficulty of fully recovering costs from user charges and the lumpy, long-term and risky nature of much transport investment (which limits private financing). In some countries, there is also a public perception that transport infrastructure is an inherent part of the public patrimony and should be run for the public good rather than for commercial gain.

Public ownership of transport infrastructure is a legitimate public policy choice. The public sector is the owner and usually the "manager" of nearly all the world's roads, inland waterways, navigable airspace and shipping channels, as well as most of the basic port, airport and navigation infrastructure, most metro and tram networks and most national railway infrastructure (including 95% of the rail network outside North and Latin America). The Bank will remain engaged with partner countries to improve the management capacity and operating efficiency of public-owned enterprises. But there are often ways for governments, as custodian of such assets, to seek the benefits of greater private sector participation in their financing, management and operation. The Bank will continue to encourage partner countries to consider these options for public-private partnership.



Safe, Clean and Affordable - Transport for Development, The World Bank Goup's Transport Business Strategy for 2008-2012, World Bank, 2008.

## Why PPP?

**The biggest investment boom in history is now under way. Over half of the world's infrastructure investment is now taking place in developing countries. In total, developing countries are likely to spend an estimated USD 1.2 trillion on roads, railways, electricity, telecommunications and other projects this year, equivalent to 6% of their combined GDPs – twice the average infrastructure-investment ratio in developed countries.**

It is predicted that developing economies will spend USD 22 trillion on infrastructure over the next 10 years, of which China will account for 43%, India for 13%, Russia for 10% and Brazil for 5%.

The pace of investment is considerable. China is spending around 12% of its GDP on infrastructure, compared with a total investment of around 5% a year at the peak of the UK's railway mania in the 1840s.

The vast scale of investment will require more private-sector money. To attract that, developing countries will need to offer investors a decent return and that will require reform of their regulatory systems and a move towards market pricing. In turn, the financing needs of massive infrastructure investment could encourage the development of domestic bond markets, bringing additional long-term benefits.



Economic Focus, Building BRICs of Growth. The Economist, 2008

The global recession which commenced in late 2008 may reduce PPP investments in the short-term, due to restriction of funds for private finance. However, the longer-term investment trends are likely to be maintained, supported in the short-term by government stimulus packages recently initiated by several major economies worldwide.

### The importance of the road sector for economic development

Good infrastructure has always played a leading role in economic development, from the highways and aqueducts of ancient Rome to Britain's railway boom in the mid-19th century.

Infrastructure investment can yield big economic gains. Building highways immediately boosts output and jobs, but it also helps to spur future growth, provided the money is spent wisely. Better transport helps farmers to get their produce to cities, and manufacturers to export their goods overseas. Countries with the lowest transport costs tend to be more open to foreign trade and so enjoy faster growth.

The World Bank estimates that a 1% increase in a country's infrastructure stock is associated with a 1% increase in the level of GDP. Other studies have concluded that

East Asia's much higher investment in infrastructure explains a large part of its faster growth than Latin America.

In most countries, the road network constitutes one of the largest community assets and is predominantly government-owned. Many road agencies have the responsibility to manage assets comparable in value to those of the largest private international firms.

SIZE OF NATIONAL ROAD NETWORKS IN ASSET VALUE		
Road Agency	Asset Value USD billion	Comparable Forbes Global 2000 Company
Japan Highway Public Corporation	216	BP, Vodafone, Volkswagen
Austroads (Australia and New Zealand)	150	General Motors, American Express, Swiss Life
Highways Agency, UK	80	Mitsui & Co, Johnson & Johnson
Roads Department, South Africa	7.3	Samsung, US Airways, Ryanair

*Source: Websites of road agencies, Forbes*

In view of the scale and national importance of their assets, many highway agencies have adopted asset management principles which aim at managing a road network (roads, bridges, traffic facilities, etc) to satisfy the requirements of business and private road users, at the lowest possible cost over a long period of time.

In developing countries, road networks have a proportionally greater impact on the national economies due to the greater share of agriculture in national economies and lower rate of urbanization and resulting spread of the population.

Road networks in developing and transition economies carry 60 to 80 percent of all passenger and freight transport. Ensuring quality and development of road assets thus constitutes a key element of economic development.

## New challenges faced by the highways sector

While the role of road transport in the economy remains predominant, new challenges faced by the sector call for the rationalization and modernization of the organization and management of the system

- Industrialization. Many more countries are now industrializing than ever before and are investing in infrastructure at a much quicker pace than rich economies ever did.
- Population growth. Concentrated in developing countries, population growth is producing a rapid increase in motorized traffic levels and congestion of existing highway infrastructure.
- Investment gap. Governments, even in industrialized countries, are not able to fully finance the requirements of the highway sector through the government budget. With traffic typically growing significantly faster than GDP, and road

agencies rarely being exposed to market discipline to increase their efficiency, the investment needs of the highway sector tend to grow faster than the government is able or ready to supply as a proportion of its tax revenues. The result is a growing backlog of maintenance and investment with the ensuing investment gap presenting a challenge to conventional procurement methods and spurring governments to seek alternative sources of funding.

- Loss of road asset value. In the 85 countries that had received World Bank assistance in the 1980s, 15 percent of the capital invested in main roads (roughly USD 45 billion) has been eroded (Heggie, 1999). Improvements noticed in the second half of the 1990s, due to a stronger emphasis on maintenance versus new construction, in particular in Latin America, are not yet sufficient to reverse the trend.
- Poor quality of service with a direct impact on vehicle operating costs, road safety, duration of the trips, and continuity of access to transport (roads becoming impassable).
- Poor accessibility to remote rural areas impeding the development of the poorest populations.
- Globalization of production and trade calls for reliable transport facilities capable of supporting “just-in-time” operations for reduction of stocks and costs
- New services such as intelligent systems for traffic management are required to prevent adverse effects of rapid motorization on congestion and safety. Technology is indeed a distinct advantage in the development of revenue collection methods (Module 1, Current trends)
- Pressure to address environmental and social concerns is increasing and imposes necessary constraints on the road sector development.
- According to the decennial World Bank review of the transport sector, Government provision of transport services has frequently been found deficient in technical and allocative efficiency.
- Governments may thus benefit from the assistance of the private sector in order to respond effectively to the challenges faced by the sector and in ensuring the optimum contribution of the highways sector to economic development.



A Sourcebook for Poverty Reduction Strategies, World Bank, 2002

## What is PPP?

**History shows us that there are two ways of providing public infrastructure, direct provision by the public sector and facilitation of private-sector provision, either by regulation, general tax subsidy or by contract.**

Public-Private Partnerships “PPPs” may be considered as a way of facilitating private provision to help meet an increasing demand for public infrastructure.

By their very nature, PPPs in the highway sector bring together the public and private sectors in providing facilities essential to the efficient functioning of the economy and for economic and social development.

The benefits from effective and adequate highway service provision on the wider economy are great and of national strategic importance.

The public and private sectors both have essential and specific roles within a partnership in ensuring the most suitable combination of skills and resources to achieve the best possible service provision for the public in the highway sector.

The partnership seeks to enable private sector funding for highway investment by allowing the private sector sufficient scope for efficiency gains in project delivery and to share these benefits by the public and private sectors alike.

### Public character of infrastructure

Public infrastructure can be defined as public goods, i.e. facilities which are necessary for the functioning of the economy and society, but which traditionally and for economic reasons has been largely provided by the public sector. Transportation is considered as an “economic” infrastructure, deemed essential for day-to-day economic activity.

There is thus a collective public interest in ensuring the provision of a network for the benefit of the economy at large. There is thus a need for direct government policy in directing and allocating resources for the development of the network. This public character of highway infrastructure may be represented by the following considerations.

**Network benefits.** Highways serve the public interest and permit economic development insofar as they are part of a coherent network which can allow service provision from origin to destination. Thus, although road transport services, including the associated cost of highway infrastructure, represent a small proportion of market prices for goods, the costs of any disruption to transport would likely be much greater than the direct transport cost itself. Likewise, since each link in the network provides part of the overall transport itinerary, it may only require one link to be disrupted, e.g. bridge closure, for the economic costs to be felt for the whole itinerary. There is thus a strong public interest in ensuring the coherence and functioning of the network as a whole, which overrides the specific interest on each link of the network.

**Network externalities (or “spillovers”).** Highway infrastructure can develop a large degree of benefits or costs on those who are neither the users or providers of the highway infrastructure. For example, industry benefits from more efficient road transport, whose benefits would partly be transferred to its workforce through higher employment and salaries, whether or not their employees were users of the road network. Conversely, congestion provides a negative externality, since it entails additional costs, an ultimately higher prices, on products, thus affecting both users and non-users of the road system. Whilst all products produce externalities, the “spillovers” provided by highway infrastructure are generally much greater than those for other activities.



Private financing of infrastructure and other long-term capital projects.  
Journal of Applied Finance and Investment. Threadgold. 1996.

**Public good.** Highway infrastructure, as part of transport infrastructure, provides a service which is shared by community and which, for maximum public benefit, should have easy access by all the community. It is moreover difficult to restrict access from those who may not wish to pay for the service, on all or a significant part of the highway network. Indeed, outside of congestion effects, the marginal cost of an additional user both on the infrastructure and other users is negligible and greatest economic benefit is thus achieved with unrestricted use. This concept underlines the process of economic evaluation, the provision of government support and the definition of a tolling policy consistent with the public interest (Module 3).

**Scale of investments.** Highway infrastructure, as for much public infrastructure, involves a very large initial investment for a fixed infrastructure and generally greatly superior to operating costs. The costs of establishing an infrastructure are thus substantial and which by the time the service is made available, are “sunk costs”, i.e. which may not be recovered, whether or not usage is at the level anticipated.

**Natural monopoly.** When markets are naturally competitive and can be served efficiently by several firms, ordinary competition usually works well. However, the characteristics mentioned above, notably the scale of investments and the network effects mentioned above, generally make it impractical and inefficient to allow direct competition between providers. Highway infrastructure can thus be considered to be naturally monopolistic, in which normal head-to-head competition does not operate. Competitively auctioned contracts in these industries allow some of the benefits of competition to be brought to bear in the absence of direct competition between firms. Thus, in such contracts, competition in the market is substituted for competition for the market. However, monopoly provision requires some form of public control (regulators, Module 3).



The Rationale for Concessions – natural monopolies.  
In “Concessions for Infrastructure: A Guide to Their Design and Award”.The World Bank.

**Strategic importance.** Highway infrastructure ensures the widest accessibility of communities and regions, necessary for strategic issues of ensuring food security and the movement of national police and defense forces. In developing countries particularly,

where highway infrastructure is limited, the government may consider it desirable to have direct ownership and control of its national assets to facilitate rapid and unhindered intervention in time of need.

## Commercialization of infrastructure

Public infrastructure is expensive. Free access puts direct and considerable burden on the public budget. Direct provision by the public sector through tax revenue inherently puts a cap on the level of infrastructure which may be provided. Moreover, use of public funds for highway investment and maintenance are subject to annual public sector budget reviews and which may suffer under more urgent needs in other sectors. Critical highway investments which may benefit the economy may be repeatedly delayed through lack of resources; maintenance programs may be downsized with fatal consequences to the physical infrastructure.

The financial reality of government budgets means that economic optimization may not be reached or even achievable under traditional procurement methods. Although experienced in all economies, such financial realities are most evident in the developing world.

We may recall two fundamental principles of funding for highway infrastructure:

- under the “taxpayer pays” principle (the “traditional” approach), public funds are mobilized. This method responds well to the highway characteristics of public good and network externalities by ensuring the participation of all tax-paying members of the community, whether direct road users or not. However, it may not encourage optimal use of resources, particularly under congestion, nor may it ensure the most equitable form of payment by the community, where direct user benefits outsize network externalities.
- under the “user pays” principle, road users are charged directly for the use of the road infrastructure, either through “right to roam” (access charges, defined as a fixed charge for unlimited access to the network, often presented by a sticker on the windscreen of the vehicle, referred to as a “vignette”) or direct tolling

These methods of infrastructure funding are often deeply embedded in political ideals and customs. This can make any changes in the approach to funding a highly charged political issue in the political process.

They moreover define the basic difference between the concession and PFI approaches to PPP, the concession approach relying on the “user pays” principle and allowing the direct mobilization of funds for highway investment; whilst the “taxpayer pays” principle relies on continued government support by availability payments under the PFI approach.

The commercialization of infrastructure aims at

- **enhancing public sector efficiency** to achieve the greatest return from public expenditure
- **increasing the use of the private sector** in providing and managing infrastructure

- **introducing road pricing** as an effective method of tackling the increasing problem of congestion by making the full costs apparent to the road user and in effect rationing the use of the highway infrastructure
- **redefining the role of the public sector** as procuring services on behalf of the public rather than acquiring assets. The public sector is thus redefined from that of service provider to that of facilitator and guarantor.

The public sector may achieve such an objective by being more focused on the requirements of the road user and by introducing private sector management methods practices into the public sector.

In order to introduce commercial practices to the highways sector, Ian Heggie and Piers Vickers have identified four complementary “basic building blocks” of the reform:

- **Assigning responsibility** in creating a consistent organizational structure with clear assigned responsibilities between the different department and levels of governments for managing different parts of the road network. These responsibilities include maintenance, operations, improvements, road network development, traffic management, accidents and claims resolution, and assessment of environmental impact.
- **Ensuring Ownership** requiring an active participation of road users to help win public support for an adequate level (and more stable) funding for road investments and maintenance through user-pay or fee-for-service arrangements. This calls for strengthened management and programming systems to enable the definition of the interventions in the road network and the required level and structure of users' charges or contributions from the budget to pay for the preferred amount and quality of those interventions. The linkage of users' payments to the benefits received from the interventions is a necessary step to bring ownership and support for the required funding. Participation in the definition of the program of interventions can further reinforce ownership.
- **Maintaining Steady Financing.** Adequate budget allocation to roads under present fiscal conditions is difficult to sustain. Several countries have separated road financing from the government's consolidated budget, have introduced explicit road tariffs consisting primarily of vehicle license fees and fuel levies, and have secured the adequate auditing and control of those resources (in a few cases, through the creation of a fund with board-appointed chief executive officer).
- **Promoting Commercial management** in separating planning and management of road works from implementation. Road administrations have traditionally been centrally managed, combining governmental functions (such as administration, management and planning) with production functions (design, construction, maintenance and operation). They are now slowly and step by step moving towards an identification of client and producer functions, followed by a separation / corporatization / (privatization) of these functions. This usually involves contracting out of implementation activities to the private sector (requiring improvement of contracting capabilities) recruiting and paying capable staff, and building sound management information systems.



Commercial Management and Financing of Roads, Heggie and Vickers, 1998.



Talvitie A.P. TRB 1996 International Experience in Restructuring the Road Sector

The planning function of the public sector is moreover reinforced. The public sector must develop an effective transport policy through the development of a strategy and specific actions. The policies will vary per country, depending on factors such as the stage of national economic development reached and the geographical and natural conditions but should ensure that the community has access to affordable, safe and efficient transport services. When the transport sector performs badly, all groups tend to pay a high price. A national transport policy framework should set out the objectives and guidelines for sector reform.

## Role of public-private partnerships

PPP seeks to obtain the best from the public and private sectors by employing private sector innovation and business skills where appropriate, while allowing overall planning, coordination and regulatory control of the infrastructure networks to remain within the public sector.

The levels at which the balance between the public and private sectors in transport can be changed are oversight, execution, and finance. Oversight generally involves user participation in the planning and regulatory aspects of sector operations. Execution refers mainly to how institutions actually undertake their work, including the extent to which public institutions subcontract to private enterprises and how they do this. Finance means the level at which the private enterprise provides some or all of the capital financing that would otherwise have come from the public sector.

At one end of the spectrum are government departments that execute the work with their own labor forces; at the opposite end are private enterprises that fully undertake this responsibility. In between are many alternative structures of PPP for the assignment of risks and responsibilities at the management level

The various legal and economic histories have resulted in many forms of PPP worldwide, each adapted to their own specific culture, legal and administrative frameworks and financing sources. Despite the diversity of application, some common characteristics may be identified.

A Public-Private Partnership (PPP) constitutes a sustained collaborative effort between the public sector (government agencies) and private enterprises to achieve a common objective (e.g., the road project) while they pursue their own individual interests. In a PPP each partner:

- shares in the design of a road project;
- contributes a portion of the financial, managerial and technical resources needed to execute and sometimes operates the project in accordance with each partner's comparative advantage, and;
- partially shoulders the risks associated with the project and obtains the benefits -those expected by each partner- as defined in the project contract.

A PPP project requires the following:

- **Change in roles:** A PPP requires a shift in the roles and attitudes of public and private entities, moving away from the conventional client-contractor approach, towards focusing on the core functions of supervision and regulation for the public authorities, and by the assuming of greater responsibilities and risks in execution, operation and the mobilization of resources for the private sector. This change requires the partners to transform as some capacities of the public sector are transferred to the private sector. In the partnership, the public sector is usually represented by the roads agency, and the private sector (enterprise(s) or consortium of firms, road operators, consultants, entrepreneurs, and/or financial entities).
- **A common objective:** the provision to road users of facilities and services that meet clearly defined physical and performance standards, encompassing interventions that range from the construction and operation of a new road to the simpler maintenance of an existing infrastructure. Each partner must bring his resources (money, property, authority, reputation), insofar as they find value to the partnership.
- **A sustained collaborative effort:** the basis of the third "P" of the PPP, entailing a joint alliance between the public and private sectors beyond the traditional contractual relationship, that brings the best of each partner competences to optimize the achievement of the common objective. Given the mid- or long-term nature of that objective and the transformation generated by the shift in roles, the partnership needs to be sustained over a long period of time. The longer the nature of the objective, the larger are the uncertainties associated with the project and the more critical and relevant becomes the third "P" of a PPP.

The individual interests of each partner: generally, a return on the investment for the private partner, and a net benefit to the society and the economy as a whole for the public entity (through the achievement of specific transport-related goals, such as the improvement of accessibility or the reduction of transport costs). These interests are channeled through the definition of risks. Thus, a clear assignment of risks is a precondition of the implementation of a PPP initiative.

# Main types of PPP

**Although concession contracts have been used for many centuries, notably in Europe, the first reference to the term “Public-Private Partnership” dates from the 1950s in the United States and was originally applied to joint ventures between the public sector and not-for-profit organizations in educational and urban renewal programs.**

The term PPP found wider application in 1997 under the new Labor government in the UK seeking a third way for infrastructure provision, although the new PPP program was largely based on the previous Private Finance Initiative (PFI) under the outgoing Conservative government. This PPP program provided for a new branding of PPP as a contract-based partnership between the private and public sectors in public infrastructure.

Other terms are being used internationally to represent the partnership between the public and private sectors embodied in the PPP approach. Related terms include:

- Private Participation in Infrastructure (PPI), used by the World Bank (cf data base) and within the development-financing sector; also adopted for the South Korean PPI program
- Private-Sector Participation (PSP), also used within the development-financing sector
- P3, used in North America
- Privately-Financed Projects (PFP), used in Australia
- P-P Partnership (to avoid confusion with the term “purchasing power parity”, a method of comparing currency exchange rates, and also referred to as PPP)
- Private Finance Initiative (PFI), originating in UK but now also used in Japan and Malaysia

## Basic principles

Public-private partnerships or PPP is not a precisely defined term. It embraces a range of structures and concepts, which involve the allocation of risks and responsibilities between the public and private sectors.

Fundamentally, PPPs introduce, as a minimum, private management into public service through a long-term contractual bond between operator and a public authority. It secures all or part of the public service, so delegated by private funding and calls upon private sector know-how.

Although the field of PPPs continues to rapidly evolve, considerable differences in the definition and application of terminology remain. Legal definitions developed to assist in the regulation of PPPs may not precisely match the operational characteristics of a specific project. In this context, the Toolkit uses the operational terminology used in the context of PPP implementation which may differ from formal legalistic definitions.

Two principal payment options are employed for PPP projects:

- **Road user payments**, traditionally under a concession model, characterized by the direct link between the private partner and the final user; the private partner provides a service to the public, "in place of", though under the control of, the public partner. The concessionaire is allowed to charge the general public Service Fees for using the facility, generally through paying a toll. The toll reimburses the Concessionaire for the cost of building and operating the facility which can revert back to the public sector at the end of the concession period. The concession model is the traditional PPP method for public service provision and is important as being a tried and tested PPP model.
- **Availability-based payments**, the private partner providing and administering infrastructure for the public authority. In this model, the remuneration for the private partner does not take the form of charges paid by the users of the works or of the service, but of regular payments by the public partner based on the level of service provided. These payments may be fixed or variable, e.g. availability payments for the highway infrastructure, or based on level of use (eg shadow tolls). This model is relatively recent and embodies the notion of the private sector providing a defined level of service to the public sector (PFI program in the UK is a well-known example of an availability-based PPP program).

Tax-based approaches have traditionally been favored in the United States, Northern Europe and Japan, involving the use of general tax revenues, earmarked fuel taxes or other dedicated taxes to pay for projects. Southern European countries such as France, Italy, Portugal, and Spain, together with many emerging and developing countries, including notably Malaysia, South Africa, Croatia, China and Brazil, have favored the use of user fees collected in the form of tolls to finance their infrastructure needs.

In practice, these two payment options can be combined in order to "tailor" a given PPP project to include toll revenue supplemented with public financing and subsidies, subject to provision in the legal framework.

- Irrespective of the model and the type of partnership, public-private partnerships encompass the following basic principals which are comprised with the PPP contract between the parties. These concepts are further developed in Module 3 -> PPP Policy Framework.
- Long-term partnership. A long-term relationship between the public and private sectors is a key condition in allowing the efficiencies required to deliver Value for Money. During the course of the PPP contract, situations can arise which necessitate the amendment to the contract or change in scope. Therefore, communication and transparency between the public and private sector is a must in such a long-term relationship.
- Risk transfer. The bearing of risk by the party best positioned to assess them and to influence their probability and financial impact of their occurrence, is one of the key drivers of value for money. Additional criteria are the parties' capacity to control the risks and to bear the consequences of their materialization.
- Performance-based specifications and life-cycle approach. In PPP projects, project deliverables are specified as outputs, as opposed to inputs as for conventional procurement, thus the performance (service) requirements of the infrastructure asset are defined rather than its technical details. This allows benefits to be

gained from the private sector's capability for innovation and creativity in design, construction technology, management and financing by the selection of the service provider offering the optimum life cycle cost as opposed to the lowest construction cost.

- Size and complexity. PPP can be both vertically integrated (services from design to operation) and horizontally integrated (packaging of highway sections, as for conventional procurement). The ability of PPP to allow complete horizontal integration of services under one party from initial design and construction to finance and service delivery (operation and maintenance) allows performance-based incentives to be optimized, and efficient transfer of risk to a single private party, and the coordination of these activities by private companies at lower cost than the government, since they are better able to respond to economic incentives. However, this integration and service-based provision generates complexity in PPP procurement.

Moreover, in order to benefit from private sector incentives and generate value for money, PPP projects should have a certain volume. The size of the PPP contract depends largely on the capacity of public and private parties

- **Private investment and private finance.** The private sector invests money in a PPP project and seeks an equitable return as remuneration of the equity as well as for carrying the risk. Typically 20-40% of a PPP's capital costs – depending on the level of risk and guarantee – are funded by equity and the balance from external debt finance. Debt may also be provided from international and regional funding agencies and from the bond market. Whoever the lender is, he will require due diligence of every aspect of the project to verify the project's ability to repay its debt. If there is significant risk that project revenues will be insufficient to recover costs, some form of government support will be needed to make the PPP project bankable.
- **Legal framework.** PPP projects need to be completed and executed under a stable legal framework. Two of the major areas are the state aid controls and the public procurement regulations. Developing countries in particular, will need to attract lenders and sponsors by providing financial comfort, often through the use of government support (state guarantees, subsidies, tax relief, availability payments) and legislation needs to be reviewed prior to initiating a PPP project in order to avoid legal problems during the contract period. (Module 4 -> Legislation)
- **Revenues.** Various mechanisms can be used to ensure the revenue stream, either from real tolls as per the concession model or availability payments as per the PFI model or a mixture of both, where a toll is supplemented by public financing and subsidies. The decision how to ensure the revenue stream is a political decision and has considerable influence on the financial structure of the project, and consequently on the viability on the project as a whole. (Module 2 -> Revenues)



EIC Memorandum on Frequently Asked Questions on PPP, European International Contractors, September 2006

## Continuum of alternatives

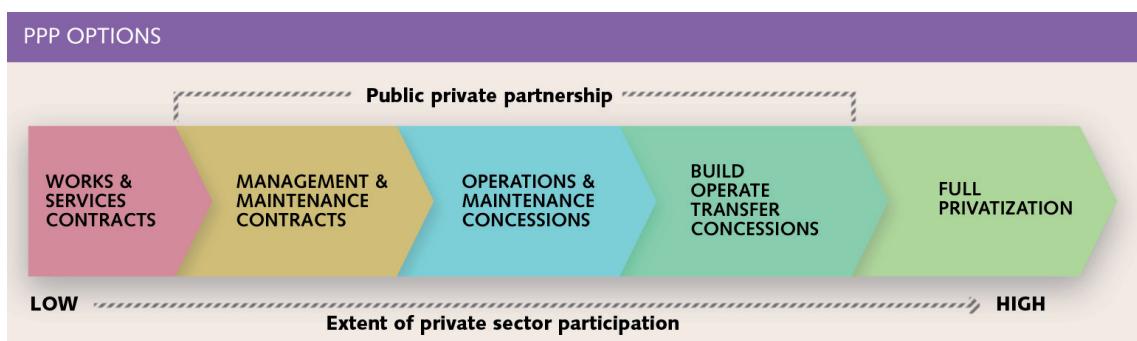
A host country's objectives may be for the private sector to operate and maintain an already existing road, and therefore the government may grant a concession to the private participants to charge user tolls to help finance the improved operation and maintenance of the road. Such a concession shifts the financial burden of the operation and maintenance to the road users, and at the same time should increase the efficiency of road operation and maintenance. Besides the issues inherent in a concession agreement, the operation and maintenance concession is similar in scope and approach to what is required and negotiated in a typical operation and maintenance agreement as between private parties.

Significant changes in host country laws and policies have created new opportunities for private investors to participate in PPPs involving a comprehensive scope of work (construction or major upgrading, operation and maintenance) and private financing.

## Choosing the right PPP option

Numerous forms of PPPs have been developed worldwide to respond to the various fields of application. The major categories of PPP are presented in a simplified way in the figure below, in which the extent of private sector participation increases from left to right:

For simplicity, concessions have been indicated under two principal PPP categories to the right of the graph although such contracts could also be based on PFI type payments.



As the private sector increases its participation, it assumes increasing responsibility for the functions of design, build, operation and maintenance and finance. In the last case of full privatization, the private sector also assumes ownership of the infrastructure.

The following table presents a responsibility matrix for the principal forms of PPP as commonly understood on an operational level. However, some differences will occur in the understanding of PPP definitions (see box).

In the United States, BOT are defined as a single design-build-operate contract with financing secured by the public agency, i.e. the contract does not include private-sector finance, as opposed to DBFO (Federal Highway Administration, PPP Options). However, the Toolkit has retained another widely-accepted definition of BOT which provides for a broader; more generic definition of BOT and which generally includes private-sector financing.

The following terms are used in the table:

- public means that the public sector assumes wholly or predominantly this role or responsibility.
- private by fee contract means that the private sector is remunerated by a predetermined fee; established at tender stage. Incentive payments may be included but will be a marginal part of overall payment.
- private by performance-based maintenance contract means that the private sector is paid based on the level of service of the highway infrastructure, generally comprising a standard availability fee with penalties for below-standard performance.
- private by concession contract means that the private sector is paid based on user charges, availability payments or a mixture of both, as per the contract type

Responsibility Matrix for Conventional Procurement and PPP Options							
Category	Works and Service Contracts (conventional procurement)		Management and Maintenance Contracts		Operation and Maintenance Concessions	Build Operate Transfer Concessions	Privatization
Type	Design, Bid, Build	Design and Build	Management Contracts	Performance-Based Contracts	Lease or Franchise or Affermage <i>Brownfield</i>	BOT/DBFO/ B00 <i>Greenfield</i>	
Design	Private by fee contract	Private by fee contract					
Build	Private by fee contract					Private by concession contract	
Operation and Maintenance	Public	Public	Private by fee contract	Private by BBC contract	Private by concession contract		Private
Finance	Public	Public	Public	Public			
Own	Public	Public	Public	Public	Public	Public after contract (BOT/DBFO) or Private (B00)	
Private sector revenue options							
							Tolls (concession model)
							Availability payments (PFI model)
							Government guarantees and support
							Other support (eg insurance)

Source: EGIS

The principal characteristics of each contract type are detailed below. Conventional procurement methods of design-bid-build and design and build are not currently considered within the normal range of PPP options.

Design-bid-build is the traditional project delivery approach that was used for most of the 20th century to procure public works. The design-bid-build model segregates design and construction responsibilities by awarding them to an independent private engineer and a separate private contractor. By doing so, design-bid-build separates the delivery process into three linear phases: 1) Design, 2) Bid, and 3) Construction. This also includes quantity-based maintenance contracts.

Remuneration of the contractor is based on unit prices defined in the construction or maintenance contract and quantities measured on site. Design works are previously

defined by a consultant and a supervision consultant typically assists the Contracting Authority in controlling the quality and quantity of work done.

Design and Build is a project delivery method that combines two, usually separate services into a single contract. With design-build procurements, owners execute a single, fixed-fee contract for both architectural/engineering services and construction. The design-build entity may be a single firm, a consortium, joint venture or other organization assembled for a particular project.

With design-build delivery, the design-builder assumes responsibility for the majority of the design work and all construction activities, together with the risks associated with providing these services for a fixed fee. When using design-build delivery, owners usually retain responsibility for financing, operating and maintaining the project. While design-build procurement has been more prevalent in private sector work, it is also gaining acceptance among many public sector transportation infrastructure owners

**Management contracts:** A management contract is an arrangement by which a private company is entrusted with various types of tasks usually performed by the public authority, relating to the organization of road maintenance operations. Usually, the function of the private firm is to respond to day-to-day routine maintenance requirements by contracting private companies, on behalf of the public entity, to perform the works. Management contracts can also (or only) focus on operation management. In this case, typical tasks entrusted to the private sector are: traffic counting, axle-load weighing and providing traffic information, traffic management including surveillance, stand-by services for accidents, traffic regulation, toll collection (usually not remunerated on the basis of the amounts collected but rather on a fixed rate basis).

**Performance-based maintenance contracts** are derived from the previous type of arrangement by shifting the focus from administration (maintenance activities and resources) to certain performance conditions valued by the users. They typically leave contractors with more autonomy in the design and organization of the works. Remuneration is based on a monthly fee determined up-front stated in the contract and linked to performance indicators

In PBC the client does not specify any method or material requirements. Instead he specifies performance indicators that the contractor is required to meet when delivering maintenance services. For example, the contractor is not paid for the number of potholes he has patched, but for the output of his work: no pothole remaining open (or 100% patched). Failure to comply with the performance indicators or to promptly rectify revealed deficiencies adversely affects the contractor's payment through a series of clearly defined penalties. In case of compliance the payment is regularly made, usually in equal monthly instalments.

PBC within the road sector can be "pure" or "hybrid". The latter combines features of both method- and performance-based contracts. Some services are paid on a unit rate basis, while others are linked to meeting performance indicators

Examples of performance-based maintenance contracts in Serbia and Zambia are presented in Module 6: Tools -> Case Studies.

**Operation and maintenance concessions (service concessions):** The host country's objectives may be for the private sector to operate and maintain an already existing road, and therefore the government may grant a concession to the private participants to charge user tolls to help finance the improved operation and maintenance of the road. Such a concession shifts the financial burden of operation and maintenance to the road user and at the same time should increase the efficiency of the road's operation and maintenance. Besides the issues inherent in a concession agreement, an operation and maintenance concession is similar in scope and approach to what is required and negotiated in a typical operation and maintenance agreement between private parties under a BOT-type arrangement (see below). This type of concession is also referred to as franchise, lease; "affermage" (French term) or "concession" under the PPI database.

Operation and maintenance concessions enable the public sector in developing countries to transfer commercial risk to the private sector and to create incentives for the private sector to ensure efficient revenue collection and to undertake regular maintenance to increase the reliability of facilities and postpone their renewal.

**BOT-type of concessions (works concessions):** Under a BOT, the responsibility of the concessionaire is not limited to operation and maintenance of the infrastructure but also comprises an initial construction, upgrading or major road rehabilitation component. Massive investment and consequent mobilization of private funding sources is therefore required from this company and is to be repaid from the revenue collected from road users (usually tolls). BOT (Build Operate Transfer) stresses the responsibility of the private entity during construction and operation of the road and the handing over (transfer) of the assets to the public entity at the end of the operation period. The high initial investment required from the private sector and the consequent long concession period make the distribution of risk between the parties a key element of success in such schemes. Many variations on this type of contract have been implemented with a consequently growing number of acronyms used to label them (DBFO, BOOT, BTO), refer to the Glossary. This PPP type is also referred to as "greenfield" in the PPI database.

BOT-type of concessions offer further advantages of increased value for money through efficiencies in construction costs as well as plant and labor management and to escape public budget constraints and to mobilize investment funds rapidly through project finance non-recourse funding. However, tendering and contracting may initially be lengthy procedures if there is little previous experience in the country.

In the BOT-type concession, private sector participants typically establish a project company and, after securing an exclusive license from the host government or contracting authority (concession agreement), construct, control, operate and maintain a project for a determined length of time (concession period). The private sector participants then transfer the project company assets back to the host government after the period has elapsed.

Examples of BOT type contracts in Chile, Croatia, UK, South Africa are presented in Module 6: Tools -> Case Studies.

Toll Road Corporations or Authorities are either public, private or semi-public organizations set up to develop and operate a regional or national network. Setting up a public toll road corporation is often chosen by Governments to maintain a strong influence over the

operator. Such an entity is free to collect tolls for its own development and its ability to tap private finance is facilitated by strong government support or by demonstrated revenue and a track record proving financial viability. This is usually reflected in good credit ratings. Building the infrastructure facilities may not necessarily be part of the initial assignment. For example, a corporation could be set up to operate an existing road infrastructure facility and build new facilities as revenue is raised through tolls collected on the existing facilities, or through the securitization of future revenue made possible by the existence of a solid past revenue record. Toll Road Corporations have largely contributed to the development of the highway networks in Europe (France; Italy, Spain and Hungary M3), Japan and the USA. In France and Italy, both public and private corporations co-exist.

Although public toll road corporations may not be considered as genuine public-private partnerships, it provides many of the characteristics of PPP roles and the operator is required to contract through competitive tender at least the construction works and possibly also the operation, maintenance and toll collection to private companies.

Examples of toll road corporations and authorities developed in France and Indonesia are presented in Module 6: Tools -> Case Studies.



A Sourcebook for Poverty Reduction Strategies, World Bank, 2002

Privatization means transferring a public service or facility to the private sector, sometimes together with its ancillary activities, for it to be managed in accordance with market forces and within the framework of an exclusive right granted by a ministerial or parliamentary act (or sometimes a license). Since there is a full transfer of ownership in which the private sector assumes all risks and responsibilities associated with the activity, it is not generally considered within the range of PPP options. In the highways sector, privatization is usually confined to the case of toll road corporations, as in France (Module 6: Tools -> Case Studies).



PPP Options, Federal Highway Administration; USA  
<http://www.fhwa.dot.gov/ppp/options.htm>



Resource Guide, Performance-based Contracting for Preservation and Improvement of Road Assets, World Bank <http://www.worldbank.org/transport/roads/resource-guide/index.htm>

### Elements of choice

It may be expected that projects with higher level of private sector involvement deliver more efficiency gains. However, the level of complexity of the projects and the consequent risk of failure grows correspondingly. The first major difficulty for the decision makers

consists therefore in identifying which option may be most suitable for their country and for the projects they want to implement. Main parameters leading this choice will be:

- the coherence of the project/option with the main objectives of the road sector policy.
- the capacity of the private sector (contractors, consultants, financiers...) to undertake the foreseen activities.
- the capacity of the public sector to implement the various types of PPP projects
- the adequacy of the country environment (political, legal and institutional framework) to the contractual and organizational arrangements required to rule the project.

# Advantages of PPP

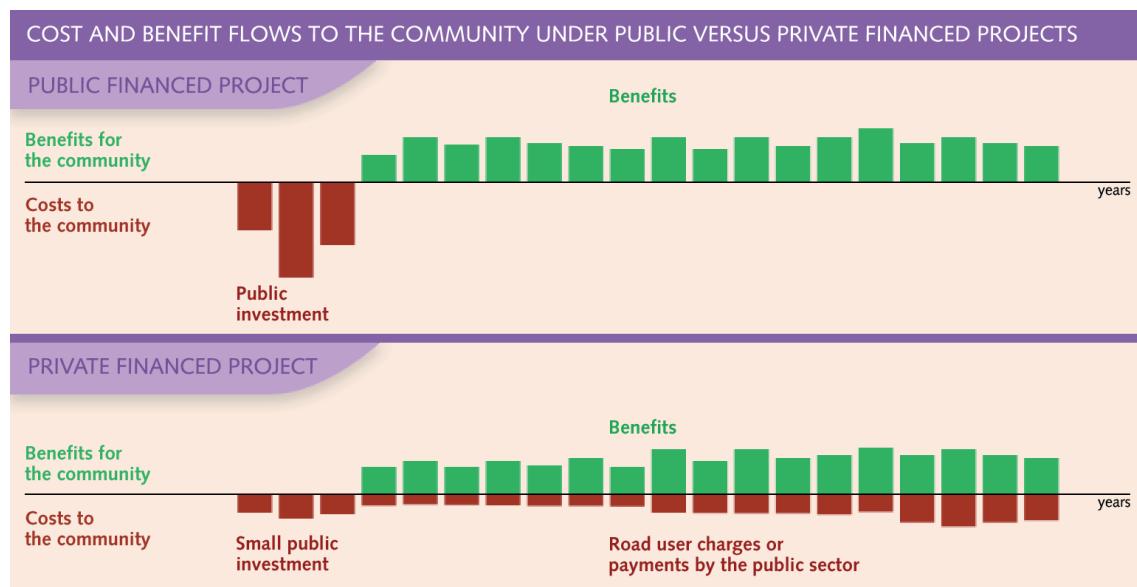
A key advantage of having the private sector provide public services is that it allows public administrators to concentrate on planning, policy and regulation. The private sector, in turn, is empowered to do what it does best, and in particular improve the efficiency and quality of service.

When PPP procurement is applied for the right project and within the right environment, it can produce a win-win situation for both the private and public sectors.

In this respect, it is worth noting that if the public sector does not have the budget capacity to undertake the project, then public opposition based on a comparison of the costs of PPP and conventional procurement, is grounded on the false premise that there is a choice between conventional procurement and PPP.

## Increase funding for infrastructure

PPPs financed by the private sectors allow the spreading of the project cost for the public over a longer period of time, in line with the expected benefits (savings on vehicle operating cost, on travel time, on accidents). Public funds are thus freed up for investments in sectors were private investment is impossible or inappropriate.



*Source EGIS*

On public financed projects, an initial investment is made by the public sector and recovered by the community in the form of the project benefits. On private financed projects the cost for the community is incurred through payments to the private sector over the entire project operation phase, either by payments from the Government or road user charges, notably tolls.

There should be clear distinction between the financial source of investment that could come from the private sector in the form of debt or (to a lesser extent) equity and the source of revenue that will pay back the investment and must come from the taxpayer and/or road users.

Increased funding is only achieved if additional sources of revenues (principally user charges) are mobilized or if PPP investment is considered off-budget for the purposes of public accounting (Module 2 -> Public Accounting). However, in the latter, although the investment is not considered public debt, subsequent payments under shadow toll or availability arrangements shall reduce available public budgets for the duration of the PPP contract. Public budgets may be released in the immediate years but care will need to be taken to avoid over-committing public budgets in future years.

### Portuguese PPP Program for Roads (SCUT)

Since Portugal initiated a comprehensive program of road infrastructures in 1995, the country experienced a booming PPP market in this sector which attracted both national and international sponsors, financiers and consultants. Since 1996, Portugal launched 17 tenders in the road sector which led to more than 6.5 billion Euro in initial capital expenditure and to almost 2,000 km of new construction. The Portuguese authorities divided the program between two different concept models, real-tolling and shadow-tolling. A wrong estimate of the public debt impact of the latter, however, damaged the continuity of the program. It is considered today that too many projects were undertaken at the same time, the initial planning did not fully consider the nation-wide dimension, the risk allocation was sometimes inadequate and that expropriations allocated to the contracting authority led to cost overruns and delays. Against this background, future Portuguese road deals might follow the real toll template.

*Source : EIC Memorandum of Frequently Asked Questions, European International Contractors, September 2006*

If an initial investment in a PPP project falls outside of the public budget, this enables the public sector to make or accelerate investments in infrastructure which would not otherwise have been possible, or would have been delayed until later. Thus the realistic choice, given budgetary constraints, is generally not between a PPP and conventional procurement but between a PPP and no investment at all. PPPs are thus undertaken in addition to other forms of public-sector investment and not in substitution for it.

The scope for increased road user funding is illustrated by the consideration that government budgets currently finance over 95% of investment in highway networks worldwide, while less than 5% is financed directly through tolls (ie direct charges by the user).



IRF Bulletin PPP - Key Principles for Infrastructure Financing and Charging.  
IRF Bulletin Special Edition, January 2008.

## Introduce private sector efficiencies

The efficient practices of the private sector are already recognized by conventional procurement practices which outsource construction, maintenance and design activities to the private sector. PPP allows to significantly increase private sector efficiency due to the whole lifecycle approach of the PPP contract.

The lifecycle approach allows the private sector to achieve efficiencies in the following four main areas:

- **Work planning and organization.** Long-term contracts allow an improved planning and programming of the work by the contractor. The private sector has greater flexibility in adjusting its resources (personnel, equipment and materials) to a constantly changing situation which can, notably, ensure timely performance.
- **Optimization of lifecycle costs.** In a well-designed PPP contract, both construction and rehabilitation-maintenance tasks are taken into account over a long period; the contractor is thus able to balance expenditure over the project life and make effective trade-offs between investment, maintenance and operation costs subject to environmental, social and economic considerations. A private operator can ensure optimal rehabilitation and maintenance works are performed on the pavement deterioration cycle outside of constraints of public funding availability and tendering which often delay necessary works under the conventional procedure.
- **Risk management.** With proper risk identification and allocation, international experience shows that works performed under PPP contracts tend to meet cost predictions and deadlines better than conventional contracts.
- **Innovation.** The life-cycle approach of PPP provides an incentive for contractors to define alternative solutions to meet performance requirements at lower cost and/or with higher efficiency. Research and development can allow the improvement of quality and efficiency of construction techniques, processes and equipment. It is also becoming recognized that the least-cost solutions may also be the environmental solution (eg pavement recycling, energy-efficient hot mixes etc), as they will tend to require the lowest use of resources.

On heavily trafficked roads where congestion and safety can be critical, private sector involvement can deliver more diversified services optimized to respond to road users' needs and expectations. Innovative systems and services for traffic management or stand-by services for accidents are more efficiently provided by the private sector.



IRF Bulletin PPP - Public-Private Partnerships (PPPs) in Road Works: A Prosperous Marriage, Michel Démarre.  
 IRF Bulletin Special Edition, January 2008.

The competitive tendering process must ensure that the greatest share of the efficiency gains introduced by the private sector is transferred to the public sector through a reduced lifetime cost for infrastructure.

Competition is the primary factor motivating managers to cut waste, improve operational performance and allocate resources efficiently. Furthermore, since many road projects involve the utilization of public property, it must be allocated competitively in order to

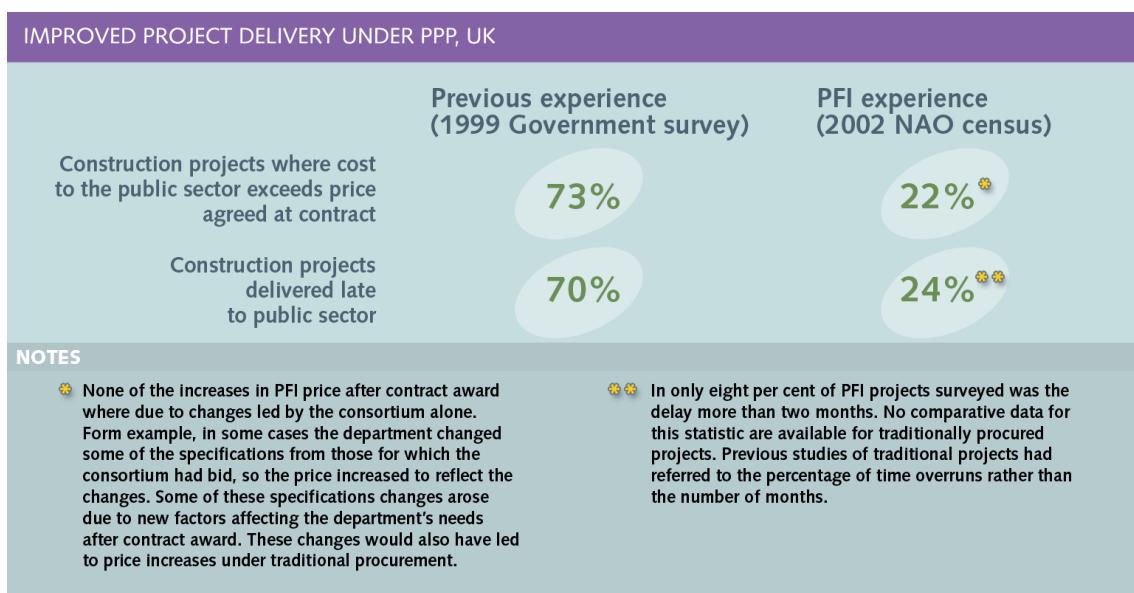
obtain its maximum value and hence protect the interests of the Community. Two main forms of competition can be used.

**Competition in the market** (Competition between private firms or transport modes in a market with no regulation on entry) is not easy to put in place in the road sector. The requirement of long-term and comprehensive contracts to maximize efficiency gains and the practical impossibility of having several firms providing the same services on the same road are conflicting with this principle. On a case to case basis, measures can however be put in place to prevent abuse of dominant position firm the private operators. Contracting simultaneously several firms to provide similar services on comparable portions of the network will provide good benchmarking references and naturally regulate the market. On toll roads, allowing alternative routes on the same corridor (roads or other transport modes) can also have stimulating effect when not jeopardizing financial viability.

**Competition for the market** (Competition between private firms for the right to provide services on a particular road or a portion of the network) is best obtained by selecting private firms through competitive bidding procedures. Under this provision, competition is concentrated in the few months of the procurement period while the benefits are expected to be brought throughout the entire operation period.

One of the tangible results of private sector efficiencies is improved projects delivery.

In the UK, which has one of the largest PPP programs worldwide, improved projects delivery was reported by the NAO (National Audit Office) in its report PFI: Construction Performance, February 2003. It may be noted that PFI is the national terminology for PPP.



*Source: National Audit Office*

Associated with this advantage is the ability of PPP to inform conventional procurement policies. Clearly articulated objectives, better appraisal techniques and the formulation of a more refined business case within the public sector can be seen as "spin-offs" from a well-developed partnership approach.

The government and controlling bodies may thus benchmark the performance and quality of services provided by the private sector. This benchmark can be used to measure the quality of services provided by government agencies.

### Encourage public sector reform

A PPP program can serve as a catalyst for public-sector reform in a number of different ways

- **Transparency and accountability.** A PPP makes the real cost of the facility clear – it cannot be cut into pieces and buried in the depths of public accounting. In particular, it shows the whole-life cost of the facility, including operation and maintenance, in a transparent way, and forces the public sector to make choices about how services are to be delivered and paid for. Public-sector accounting does not deal with the cost of public infrastructure in the integrated way. The result of transparency is accountability: as public-sector officials cannot hide the cost of choices they must justify them, however uncomfortable this is.
- **Procurement skills.** The PPP process develops procurement skills in the public sector since public-sector requirements have to be analyzed and clearly set out in advance and once decided cannot be easily changed. A major factor in the public-sector construction cost overruns is that the public authority does not specify what it wants in sufficient detail, or keeps changing its mind about what it wants during the construction phase of the project. While cost overruns are not impossible with a PPP, they are certainly less likely. Furthermore, the public authority has to think about the long-term service delivery, operation and maintenance of this facility as part of the overall cost when negotiating a PPP contract, instead of only looking at its capital cost. Lessons in “joined-up thinking” learned from PPP procurements can be applied by the public sector in a much wider context. Ideally the transparency of PPP procurement would also spill over into conventional procurement.
- **Management.** A PPP allows the public authority to act as a regulator and thus concentrate on service planning and performance monitoring instead of being involved in the day-to-day delivery of the services.
- **Contestability.** If a small number of projects are undertaken, these can serve as a benchmark against which cost and service delivery in respect of the large majority of facilities still under public sector control can be compared, leading to improvements in public-sector procurement and service delivery as well. Indeed, a small number of countries (eg Norway) have undertaken PPPs primarily to test them against public-sector procurement rather than for budgetary reasons.



Other advantages are described in: Prud'homme, “A Draft Typology of Public-Private Partnership”, extract from Financing of major infrastructure and public service projects, Perrot, 2001.

## Reduce risk for the public sector

The transfer of part of the project risks to private partners is one of the key incentives generated by public private partnerships and directly results in a better control by the public sector of the overall project cost, delivery time frame and quality of outputs.

Generally commercial risks are transferred to the private sector including lack of demand for the services or products provided by the facility, the risks related to the costs of the service or product and fluctuations in foreign currency rates or inflation.

By allocating risks to the party best able to manage and mitigate them, the public sector is reducing the likelihood of the risk occurring and the impact in the event that it does occur and is thus obtaining overall efficiencies for the project, translated by a lower overall cost over the lifetime of the project.

## Other possible advantages

- Several other possible advantages of PPP are cited below, their actual occurrence and magnitude depending on the characteristics of the particular PPP project.
- Improve level of service, especially for projects requiring road user charges (tolls or other).
- Promotion of economic and social growth by private direct investment.
- Transfer of modern technology to domestic public and private sectors.
- Rigorous project selection and avoidance of political “white elephants”.
- Promotion of environmental and social sustainability: the private sector focuses on efficient use of resources and materials over the project lifecycle.
- Extending private ownership and adopting a market-economy approach.
- Stimulating of domestic capital and debt markets.

*Source: Egypt, Ministry of Investment, Egyptian Investment Portal*



[http://www.investment.gov.eg/MOI\\_Portal/en-GB/Investment/PPP+Strategy/](http://www.investment.gov.eg/MOI_Portal/en-GB/Investment/PPP+Strategy/)



Tollways, The Learning Issue, pg 66  
<http://www.ibtta.org/Tollways/issue.cfm?ItemNumber=1176>



EIC Memorandum on Frequently Asked Questions.  
 European International Contractors, 2006



Evaluation of PPP projects financed by the EIB, Synthesis Report.  
 European Investment Bank, 2005

## Drawbacks of PPP

**Most developing countries have not developed PPP projects or programs in the highways sector and those that have are largely concentrated in middle-income countries. Despite their significant potential, initial expectations for the size and pace of PPP development have not been met and development of PPPs is being constrained in many countries.**

It is thus evident that a number of drawbacks, or difficulties, are impeding the development of PPP programs. If they are to attract the private sector into infrastructure provision and financing, governments need to fully recognize and address the drawbacks and their related constraints in the development of a PPP program.

Firstly, it is worth mentioning that a number of additional factors make highway infrastructure less amenable to PPPs than other types of infrastructure.

- For some types of infrastructure, such as local or urban roads, the physical difficulties of excluding users who do not pay, or the high transaction costs of implementing direct user charges, make it difficult to achieve a competitive market
- Where there are substantial externalities (such as road congestion and air pollution effects) that cannot easily be addressed by market-based instruments, there is greater likelihood of government intervention.
- When traffic flows are low, profitability from user charges is also likely to be low. Finally, some highway infrastructure is so intertwined with spatial planning that governments are not willing to leave it entirely to the private sector.

In order to secure the vital commitment of the public sector, users and of the population at large, the drawbacks of PPP need to be clearly understood and analyzed within the context of a given PPP program or project. The public authority must then define a communication strategy to ensure the potential drawbacks are not translated into public perception.

### Complexity

PPPs are complex structures and complexity normally means higher costs. The number of players involved in the implementation of PPP (Module 1 -> Key Players and Roles) is indicative of the complexity and scale of the required level of analysis in order to prepare and manage the various components.

This complexity requires commitment on behalf of the public authorities to implement processes outside of their normal field of competence, associated capacity building measures within the public sector as well as an increased use of external advisors and expertise.

## Long-term commitment

PPPs represent a long-term commitment between the public and private sector. Moreover, this is one of the key drivers of private sector efficiencies. However, it can present constraints for the public authority which need to be considered carefully.

- **Political commitment.** Political mandates are typically far shorter than the duration of a PPP project or of the period required to assess long-term benefits to the road sector.
- **Flexibility.** The commitment of the public authority may extend for 20-30 years. A PPP contract is of a type known as an “incomplete contract”, i.e. the contract cannot provide for all possible eventualities in the future. The longer and more complex the contract the more this is the case and therefore the more it is impossible for the public authority to abdicate or transfer responsibility for dealing with unforeseen circumstances.
- **Project design.** The concessionaire shall design the highway to a given standard of service. The public authority will not normally be able to impose a given method, technique or supplier which would comprise the concessionaire’s ability to assume life-cycle responsibility for the project.
- **Planning constraints.** PPPs require a stable, long-term planning horizon; this is generally the case for the highway sector but it may lead to conflicts. For example, non-compete provisions of a toll-road concession may prevent the public authority from undertaking other road improvements. Conversely, those projects where the public authority cannot clearly specify and stick to its requirements or where technology is changing rapidly, are not suitable for PPPs. This was the reason *inter alia* why the UK abandoned the use of PPPs for IT projects.

The potential cost to the public authority by the loss of flexibility are the cost of making major changes to the facility when there is effectively a monopoly supplier in place and the extra financial costs of terminating the PPP Contract if the facility is no longer required.

However, it must be remembered that when the public authority builds a highway, this in itself represents a long-term commitment; it cannot be knocked down or moved without considerable loss. PPP arrangements make this issue transparent.

## Requirement for PPP Policy Framework and associated reforms

Implementation of PPP projects require the prior establishment of a PPP Policy Framework (Module 3 -> PPP Policy Framework). Several structural measures are likely to be needed to establish an enabling environment which may attract interest from the private sector for provision and funding of the highway infrastructure.

This initiation process will take time and there is a required inertia from the public sector to move the process forward, in spite of expected opposition from some political and social sectors. The key drivers shall be the ability to source additional funding for key infrastructure and the expected value for money gains from the private sector. The public commitment shall need to maintain the costs of the initiation process to implement PPP

framework and strategy in the face of competition with other more immediate needs on the public budget, notably for highway maintenance and investment.

In addition, PPP policy may accompany a wider restructuring of the road agency with a reduction in the number of civil servants and / or transfer to the private sector. If not carefully planned and conducted in conjunction with social measures, these programs can lead to de-motivation and opposition from road agency personnel.

Governments should seek the support of international institutions and funding agencies to support this process.

### **Transaction cost**

PPP procurement costs can reach 5-10% of the capital cost for a reasonably large project and do not reduce pro rata for smaller projects. It follows from this that PPPs are not cost-effective for very small projects, unless they can be packaged together (in UK, projects of less than USD 40 million investment value are no longer considered for PPP). Equally, it is questionable whether PPPs are suitable for very large projects where the addition of extra complexity to the structure may make the project collapse under the weight of its own complications.

These contractual costs are not absent from conventional procurement but the agreements are less complex to draw up and are certainly less onerous to implement and monitor.

### **Dominance of foreign players in PPP market**

PPP consortia are generally led by experienced international players with the required expertise and financial stability to assume the financing and risk of the PPP investment. This would be even more the case in developing countries. The predominant role of large foreign contractors may both have political implications and may directly affect the local contracting industry by restricting the implication of domestic players. However, it is evident that PPP developers shall need to rely on a wide array of domestic suppliers, contractors and consultants under sub-contracting arrangements.

TOP TRANSPORTATION DEVELOPERS 2006		
Company	Concessions / PPP Projects	
	Const. Operat-ing*	Active proposals
MIG / Macquarie Bank (Australia)	51	14
ACS Dragados / Iridium (Spain)	45	22
Ferrovial / Cintra (Spain)	44	34
Sacyr Vallehermoso (Spain)	29	19
FCC (Spain)	27	20
Albertis / La Caixa (Spain)	24	2
Vinci / Cofiroute (France)	21	26
Hochtief (Germany)	19	16
OHL (Spain)	17	10
Cheung Kong Infrastructure	17	4
Laing / Equion (UK)	15	2
Acciona / Necso (Spain)	14	18
Alstom (France)	13	6
Egis Projects (France)	13	10
Andrade Gutierrez (Brazil)	10	6
AMEC (UK)	9	6
Bouygues (France)	8	22
Bilfinger Berger (Germany)	8	9
Siemens (Germany)	8	8
Caja Madrid (Spain)	8	0
Bechtel (US)	7	5
Balfour Beatty (UK)	7	5
KBR Brown & Root (US)	7	3
BRISA (Portugal)	7	3
Skanska (Sweden)	6	10
Impregilo (Italy)	6	4
New World Infrastructure (China)	6	2
Alfred McAlpine (UK)	6	1
Fluor (US)	5	17
Bombardier (Canada)	5	6
Carillion (UK)	5	2
AMEY (UK)	5	5
Strabag (Germany)	5	14
Transurban (Australia)	4	7
ABB (Switzerland)	4	4

\* road, bridge, tunnel, rail, port, airport concessions over 150m capital put under cost./oper. since 1985.

*Source: Public Works Financing, October 2006*

### Increase in construction costs due to limited domestic market capacity

Large increase in demand for construction works on PPPs could cause problems in capacity in the domestic construction industry and lead to an increase in prices, thus offsetting other benefits which might have been derived from the PPP route. Significant increases in construction costs have been observed for schools and hospitals in UK and roads in Portugal, all sectors where there have been large PPP programs.

Similarly, the size and complexity of PPP projects discourage smaller contractors from bidding, so reducing competition, which may also affect the final cost.

However, this issue is more related to the overall volume of construction work in highways and other civil and building fields, rather than the use of the PPP route per se.

### Introduction of user charges

Introduction or restructuring of user charges is sensitive. If not well designed and justified to road users and other stakeholders, it could result in loss of political support, complaints or even legal challenges. Tolling has a particular adverse psychological impact on road users.

The government needs to carefully assess the introduction of extension of its tolling strategy and determine acceptable toll levels.

### Private profit at the public's expense

This is an often-heard criticism of PPP programs as it can prove difficult to counter in public perception. It is based on the premise that PPPs give private sector investors the opportunity to make profits by providing services which could have been provided by the public sector more cost-effectively. It may be reinforced in the event of government subsidies and the notion that taxpayer's money is being used to directly fund the profit margins of private investors.

However, the many individual components of a PPP structure, such as the construction of the facility, would have been provided by the private sector anyway. The marginal extra profit which the private sector makes from investing in a PPP project, as compared to the profits on conventional procurement, is probably not enough to sustain this argument.

### Problem with financier-led PPP

A financial institution may devote substantial resources to putting together a consortium to make a bid, only to 'unbundle' the components as soon as the bid is successful. In these circumstances, it may be better for the government to contract directly with the private parties that ultimately bear the risk rather than contracting through a financial intermediary.

The government thus needs to be attentive to the composition of the private consortium and to the specific role of each player within the PPP contract to ensure long-term value for money.

### Frequency of contract renegotiation

The advantage of PPP contracts for the public sector may be reduced as a result of renegotiation, which is becoming a more common feature of public-private partnerships, notably in South America. In those circumstances, the private party can bargain favorable contract terms that would have never been obtained under competitive conditions.

The public sector needs to be sure to protect the public interest by the same rigorous approach to renegotiation as that applied for the establishment and negotiation of the initial contract - Module 5 -> Renegotiations and Amendments to PPP Contracts.

# Overview of PPP experience

## Historical context

**The use of private innovation and finance in public infrastructure is not a new concept but rather an old tradition experiencing a new revival.**

### Background to PPP

The beginnings of partnership between private and public sectors can be traced as far back as the Roman Empire two thousand years ago in Europe. A network of postal stations was developed to accompany the vast expansion of the highway system under the Roman legions. The postal stations, which were actually small communities centered around large stables, warehouses, workshops, hotels and military barracks, were constructed and managed by a private partner for a five year period, sometimes including maintenance of associated highway, under a contract referred to as "manceps" and awarded by municipalities under competitive bidding. The Romans also notably conceded the construction and operation of ports and inland harbors.

However, this procedure disappeared with the fall of the Roman Empire and reappeared only during the Middle Ages for the construction of new fortified towns and the occupation of new lands in the south western region of France during the 12<sup>th</sup> and 13<sup>th</sup> centuries. Occupancy contracts for fortified towns concede the whole villages to their occupants under collective emphyteutic contracts which compelled the occupants to improve their village. Moreover, the practice of concessions on activities under monopoly in the community (mill, press, baker, bridge etc) as well as their associated tolls, generally on bridges and highways, in which the concessionaire paid a proportion of his income to the community to finance new works, was well-established under medieval custom.

During the 16<sup>th</sup> and 17<sup>th</sup> centuries, European sovereigns, and particularly in France, began much more expansive public works concession programs in canal construction, road paving (actual road concessions - see note<sup>1</sup>), waste collection, public lighting, mail distribution and public transportation.

The industrialization in Europe of the 19<sup>th</sup> century brought rapid urbanization and expansion of public networks in transport (railways, tramways, metropolitan), water supply and sewerage and energy. This expansion, achieved largely by private entrepreneurs,

<sup>1</sup> In 1669, France adopted new public works contracts including a mandatory eight to ten-year maintenance period for new constructions, notably for paving of the major highway network. These contracts were the precursor to the modern concession contracts.

marked the golden age of concessions in Europe. The creation of railways took place under concessions in all European countries. In the North and the South, liberal ideas spawned by the French revolution and particularly the principle of free enterprise played an influential role in the systematic choice of concession. This period was one of weak administrative structures in all fields of delegated public action.

The 20<sup>th</sup> century European wars reversed the trend. The role of the State was increased by wars, both in preparing for them as well as in dealing with their consequences. The disruption of countries, economies and long-term contracts was strongly felt in all European countries. Rare before 1914, inflation and its effect upon contracts became clear during the Great Depression of 1929. The ensuing creation of the welfare state increased the role and resources of post-war states substantially.

As a result of economic turmoil and contractual standby or damage during war years, concessions in many fields were cancelled and rarely reestablished. The notion of state-owned companies was born to avoid the financial vulnerability of traditionally very long-term contracts, a movement which grew throughout Europe during the post-war periods, and consequently the size of the civil service sector increased considerably. In addition, with influence from Communist ideology, collectivism was considered as a viable and desirable alternative to free market principles.

Thus, after World War I, new public infrastructure was mainly designed, constructed and financed from public funds and prior to 1982 there was very limited private financing of transport infrastructure in developing or transition countries.

One major exception in Europe was the tolled motorway construction programs in France and Spain from the 1960s financed by private consortia, mainly contractors and banks. However, the economic shocks from the oil crises of the 1970s resulted in financial difficulty for many of the concession companies with many being subsequently nationalized - in Spain five out of twelve companies and in France, three out of four companies. (Module 6 -> Case Study -> France)

In the USA, PPPs have played a much less prominent role in the development of transport infrastructure. Although private investors built the canals and railroads that transformed the country in the 19<sup>th</sup> century, the modern highways that were built in the 1930s and 1940s were built by public companies held by state and local governments. Tolls were preferred in the eastern part of the country while western states used revenues from a dedicated gasoline tax to finance untolled "freeways". From the 1950s, the creation of the national Highway Trust Fund, funded by a national fuel tax of four cents a gallon, allowed the construction of the interstate highways system.

Throughout the industrialized and developing world, there has been a renewed move to liberalization and privatization of infrastructure activities from the 1980s and increasing dramatically into the 1990s. The first decade of the years 2000 has seen some consolidation of certain PPP programs, stagnation of others and expansion in new markets, notably in Asia.

Several developing countries have participated in this movement, pioneering improved forms of PPP. Market leaders among emerging economies such as Chile, Brazil, China, Hungary and, recently, India have gone further in introducing the private sector

in infrastructure development and maintenance than many industrial countries. Simultaneously, initiatives aiming at outsourcing maintenance activities to private firms are being implemented in Africa, Asia and to a larger extent in Latin America.



2000 years of History of Public-Private Partnerships, Xavier Bezançon.  
Presse des Ponts et Chaussées. 2004 (in French)



Public-Private Partnerships and the Development of Transport Infrastructure:  
Trends on Both Sides of the Atlantic, PB Consult and FHA, 2006

## Ongoing PPP Programs Worldwide

**A number of advanced OECD countries now have well-established PPP programs.**

The United Kingdom's Private Finance Initiative (PFI), which began in 1992, is currently responsible for about 14 percent of public investment, with projects in most key infrastructure areas. Other countries with significant PPP programs include Australia (and in particular the state of Victoria) and Ireland, while the United States has considerable experience with leasing (which shares characteristics with PPPs). Many continental Western European countries now have a number of PPP projects, although their share in total public investment is quite small; these include France, Italy and Spain, who have had a long-standing tradition of concessions for motorway development, and others such as Finland, Germany, Greece, the Netherlands and Portugal. Reflecting a need for infrastructure investment on a large scale, but weak fiscal positions, a number of countries in Central and Eastern Europe, including the Czech Republic, Hungary, and Poland, have embarked on PPPs. There are also fledgling PPP programs in Canada and Japan. PPPs in most of these countries are dominated by road projects. In addition, PPP-type arrangements are being used to develop a trans-European road network.

In Latin America, Chile, Colombia, and Mexico have used PPPs to promote private sector participation in public investment projects. Chile has a well-established PPP program that has been used for the development of roads, airports, prisons, and irrigation. In Colombia, PPPs have been used since the early 1990s, but early projects were not well designed. A relaunched PPP program emphasizes road projects. In Mexico, PPPs were first used in the 1980s to finance roads, but unsuccessfully. Since the mid-1990s, Mexico has used PPPs with greater success for a growing number of public investment projects in the energy sector, and there are plans to extend the use of PPPs to the provision of other services. Some other countries, and most notably Brazil, are planning significant use of PPPs. As in Europe, a regional approach to infrastructure development in Latin America that would involve PPP-type arrangements is under consideration.

In Asia, the use of PPPs is continuing to develop with a well established program in South Korea, an extensive investment program in China, a rapidly expanding program in

India and other programs, although with varying degrees of implementation and success, in Indonesia, the Philippines and Singapore. In Africa, South Africa is a clear regional leader, and has embarked upon or is developing PPPs in a number of sectors. Few other African countries have very much experience with PPPs or other forms of private sector involvement, other than in the power and water sectors (e.g., in Cote d'Ivoire and Senegal).

The Toolkit presents a selection of country and project case studies in Module 6 -> Case Studies. These case studies are intended to provide useful international examples for the preparation of PPP strategy and project options.

They present both successful examples of best practice and examples of projects which have faced difficulties and, in some cases, collapse as a result of insurmountable problems.

The case studies are presented as either:

- Country case studies which present the overall strategy and development of PPP in the highway sector. Presented countries are France, India, Korea, Brazil, Indonesia, USA
- Project case studies which present a specific project, its characteristics and development which determined its perceived success or failure. Presented projects are in Croatia, Hungary, Chile, South Africa, Serbia, UK, Zambia

Further information on experience and processes in performance-based maintenance are presented in:



Resource Guide: Performance-Based Contracting for Preservation and Improvement of Road Assets,  
World Bank <http://www.worldbank.org/transport/roads/resource-guide/>

# Data bases

## PPI Data Base

### Introduction

The World Bank/PPIAF PPI data base provides rich and detailed information concerning the development of private sector participation in infrastructure financing in developing countries (low or middle-income countries).

The Private Participation in Infrastructure (PPI) project data base tracks investments (physical assets and payments to government) in infrastructure projects with at least 25% private participation which achieved financial closure in 1984 to 2006 in energy (electricity and natural gas transmission and distribution), telecommunications, transport, and water. In the case of highways, the database covers only O&M and BOT-type concessions, including mainly privately-managed toll roads. Management and maintenance contracts, such as Performance Based Contracts, which do not include operational risk by the private party, are not included in the database.

Projects are defined in the database as management or lease contracts, concessions, greenfield projects, and divestitures, as defined below.

- **Operation and management contract.** A private entity takes over the management of a state-owned enterprise for a given period. This category includes management contracts and leases.
- **Operation and management contract with major capital expenditure.** A private entity takes over the management of a state-owned enterprise for a given period during which it also assumes significant investment risk. This category includes concession-type contracts such as build-transfer-operate, build-lease-operate, and build-rehabilitate-operate-transfer contracts as applied to existing facilities.
- **Greenfield project.** A private entity or a public-private joint venture builds and operates a new facility. This category includes build-own-transfer and build-own-operate contracts as well as merchant power plants.
- **Divestiture.** A private consortium buys an equity stake in a state-owned enterprise. The private stake may or may not imply private management of the company.

The PPI database does present an optimistic picture, because it represents commitments entered into by the project entity at the beginning of the project (at contract signature or financial closure), not the planned or executed annual investments, it covers total project investments including possible shares attributable to the public party and maintains information on cancelled projects until such projects are re-awarded. However, it excludes follow on and locally financed activities, some of which are funded by the private sector.

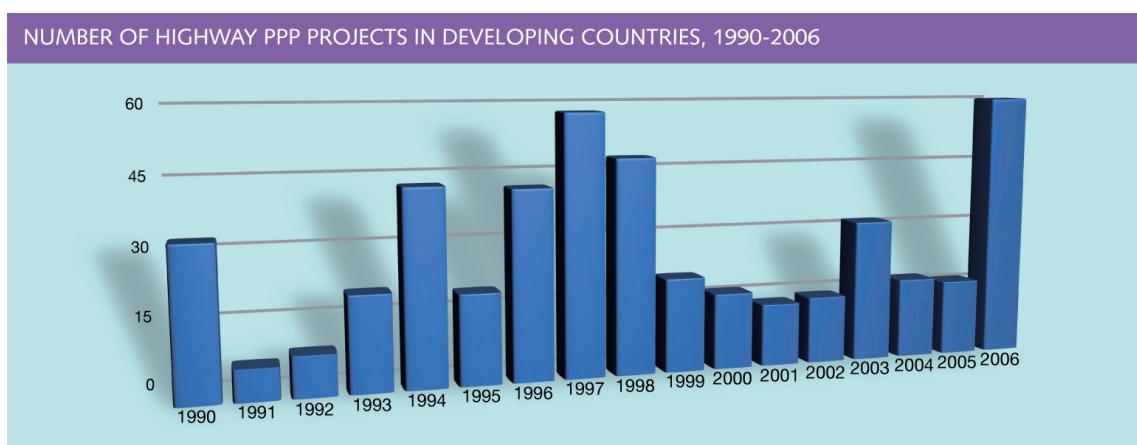
Moreover, given data characteristics, the database does not provide an exhaustive listing of each and every infrastructure project with private participation in every developing country or a precise estimate of investments. It is very likely that some projects have been missed and investment figures are rough estimates. Rather, the objective is to provide access to detailed and aggregated data that can serve as the basis for estimates and analysis of private participation in infrastructure and its trends by country, region, and sector.

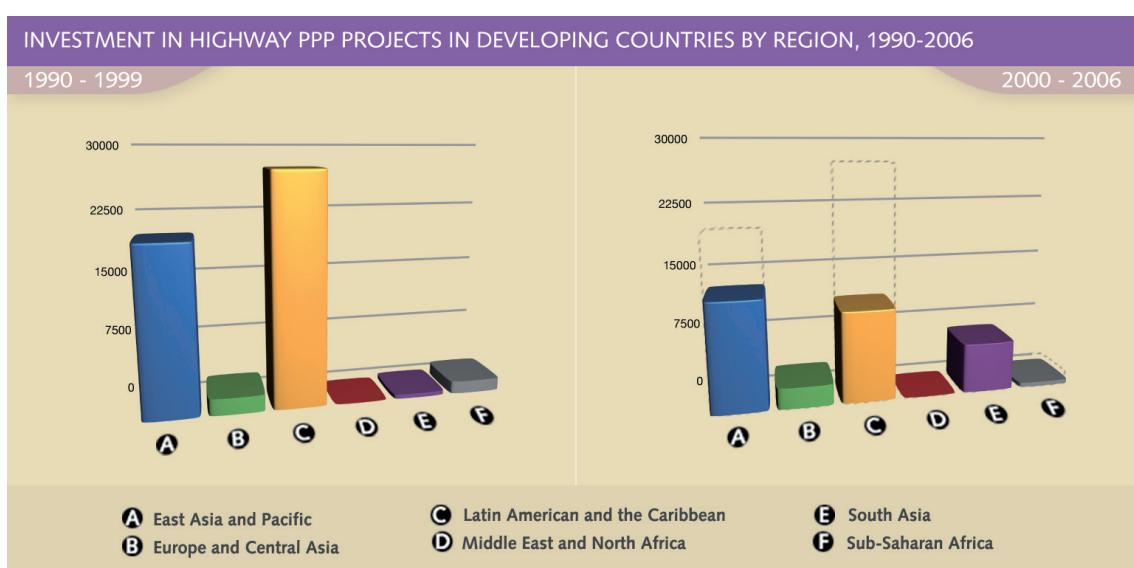
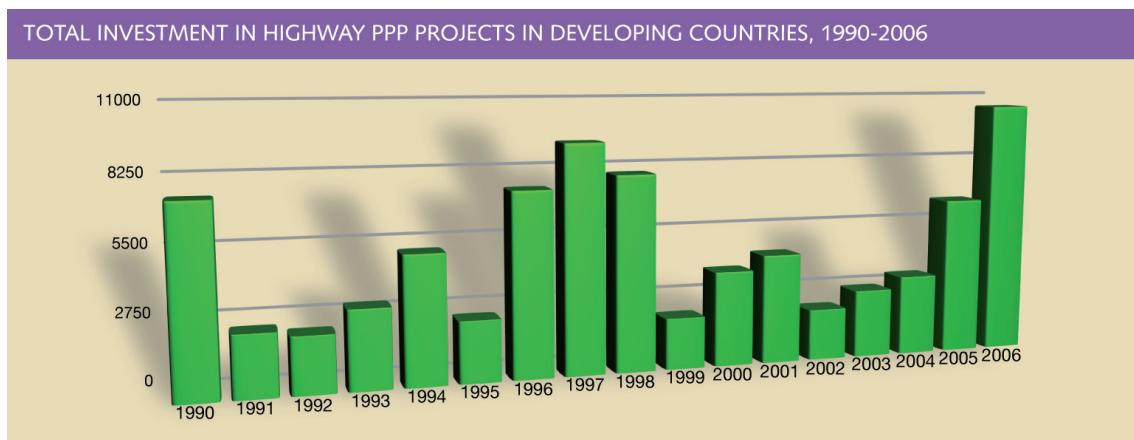
## Results

The period since 1990 has seen a large volatility in PPP investments in the highway sector in developing countries, with a peak in 1997 of 58 projects with a total investment of USD 9.7 billion. However, two years later in 1999, investment commitments were at their lowest at USD 2.2 billion. This sharp decline of PPP projects at the end of the 1990s was largely the result of the economic crisis that affected many developing countries, particularly in Asia and which significantly affected foreign investments and highway PPP investments in particular.

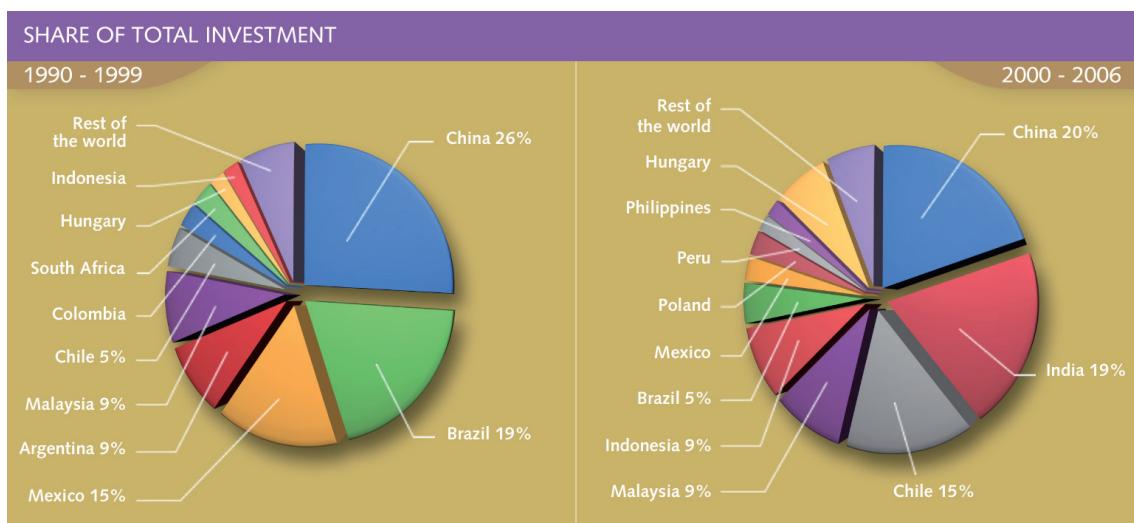
The Latin America and Caribbean region was predominant in PPP investment in the 1990s, as a result of extensive toll road programs.

Since the year 2000, private investment has been marked by growth of investment in East Asia and Pacific, notably through continued major investment in the toll road network in China, and, more recently, the emergence of South Asia, as a huge recent increase in PPP investment in national highways in India (in 2006, India was the greatest receiver of private investment with USD 4.0 billion or 40% of the total investment worldwide for the year).





However, this investment in PPP has been predominantly concentrated in only a few countries. Although a total of 32 countries have received private infrastructure investments since 1990, in both periods presented in the figures below 50% of investment was concentrated in only 3 countries and 90% in only 10 countries. As a result, only 10% of total investment in each period was shared between the remaining 11-14 countries. Moreover, a further 117 developing countries did not receive any private investment at all in the highways sector (based on a total of 149 countries classified by the World Bank as low, lower-middle and upper-middle-income countries).

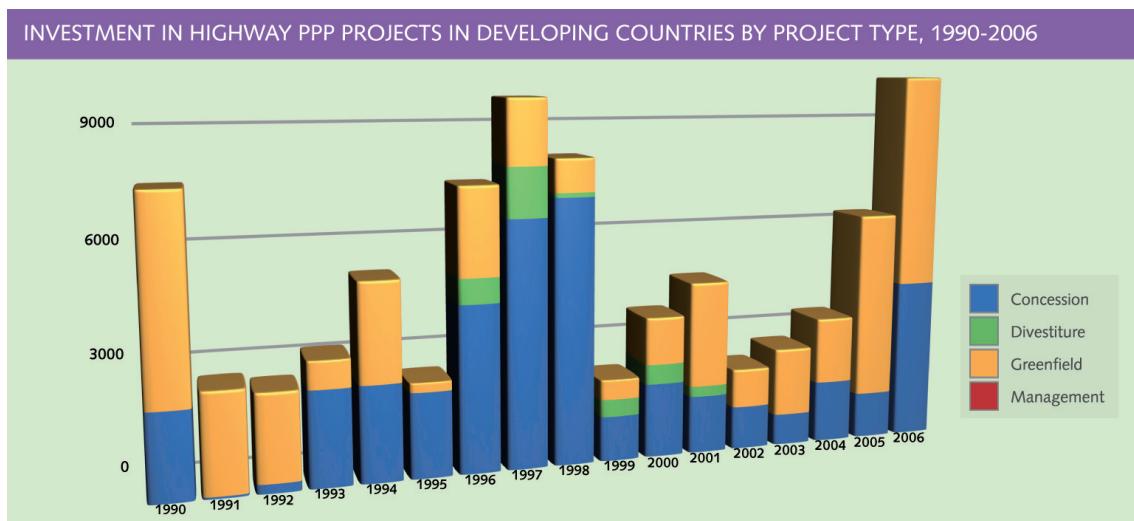


Also, since the year 2000, there has been a marked increase in investments towards low-income and lower-middle-income countries. Whilst in the 1990s, 2/3<sup>rd</sup>s of investment was concentrated in upper-middle-income countries (indeed, outside of China, only 9% of investment was in low or lower-middle-income countries), since the year 2000, India has emerged as the first low-income country to receive major flows of private investment. This has resulted in an increase of share of low-income countries from 2% to 19% of total investment. Although India undoubtedly disposes of more advanced financial and technical capacity to support PPP programs than most low-income countries, the rapid growth in private investment in its highway infrastructure may serve to widen the potential of PPP projects to lower income countries.

The average size of PPP projects shows a tendency for a running average at around USD 150 million per project, with an annual range of USD 100-400 million, resulting from the absence or not of mega-projects in a given year.



Analysis of investment by type illustrates an interesting progression of greenfield projects, referred to in the Toolkit as BOT-type concessions, in the past few years, as opposed to concession projects as per the PPI data base definition, which are brownfield projects, or lease-type concessions, as referred to in the Toolkit.



## Worldwide

### International Major Projects Survey, PWF

The International Major Projects Survey of Public Works Financing, PWF (USA) was started in 1991 to monitor the development of PPP projects worldwide in the transportation and water sectors. The cumulative database now includes 2,670 projects worth USD 1,146 billion that have been proposed, put under construction, or completed for governments in 123 countries. Of that total, PWF records 1,340 projects worth USD 575 billion as being placed under construction or completed since 1985.

The database presents mainly publicly sanctioned infrastructure improvements, but also includes privately developed rehabilitations, upgrades and expansions of existing facilities. Also represented, but to a lesser extent, are new “greenfield” projects requiring site selection, environmental reviews, land acquisition and other pre-construction activities and sales of government assets to private investors.



Paid access to database on <http://www.pwfinace.net/>

### Global project finance market, Infrastructure Journal R&A

Infrastructure Journal R&A, a unit of Infrastructure Journal that conducts independent and in-depth reviews of global project finance market activity, has a global project finance database of more than 2,000 infrastructure projects worldwide comprising:

- Projects that have reached financial close since January 1, 2005 and;
- Projects in the pipeline

Financial close deals are included in the database only if a significant part of the project is funded under a limited recourse or non-recourse project finance structure. The database also contains non-project finance transactions, for example acquisition financing of existing infrastructure assets, to provide users with a sample of these types of transactions that have been under the spotlight in recent years.

Deals in the pipeline are projects in progress and are tracked from the moment they are announced until a bank(s) is mandated by the borrower to arrange project finance.



Paid access to database on <http://www.ijonline.com/>

### UK Project Database

Partnerships UK (PUK) is an example of a national PPP database. It maintains a project database of projects in the PFI program. Its objective is to provide an extensive and readily available evidence base for all PPP projects within the UK.

The database holds details of 865 projects in all sectors of the PFI program including highways but mainly public buildings, such as hospitals and schools. These projects have all achieved financial close and are primarily PFI schemes.

It is planned to expand the database to include some operational data in areas such as benchmarking and insurance.

## Current trends

**As indicated in previous sections, the PPP market worldwide continues to develop. Much of this development is driven by continued growth in infrastructure funding needs, whilst some is spurred by financial and technological developments, allowing the consideration of PPP for an ever-increasing range of projects.**

### Financing

Financing initiatives allow project financing to be more accessible to PPP opportunities and offer increased opportunities, particularly for PPP projects in developing countries.

The development of capital markets in developing markets is facilitating the sourcing of the required debt and equity for PPP projects. This is particularly important given the local currency-based revenues of a PPP project, either from toll revenue or other user charges or from the national budget. The ability to raise finance on local currency markets greatly alleviates the currency risk of a PPP project.

Specialized infrastructure funds are attracting money from long-term investors, such as pension funds, banks, foundations due to their stable cash-flow businesses with moderate risk. They inject equity or mezzanine finance in PPP projects. Australia has more than 23 infrastructure funds currently listed traded with a market capitalization of USD 43 billion.

### Technology

Recent years have seen an expansion in the electronic tolling technology including the introduction of technology on operational PPP schemes.

The use of free-flow tolling equipment has allowed PPP schemes to be implemented in complex urban environments where the implementation of toll booths was both undesirable for reasons of journey time and convenience and very difficult and costly due to land take.

Current technology is available to pass toll barriers at slow speed (Module 6 -> Case Studies -> M6 Toll, UK) or else at normal speed without the need for toll barriers, but rather overhead gantries (Module 6 -> Case Studies -> Chile), Melbourne City Link, Australia and Dulles Greenway, Virginia, USA. This technology has been applied in urban and semi-urban environments where constraints regarding the complexity of urban traffic movements (with resulting difficulty in siting major toll booths and inconvenience of queuing at toll booths on the work-home journey cycle) and the difficulty of land take for major toll booths have encouraged such high-technology solutions.

Congestion tolling, or urban tolls, has also been introduced in some major cities. However, such tolling schemes cannot be assimilated to PPP schemes per se as their application is intended to reduce congestion in city centers and their revenues are received by municipalities to fund improvements in public services.



Worldwide trends in private participation in roads. PPIAF Gridlines, 2008

# Application of PPP

In the early 1990s there were expectations that the private sector would play a substantially more significant role in the provision of transport infrastructure and services. Some of these expectations, especially regarding infrastructure, were impractical, and the authors of Sustainable Transport (World Bank 1996), while supporting an expanded role for the private sector, were cautious about the extent to which the private sector could increase its role.



A Decade of Action in Transport,  
World Bank, 2005 (pg 76)

The key objective of an infrastructure program is to meet the public's social and economic requirements in a cost effective manner.

PPP have a place in fulfilling this objective by providing for an in-built incentive system which injects the discipline and motivation of the marketplace into infrastructure investment policies.

However, public-private partnerships are not, and probably never will be, the dominant method of infrastructure acquisition. They are too complex, and costly, and for many small projects constitute "using a sledgehammer to crack a nut". In some cases, they may be beyond the capacity of the public sector agency to implement and manage. For other projects, the tight specification of the outputs required may be difficult to detail for an extended period.

Moreover, lower income developing countries will need continued application before PPP programs may be initiated and a gradual step-by-step process applied to increase their share of the total investment portfolio of a given public highway network.

## Where is PPP appropriate?

There is wide acceptance that the role of PPP is to complement rather than replace conventional public sector procurement. PPP cannot pretend to represent the best solution for numerous low volume roads and local contracts implemented at local and regional level in developing and even industrialized countries. To attempt to do so would be counter-productive to efforts to develop PPP on a national scale.

It is widely recognized that a pragmatic approach should be adopted to PPP as opposed to an approach based on political dogma and the absolute virtues of the private sector. It is thus advisable to target those specific projects where PPP could offer significant value for money and also mobilize additional resources unavailable to the public sector.

Conventional procurement should be preferred if the quality of the infrastructure can be clearly specified, whereas the quality of the service cannot. In contrast, PPP is better if the quality of the service can be well specified in the initial contract (or more specifically, there are good performance indicators that can be used to reward or penalize the service provider), whereas the quality of the infrastructure cannot (Hart, 2003)

PPP seem likely to be appropriate if:

- Service outcomes can be clearly specified and measured
- There exists the potential, and the incentives to introduce, design innovations and operational changes that can raise efficiency
- Payment mechanisms are devised that give the operators the motivation to maintain service quality
- Value for money is able to be demonstrated, after allowing for costs of project development and costs of monitoring the contract
- An integrated service can be provided with close working relationships and good communication between service providers
- There are transparent accountability procedures and a due regard for the public interest

## PPP and conventional procurement

It is generally recognized that the proportion of investment procured through PPP within mature PPP markets is around 15% of total investment. As a result, 85% of public sector procurement would continue to be procured through conventional methods.

If we look at road funding, the picture is similar. Worldwide, government budgets currently finance 95% of investment in the road network, while less than 5% is financed directly through tolls (ie direct charges by the user). In the USA, the picture is similar with tolls currently providing only 8% of all U.S. highway revenue.

Paradoxically, if we consider funding collected by governments from road users, in the form of road user taxes (principally fuel taxes), governments are receiving from the road sector much more than they are giving back. We can estimate that governments in developing countries, as in the European Union, siphon off about 2/3 of road user taxes to the general budget and re-invest only a 1/3 in better roads. However, the scale and ease in mobilizing fuel taxes, current environmental concerns and green-house gas limitations and political pressures on the use of public funds make any increase in the allocation to highway budgets very unlikely.

PFI is intended to continue playing a small but important role in the overall objective of delivering modernized public services. It will continue to be used only where it can demonstrate better value for money [than other forms of public procurement] and is likely to continue to comprise around 10-15 per cent of total investment in public services. The vast majority of investment in the UK's public services shall continue to be conventionally procured.

As a result of constraints to increased PPP investment and the required reforms and policy directives, it is unlikely that this proportion would increase in the short-term. Traditional public sector contracts will remain the predominant source of investment in developed and developing countries alike. It is therefore important to target the use of PPP procurement to those applications where it can be used most effectively.



PFI: Strengthening long-term partnerships, HM Treasury, UK, 2006.

This result is also being observed in developing countries as a result of constraints on the development of PPP.

At the broadest level, the review finds that the strategy suggested in the WDR [World Development Report, World Bank, 1994] has stood the test of time in OECD countries. In developing countries there is also evidence that greater involvement of the private sector, especially in service provision, usually leads to a significant improvement in transport sector performance. Nevertheless, for the foreseeable future, the public sector in developing countries will remain the principal provider of infrastructure because of investment risk factors and public ownership issues.



A Decade of Action in Transport, World Bank 2005 (pg 76)

China, with the most extensive toll network in the world (20,000 km) and the largest PPP market in developing countries until 2006 applies PPP procurement for an estimated 6-9% of its total highway investments (estimate from the late 1990s, World Bank, A Decade of Action in Transport; 2007).

In Africa, the picture is similar. PPP investments are estimated to have provided 10-15% of total infrastructure investment over the past twenty years in African countries (Estache and Yepes, 2004). Moreover, whilst significant increased investments are planned in the highways sector, the emphasis on private sector funding in the 1980s and 1990s has been criticized as being a policy mistake.

In Africa, a more pragmatic approach to PPP is being adopted by a better orientation of the nature and scale of its contribution to infrastructure development.

Despite its clear benefits, African governments and development partners sharply reduced, over the 1990s, the share of resources allocated to infrastructure – reflecting its lower priority in policy discussions. In retrospect, this was a serious policy mistake, driven by the international community that undermined growth prospects and generated a substantial backlog of investment – a backlog that will take strong action, over an extended period, to overcome.

This was a policy mistake founded in a new dogma of the 1980s and 1990s asserting that infrastructure would now be financed by the private sector. Throughout the developing world, and particularly in Africa, the private sector is unlikely to finance more than a quarter of the major infrastructure investment needs. Between 1990 and 2002, relative to total infrastructure investment in the order of USD 150 billion, private commitments for infrastructure in sub-Saharan Africa totalled only USD 27.8 billion, and two-thirds of this amount (USD 18.5 billion) was for telecommunications.

**Recommendation:** Africa needs an additional USD 20 billion a year investment in infrastructure. This is equivalent to at least a doubling of expenditure on infrastructure. It is not our view that an increase of USD 20 billion could be easily absorbed effectively over the next five years. The priority is to deliver the extra USD 10 billion a year – using existing institutions while improving local capacities to manage increasing resources – and then review the potential for further expansion.

The necessary expansion is on a scale that means that in the short-term only a small fraction could be funded by African public finances. Experience has told us that only a small fraction will come from the large private sector operators unless donor countries are willing to support them through guarantees and other insurance-type schemes. Over time, and on the basis of economic growth and with improvements to investment climates, financing could increasingly come from domestic public finances, the private sector and user charges (where appropriate and equitable).

The funding should also support a pragmatic approach to private sector participation that recognises the roles where the private sector can add most value – most often as a performance-based contractor in building, delivery and maintenance. It should also build on existing initiatives to attract much-needed private sector investment, such as the Public Private Infrastructure Advisory Facility (PPIAF), the Municipal Infrastructure Investment Unit (MIIU), the work of the International Finance Corporation, and the programs of the Private Infrastructure Development Group (PIDG). These work with national and municipal governments to improve the investment climate, develop commercially viable projects, and provide funding including in the form of long-term debt finance and guarantees to cover the risks of local currency financing.

The importance of developing and promoting public-private partnerships for infrastructure was emphasised in the Commission's business consultations. The need for governments to ensure that the regulatory environment is in place to facilitate private sector investment in ICT was also highlighted. So too was the importance of a co-ordinated, continent-wide approach to ICT that brings together donors, governments and the private sector to enhance Africa's connectivity. Innovative private sector approaches to meeting the infrastructure needs of poor people – such as rural electrification – are one focus of the Growing Sustainable Business Initiative. Involving the private sector in setting infrastructure priorities is a focus of the Investment Climate Facility.

A shortage in the supply of bankable projects is a critical constraint in attracting private investment. The fund should support the expansion of the NEPAD Infrastructure Project Preparation Facility, hosted and managed by the ADB and other such initiatives. Of course this is an issue that faces public projects too: building public sector capacity is also key.



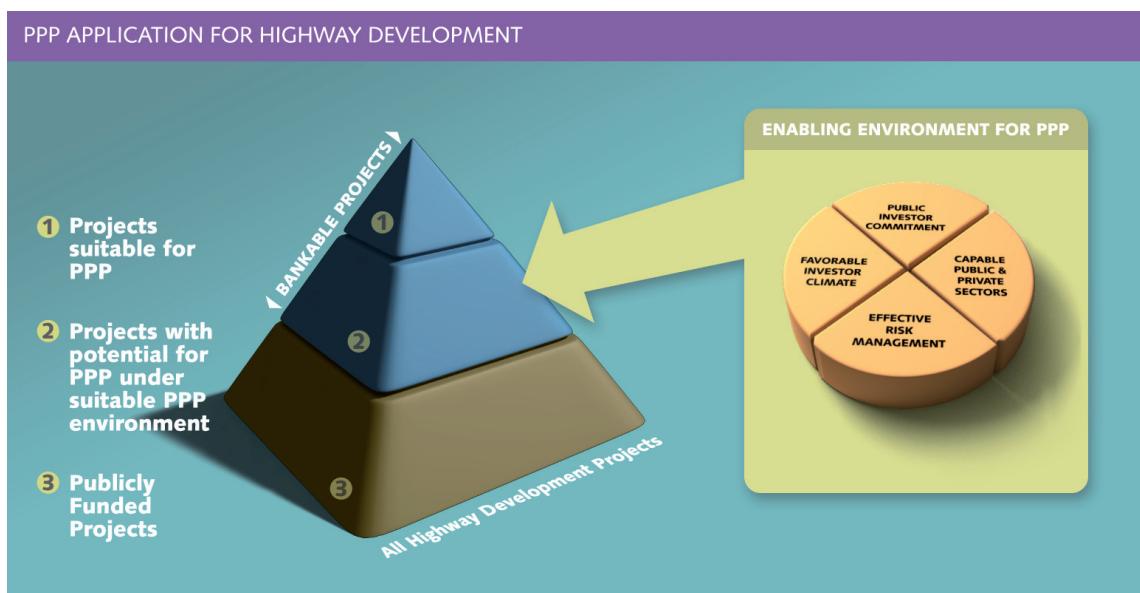
Our Common Interest, Report of the Commission for Africa, 2005 (Chapter 9: Going for Growth)

Some countries however suggest a higher rate of PPP investments, notably India and Chile, which may suggest that a higher role for PPP is possible to fund major highway investment programs subject to a suitable enabling environment.

The application of PPP in highway development is represented in the figure below. At the tip of the pyramid, only a small number of highway projects can generate enough secure income to be self-financing and feasible under a PPP option. These are considered as bankable projects for PPP. However, the vast majority could not pay for themselves and could only be built under conventional public procurement.

However, the subsequent band of projects could also attract private investment provided the public sector can establish a suitable enabling environment for PPP. If the government wishes to capitalize on the dynamism of the private sector in meeting the needs of its highway sector, it is the public sector's responsibility to make projects bankable. It may thus lower the bar to the PPP solution.

PPP programs should be seen as complementing and not replacing conventional procurement methods.



# Key players and roles

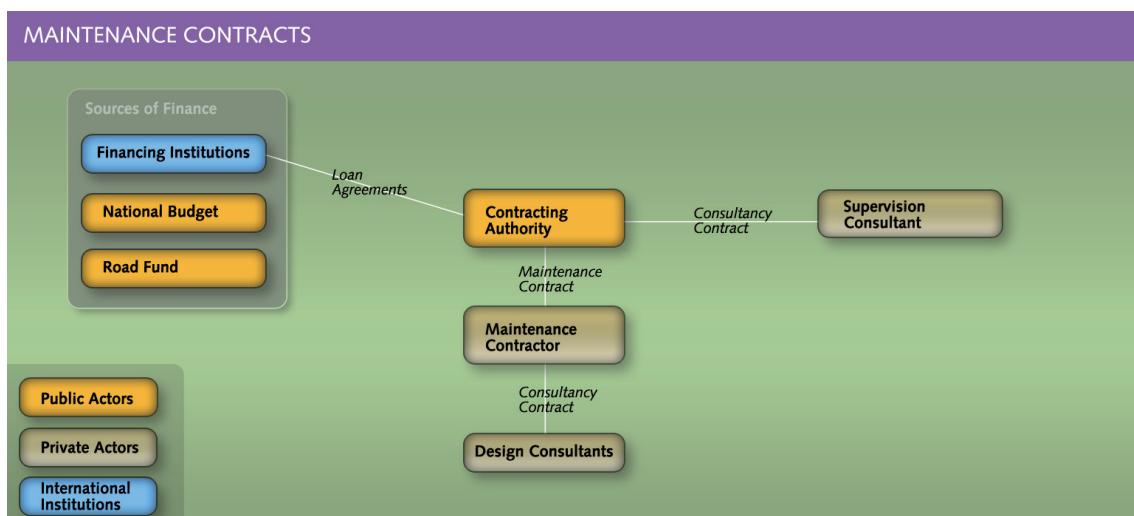
**Each PPP is unique and involves public and private partners. International institutions often participate to enhance the project's economic and financial feasibility.**

The main players in a PPP project are presented in this section under the following categories:

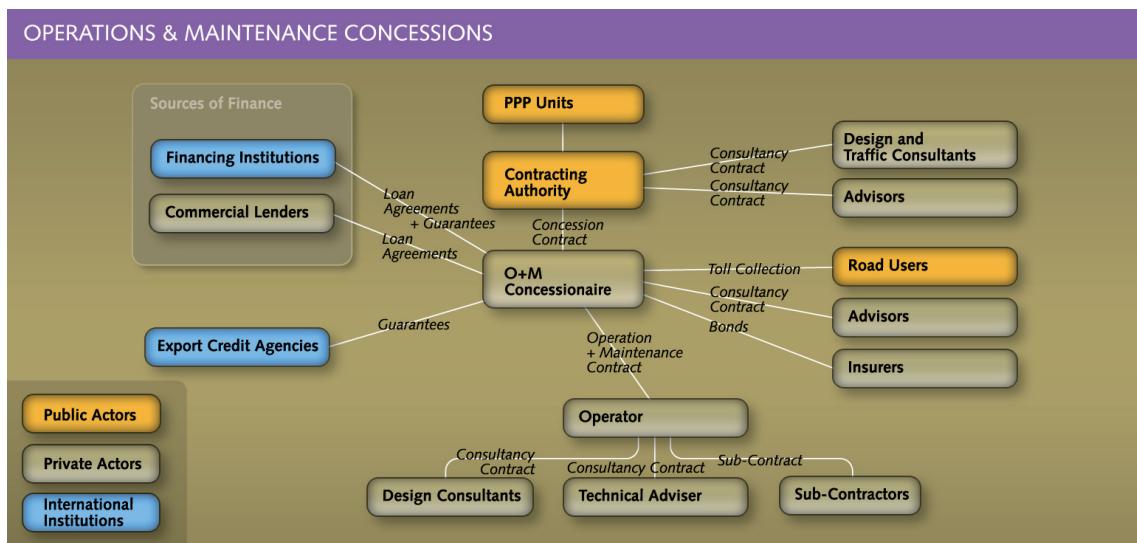
- public sector
- private sector
- financial players
- insurance and export credit agencies
- international institutions

Organization charts are presented below for the three main categories of PPP project, which represent the increased number of players and complexity of roles as the public sector entrusts more tasks to the private sector. Contractual relationships are presented in Module 4 -> Contracts.

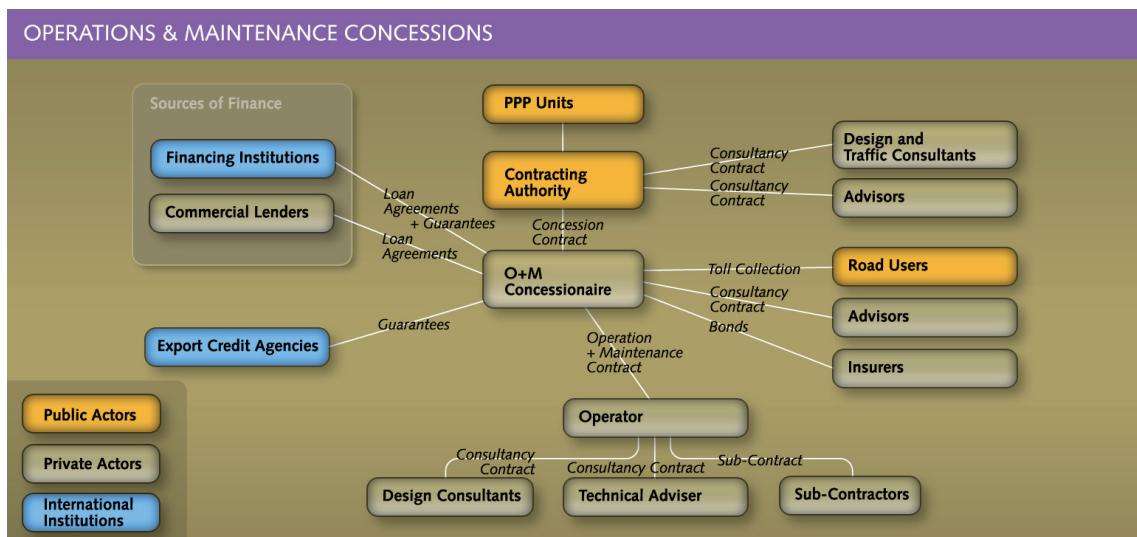
- **Maintenance contracts** are for projects involving a simple structure in which a Contractor signs a contract with a government institution (the Contracting authority). This relates particularly to performance-based maintenance contracts.



- **Operations and maintenance concessions** involve a more sophisticated organizational structure and sometimes require setting up a special purpose company run by the contractors to provide operation and maintenance services. These are also referred to as lease, franchise or affermage (brownfield) concessions.



- **BOT type concessions.** This organization chart represents the typical structure for those PPP projects, notably BOT, DBFO, B00 type (greenfield), in which:
  - construction or major upgrading, operation and maintenance of the road are included in the scope of work
  - private financing is mobilized in the form of project finance and,
  - a special purpose company is set up for risk allocation and management purposes.



The State of the Market 2007 - Appendix: Main Industry Participants



PFI League Tables - Financials, 2008



PFI League Tables - Legal, 2008

# Public sector

## Contracting authority

To simplify things, the public sector has been considered in the Toolkit as a single entity often called the Contracting authority (being mostly a government entity). The reality is however much more complex and numerous public sector actors are usually involved in PPPs.

Institutional settings vary considerably from one country to another depending on the cultural specificities and level of centralization. Identifying best practices in this field is not really possible.

Horizontal level / Vertical level	Political Authorities	Financial Institutions	Technical Institutions	Legal Authorities
National / Central level	Office of the Prime Minister	Ministry of Finance Central Bank	Ministry of Public Works Ministry of Environment Regulatory bodies Ministry of Labor Police	Court of Justice National jurisdictions
Regional/local level	Lord Mayor, County and City Councils		Regulatory bodies Statutory undertakers (i.e. Utilities)	
Local Police	Regional jurisdictions			

It is compulsory for the Contracting authority to clarify the institutional framework and the functions to be performed by each public party before embarking on a project. Functions that should be performed by the various public entities are identified in Module 3: Policy & Planning.

## Attitude to Risk

In traditional road projects conducted and financed by the public sector, risks are being internalized. Although they do not participate in the identification, allocation and management of risks, public bodies should evaluate and manage the residual risks assigned to them through the contract agreement, including contingent liabilities (Module 6 -> Key Issues -> Risk Management).

## Project Evaluation Criteria

It is the Contracting authority's responsibility to ensure that the project has been carefully planned, that it is economically sound and socially acceptable. Toll road

projects are particularly delicate in this regard and can lead to public demonstrations and legal action from road users.

## PPP units

The implementation of PPP strategy requires the acquiring of key skills in the public sector to prepare and manage projects as well as effective methods for cross-ministerial coordination and response on issues transcending beyond the boundaries of line ministries. PPP units are intended to develop and implement policy and regulatory reforms, and build the institutional and social foundations needed to enable, promote and facilitate efficient and sustainable large-scale private investment in infrastructure.

PPP units can also be complemented with PPP cells housed in the line ministries. Roles and responsibilities and issues for their establishment are defined in Module 3 -> PPP Policy Framework -> Institutional Framework and Reform -> PPP Units and the Role of the Highway Agency.

## PPP Advisory bodies

Some states have created tools to coordinate and promote PPPs aimed, *inter alia*, at disseminating good practice for PPPs at national or international level. These tools aim to make related expertise mutually available and thus advise users about the different forms of PPP and their stages, such as initial conception, how to choose a private partner, the best allocation of risks, the choice of contractual issues or even the integration of community financing.

Partnerships UK (PUK) is itself a public private partnership with a unique public sector mission: to support and accelerate the delivery of infrastructure renewal, high quality public services and the efficient use of public assets through better and stronger partnerships between the public and private sectors. It provides advice principally aimed at the public-sector and notably municipalities.



<http://www.partnershipsuk.org.uk/>

## Road Users

Road users are key actors in PPPs and mainly participate in the project in two different ways:

- as the final beneficiaries of the infrastructure and the related services
- as the main source of revenue. For toll road projects, users directly generate the revenue stream. For projects financed by the Government, users contribute through general (income tax) or specific (fuel tax, vehicle licenses etc.) taxes.

For both reasons, road users should be considered as the project customers: their expectations in terms of service levels should be carefully identified and put in perspective with their willingness to pay.

Neglecting such parameters is a usual mistake made by Governments and private actors that often leads to project failure through:

- reduction of the transport demand on the road, affecting project revenue (toll roads) and the efficiency of the road network,
- political sanctions directed at the Government when it is considered responsible for misuse of public funds,
- legal challenges when it is considered that the project was not conducted in conformity with the principles of local or international legislation,
- public demonstrations.

The main way to avoid such problems is to associate road users with the project and the decision-making process at an early stage. (Module -> Economic Development and Public Interest -> Public Participation and Consultation).

# Private sector

## Concessionaire

### BOT- type projects

PPPs involving the award of a road concession to the private sector are usually structured around a special purpose vehicle (SPV). These project companies are usually incorporated in the project country which is virtually always the country where the Contracting Authority awarding the concession is located.

The project company allows its Equity Investors to isolate the project from their other activities. Such a mechanism has several advantages:

- it provides a common structure to manage the project when several investors are involved
- it allows investors to limit the risks to their contribution in the SPV equity

### Operation and maintenance concessions

If no major construction or rehabilitation works are planned within the scope of the project, the required investment will be limited. In such a case contractors or road operators with adequate expertise, financial capacity and equipment might decide to sign the concession contract directly with the Government. In this case, they usually still choose to set up a special purpose vehicle (SPV). Such a company may be the only equity investor, thus having full control over the concessionaire. Activities under the project's scope of work falling outside their expertise are contracted by the SPV to a qualified firm.

## Equity investors

Equity investors are generally private firms or organizations that have a share in the capital of the SPV set up to manage the project under the concession agreement.

Equity investors comprise sponsors, passive investors and, increasingly, equity infrastructure funds.

### Sponsors

Sponsors are private investors actively involved in the promotion of the project. They typically identify the project at an early stage (in the event of unsolicited proposals, even before the public sector has identified it) and conduct a preliminary assessment of its potential profitability. In order to best control the various risks of the project,

the initiator of the project will seek to interest other private firms with complementary expertise and resources and form a sponsors' consortium.

The type of parties that might be involved depends on the specificities of the project (and the scope of work in particular). Typically they comprise:

- **Contractors**, which are often key sponsors in PPPs due to the magnitude of construction, rehabilitation and/or maintenance works for the success of the project.
- **Road operators**
- **Engineering consultants**, and
- **Local investors**, which often participate in a consortium of sponsors and contribute their specific technical expertise or knowledge of the project environment.

The objective of the Sponsors is to develop a sound, profitable project that generates sufficient cash in order to repay the project debt and distribute dividends.

The Sponsors expect to be rewarded for the risk they are taking in the project. This reward can be provided in the form of:

- profit generated through conducting their individual activity in the project;
- profit generated by the concession company and distributed to them in the form of dividends in proportion to their individual share in the project (Equity).

### Passive investors

Passive investors are only driven by financial considerations. They participate in the equity of the SPV when they identify a potential return on equity in the project that exceeds expected profits on alternative investments. They do not intend to participate in operational decisions around the project.

Typical passive investors are:

- Investment funds
- Individual investors in the project country,

since profitable private investments are not necessarily numerous in low- and middle-income countries and PPPs can provide good opportunities for private investors to diversify their portfolio and generate profits.

### Equity investors' approach to risk

Equity investors are typically inclined to accept more risks than the lenders for the following reasons:

- they are better armed to control the various project risks (construction and operation risks in particular),
- they are usually involved during the entire project life including the later operation period when the project generates more revenue and when risks have considerably lessened,
- they are less averse to risks in the expectation of a larger remuneration.

Each investor will assess its own individual risk profile as follows:

- **for all investors:** their share in the project equity. All partners will in this regard have the common goal of minimizing and mitigating the risks borne by the SPV by transferring most risks to external actors (Government, lenders, insurers, IFIs).
- **for sponsors only:** their particular role in the project implementation that should reflect their field of expertise. Each partner usually bears the risks related to its activity.

### *Project evaluation criteria*

Sponsors will evaluate the project with various perspectives in mind:

- overall profitability of the project regardless of the financing scheme finally set up,
- capacity of the project to generate sufficient dividends and the timing thereof resulting in an appropriate Return on Equity in IRR terms,
- potential profits attained through conducting their specific activity in the project.

### **Investment funds**

Equity Infrastructure Funds lend money as risk capital in circumstances where they can realize equity and quasi-equity participation through warrants, stock and convertible subordinated debt. Such funds are knowledgeable and focussed investors who are increasingly taking lead investor positions in toll roads.

### *Approach to risk*

Equity Infrastructure Funds are usually prepared to take most project risks. However, as they are unlikely to accept project development risks, they will usually seek to inject their equity after such conditions have been waived by the project company but prior to the 1<sup>st</sup> draw on debt.

### *Project evaluation criteria*

Equity infrastructure funds will usually conduct a due diligence in order to evaluate, from an investor's point of view, the project strengths and its ability to distribute dividends.

### *Requirements*

Equity participation freed from any pledge, etc.

Return on Equity requirement not less than a certain threshold depending on the risk assumed to be taken. Investment finds' share of the total project equity is always limited.

## Commercial lenders

Commercial lenders remain the largest source of PPP financing. Banks have long been traditional key partners of Sponsors in project development and as such have developed expertise in understanding and appraising credit risks.

Bank loans take the form of secured or unsecured loans and possibly stand-by credit facilities which may involve one or several lenders or be syndicated.

The great advantage of banks in project finance is their ability to offer a flexible transaction which can respond dynamically to the project cash-flows that sometimes change dramatically throughout the project life. Project finance is a very attractive business for banks. Well-structured projects are a potential source of medium to long-term revenue for them.

- In a corporate finance type of deal, loans are guaranteed by the assets of the investors. Such arrangements are however rare: due to the massive investments required in road projects and the consequent magnitude of the commercial loans, private investors are unable or reluctant to give such guarantees.
- In project finance, loans are structured on a non-recourse or limited recourse basis. Lenders have to rely on the expected project revenue to be reimbursed.

## Approach to risk

Bankers will always say that their business is to provide finance but not to take risks. Because the commercial loans mobilized often represent over 60% of the total project cost, bankers want to have all possible guarantees of recovering their loans.

In corporate finance, bankers will mainly assess the reliability of their clients (investors) and their financial capacity to meet their commitments and reimburse the loan even if the project fails. A company's financial situation and in particular its credit profile will be screened and will influence the conditions of the loan.

Whereas in project finance, the reliability of the partners is also a key parameter in the assessment of project risk, lenders will mostly rely on a detailed financial simulation of the project, using a financial model as a basis to precisely evaluate the forecast project cash flows. This simulation is a key element during negotiations and is often annexed to the financing documentation because it allows the recalculation of ratios (annual debt service cover ratio, loan life cover ratio, etc.). These ratios are used as project indicators in order to establish whether the project has the capacity to face the yearly repayments of the loans with a sufficient margin of security.

Lenders will generally participate in the project as a group, in order to share the risk and reduce the individual exposure of each participant. The bank syndicate designates a lead bank to represent all the other participants in most of the project negotiation sessions.

The techniques adopted by the lenders to restrict their risks also include various other measures including letters of support or commitments by the government, domiciliation of revenue or debt, assignment of debt, technical and financial performance bonds, etc.

## Project evaluation criteria

The lenders are primarily looking for a project capable of repaying its debts. They consequently adjust the amount of the debt and the repayment profile according to the annual and actuarial debt coverage ratios (see the second part of this Module for a precise definition of these concepts).

Apart from these safety ratios, the lenders frequently impose other constraints on the Sponsors, in order to ensure their continued commitment throughout the defined repayment period. This stems partly from the fact that the loans are not (or only partially) guaranteed by the project assets, which are not realizable, but principally from the forecast cash flows for the loan period.

In order to obtain the approval of their credit committee, the lead bank will probably conduct an extensive technical, legal and financial due diligence and will likely rely on internal specialists, engineers and external consulting/retainer personnel. Indeed, as most of the concession projects are limited recourse, the lenders have to make a substantial analysis in order to ensure that the factors of success are all met. In some cases, lenders are selected well before the signature of the concession contract and have a very active role during contract negotiations.

## Capital markets

Capital Markets are often solicited in project-finance debt because of:

- their usually long-term nature
- their relatively low price
- the greater flexibility and standardization of commercial and legal covenants enabling a financial close to be reached more quickly
- the tradable nature of the bond

A decline in the guiding interest rate and the spread/margin will benefit project financing which provides greater yield. The growing trend to rate project-finance deals by major rating agencies also increases their marketability.

Market appetite for project finance will depend on:

- general market sentiment,
- the market sentiment for a specific type of project, a country risk, etc.

The approach to capital markets is a complex task which should be entrusted to a reputable financial adviser whose knowledge and relationship with the market is well-tried and proven.

## Approach to risk

As risk is priced into the bond spread, misunderstanding of the project risks, potential volatility in the capital markets at the time of issuing the bonds and the effects of less developed capital markets in emerging countries could all have substantial impacts on the viability of a project's finances. In order to reduce these spreads, it is possible to

back the bond issue by monoline insurers, who provide guarantees to issuers, often in the form of credit wraps, that enhance the credit of the issuer.

### Project evaluation criteria

Fund managers will usually rely on country and project ratings and will require less credit work if a project has been rated by two reputable rating agencies.

Pricing and covenants will heavily depend on the ratings of these agencies.

### Contractors - construction companies

In most countries, the construction market is well developed and very competitive. The profile and motivation of the contractors involved in PPPs should however correspond to

- the scope of work of the project. Road construction, rehabilitation and maintenance projects require specific expertise, equipment and labor,
- the technical difficulties of the project,
- a requisite long-term partnership with the public sector and other actors

Contractors are always key actors in PPPs due to:

- the fact that they are the only entity which really controls the construction risk that will considerably influence the success of the project through the efficiency of the infrastructure, construction cost and duration of the construction period.
- their large financial capacity. For PPPs involving project finance, contractors are often the only companies able and ready to mobilize a substantial share of the required capital funds (Equity investors).

### Maintenance contractors

Maintenance contracts are usually entrusted to well-established Contractors who usually have the required expertise, qualified personnel and equipment. However, the main difference between construction and maintenance contracts lies in the long-term relationship between the client (the government or the private concessionaire) and the contractor. Provisions should be contained in the maintenance contract to ensure that the Contractor has sufficient incentive to keep the road up to an adequate level of service.

Performance-based maintenance contracts will require experienced Contractors with sufficient reliability and autonomy to define their own methodologies, activity schedules and in-house quality control plans. Remuneration under the contract is linked to the satisfaction of quality control indicators.

Maintenance activities and in particular routine maintenance were traditionally performed by public entities. Privatization of such services sometimes requires specific training programs for local contractors.

### *Approach to risk*

There is a wide consensus that Contractors should bear construction risks because they are in the best position to assess and control them. Lump sum contracts and liquidated damages are the main contractual provisions that will transfer the risks associated with cost overruns and delays in construction to the Contractors.

Other actors (including the government) should however be realistic and not ask Contractors to take responsibility for all construction-related risks in all circumstances. Particularly adverse or unforeseeable geotechnical conditions in particular should be subject to detailed investigations at an early stage. Geotechnical risks for Contractors could also be reduced by providing a government or IFI guaranteee.

### **Sub-contractors**

Main contractors will usually rely on a number of smaller sub-contractors which will generally assume their responsibilities on a back-to-back basis. It is therefore in the interest of the various stakeholders that the contract signed between the project company and the construction company be drafted on arm's length basis. It is also recommended that the main sub-contractor (e.g. toll equipment supplier) should participate actively in the negotiation of the lump sum contract thus avoiding big discrepancies which might slacken the development phase.

### **Operators**

The scope of work of road operators usually consists of:

- traffic management (information to users, safety, accident prevention, accident detection, information to the police, etc.),
- toll collection and fraud control,
- routine maintenance activities typically sub-contracted to local contractors through a specific contract.

Governments sometimes prefer Operators to be state-owned companies because this role is traditionally performed by the public sector and because of the direct contact they have with road users (both toll collection and safety management are sensitive issues). When PPPs involve not only a road link but part of the network, such arrangements can facilitate the setting up of a pooling system and the use of cross subsidies.

Private operators operate through a specific contract signed with the SPV. In most cases a specific company is set up to conduct operation and maintenance activities (operation and maintenance contract). Private firms specialized in road operating can therefore participate in projects as Equity Investors in the main SPV or limit their involvement to the operation and maintenance company.

### *Attitude towards risk*

Risk sharing is defined in the O&M Agreement.

Tasks and risks supported by the operator are commensurate with its financial capacity. Responsibility and risks related to periodic maintenance activities usually remain with the concessionaire (SPV) or are transferred to Contractors through specific rehabilitation contracts (construction contracts).

It should be noted that the Operator may also rely on various maintenance sub-contractors to perform all or specific maintenance tasks.

## Insurance companies

Insurance companies are crucial actors in the project finance framework as they usually back all the major risks required to be covered by the Lenders and the public sector

- Natural risks: earthquakes, fire, contingent business interruption,
- Financial risks: exchange rate, interest rate,
- Operational risks: theft, information security,
- Employment risks: employer's liability, etc.,
- Liability risks: errors and omissions, director's and officers' liability, physical loss or damage to a third party; consequential loss,
- General Construction risk: loss and/or damage to physical property,
- Employment risks: employer's liability, etc.,
- Liability risks: errors and omissions, director and officers liability,
- Revenue shortfall risk,
- Political risk,
- Insurance for Liquidated Damages.

### *Approach to risk*

Insurance companies examine and map the project cash flow and risk across the whole project and review the core insurance policies and program to be implemented.

## Advisors / consultants

Due to the diversity and the complexity of issues involved in the design and implementation of PPPs, the public sector should not hesitate to seek consultancy services from qualified advisors in all fields where their in-house resources are not very experienced.

## Design and supervision consultants

Engineering-based consulting inputs shall be required for

- project design comprising conduct preliminary studies, cost-benefit analysis, feasibility studies and environmental impact assessments.
- works supervision for PBC contracts and possibly operation and maintenance concessions. In BOT type contracts and sometimes for operation and maintenance

concessions, the Supervision consultant's role is taken on by an Independent Engineer who has different responsibilities.

### Traffic consultants for demand analysis

Demand forecasting is a very specific and delicate aspect of the consultancy services required in the design of PPP projects (Module 3-> Sector Planning and Strategy -> Planning and Policy Making -> Demand Forecasting). Over-estimation of traffic volumes during the planning stage is without doubt one of the main causes of failure of PPP highway projects.

Hiring well-established consultants with proven international expertise in demand forecasting will not ensure a 100% reliable traffic analysis but is essential to evaluate the feasibility of the project within an acceptable margin of accuracy.

Prior to embarking on a project, sponsors will usually conduct their own analysis and/or check the reliability of the existing study. Depending on the time available and the resources they are ready to mobilize at this stage, they may conduct a comprehensive study including traffic counts and O/D surveys at required locations, prepare a traffic model of that part of the network that will be affected by the project and carry out a full sensitivity analysis. Reliable studies conducted by the public sector are a key factor of success for the project.

When selecting traffic consultants, the public sector and private firms should particularly focus on screening their experience and expertise in:

- conducting traffic studies for similar highway projects, in particular toll projects,
- modeling traffic on complex road networks, particularly when alternative routes exist,
- macro-economic analysis to estimate generated traffic and integrate various network development scenarios,
- performing sensitivity analysis on how toll rates will influence traffic volumes and structure,
- international expertise and ability to calibrate traffic models to local conditions

### Legal adviser

Hiring an international and a local legal adviser with substantial experience in similar projects is necessary for the sponsors to draft a watertight contractual structure.

### Financial adviser

The Sponsors of infrastructure project financing usually seek the assistance of a financial adviser in conducting the preliminary financial studies and planning and arranging the

project financing. Commercial banks or major financial companies with a good reputation, standing in the market place, and knowledge of the sector and the country are often hired as financial advisors.

To assist policy makers in the procurement of these services, the PPIAF is financing the design of a Toolkit for Hiring and Managing Advisors for the PPI Process.

The purpose of this Toolkit is to provide a comprehensive reference guide for a wide range of government officials who need to understand about procurement and the use of financial, economic, legal, regulatory, labor and human resources advisors in the infrastructure reform process. Several documents, totaling 400 to 500 pages, will be enclosed in a box that also contains a CD-ROM. A summary version of the Toolkit in http will be posted on the PPIAF website.

### **Independent engineer**

In operation and maintenance concessions and in BOT-type projects, it is in the Government's interest to mobilize an experienced consultant as the Independent Engineer during the construction period. The role of the Independent Engineer is mainly to ensure that construction works are performed to high standards and in accordance with the specifications. Unlike the Supervision Consultant mobilized for traditional construction projects and for maintenance contracts, the Independent Engineer mostly works on behalf of the concession company and has to report to both the government and the Lenders, even though the concession company is solely responsible for paying the fees of the Independent Engineer.

The Independent Engineer is generally responsible for issuing the completion certificates and supervising any tests that have been contractually agreed as well as establishing that payments to the Contractor can be made. Although the roles of the Independent Engineer will differ from project to project, the Independent Engineer is generally very much restricted in taking any decision that involves changes (particularly if such changes lead to increased costs).

The Independent Engineer can also act, in the first instance, as an arbitrator between the Contractor, the concession company and the public sector in case of problems. Whether or not he can make decisions and instruct the Contractor depends on the project specifications.

# International institutions

## International financing institutions

International Financing Institutions (IFIs), also called multilateral lending agencies (MLAs), have been created by communities of states to promote development and fight against poverty.

Although, historically, they provide direct assistance to governments for the procurement of roads through public loans and grants, they have more recently designed specific instruments to promote PPPs in developing countries. Their main aim is to stimulate private firms and organizations to embark on projects, as the participation of an IFI has:

- a **psychological effect**: the participation of an IFI shows that the Government of the country shares some internationally recognized business practices. Usually, the same government benefits from the assistance of an IFI in other ways as well as for the project (public loans, structural adjustment facilities) that will both facilitate its general economic wealth and impose sound economic and financial practices.
- an **umbrella effect**. When IFIs directly participate in a project, private firms think that the government will have more incentive to fulfill its commitments.

The main international financing institutions are listed below.

### ADB: Asian Development Bank

<http://www.adb.org/>

Established in 1966, ADB is a multilateral development finance institution owned and financed by its 67 members, of which 48 are from the region and 19 are from other parts of the globe.

ADB's main instruments comprise loans, technical assistance, grants, advice, and knowledge, which it provides to governments for specific projects and programs. ADB's lending volume in 2007 was USD 10.1 billion. An additional USD 672 million was provided in grants, of which USD 243 million in technical assistance grants for preparing and executing projects and supporting advisory activities. Private sector assistance in 2007 amounted to USD 1.75 billion.

### BRD: European Bank for Reconstruction and Development

<http://www.ebrd.org/>

The European Bank for Reconstruction and Development (EBRD) was established in 1991. It exists to foster the transition towards open market-oriented economies and to promote private and entrepreneurial initiative in Central and Eastern Europe countries and the Commonwealth of Independent States (CIS) committed to and applying the principles of multiparty democracy, pluralism and market economics.

The EBRD seeks to help its 30 countries of operation to implement structural and sectoral economic reforms, promoting competition, privatization and entrepreneurship, taking into account the particular needs of countries at different stages of transition.

It provides project financing for banks, industries and businesses, both new ventures and investments in existing companies. It also works with publicly owned companies, to support privatization, restructuring state-owned firms and improvement of municipal services. The Bank uses its close relationship with governments in the region to promote policies that will bolster the business environment.

**EIB: European Investment Bank**

<http://www.eib.org/index.htm>

The EIB is the European Union's long-term lending institution and largest member of the EIB Group, with a total of EUR 43 billion of loan disbursements in 2007. Its task, as, the European Union's financing institution, is to contribute to the integration, balanced development and economic and social cohesion of EU Member States. To this end, it raises substantial volumes of funds on the capital markets, which it lends on favorable terms to projects furthering EU policy directives.

**EIF: European Investment Fund**

<http://www.eif.org/>

Part of the EIB Group, the European Investment Fund (EIF) is the European Union's specialized financial institution for small businesses (small or medium-sized enterprises, known as SMEs) and provides venture capital investments and guarantee instruments to facilitate SME access to debt finance, totalling EUR 2 billion in 2007.

**IADB: Inter-American Development Bank**

<http://www.iadb.org/>

The IADB makes an annual USD 10 billion of grants and loans to 26 countries of the Latin American and Caribbean for development purposes.

The IDB Group is composed of the Inter-American Development Bank, the Inter-American Investment Corporation (IIC) and the Multilateral Investment Fund (MIF). The IIC focuses on support for small and medium-sized businesses, while the MIF promotes private sector growth through grants and investments, with an emphasis on microenterprise.

**The World Bank Group**

<http://www.worldbank.org/>

The World Bank is the world's largest source of financial and technical assistance to developing countries, providing nearly USD 25 billion annually in loans to its client countries. The World bank is composed of two unique development institutions owned by 185 member countries—the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA) which both play a different but collaborative role to advance the vision of an inclusive and sustainable globalization.

The World Bank uses its financial resources, highly trained staff, and extensive knowledge base to help each developing country onto a path of stable, sustainable, and equitable

growth in the fight against poverty. Its institutions provide low-interest loans, interest-free credits and grants to developing countries for a wide array of purposes that include investments in education, health, public administration, infrastructure, financial and private sector development, agriculture, and environmental and natural resource management.

Within the World Bank Group, the IFC and MIGA are the preferred sources of support to the private sector. As such, when private sector projects are brought to the Bank for possible guarantee support, Bank staff consult with IFC and MIGA as soon as possible as to their potential interest in financing the project. IFC supports private sector projects in several ways: through equity and debt financing, the syndicated B-Loan program, security placement and underwriting, and advisory services. MIGA provides political risk insurance primarily for equity but it can also cover debt financing.

Outside the World Bank Group other multilateral agencies which offer guarantees similar to the World Bank's include: the Inter-American Development Bank; the Asian Development Bank; and the European Bank for Reconstruction and Development. Some bilateral agencies also provide guarantees similar to the World Bank's such as the Export Import Bank. The World Bank can make guarantees jointly with these agencies. In these instances, World Bank staff ensure close cooperation in all aspects of the operation, both vis-à-vis the private sponsor and lenders and also with respect to the host government which may be obliged to provide each institution with a counter-guarantee, if required by the relevant institution.

#### **IBRD: International Bank for Reconstruction and Development (World Bank Group)**

<http://www.worldbank.org/ibrd/>

The IBRD provides loans and development assistance to middle-income countries and creditworthy poorer countries. Established in 1944 as the original institution of the World Bank Group, IBRD is structured like a cooperative that is owned and operated for the benefit of its 185 member countries.

IBRD raises most of its funds on the world's financial markets and has become one of the most established borrowers since issuing its first bond in 1947. The income that IBRD has generated over the years has allowed it to fund development activities and to ensure its financial strength, which enables it to borrow at low cost and offer clients good borrowing terms.

To meet the increasingly sophisticated demands of middle-income countries, IBRD is overhauling financial and risk management products, broadening the provision of free-standing knowledge services and making it easier for clients to deal with the Bank.

#### **IDA: International Development Association (World Bank Group)**

<http://www.worldbank.org/ida/>

The International Development Association (IDA) is the part of the World Bank that helps the world's poorest countries. Established in 1960, IDA aims to reduce poverty

by providing interest-free credits and grants for programs that boost economic growth, reduce inequalities and improve people's living conditions.

IDA is one of the largest sources of assistance for the world's 78 poorest countries, 39 of which are in Africa. It is the single largest source of donor funds for basic social services in the poorest countries.

IDA lends money (known as credits) on concessional terms. This means that IDA credits have no interest charge and repayments are stretched over 35 to 40 years, including a 10-year grace period. IDA also provides grants to countries at risk of debt distress. Since its inception, IDA credits and grants have totalled USD 193 billion, averaging USD 10 billion a year in recent years and directing the largest share, about 50 percent, to Africa.

**IFC: International Finance Corporation (World Bank Group)** <http://www.ifc.org/>

IFC is the largest multilateral source of loan and equity financing for private sector projects in the developing world. The IFC finances and provides advice for private sector ventures and projects in developing countries in partnership with private investors and, through its advisory work, helps governments create conditions that stimulate the flow of both domestic and foreign private savings and investment.

IFC offers an array of financial products and services to its clients and continues to develop new financial tools that enable companies to manage risk and broaden their access to foreign and domestic capital markets.

In 2008, the IFC has cumulated investments of USD 32 billion, of which 16% in infrastructure, mainly highways and provided advisory services of more than USD 150 million annually in 97 countries.

**MIGA: Multilateral Insurance Guarantee Agency (World Bank Group)** <http://www.miga.org/>

MIGA was designed to encourage foreign investment by providing viable alternatives in investment insurance against non-commercial risks in developing countries. The Agency provides investment guarantees against certain non-commercial risks (i.e., political risk insurance) to foreign investors in developing member countries.

MIGA specializes in facilitating investments in high-risk, low-income countries — such as in Africa and conflict-affected areas. By partnering with the World Bank and others, MIGA is able to leverage finance for guarantee trust funds in these difficult or frontier markets. The agency also focuses on supporting complex infrastructure projects and promoting investments between developing countries.

Since its inception in 1988, MIGA has issued nearly 900 guarantees worth more than USD 17.4 billion for projects in 96 developing countries.

In addition, MIGA's technical assistance services also play an integral role in catalyzing foreign direct investment by helping developing countries define and implement

strategies to promote investment. The agency uses its legal services to further smooth possible impediments to investment. Through its dispute mediation program, MIGA helps governments and investors resolve their differences, and ultimately improve the country's investment climate.

#### **OPIC: Overseas Private Investment Corporation**

<http://www.opic.gov/>

OPIC is a US government agency assisting American investors through three principal activities:

- Financing of businesses through loans and loan guarantees
- Insuring investments against a broad range of political risks; and
- Providing a variety of investor services

OPIC assistance is available for new investments, privatizations and for expansions and modernization of plants sponsored by US investors. Acquisitions of existing operations are eligible if the investor contributes additional capital for modernization and/or expansion. In the case of a project with foreign ownership, only the portion relating to the US investor will be supported by OPIC. Support is not available if a project can attract adequate finance from commercial sources.

Political risk insurance is the main component of its business. The agency also sponsors 20 investment funds, geographically designated, which make equity investments on the premise that the investor will realize a profit in a 3 to 7 year investment period. OPIC itself does not invest directly in these funds, but acts as an adviser and a guarantor for up to 75% of the fund's capital.

#### **PPIAF: Public-Private Infrastructure Advisory Facility**

<http://www.ppiaf.org/>

PPIAF is a multi-donor-funded organization that assists public entities in creating and supporting public-private partnerships in infrastructure through technical assistance on strategies and measures to develop PPP in infrastructure and by identifying, disseminating, and sharing best practice.

Technical assistance, provided through PPIAF-funded grants provide support to governments to:

- Frame infrastructure development strategies to assess the needs of the country and the potential for private involvement
- Create outreach and communication programs to engage stakeholders and ensure transparency and accountability
- Design and implement policy, regulatory, and institutional reforms.
- Design and implement pioneering projects and transactions
- Build creditworthiness to access financing without sovereign guarantees

PPIAF's new Sub-National Technical Assistance Program works with sub-national entities (municipal, state, provincial, other local and regional governments as well as local and

regional public utilities, boards, funds, agencies, and authorities) to improve their creditworthiness for accessing market-based financing and thus help mobilize local capital for improvements in infrastructure services and promote the development of local financial markets.

### UNDP: United Nations Development Programme

<http://www.undp.org/>

UNDP is the UN's global development network which helps developing countries attract and use aid effectively. Present in 166 countries, it provides support for development of local capacity and developing local solutions to global and national development challenges and within the objectives of the Millennium Development Goals, including the overarching goal of cutting poverty in half by 2015.

UNDP provides a capacity development program in four focus areas

- poverty reduction and achievement of the MDGs;
- democratic governance;
- crisis prevention and recovery; and
- environment and sustainable development.

Total program expenditures in 2007 totalled USD 3.2 billion.

### Export credit agencies

ECAs have been set up in most developed economies to assist countries' exports of goods, services and investments in low- and middle-income countries. They provide instruments such as political risk insurance, supplier credits, imported credits direct lending to private firms of their country embarking on projects in developing countries.

Each ECA has its own criteria concerning the conditions of participation. Typically, they require that a substantial share of the imported goods or equipment originate from their country. Financial conditions regulating financial instruments made available by ECAs are fixed by OECD guidelines (Berne Union agreement).

In PPPs involving private finance, they closely work with lenders and sponsors in setting up the project financing structure.

### Approach to risk

Besides the usual project and risk management structure of any project financing, ECAs will typically assess the project focusing on:

- Commercial risk (payment default),
- Political risk that can be partially or fully covered through PRI products developed by some ECAs.

The main Export Credit Agencies are presented below.

### **COFACE: Compagnie Française d'Assurance pour le Commerce Extérieur**

<http://www.coface.com/>

COFACE is the trade finance agency for France.

Around the world, the Coface Group facilitates the development of trade by providing companies with a full range of services and guarantees. It offers some 120,000 clients in 65 countries solutions that combine its expertise in domestic and international credit insurance, investment insurance, prospecting and credit information, and management of trade receivables. The Group also offers access to two global networks, Credit Alliance and Info Alliance, which are structured around the shared management of credit risks (the Shared Risk System) and common products.

Rated AA by Fitch IBCA, the Coface Group is the world leader in export credit insurance, France's leading source of credit information and the manager of French government export guarantees.



COFACE. Extract from the Handbook of Country Risk (USA), 2008

### **ECGD: Export Credit Guarantee Department**

<http://www.ecgd.gov.uk/>

ECGD, the Export Credit Guarantee Department, is the UK's official export credit agency and is a separate Government Department reporting to the Secretary of State for Trade and Industry.

ECGD's role is to help UK manufacturers and investors trade overseas by providing them with financial insurance and/or backing to protect against non-payment.

### **ECICS: Export Credit Insurance Corporation of Singapore**

<http://www.ecics.com.sg/>

ECICS Credit Insurance Ltd. is a subsidiary of ECICS Holdings Ltd. (formerly known as the Export Credit Insurance Corporation of Singapore). Founded in 1991 to take over the credit insurance portfolio of the parent company, ECICS Credit Insurance is 82% owned by ECICS Holdings and 18% by Coface.

### **EDC: Export Development Corporation**

<http://www.edc.ca/>

EDC is the trade finance agency for Canada.

EDC provides trade finance and risk management services to Canadian exporters and investors in up to 200 markets. Founded in 1944, EDC is a Crown corporation that operates as a commercial financial institution. Through insurance and finance solutions,

it can help exporters compete in more than 200 countries, including higher-risk and emerging markets.

**EFIC: Export and Finance Insurance Corporation** <http://www.efic.gov.au/>

EFIC is the trade finance agency for Australia.

**Eximbank: Export-Import Bank of the United States** <http://www.exim.gov/>

Eximbank is an independent, self-sustaining and wholly-owned agency of the US government that aids in financing and facilitating US exports. The Eximbank supplements and encourages, but does not compete with private capital. Its assistance falls into four categories: a medium-term guarantee program, a direct loan and financing guarantee program, a discount loan program and a cooperative financing facility program. The Eximbank guarantees commercial banks and reinsurance the Foreign Credit Insurance Association against all political risks and substantial parts of commercial risks taken on both insurance programs and commercial bank guarantee programs.

**HERMES: Kreditversicherungs AG** <http://www.hermes-kredit.com/en/>

HERMES is the largest credit insurer in Germany and has a world-wide network of subsidiaries and associated companies. A member of Allianz, the Euler Hermes Group has a 36% share of the world credit insurance market.

**HKECIC: Hong Kong Export Credit Insurance Corporation** <http://www.hkecic.com/>

HKECIC provides a range of insurance cover for HK exporters against non-payment risks and offers comprehensive information and assessment on the creditworthiness of overseas buyers and the latest development of market trends.

**OKB: Oesterreichische Kontrollbank AD** <http://www.oekb.at/en/>

Oesterreichische Kontrollbank Aktiengesellschaft (OeKB) is Austria's main financial and information service provider for the export industry and the capital market. OeKB was founded in 1946 as a specialized banking institution whose shareholders are mainly domestic commercial banks. Its wide range of services is available to companies and financial institutions as well as agencies of the Republic of Austria.

**OPIC: Overseas Private Investment Corporation** <http://www.opic.gov/>

OPIC is a self-supporting US government corporation providing insurance and, in some cases, partial financing to US private investment in developing countries. In eligible countries, its insurance services provide political risk insurance to US investors for new

capital investment and its financial services provide direct loans to new US investment projects. Medium-term and long-term loan guarantees are provided for the same projects. Financing criteria state that the project must have at least 51% private ownership and 25% US ownership.

# Enabling PPPs

**Despite the opportunity offered by low- and middle-income countries for the development of PPPs in the highway sector, private investment often remains lacking.**

The aim of the public authority is to target the projects suitable for PPP and to create an enabling environment suitable for their implementation.

Full transport concessions remain concentrated in middle-income countries, where the volumes of traffic are attractive and there is sufficient public sector capacity to engage with the private sector. IEG (Independent Evaluation Group; World Bank) recognizes, however, that the impact of even one or two concessions in a lower-income country can have a dramatic effect. Actual possibilities of attracting private capital into transport infrastructure vary greatly over time and among countries. But there are instances in ports and large bridges, where even poor countries with uncertain prospects have been able to attract foreign private sector interest at certain stages in the financial markets' cycle.

Improving the strength and efficiency of the private sector role in road maintenance is a matter that remains important in all countries, as different stages of development are achieved and new techniques are developed. Key components on the public side include serious commitment at the highest level within each concerned body to the elimination of corruption and achievement of high standards of governance; development and continuous updating of the management information systems; both central and decentralized capacities for planning and contract management; adoption and systematic enforcement of transparent competitive bidding practices; financial flows to the different levels of government involved; and gradually increasing use of performance-based contracting. Important contributions from the private side (with public support) are training, development of commercial equipment-supply enterprises, and an effective contractor/PPP association.



A Decade of Action in Transport, World Bank 2005 (pg 76)

This section introduces the process by which a PPP strategy may be developed. This comprises a diagnosis of the road sector and of the components to establish an enabling environment for PPP, the definition of a PPP policy framework and of a PPP strategy. The aim shall be to target the use of PPP both in its field of application (eg national road network) and in its level of application (eg performance-based maintenance contracts).

Policy makers (and their advisors) should conduct the various steps of the diagnosis, keeping in mind the benefits that can be expected from introducing or enhancing private sector participation and the considerations inherent in such development, as identified in the previous sections.

The results of the diagnosis should be assessed within the context of government policies for public investment and planning, notably in the highways sector, as detailed in Module 3 -> Sector Planning and Strategy. This assessment would then conclude with the

PPP strategy which shall define the role and extent of PPP in highway development and the process by which the PPP policy framework and development plan may be advanced.

The establishment of a PPP Policy Framework is described in Module 3 -> PPP Policy Framework.

# Purpose and Objectives of a PPP program

Faced with an increasing investment gap and a requirement for funds, many public authorities in low and middle-income countries do not have the luxury to choose between public and private funds options for the development of their infrastructure. In such circumstances, private finance may allow economically justified projects to be implemented which would otherwise have been delayed or cancelled through lack of funds.

The real issue for PPP is not public infrastructure versus private infrastructure. It is more simple; the issue is less infrastructure versus more (Harris, 2003)

However, the potential application of PPP should not be overestimated; public funds will remain the principal source of funding in highway infrastructure for the foreseeable future.

## Application of PPP in the UK PFI program

The PFI program is no longer considering projects with a capital value of less than £20 million (USD 40 million), as other procurement routes are deemed more appropriate.



PFI: Strengthening long-term partnerships, HM Treasury, UK, 2006

Policy makers must thus assess in which sectors and for which projects PPP may bring benefits to the public sector and to the road user. The PPP strategy should then allow a controlled introduction and expansion of PPP to allow the progressive build-up of capacity and to benefit from experience drawn from implementation of initial projects.

In assessing objectives of a PPP program, policy makers may ask questions such as:

- Are public budgets for road investment and maintenance sufficient to maintain the network at an acceptable standard? Is there a backlog of investment and maintenance works?
- Is the road sector efficient? Does it embody commercial practices for the management road sector?
- In which sectors and for which projects may PPP provide benefits to the public sector and to the road user?
- Are contracts procured under conventional contracts being implemented on time and to budget?
- Would a type of PPP scheme that has been successful in a different country work in our region?
- Should we contract out maintenance of this road or have a global package for rehabilitation, maintenance and operation?
- Would road users accept a direct payment system (in the form of a toll)?

- Would a toll system generate sufficient revenue to pay back the investment?

Experience has shown that no ready-made solution exists and that the strict duplication of a project between countries has little chance of success. A PPP project can only produce efficiency gains and added value to the road sector if its characteristics are designed in accordance with the constraints and bottlenecks faced by the road agency, the country framework and the capacity of the private sector. In other words, a PPP project should be carefully tailored to its environment, but with regard to how the environment may need to change in order to maximize development gains.

# Diagnosis of Road Sector Performance

**This diagnosis of the road sector aims to establish the potential benefits and application of the introduction of expansion of a PPP program. The questions reflect the importance for policy makers of having a performance measurement system based on targeted indicators to provide a rational basis for the consideration of PPP and evaluation of its effectiveness in terms of improved road condition, user service and resulting cost efficiencies.**

Performance of the transport sector is shaped, more particularly by cost structure (fixed, variable and sunk costs), institutional arrangements (e.g., assignment of responsibilities, decision flow), market structure (e.g., competition, barriers to entry), geographical features (land value and land use), technology (know-how, economies of scale), and durability (of both infrastructure and services).



A Sourcebook for Poverty Reduction Strategies, World Bank, 2002

Key questions to establish a perspective on the road system's performance include:

- What are the measured results for the performance of the road sector?
- Are services provided efficiently, including responsiveness to user demand?
- Is public expenditure for the sector adequate for addressing the sector issues?
- Which market failures are being tackled?
- Is there any need to reform the recurrent cost funding mechanism? If so, in what way?
- In the current development of a road project or program, what are the tasks conducted by the public sector? by the private sector? Which entities are in charge of conducting these tasks?

Additional questions with multilevel governments (central and regional), include:

- How do current inter-governmental fiscal relations affect transport investment and maintenance at the national, State, and local levels?
- Are these efficient and responsive to the needs of the poor?
- What is the local fiscal capacity if some transport responsibilities (for example, road maintenance) are to be decentralized?
- Are state-owned enterprises' financial obligations/deficits on budget?

This analysis may be completed by a diagnosis of sector performance indicators. This diagnosis is established from the point of view of the road transport policy institutions which are concerned with the efficiency of: investment allocation to various road agencies, pricing, cost recovery for road-related usage (fuel prices, tolls) and compliance with road laws and regulations.

The view of other parties (road network users, transport service suppliers, investors and roadway suppliers etc) is also of interest and should be sought.



A Conceptual Performance Indicator Framework for the Road Sector, PIARC, 2004

## Sector performance indicators

Most road Administrations use a range of indicators to measure the condition of their highways and bridges. However, few Administrations have developed a means of evaluating the performance of the overall system or highway network on a systematic basis. Because of the lack of updated data, it is often difficult to adequately determine the status and trends of the condition of the network.

It would be valuable for road authorities to first evaluate the global transport sector before focusing on the road sector, in order to gain a perspective and obtain a diagnosis of the whole country's transport situation, which would be of great assistance in orienting a global transport policy. A few key indicators can provide initial summary information on the national transport system's condition and performance, especially by highlighting excessive costs, bottlenecks, and barriers. They can be used as comparators with other countries.

For road authorities designing or conducting reforms, indicators are particularly useful to: (i) identify the strengths and weaknesses of the road sector and the most promising areas for making efficiency gains, (ii) regularly evaluate the outcome of the reform and thus be able to adjust their actions.

Indicators will assist policy-makers introducing or reforming a PPP policy. Such indicators shall enable the identification of those areas where the private sector is performing more efficiently.

All indicators are partial measures and therefore they have limitations and must be interpreted with care. Indicators can be useful "signals", but they should be viewed for what they provide: indications not conclusions. So, provided that information is processed with sufficient care, a diagnostic profile and analysis can be put together, most desirably at a sub-national/regional level, based on quantitative and qualitative indicators.

More in-depth analysis of a country's transport sector may be desirable for exploring the relative efficiency of the public and private sectors in transport infrastructure and services.



The Use of Sectoral and Project Performance Indicators In Bank-Financed Transport Operations,  
A First Edition Note, Colin Gannon and Zmarak Shalizi, The World Bank (1995), page ii (executive summary).

## Key indicators to assess the global efficiency of the transport sector:

Despite the efforts of many countries, there has been no transparent measurement system or comparable standards for evaluating the performance of road systems. The array of possible Performance Indicators is vast and lists of indicators can never be exhaustive. A set of indicators needs to be tailored to reflect the fundamental roles of transport and government objectives, as well as data availability, sector and country environment.

As such, they differ from country to country; however, very similar categories of indicators are chosen by numerous road agencies to reflect the performances in service levels, accessibility, mobility, safety, and environment. For example, the following table by Gannon and Liu proposes key general indicators for the transport sector as a whole, grouped together into top 10 areas (from institutional to sector level).

- policy situation,
- level of transport activity,
- market structure and regulatory regime by mode,
- infrastructure condition,
- accessibility,
- tariffs for basic transport service,
- speed and reliability of services,
- safety,
- financial sustainability,
- environmental impact.

A detailed list of these indicators can be found in:



Extract from: Assessing Sector Performance: top ten areas, Gannon & Liu, The World Bank, 2000

## Specific indicators to assess road (sub) sector and network efficiency

Specific indicators may be introduced for each sub-sector/mode and part of the network (e.g. highway, gravel road, etc.). At this level, “desirable” and “best practice” are suggested but these should be treated as provisional guides only. The best combination should be found with regard to relative cost and (relative) performance gains. The reference below shows a proposed structure for road sector indicators, comments on their relevance to road policy goals and provides benchmarks of performance achieved by various countries.



The Use of Sector and Project Performance Indicators In Bank-Financed Transport Operations, Gannon & Shalizi, The World Bank, 1995

Similar sets of indicators have been developed by various road agencies and international institutions:



Performance Indicators for Australia, Asset Management of the Road Sector, OECD, 2000.



Road Sector Performance Indicators for African Countries, Africa Transport Technical Note, SSATP, 1999.

## Contract performance indicators

One of the most well-established benefits of PPP is its proven ability to deliver projects on time and to budget. This benefit is represented in the Value for Money analysis and the use of the Public Sector Comparator (Module 5 -> Identification, Priorization and Selection -> Value for Money and the Public Sector Comparator).

However, possible benefits may only be quantified if a sufficient amount of data exists on contract performance, including construction period, final contract amount including claim payments and final quality and level of service.

Irrespective of its use for Performance Based Contracts (PBC), such data could indicate variations in levels of contract performance in different roads sectors or depending on contract type or nature of private contractor and would thus provide valuable input into assessment of performance of conventional procurement methods and orientation of the PPP strategy.

## Monitoring indicators

Data required for generating performance indicators need to be included under the regular monitoring procedures used for the planning and management of road expenditure for reasons of efficiency and to avoid duplication. For pavement-related information, this data is the main input of pavement management systems (PMS) used in strategic road management and maintenance planning: Module 2 -> Scope -> Performance Indicators for Maintenance Works.

### World Bank: Transport Results Initiative

The central Transport Unit of the World Bank is taking stock of the measures and indicators which are applied for the key transport sector. Initial assessments of data available at the international level, such as through the International Road Federation, confirms significant gaps in relation to both the priority needs of World Bank client countries and the expectations of development agencies.



The Data Chase: What's Out There on Trade Costs and Nontariff Barriers?,  
 Shweta Bagai and John S. Wilson,  
 The World Bank, World Bank Policy Research Working Paper 3899, April 2006

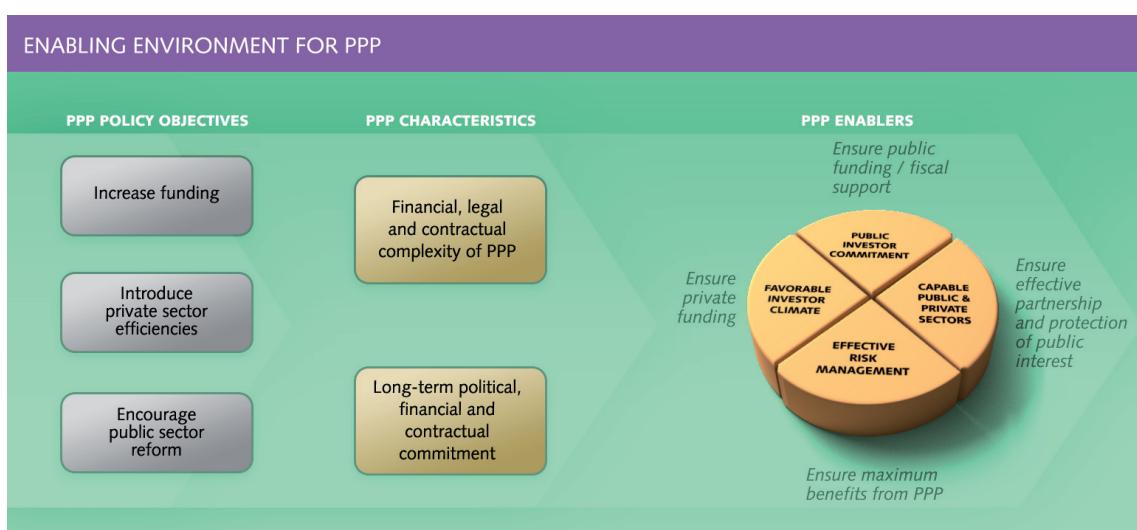
# Enabling environment for PPP

**Worldwide experience has demonstrated that the successful implementation of a PPP program requires an enabling environment to be in place in order that PPP projects may be implemented effectively and with maximum benefit to the public sector.**

The enabling environment is composed of four principal components, which the Toolkit terms enablers. These enablers are closely interlinked. A favorable investor climate will thus not create private investment by itself; the other enablers related to public commitment, risk management and public sector capacity also need to be in place to ensure the reasonable security and predictability of his investment. The public sector shall require the same enabling environment to ensure that private sector involvement is being obtained at the lowest cost and therefore to the greatest benefit of the public sector.

Moreover, improvement of the enablers is collective; development of one enabler inevitably involves that of another.

There is no absolute measure for progression of PPP enablers and the achievement of an enabling environment for PPP. Moreover, enabling environments may be limited in scope for PPP options with low-level private sector participation (eg PBMC) but much more developed for high-level private sector participation (eg BOT concessions).



An enabling environment for PPP is essential given the nature of the PPP policy objectives and PPP characteristics.

In pursuing PPP, the public sector is principally motivated by securing increased funding for highway investment, introducing private sector efficiencies and, to a lesser or greater extent, encouraging or accompanying a process of public sector reform.

However, PPP projects are by their very nature complex financial, legal and contractual relationships between the public and private sectors and represent long-term political, financial and contractual commitments.

Such complex projects and significant commitments and obligations of the public sector cannot be entered into effectively without a number of factors being in place. The implementation of PPP thus requires:

- **Public Sector Commitment:** Essential for a stable public role within PPP and the provision of multi-annual public funding and fiscal support. Public sector commitment is best reflected in an appropriate PPP policy framework. Refer Module 3 - Policy Framework. Sustained political support and commitment is essential, particularly for large projects and projects representing a first attempt at developing and implementing PPP. This is required to generate and maintain sufficient private interest and to allay any concerns over potential public reaction, notably related to the use of user charges and associated promises of increased service provision or quality standards as justifications for their use. Public sector commitment is the translation of political will into the political and cultural "mainstream" of the government and public authorities in order to ensure the required government support for PPP in its many diverse areas such as those listed below:
  - support in obtaining land and right-of-way grants, development rights on publicly-owned land, environmental approvals and other permits
  - assurances that alternative routes will not be built or substantially rehabilitated
  - government capital grants or loans
  - fiscal support or incentives, sovereign loan guarantees etc
  - support, including political if necessary, of reasonable toll levels and increases
  - payment of operating subsidies, shadow tolls etc
  - public construction of complementary facilities
  - transfer of existing revenue-generating assets
- Favorable investor climate: Encourages private funding under optimal conditions for the public sector.

A favorable investor climate is one which is conducive to private sector funding. Private investment requires a set of established rules and processes to allow reasonable confidence as to the protection of its investment.

A well-defined legal and regulatory framework, allied with a PPP policy, allows contracts to be determined with certainty and allows the parties to understand the boundaries of their interaction. The consequences of not having this certainty have been demonstrated to result in greater risk and cost and the inability to harness the true potential of the project.

Concessions can be granted within economic and financial contexts: All projects must be economically viable. Financially, either projects are financially viable according to the usual financial terms or government support is needed. Government

support may be provided through a number of government instruments including by complete or partial payment for the service, where users cannot pay directly (eg viability gap funding).

It is important to review the national and sector laws and legislation in relation to PPPs and examine the possible obstacles and eliminate them (refer Module 4 -> Legislation -> Framework Assessment).

- **Effective risk management:** Ensures maximum benefits from PPP by risk limitation, mitigation and allocation to the most suited partner.

It is well-known that private investment does not like uncertainty; risk management thus lies at the heart of effective PPP design. Where uncertainty is present, it is priced into PPP projects by the private sector in the form of higher expected rates of return. For certain forms of uncertainty, notably political, legal and regulatory, it may even prevent private finance altogether or result in an unsuccessful partnership. PPP projects thus require by definition the management of uncertainty in the form of risk.

Risk management involves risk identification, assessment, allocation and mitigation. The public sector will assess these within the feasibility study and then needs to ensure an effective strategy to mitigate the risks it is allocated. For example, the political risks of a tolling strategy may be partially mitigated or reduced by an effective public consultation strategy (refer Module 2-> Risk)

Risk should be borne by the party best able to manage it most cost effectively. Additional costs are incurred when too much risk is transferred. A number of generalities can be identified for risk management under PPP:

- The greater the financial size of the project, the greater the temptation for risk transfer to the private sector. However, this must be supported by sound revenue earning potential allowing the private sector to adopt a higher risk profile.
- Certain risks are better borne by certain parties. For example, regulatory risk is more appropriate to the public sector while construction risk and quality standard risks are more suited to the private sector.
- Successful risk transfer requires the thorough understanding of the public authority of the objectives it wishes to achieve and therefore the nature of the project. This includes understanding the strengths and limitations of each party. Suboptimal risk transfer results in increases in cost and loss of value for money.

- **Capable public and private sectors:** Provides for public and private champions of PPP, an effective partnership and the protection of public interest.

The private and public sectors have to understand and respond to their roles within the partnership for PPP to succeed. However, the lack of PPP experience in many countries results in a lack of domestic skills in PPP which may constrain the introduction of the required new methods and practices. Use of advisors may thus be sought to reinforce public and private sector capacities (refer Module 5 -> Advisors and Organization -> Organization)

Reinforcement of public sector capacity may include the establishment of a PPP unit which allows the development of PPP methods and practices and provides information, advisory services to, and sometimes control over, public contracting authorities and private operators, and generally over the wider infrastructure sector including energy, water, telecoms and transport. The PPP unit brings together a range of skills and advises all concerned bodies including the contracting authority on contract preparation and implementation (refer Module 3 -> PPP Policy Framework -> Institutional Framework and Reform -> PPP Units and the role of the Highways Agency).

Moreover, public authorities awarding PPP need to have full confidence in their private partner, since the latter shall assume considerable risks in terms of services of general economic interest. The PPP policy framework referred to above shall need to consider the need for international partners to support the private sector within the PPP consortium, which will likely require market sounding (refer Module 5 -> Dialogue Process).

PPP can only work if it is fairly balanced: the concessionaire cannot operate at a loss nor manage over the long-term a service that shows a structural deficit. The public authority has to ensure the service operates correctly and that it conforms to the terms of contract. Financiers require a balanced contract and that the concessionaire's income assures the reimbursement of loaned capital. The original contract should create this balance and create the conditions for a "dynamic tension" throughout its duration. Subsequently, there should be opportunity for contract revision to enable the contract to evolve satisfactorily over time to inevitable changes but care is needed with renegotiation (Refer Module 5 -> Amendments to Contracts and Dispute Resolution).



Launching Public-Private Partnerships for Highways in Transition Economies, C. Quieroz, TP-9. Transport Papers. The World Bank. 2005.



Resource Book on PPP Studies, European Commission, 2004



Guidelines for Successful PPP, European Commission, 2003 (pg 34-35)



Tollways, the Learning Issue, Five Success Factors for PPP, International Bridge, Tunnel and Turnpike Association (pg 72-75)  
<http://www.ibtta.org/Tollways/issue.cfm?ItemNumber=1176>

# Diagnosis of Enabling Environment for PPP

Before defining a PPP strategy, policy makers should assess the degree to which their country or state is already compliant with the requirements of the enabling environment for PPP. The following diagnosis may help to indicate the extent of compliance with the components of the enabling environment.



Public and Private Sector Roles in the Supply of Transport Infrastructure and Services, Operational Guidance for World Bank Staff, Paul Amos, 2004.

## Public sector commitment

Whilst public sector commitment may be one of the most critical components of an enabling environment for PPP, it is also one of the most difficult to quantify and evaluate and, arguably, to maintain.

PPP projects are often announced and prepared by public institutions and some may be eventually abandoned during design or procurement phase. Private firms are thus very cautious and try to assess the real commitment of the public sector toward the project, given the significant costs incurred by the private sector in bid preparation and contract award. The private sector also needs to be confident of the commitment of the public sector toward the long-term management of the PPP process.

For larger PPP projects, this commitment would be sought at cabinet-level in order to provide required inter-ministerial support measures, counteract possible public opposition to tolling policies and to uphold budget-based financing and support.

Public sector commitment may be affected by the following factors whose relevance should be assessed by policy makers along with methods to limit their impact on the implementation of PPP projects:

- Political mandates are typically far shorter than the duration of a PPP project or of the period required to assess long-term benefits to the road sector.
- Introduction or restructuring of user charges is sensitive. If not well designed and justified to road users and other stakeholders, it could result in loss of political support, complaints or even legal challenges. Tolling is often not popular with road users and can lead to marked changes in behavior.
- PPP policy may accompany a wider restructuring of the road agency with a reduction in the number of civil servants and / or transfer to the private sector. If not carefully planned and conducted in conjunction with social measures, these programs can lead to de-motivation and opposition from road agency personnel.
- Constraints can be imposed by the international context. Countries participating (or planning to participate) in international communities (e.g. free trade agreements, economic communities) have to develop national policies in line and coherence with the common strategies and regulations

The driver of this enabler is political will for which it is useful to ask the following:

- Has strong political commitment been demonstrated by manifesto or statement or PPP policy from the government?
- Have public champions been secured or can they be identified at several levels of government and within the public authority? (Module 5 -> Advisors and Organization -> Organization)

## Favorable investor climate

Private actors cannot be forced to join a PPP. They will enter into partnership with the public entities only if they consider that the project has a good chance of success and that their interests will be preserved throughout their participation.

Criteria used by private firms to evaluate a PPP project within a given country highly depend on the characteristics of the project and on the firm's individual perception and requirements. Some criteria however are general enough to apply to any private firm entering into partnership with the public sector in a given country.

The potential participants in PPP projects will focus on the country parameters that will have direct or indirect influence on:

- the chances of the project actually being implemented and the risk of major delays before implementation. PPP Projects are often announced and prepared by public institutions and finally abandoned during the design or procurement phase. To avoid the loss of preparation cost, private firms are taking more and more care to assess the real commitment of the public sector toward the project.
- their chances to be selected to implement the project
- there being a fair and transparent tendering process
- the initial conditions under which they will be able to deliver the services
- the potential changes in the project environment and in particular those with potential adverse effect on their revenue flows (both in volumes and schedule).

Below is a tentative list of key areas typically assessed by private firms before embarking in a PPP in relation with the above categories (1 to 4 in column 2) and the typical source of information used by the private sector.

AREA	CAT.	PARTICULARLY AFFECTING	TYPICAL SOURCE OF INFORMATION
<b>Political and institutional framework:</b>			
Decision making process (national/re-regional/ local level - Technical Ministries / Ministry of Finance)	1 & 2	Duration of preparation phase and decisions process	Government organization
Status of the contracting authority	1 & 3	Enforcement of decisions	
Raise of private finance (BOT)	Status		
Political stability (political mandates and stability of key actors, public support)	1 & 4	Project stability	

Raise of private finance (BOT)	Political risk rating		
Commitment of key actors to PPP	1	Decision process	Comfort letter at high Government level
General acceptance of PPP by the public (in transport and other sectors)	4	Stability of the project	
Project revenues (BOT)	Local press		
<b>Legal framework</b>			
Procurement law and procedures	1 & 2	Competition	Legislation
Legislation directly related to PPP such as concession laws, tolling, private ownership etc. (for BOT)	1 & 3	Feasibility of the project	
Duration of preparation phase (change in law)	Legislation		
Dispute resolution (e.g. international arbitration)	4	Settlement of disputes	Legislation and contracts
Labor law	3	Conditions of work	Legislation
Tax system	3	Project revenues and costs	Legislation, experience
Unexpected events (Force majeure, hardship, Materially Adverse Government Action)	4	Project stability Project revenues	Project records
<b>Macro-economic and financial environment:</b>			
Inflation (past records, trend)	3 & 4	Project revenues and costs	Statistics
GDP and evolution	3 & 4	Feasibility Trend in revenues	Statistics
Currency convertibility and exchange rates fluctuations	3 & 4	Project revenues	Legislation, statistics
Motorization rate and evolution	1, 3 & 4	Project feasibility Project stability	Statistics
Experience of public sector in PPPs	1 & 3	Project feasibility Decision process	Safeway ITT Industries
Stability of the flow of public resources (public financed projects)	4	Project records	Status of the road agency

## Objective and quantifiable indicators

Various well-established public and private institutions doing business in developing and emerging economies have developed methodologies and indicators to assess risks incurred by a project due to the country environment. The main institutions proposing country-related risk assessment are:

- the International Monetary Fund
- the OECD
- Export Credit Agencies who provide insurance to mitigate political risk

- the three main credit rating agencies namely Moodys, FITCH IBCA (Duff & Phelps) and Standards and Poors.



The Country Ranking developed by Nord-Sud Export (NSE), adviser to the French ECA COFACE



FITCH IBCA methodology on sovereigns rating.

For the Administration in charge of transport policy, identifying the main features characterizing the country with respect to the above criteria will allow it to assess whether the right signals are being sent to potential private actors. All the components need to be addressed: their absence will discourage involvement, no matter how financially attractive the projects may be.

The Doing Business Report, 2008 of the International Finance Corporation (IFC), a member of the World Bank Group, provides objective measures of business regulations and their enforcement across 178 countries and selected cities at the subnational and regional level. Cited obstacles to business were: price control, corruption, policy instability, tax regulations, foreign currency regulations. More information on this matter is found in:



Doing Business 2008, World Bank <http://www.doingbusiness.org/>

## Effective Risk Management

Risks are not created under PPP procurement but rather are intrinsic to the nature of highway construction and operation and under public procurement risks are mainly borne by the public sector.

However, risks are openly identified and managed under PPP procurement, as opposed to being managed almost implicitly by the public authority under conventional procurement methods, who remains liable in the event of the risk occurring (the government "insures" itself against the results of its own actions). Examples include:

Insufficient project preparation and design result in contractor claims during works. Either such costs may be partially or fully recovered from the design consultant (who will mitigate through a professional insurance policy) or the public authority will have to assume itself the additional costs of works and/or redesign.

Delays in works completion on conventional works contracts may be partly assumed by contractors through liquidated damages but would in any case be at least partly assumed by the public authority through its own costs related to extended project administration and finance. Moreover, the economic loss to the government of delayed construction and ensuing benefits would be supported entirely by government.

The introduction of performance based maintenance transfers performance risks to the private sector; the private sector is not entitled to higher compensation if more maintenance is required to keep the road at a given standard. Previously, under contract maintenance or force-account units, the public authority would have assumed this risk intrinsically. However, if the risk materialized, the result would likely have been insufficient maintenance, as a result of constraints of public budget rather than cost overruns for the maintenance activities concerned. The government would then support the economic loss from insufficient maintenance.

Risk plays a central role in PPP due to the identification and assessment of risks inherent in highway construction and maintenance and the transfer of certain risks to the private sector. Moreover, the use of private financing imposes a much higher degree of analysis and quantification of the risks involved than that which would occur for public funding.

The principles and methods for risk assessment and management are described in Module 2 -> Risk.

In order to prepare effective risk management under PPP, public authorities can ask themselves the following;

- Has PPP procurement been applied in the highway sector? In other infrastructure sectors (energy, telecoms, water, transport) ?
- What risks can be identified under existing “conventional” contractual arrangements? How are they managed, even if intrinsically?
- What data sources exist for risk management, including the frequency of occurrence and their effect (eg cost overruns on construction projects)?
- What public sector skills exist in risk management?
- What private sector skills exist in risk management?

## Capable Public Sector

Launching a PPP strategy requires public authorities to adopt a new role and thus acquire specific expertise at several levels for both the project development phase and contract management. These skills will need to cover such key areas as planning and economic analysis, environmental assessment, contract management and supervision, and prioritization of works.

It is also important to involve personnel that clearly understand the objectives and regulations of the public sector but also private business and contracting conventions. Some PPPs also involve special financial issues (where finance is part of the procurement) and the need to assess financial capabilities. Furthermore, non-standard procurement methods themselves also require special legal and contracting expertise. A public authority with limited experience may find it advantageous to capitalize on the background of other state or local authorities or indeed those outside of the country.

Whilst private contractors may play a greater role in road maintenance, they may require support and training in estimating and understanding specifications and in output measures.

The adoption of the required skills by the public authority should strengthen its deal-making capacity and promote a basis for a strategic orientation of infrastructure development.

The following questions can help to determine the capacity of the public sector to implement PPP projects.

- To what extent are the required skills for PPP present at the different levels of the public sector organization?
- What is the process for implementing PPP projects? How is inter-ministerial coordination achieved?
- Is there a PPP unit? Where is it housed within the public sector organization? How long has it existed? What is its mandate? What projects has it helped to implement?
- Can international expertise be funded and readily mobilized for technical assistance and training?

Module 3 -> PPP Policy Framework -> Capacity Building and Training provides an indication of training needs for the development of public sector capacity.

One aspect in which the public sector frequently needs strengthening is strategic and structural planning, most particularly when increased private participation is being considered or is undergoing its running-in period. Government has an irreplaceable planning role in transport. This is partly because of the need for active consensus building among the different modes to maintain an effective integrated system. But it is also due to the importance of transport infrastructure, and especially the road and rail networks, in structuring land use and regional development more generally. Multimodal strategic planning is particularly crucial at the national and metropolitan levels of government.

In parts of Asia and Africa where the study team inquired into reasons for the absence of reforms that have proved productive elsewhere, the main obstacle to progress appears to be local fears among labor, but also among concerned bureaucrats and less dynamic enterprises, of losing their acquired positions. This problem is often exacerbated by laws and regulations, often dating back several decades, which may never have been sound but have built up over time an array of supporting interests. Bringing about changes in public-private balance requires multiple scarce political skills, particularly of communication to generate wider understanding of the opportunities being missed; of alliance building, to gather political support; of negotiation, to win the tolerance of those who expect to suffer; and of effective implementation, including respect for the rights of all concerned.

Considering distributional as well as environmental aspects of projects, there would seem to be a need for more combinations of larger-scale public and private financing than is so far generally undertaken in developing countries, more along the lines of some recent projects in continental Europe. This can bring the advantages of private management into areas that have high economic priority but cannot be expected to become financially viable rapidly.



A Decade of Action in Transport, World Bank, 2005 (pg 76)



Public-Private Partnership Units: Lessons for their Design and Use in Infrastructure,  
EASSD, World Bank / PPIAF, 2007

## Capable Private Sector

The private sector can only bring added value to the road system if it is sufficiently developed and entrusted with services in adequacy with its competence and the environment. At project level, the number and nature of the private actors involved depend highly on the characteristics of the PPP.

The contracting of local or international firms or a combination of both is to be considered. Local actors have a superior knowledge of their country and regional environment (legal and tax system, local standards, cultural and social issues) while international firms can bring added value by a better capacity to handle larger projects, experience in new forms of contractual arrangements, new technologies and stability for long-term relationship. Bringing in qualified international firms is more a matter of setting up a suitable and attractive environment than screening the entire international market.

However, market sounding shall be an important step in working with the private sector and obtaining knowledge and participation in investment opportunities (Module 5 -> Dialogue Process). The diagnosis on the private sector should rather focus on the local industry (locally established firms).

Policy makers should have thorough knowledge of the capacity of the private actors in their country and region in all their potential fields of intervention.

In particular, the following categories of actors should be assessed:

- Consulting firms for technical design, demand analysis, auditing, supervision
- Contractors for construction and maintenance
- Financial markets (banking system, capital markets)
- Potential road operators (for toll roads as well as "free" roads)
- Insurance companies
- Potential corporate and individual investors
- Legal and contract specialists

In each field, the number of actors, their experience record, their size and relative capacity (technical as well as financial) will influence, to a large extent, the possibility of developing PPP options and the level of competition that can be expected.

If the local industry does not have sufficient capacity to commit itself in PPPs, measures can be taken to assist its stakeholders to develop this capacity. Some of these measures are reviewed in Module 3 -> PPP Policy Framework -> Capacity Building and Training -> Enhance private sector capacity. The World Bank website also provides guidance to develop a new road management industry using various techniques such as marketing, revenue control, construction / maintenance / costing life-cycle.



[http://www.worldbank.org/html/fpd/transport/roads/toll\\_rds.htm](http://www.worldbank.org/html/fpd/transport/roads/toll_rds.htm)

At least three conditions are necessary to enable the private sector to efficiently participate in PPP implementation schemes:

- Existence of a favorable business environment (including legal/contracts);
- Sustainability of the demand for works;
- Customized training and assistance programs which suit their capacities and needs of local contractors and consultants.

### Typical indicators for assessing the capacity of contractors

The capacity of private actors to become involved in the road management system (construction, maintenance, operation) must be associated with the type of activities for which they are required.

Routine maintenance, labor- and equipment-based periodic maintenance or rehabilitation and medium-size construction works can be opened up to domestic contractors.

The first assessment to be made concerns the complexity of the works (or activities) to be carried out. Once relevant categories have been worked out, the availability of contractors with appropriate capacities in each of these categories can be investigated.



Developing domestic contractors for road maintenance in Africa - Jean-Marie Lantran,  
World Bank Road Maintenance Initiative, 1990

### Assessing the capabilities of contractors

The first issue is to know whether domestic contractors have already carried out comparable activities to the one for which they are approached, and what is their experience record in this field. Secondly, the contractor's capacity to undertake this type of activity shall be thoroughly investigated through a preliminary survey. This preliminary survey is essential in the case of companies which have no experience in the proposed activity. In many developing countries, road works are a new activity for most small or medium-size contractors who are more familiar with building construction work.

EXAMPLE OF CATEGORIZATION OF POTENTIAL PRIVATE CONTRACTORS FOR ROAD MAINTENANCE WORKS		
Type of works	Available contractors	Preparation/Training
<i>Equipment-based works</i> Resealing Regrading Regraveling	Medium-size contractors and farmers/foresters with some machines - some experience of civil and road works	Seminars Training works Technical manuals Contract format
<i>Labor-based road works</i> Regrading Regraveling Pothole patching	Small and medium-size contractors with no or few machines - no or little experience of civil or road works	Seminars Training works Technical manuals Contract format

Source: *Developing domestic contractors*, Jean-Marie Lantran, op. cit

Assessing the capacity of the firm means quantifying indicators such as turnover, assets, equipment, labor and financial resources.

The type of indicators and their interpretation (the weight assigned to each of them) may differ depending on the type of private sector involvement envisaged. In the case of works contractors, the quality of the equipment shall be of great importance. As regards engineering companies (for example contracting for making traffic counts), the skills of the staff is a major component.

#### RANKING OF ROAD MAINTENANCE CONTRACTORS: THE CASE OF BURKINA FASO

In Burkina Faso, where most routine road maintenance works (and some limited periodic maintenance works) are now carried out on a contract basis with small and medium-sized local firms (*petites et moyennes entreprises, PME*), the companies are sorted into several categories defined by ranges of values attributed to the following criteria:

- Total number of staff,
- Total number of skilled staff (per category),
- % of skilled staff hired in past years,
- Total turnover,
- Share of road activities in the total turnover,
- Equipment (per category) - number of machines, age, etc.,
- Former involvement in works by contract,
- Number of contracts obtained,
- Number of contracts obtained on projects involving an international donor,
- Other activities of the firm (besides road maintenance),
- Participation in training sessions: experience record.

On this basis, the firms are attributed a letter from A to E which will determine the possibility they will be given by the Administration to bid for certain categories of works. This ranking is permanently reviewed and the firms' performance evaluated in order to update the data base ready for any new programs/projects for which a competitive bidding process will be organized.

*Source: Technical Assistance to the Road General Directorate in Burkina Faso, BCEOM - Louis Berger Int. - Activity Reports (1995 - 1998).*

# PPP strategy

**The implementation of a PPP strategy is not easy. PPPs are long-term and complex arrangements which require a thorough understanding of duties and responsibilities and sharing of risk between the parties. PPP also incorporates a progressive change in role of the public sector from one of provider to one of facilitator.**

Experience from country and project case studies tells us that, despite their significant potential, initial expectations for the size and pace of PPP development have not been met and development of PPPs is being constrained in many countries.

The development of PPP programs is concentrated in relatively few lower and middle-income countries. Indeed, the record may even be worse if the figures also made a distinction between the well designed and well functioning projects and those that have substantial weaknesses and may store up contingent liabilities and problems for governments in the future.

Unrealized expectations can be partly related to countries trying to apply, or being deterred by, sophisticated approaches of PPP. Implementing agencies in developing countries have to grapple with a range of unfamiliar issues being helped by agencies and advisors generally not from their country. The complexities of PPPs, the initial time consuming stages and the cost of studies has undoubtedly caused difficulties for authorities, who have to deal with issues of low pay and a predominantly engineering-based workforce.

The World Bank and other multilateral agencies have all realized and mention in recent documents, that mantras (blindly following strict rules which may not apply or be relevant to every country) is often counter productive. Two examples of this are the independent regulator and the Public Sector Comparator (PSC).

In the early 2000s, the accepted approach was to have an independent regulator outside the Ministry/Highway Authority. For many countries this was too large a step from where the functions of a regulator e.g. tariffs, were often undertaken by a small, tightly controlled, under funded and under-skilled unit or team within a ministry (Module 3 -> PPP Policy Framework -> Legal and Regulatory)

Similarly, the PSC was developed in the UK partly for good technical reasons but also for political reasons when the PPP program (PFI) was first introduced. It requires considerable data and as described in the Toolkit its application may be very impracticable (Module 5 -> Identification, Priorization and Selection -> Value for Money and the PSC)

Through experience with the expansion of PPP programs, the knowledge of what PPPs involve and how they work and the new technical expertise needed (largely not engineering but finance, social and legal) has also been better recognized. However, some of this experience has also shown the possible political pitfalls of PPP which can only raise the fear of failure from taking such bold steps in introducing PPPs.

# Lessons learned from existing PPP programs

The establishment and implementation of PPP programs worldwide has provided several lessons, particularly from the poor performing PPP programs.

Such lessons include:

- Countries without a proper policy and full commitment across the ministries involved, usually Roads, Finance and Development Planning, fail to instill confidence in the private sector. The result is that either the private sector is not interested or prefers to use unsolicited tenders to avoid a competitive and transparent framework.
- Projects are often insufficiently prepared, sometimes for financial reasons, sometimes for time reasons. Ultimately, poorly prepared projects either fail or take much longer, sometimes years longer than the advocated PPP process or result in financial (and political) liabilities for governments in later years.
- Inconsistent laws and regulations can be worse than limited or no laws, where regulation by contract can operate at least initially.
- Even where projects are well developed and frameworks are in place, relatively minor defects in concession contracts can lead to weak and uncompetitive tenders.
- Without clear policy regarding unsolicited bids, the private sector may prefer this approach, which could result in poorer deals for the government and longer time taken to implement than the standard PPP route.
- Ad hoc projects, rather than a properly developed pipeline of projects, may result in difficult projects which either fail to be implemented or take years to be developed. ‘Difficult’ projects are generally those that require large subsidies, are risky, often not ready and have too many negative impacts.
- Consultation and explanation of PPPs is often insufficient to convince/inform public sector officials, senior staff and general public of their advantages and how they work, generating a lot of misunderstanding and opposition to PPPs.

Many of these lessons provide the basis for the policy and strategy development in the present section.

# Adapting PPP to the country context

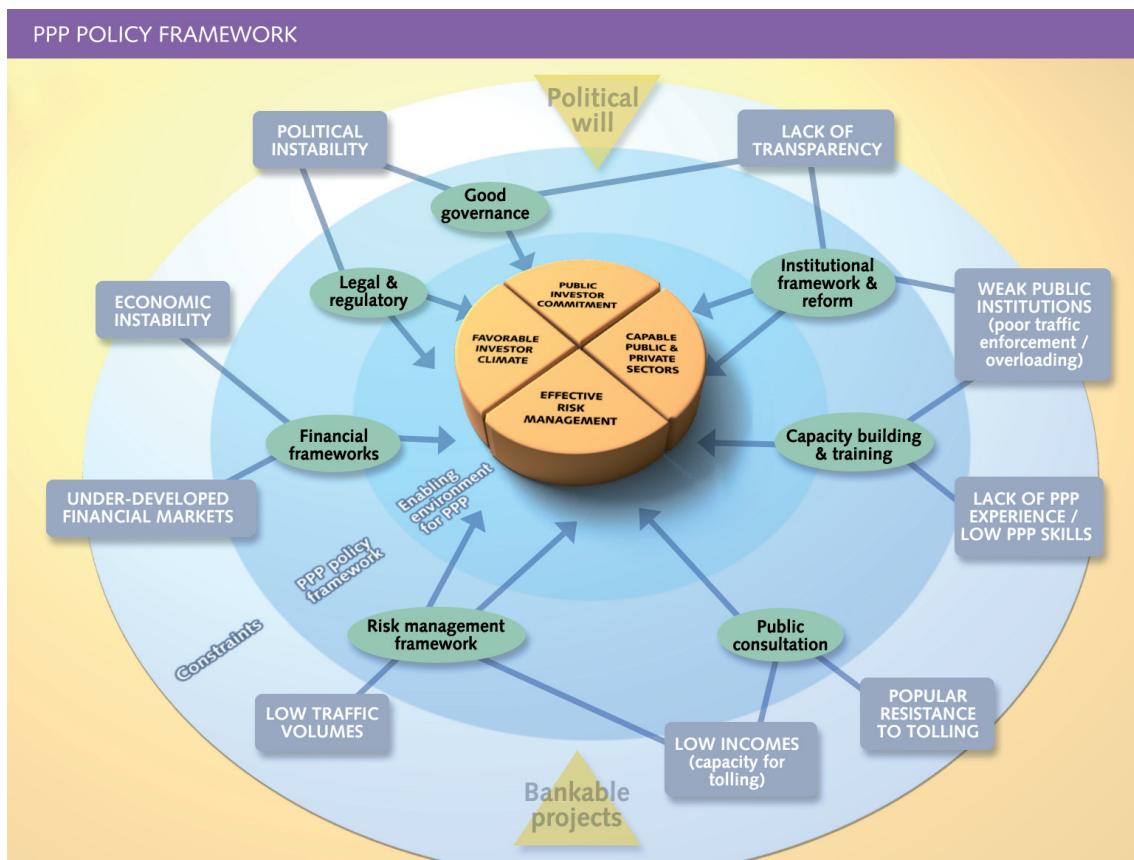
**The development of a successful PPP program requires two key drivers: political will and bankable projects. The subsequent implementation of such projects necessitates that an enabling environment for PPP be established for finance to be mobilized and the partnership to work effectively and to the benefit of both parties.**

The route to an enabling environment passes through the PPP policy framework which comprises a number of interlocking structures including legal and regulatory, risk management, institutional, financial, private sector and other aspects.

However, this framework is established in the context of a number of constraints, the nature and extent of which shall depend on the particular economic, social and political conditions prevalent in the country. These constraints may hinder, delay or even prevent the establishment of the required components of the PPP policy framework.

The environment for establishment of the PPP policy framework is represented on the figure hereafter.

As shown in the figure, achieving an enabling environment, shown in the center, passes by the development of the PPP policy framework. This framework is developed within the country context, represented by the various constraints which may be present within the highway sector and the wider political, legal, institutional, social and economic environment, constraints which shall determine the nature and pace of structural change of each the components of the PPP policy framework. The key drivers are essential to ensure that the process may move forward and that sufficient momentum is maintained.



## Drivers of PPP

The key drivers are essential to ensure the initiation, pursuit and ultimate success of the PPP program.

PPP DRIVERS	WHY?	HOW?
Political Will	Essential pre-condition for development of PPP which drives the public sector response and long-term commitment to PPP	Strong political commitment by manifesto or statement Securing of public champions
Bankable Projects	Projects which can most readily secure private finance	Best projects are those of sufficient size to attract private sector, not too complex or risky and which need little government support

The drivers of PPP may be described as:

- **Political will to introduce PPP: a sovereign commitment producing clear stable perspectives**

A state considering the launch of a PPP policy for the provision of infrastructure facilities and/or public services must announce firmly its intention to do so in an unequivocal manner.

No private sector partner should have to re-negotiate a contract with successive governments and the government should demonstrate strong commitment to pursue policy objectives within an evolving political environment.

Private sector partners need to understand the involvement of the public authorities knowing what framework has been set up: strategy, means, management process and principles are all important elements in the private investor's evaluation.

Refer Module 5 -> Advisors and Organization -> Organization

- **Bankable projects suitable for funding by the private sector**

The fundamental for the identification of PPP procurement options is to have projects with sound economic and financial credentials. The public authorities need to ensure thorough project preparation and the identification of suitable procurement routes under PPP. Moreover, given the complex interactions between service provision and financial viability, the private sector should also perform rigorous project analysis and estimate the project parameters independently. Many highway projects have failed due to poor demand or cost forecasting.

Initially, the best projects should be selected which are of sufficient size to attract the private sector, not too complex or risky and which need little government support. This reduces the exposure of the project to inconsistent public commitment and inadequate fiscal space/financial support.



The African Project Preparation Gap, James Leighland and Andrew Roberts.  
PPIAF Gridlines Note N°18-Mar 2007

## PPP policy framework

Experience with PPP worldwide, suggests that it is useful, if not essential, to have a PPP policy framework in place, to facilitate planning and implementation and instill confidence and understanding in all participants in the PPP process. This includes both public and private partners.

PPPs have developed amid incomplete reforms and only partly developed frameworks, and generally all countries have embarked on the PPP process in that way. However, the key message is that to accelerate an effective PPP development program, governments should work towards and develop an effective facilitation/enabling framework as soon as practicable.

This framework provides a set of rules that gives confidence to both the public sector which has to implement the rules and also the private sector which has to invest time and money and aims to ensure that both will achieve, within acceptable bounds, their objectives.

It seems clear that at the outset of PPP development on any scale, analysts and reformers were often, but not always, overly optimistic that governments could within a short space of time, by public sector scale, implement reform, create institutions, design concessions and establish a regulatory framework that would be complete and successfully functioning.

Furthermore, some of the proposed models for low-income and even middle-income countries came from the experience of OECD countries, some of which had different types of difficulties in pursuing their application.

A PPP policy framework is an evolving tool; it should not be viewed as an ideal or even something to be aimed at in total at once. Required changes will take time to agree and implement and will only be felt in the medium- to long-term. It should thus be developed with a long-term process in mind which would allow its progressive adaptation and improvement in line with the experience from implementation of the PPP program.



Infrastructure in Latin America and the Caribbean. Recent Developments and Key Challenges.  
Foy and Morrison. World Bank. 2007.

## Constraints

Constraints to PPP policy are reflective of the specific environment of the country. They are a result of the individual and particular conditions prevalent and resulting from the development of the country in its particular environment and context.

Constraints may hinder, delay or, indeed, prevent the development of a PPP policy. Indeed, the majority of developing countries which have not yet developed PPP strategies likely have constraints to their implementation which are considered to outweigh the potential benefits, at least in the short- to medium-term. Constraints increase the political stakes in implementing PPP programs and the resulting political boldness and determination to see them implemented.

The figure “PPP Policy Framework” indicates several constraints which are often prevalent in low- and middle-income countries and which have a determining impact on the development and success of PPP programs.

- Political Instability
- Economic Instability
- Under-developed financial markets
- Low traffic volumes
- Low incomes (capacity for tolling)
- Popular resistance to tolling
- Lack of PPP experience/low PPP skills
- Weak public institutions (low traffic enforcement/overloading)
- Lack of transparency

Constraints can also be imposed by the international context. Countries participating (or planning to participate) in international communities (e.g. free trade agreements, economic communities) have to develop national policies in line and coherence with the common strategies and regulations.

### **Economic convergence criteria of the European Union**

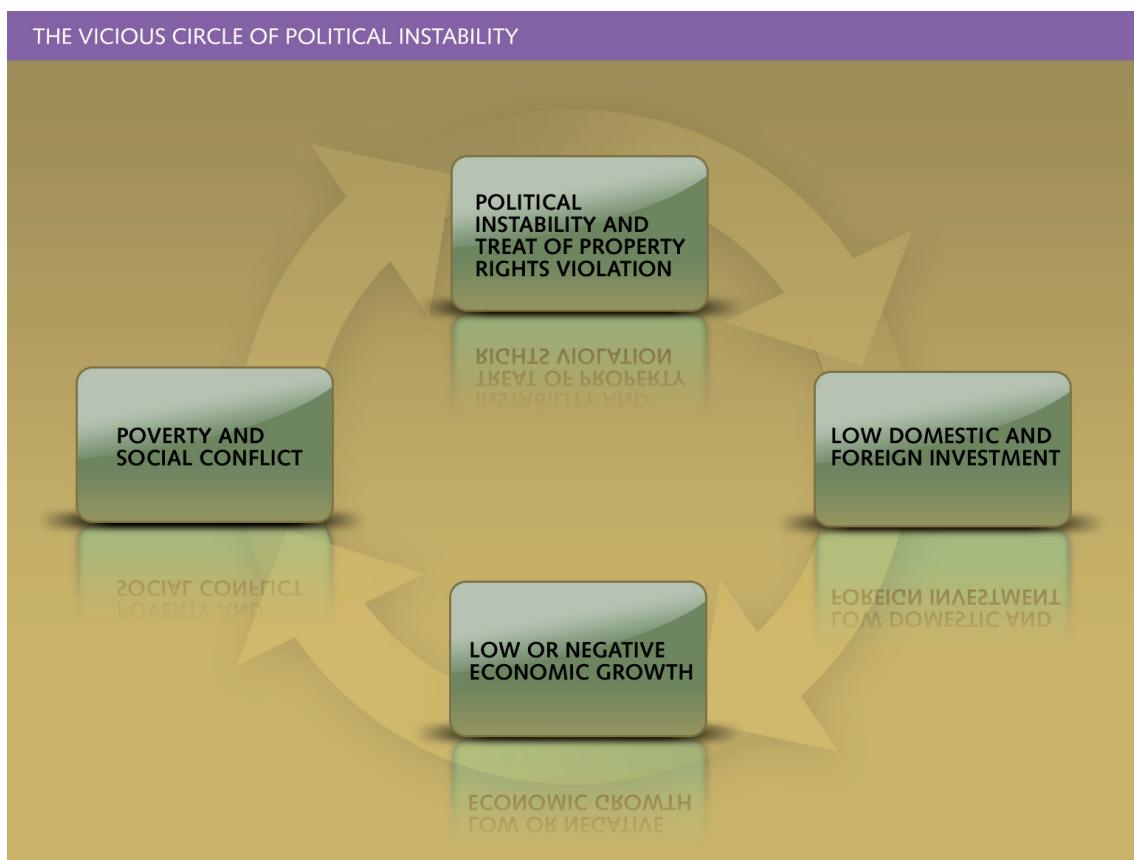
*One of the most well-known constraints in economic communities are the agreed limits on public sector debt and deficits agreed by the EC countries in the Treaty of Maastricht as preconditions for membership in a monetary union. These fiscal convergence criteria require that general government budget deficits should not exceed 3% of GDP and that the gross debt of the general government should not be above 60% of GDP. Such criteria can favor development of PPP programs, insofar as related investments are considered off-budget for public accounting (Module 2 -> Public Accounting)*

This combination of constraints generally works against effective PPP projects in developing countries. The combined effect of low traffic volumes and low capacity to pay within weak institutional and economic environments means that private concession models based on user tolls are likely for some time to be less widespread in developing countries than in industrialized countries.

Some of the constraints are discussed hereafter. Other constraints are at a macro level and are not addressed by the Toolkit.

### **Political instability**

Developing countries are the most prone to conflict and instability. However, political stability is one of the most important factors which makes investing in one country more profitable and less risky than in another country. Both domestic and foreign investors are discouraged by the threat of political upheaval and by the prospect of a new regime that might impose punitive taxes or expropriate capital assets. As a result a country can fall into another vicious circle, one seen historically in many African and some Latin American countries (see figure below). Political instability scares away new investments, which prevents faster economic growth and improvements in people's economic welfare, causing even more dissatisfaction with the political regime and increasing political instability. Falling into this vicious circle of political instability can seriously impede efforts to boost economic development and reduce poverty.



*Source: Beyond Economic Growth, VI Poverty and Hunger, World Bank, 2004*

### Under-developed financial markets

Financial/funding constraints may be addressed by use of IFIs for risk mitigation, facilitation of regulatory dialogue and provision of technical assistance. Funding may still be available but on less favorable terms than with a developed capital market.

By covering critical sovereign risks that the market is unable to absorb or mitigate, guarantees from IFIs can attract new sources of longer term commercial financing at reduced financing costs and extended maturities. For example, each dollar of guarantee financing provided by the World Bank has leveraged close to 5 dollars of private finance.



Launching Public Private Partnerships for Highways in Transition Economies, Cesar Queiroz.  
 World Bank, 2005

### Popular resistance to tolling

Popular resistance to tolling would, if not addressed, prevent use of user revenues and continue reliance on public sector budgets to finance PPP through availability or shadow toll arrangements. The scope of PPP to provide new financing would thus be limited

to efficiency gains and the advantages of off-budget financing (Module 2 -> Public Accounting).

Popular resistance results from both the unwillingness to pay for a previously-free infrastructure, possibly reinforced by a culture or tradition of freedom of movement. The legacy of free infrastructure under public funding often makes it difficult to jump immediately to private funding based on user charges. Indeed, most attempts to finance the building of East European transport infrastructure by means of toll revenues were abandoned or put on hold, with the notable exceptions of the M5 motorway in Hungary and the A4 (Katowice-Krakow) highway in Poland.

The low incomes in developing countries substantially reduce the surplus between acceptable and actual toll levels and may exclude several social groups from using the road infrastructure unless associated social measures are adopted (Module 3 -> Sector Planning and Strategy -> Planning Process -> Demand Forecasting).

Historically, tolls have been favored in Southern European nations such as France, Italy, Portugal, and Spain – together with many developing nations – whilst the United States, Northern Europe and Japan has favored the tax-based approach using general tax revenues, earmarked fuel taxes or other dedicated taxes to pay for projects.

In the UK, the PFI program is founded on the use of availability and shadow toll arrangements, representing the tax-based approach; tolling being limited to main bridge and tunnel sites in England and Wales, with the exception of the M6 road toll (Module 6 -> Case Studies -> United Kingdom). In Scotland, bridge tolls were indeed scrapped in 2008 as a largely popular move following the election to government of the Scottish National Party.

#### ***Scotland, UK: End of road bridge tolls (February 2008).***

*Exchange rate £1 = USD 2.*

*Tolls on the Forth and Tay road bridges were scrapped on 11 February 2008.*

*The Forth Estuary Transport Authority and Tay Road Bridge Joint Board remain responsible for managing the bridges. They will receive funding directly from the Scottish Government. The Tay board will also receive a one-off grant of £14.8m to allow it to repay all outstanding loans.*

*The transport minister said: "We said when we came into power that we would bring an end to tolls on Forth and Tay bridges, and less than nine months into government, that is exactly what we have done. Today marks the end of years of injustice for the people of Fife, Tayside and the Lothians, and I am delighted that in just a few days' time travelers across the bridges will no longer have to pay tolls. There will now be equality on all bridges in Scotland and I am sure this announcement will be welcomed by people across the country".*

*The legislation scrapping tolls on the two bridges - £1 for cars on the Forth bridge and 80p on the Tay - was backed by the Scottish Parliament on 10 December. The bridge's new toll booths were opened in 2006 at a cost of £4m in a bid to manage traffic flow and make toll collection easier.*

*Tolls were abolished on the Skye Bridge in December 2004 and on the Erskine Bridge in May 2006.*

An effective approach to popular resistance to tolling generally requires a tolling strategy and effective communication. The adoption of a tolling strategy can generate public acceptance for tolls and facilitate the implementation of a PPP program based on user fees.

Tolling has to be (and more importantly be perceived to be) constructive (not penalizing road use) and adjusted to the specific road network of each country to ensure utmost transport effectiveness. In such cases, tolling is the ultimate user pay system – the user pays a price that he is willing and able to afford in return for a clearly defined service provided by the road agency. “Value for money” drives this arrangement and makes it publicly acceptable. In developing countries, the purchasing power of the population at lower socio-economic levels also has to be taken into consideration.

Prices (tolls) should attempt to cover all costs, including operation, maintenance and investment. When tolls do not cover all costs, government should consider forms of government support, including an up-front payment, shadow tolls or an availability payment.

In Ghana, the presence of a tolling strategy, albeit modest, could increase public acceptance and improve the possibility of toll-based user revenues for PPP. In India, as part of its significant PPP highway investment program, the government, largely for political reasons, has defined a uniform user fee –toll rate –for all PPP projects around the country.

#### **Road tolls in Ghana**

*Tolls are levied on some major roads and bridges operated by the Ghana Highway Authority and collected as revenue for the Road Fund. The authority was responsible for all toll collection but in 2002 collection on roads and bridges was franchised to the private sector. GHA only collects tolls where the private toll collector has defaulted.*

*The annual amount raised (2004) is modest at USD 1.75 million or 2% of revenues to the Road Fund (93% of funding is from fuel levy, the remainder from vehicle and transit fees). This is largely since the toll rate toll has remained unchanged in local Cedi since 1998 and despite traffic growth, toll revenues have remained stagnant in USD terms.*

## **Governance and Corruption**

Public disclosure of concession agreements is highly desirable. In recent years, a growing number of countries have taken the step of publishing concession agreements they have made. This has several benefits:

- it provides a further check on corruption, which in addition to its direct benefits can enhance the legitimacy of private sector involvement in often sensitive sectors; and
- when the concession agreement relates to the provision of services to the public, it provides consumers with a clearer sense of their rights and obligations, and can facilitate public monitoring of concession performance.

The lack of transparency in concession agreements may lead to serious public concerns, as highlighted in a recent report by Transparency International (2005).

## Addressing the constraints

Setting up a PPP policy requires redefining the role of Government in the transport sector. The changing focus in transport policy reduces the Government's functions as supplier, but increases its functions as regulator - the enabler of competition.

This means that governments need to create the proper institutional framework for competition, set economically efficient charges for the use of publicly provided infrastructure, carefully appraise the allocation of scarce public resources and increase community participation in decision making.

Constraints limiting private sector involvement can only be removed through long-term and in-depth reforms. As an example, a contractual package comprising a long-term rehabilitation and maintenance program on a large part of the road network would not work in countries with only a few private civil works companies characterized by low skill levels and limited financial liability. Long-term reform aiming at developing and structuring the construction industry would be priorly required.

In short, in the development of PPP projects, five types of constraints must often be overcome:

- Political constraints, which must be tackled with the aim of developing and establishing clear and sustainable rules and agreements between the relevant public authorities, between these authorities and the affected users, and between the authorities and the private sector
- Legal and Regulatory constraints, that must be overcome to provide transparent procedures to delineate market competition and tariff-setting in relation to project construction and operation, ensure contract enforcement and secure private ownership.
- Economic and Financial constraints, which stem from economic development, public budgetary limits and hesitant user charge policies. They must be addressed to achieve a sound financial structure for all project phases;
- Social and cultural constraints, which determine the level of acceptance of road user charges, of private investment in public infrastructure and services and of possible foreign-led investment.
- Public sector constraints, which stem from frequently limited knowledge of inter-related variables and which prevent a clear definition of performance indicators or the estimation of key values which are crucial for project economic and risk evaluation.
- Private sector constraints, hindering responsiveness to the needs of the transport sector and to bring efficiency gains.

The first two constraints often result from a tendency for excessive control of private management through over-regulation; the financial constraints originate in the fact that transport investments are often large and their cost can only be recovered over long

periods of time. The fourth constraint stems from the fact that the people involved at the project preparation stage usually only have limited knowledge of the subject. The fifth constraint is often due to the lack of dynamism of the construction industry unused to long-term commitment and risk taking.

Reforms are made to reduce these constraints and open the ground for innovative PPP. The table below shows some of the most needed actions that could be taken in this regard, both at policy and project level.

MOST NEEDED ACTIONS TO ADDRESS CONSTRAINTS TO PPP			
Types of constraints	Particular constraints (as per figure 15)	Type of reform needed long-term, at policy level	Specific actions Short term, at project level
Political constraints	Political instability  Lack of transparency  Weak public institutions (poor traffic enforcement / overloading)	Good governance principles	Ensure and demonstrate commitment to PPP policy and projects.
Legal and Regulatory constraints	Weak public institutions (poor traffic enforcement / overloading)	Adjust the legal framework to facilitate PPP (dispute resolution, private ownership, concession laws,...)  Set up regulatory body  Clarify procurement procedures	Train agency staff in contract management and regulation
Economic and financial constraints	Economic instability  Under-developed financial markets  Low traffic volumes  Low incomes (capacity for tolling)	Economic development  Secure revenues for road sector from road fund, road user charges (dedicated taxes, tolls)  Develop financial markets (reform banking system, set up infrastructure investment funds)  Develop methodologies for public risk assessment	Use IFIs for risk mitigation, facilitation of regulatory dialogue and provision of technical assistance  Stable economic management  Support development of domestic financial markets and integration into regional initiatives

Social and cultural constraints	Popular resistance to tolling	Coherent tolling strategy at national level	Assess sensitivity of the public on road user charges  Introduce tolling on improved and targeted sites on highway network (bridges, ferries) to increase public acceptance  Viability gap funding to subsidize/support poorest users.
Public sector constraints	Lack of PPP experience / low PPP skills  Weak public institutions (poor traffic enforcement / overloading)	Creation of a business-like road agency with clear assignment of responsibilities over the various parts of the network.  Build up progressive experience on PPPs from maintenance contracts to concessions.	Conduct road inventory  Use technical assistance  Define standards  Use technical assistance  Select agency staff with legal and financial background
Private sector constraints	Lack of PPP experience / low PPP skills	Develop capacity of the private sector (local contractors and consultants)  Move from input (quantity) to output (performance) type of contracts.	Involve road users at all stages of the project  Define performance indicators for maintenance  Conduct sufficient preliminary studies



Sustainable Transport - Priorities for Policy Reforms, Development in Practice, World Bank (1996), pg 85.



Constraints and Opportunities for PPP Transport Projects. Lahmeyer International GmbH, (1998).



Lifting constraints to public-private partnerships in South Asia:  
the way toward better infrastructure services, Bhatia and Gupta, PPIAF, Gridlines Note n°6, May 2006

# Main steps of a national PPP program

The launch of a national PPP program is a major policy initiative, whether it is for a single stand-alone project or a pipeline of potential PPP projects.

The main steps indicated in this section draw from initiatives applied in United Kingdom, the Netherlands, Ireland, Italy in Europe and Japan and the Republic of South Africa, Indonesia, India and other case studies shown in this Toolkit. These countries reflect, and have applied, a strategic and structured approach to the introduction of PPPs as a new and significant policy initiative.

What distinguishes the approach taken in these countries is their intention to adopt PPPs as a new way for delivering infrastructure and related services across a range of infrastructure sectors. Thus, a common approach is sought which can embrace for example road and rail transport projects and water supply and wastewater management. In some countries it has also embraced social infrastructure including the provision of school and hospital establishments and even prisons.

Further details on the steps to launch a national PPP program are provided in:



Draft Guidelines for Private Public Partnerships for Infrastructure Development.  
UN/ECE Forum on Public-Private Partnerships for Infrastructure: the Next Steps (PPPs). 2000.

Although the scale of application could be much smaller in low and middle-income countries, the same main steps still apply; the difference in approach would be in the level and scope of application of each step.

Three key steps are identified:

- **Step 1:** Establish a PPP taskforce
- **Step 2:** Develop and articulate a PPP policy framework
- **Step 3:** Identify initial projects

## Step 1: Establish a PPP taskforce

PPPs represent a policy at the heart of government, requiring the need for a Taskforce. Module 3 -> PPP Policy Framework -> Institutional Framework and Reform -> PPP Units and the Role of the Highways Agency describes the role and establishment of PPP units.

For an administration to embark successfully on a program of highway PPPs, this program must be regarded as a very significant policy initiative requiring the clear support of politicians and the most senior officials at the heart of government. This implies the serious involvement of the Prime Minister's Office, the Finance Ministry and the Ministry

responsible for Transport and/or Public Works and Local Government matters and any other Ministry which may be considering PPP projects.

To identify and co-ordinate the steps required to articulate the new policy and to put that policy into effect, it is necessary to create an expert Taskforce. Such taskforces are normally attached to the Finance Ministry, report to ministerial level and have high level access throughout the Administration.

To exercise the credibility and expertise required, the Taskforce needs to include experts across a range of disciplines (finance, law, civil engineering, planning and public policy) and for such experts to represent a mixture of Public and Private Sector experience. Critically, members of the Taskforce must be committed intellectually to the policy and have the presence and maturity to convince others. Support from an IFI can be invaluable at this stage to help guide the process and avoid mistakes made in other countries.

The work of the Taskforce will fall broadly into two activities, a division that is sometimes reflected in the organization of the Taskforce itself:

Development and articulation of PPP policy such that it is consistent with other policies within the Administration's overall policy framework. The policy will include descriptions of the legal, regulatory, risk, financial, PPP process and other component parts of an enabling environment. A PPP policy may need to be targeted at different audiences e.g. the general public, investors and as an internal government document and this should be kept in mind.

Helping to identify suitable initial (pilot) projects for subsequent project preparation, developing guidelines for partnerships including project cycle, draft model contracts and procurement methodology as well as the dissemination of PPP expertise.

## Step 2: Develop and articulate a PPP policy framework

The development and articulation of a PPP policy framework should be consistent with other policies within the Administration's policy framework.

The Toolkit provides detailed guidance on legal and regulatory framework assessment (Module 4 -> Legislation -> Framework Assessment) and on establishment of a PPP policy framework (Module 3 -> PPP Policy Framework).

The policy framework will provide statements describing the government's approach and commitment under a number of headings. The policy document need not be lengthy and government may not have already worked out in detail all solutions. It must however, cover and explain clearly all the key points of their PPP program and provide/ininstill sufficient confidence in investors that they will continue to develop their initial interest further.

The introduction of a PPP program may invoke examination of an array of policy considerations ranging from the constitutional to the legal, economic and social. One such key question, which in ways is also a political issue, is whether constitutionally an Administration can enter a long-term agreement which can survive its term in office. It will be of paramount importance to any prospective partner that the obligations of

the Public Sector under the contract will be respected by subsequent governments and that the Courts will uphold the contractual rights reserved to Private Sector Partner throughout the life of the contract.

Other constitutional questions that are likely to be raised will focus on the powers of an Administration to delegate the responsibility to carry out certain public service functions and/or the powers to allow formal or economic ownership of infrastructure and public service to pass into private hands. The introduction of a PPP may require the clarification if not change in the constitutional and legal position.

To clear the pathway for PPPs, other specific changes in the Law may be desirable or indeed imperative. Such changes may involve the introduction of a general concession law, amendments to procurement and tax laws. In relation to the first, experience has proven that it is better for a new law to express principles and introduce a general framework. At the early stages of a PPP initiative, it is normally counterproductive to attempt to enshrine in law a model contract.

PPP's may also require certain structural reforms in government which will require legislation. This can be the case where a public service is to be conducted by a Private Sector company where previously the service has been provided by a self-regulating State Body. It will then be necessary to create or appoint a Public Sector Agency to be responsible for policing the contract and protecting the consumer, public health, and environmental interests.

Beyond the need for formal legal clarification, the new PPP policy must be articulated in such a way that it is consistent with other economic and social objectives. Such objectives may include for instance regional development, the protection of employment and conditions of employment and the encouragement of small and medium-sized enterprises. A program of PPP's is most likely to involve the following two consequences:

- the redeployment of public sector workers into the private sector and
- a significant if not leading role for foreign operating and financing companies in the delivery of public services.

The Prime Minister's office and other Ministries must be prepared to cope with the political fall-out from these changes both within the body of the public employees and the wider electorate.

Moreover, the PPP policy framework may recommend the establishment of a PPP unit (Module 3 -> PPP Policy Framework -> Institutional Framework and Reform -> PPP Units and the Role of the Highways Agency).

*Specialized PPP Units are generally created in response to weaknesses in the existing government's ability to manage a PPP program effectively. Governments in different countries will suffer from different institutional failures in PPP procurement. PPP Units therefore need different designs in different countries, so they can address the specific government weaknesses concerned. In other words, the medicine must fit the disease.*



Public-Private Partnership Units: Lessons for their Design and Use in Infrastructure, EASSD,  
World Bank, PPIAF, 2007

A question that must be addressed under the financial framework is whether the PPP projects that are to be promoted will depend entirely on the users for the payment stream or whether the Administration or one of its dependent agencies will be partly or totally responsible for the payments. Payments to concessionaires can only come from users, from government or from a combination of these two sources. Policy will therefore normally reflect a desire by government to either have self-sustaining projects and/or minimize government contributions.

From these considerations flow two crucial issues:

- If projects are not financially sustainable or they concern services which conventionally have not been paid or fully paid for by the user, is the Administration prepared to introduce legislation to permit government support?
- If so, is there commitment to enforce the collection of such user charges and, where some categories of citizen are to be exempt from charges, is the Administration prepared to introduce for instance a voucher or viability gap scheme, with the cost of the resulting subsidies being paid for by the Administration?

If it is determined that projects will be promoted which will be partly or fully funded by the Public Sector, the implications for Public Finance budgeting and accounting must be fully weighed and a methodology developed by which annual amounts are allocated from the national budget to the relevant Ministries.

From the Finance Ministry's perspective, a decision must be taken on how to handle future PPP financial obligations and also how they should be reflected in the National Accounts, either on or off budget (Module 2 -> Public Accounting).

### Step 3: Identify initial projects

As important as the Taskforce's role in establishing a PPP policy within the overall constitutional and political context is the selection and delivery of the initial projects. There are examples of PPP policy being called into question not because it was flawed as a policy but in practice because inappropriate projects were chosen for PPP procurement.

Module 5 shows a development path for the development of PPP programs including the identification, prioritization and selection of PPP projects.

However, experience has demonstrated certain rules of thumb for initially selecting a few appropriate PPP projects. These are particularly important for the initial PPP projects where public and political sensitivity may be greatest and where a failure, or at least a perceived failure, may compromise the continuation of the program. The following are some of the more significant criteria:

- The project must be one for which there is plainly a social and economic need and the delivery of which is recognized as important to most political opinions. However, it is best to avoid grandiose politically sponsored schemes as they rarely meet other criteria.

- The project(s) should have only moderate risks, be reasonably well-developed (e.g. have an economic or preliminary study) and be ready in the sense of not having too many constraints to be overcome such as obvious and severe socio-environmental issues.
- The project should be one that involves known and tested technologies and for which there is a market place of potential suppliers with whom to enter partnership (ie not too complex and risky and technologically wise).
- The project should be one that is on the main priority list (e.g. the 5 year development program) of the sponsoring Ministry or Agency (there has been a tendency for sceptical Ministries to offer up their lower priority schemes for PPP procurement).
- Financially, the best projects are those that need little or no government financial support. However if support is needed, the project payment stream must be clearly affordable by the sponsoring Ministry or Agency (and/or supported by Ministry of Finance issued guarantees);
- The project should be of a sufficient size to interest international financiers and concession companies.

Ideally, the initial pilot schemes should represent a range across the key public service sectors and be representative of likely future schemes. From the Public Sector's point of view, it is very important from the outset to be aiming to develop methods and methodologies, which will be replicable.

Once one or more pilot project(s) is/are selected, the Central Taskforce should be closely involved in the process by which a Private Sector Partner is chosen. However, the lead responsibility for the Partner selection process should always be with the project's sponsoring Ministry or Agency.

The selection/procurement process should demonstrate certain characteristics if it is to be effective. It must be fair and transparent, it must conform with best international practice in competitive public procurement and it must arrive at a result whereby the Public Sector opts for the partner offering the best long-term value by way of quality, security of provision and cost. However, as well as the process being one that leads to the selection of the best value bid, it must deliver a result which is demonstrably good value to the public sector.

Developing an effective method and methodology for procurement and applying such during the procurement projects must go hand in hand with a well focussed program whereby both Public Sector officials and the national construction and service supply companies are led to understand and appreciate the detail and merits of the process. Effective means transparent and competitive procurement thus encouraging many and strong companies to prequalify and bid so that the government gets a good deal from a reliable partner.

The PPP Taskforce should provide guidance and expertise for the PPP program through the establishment of PPP policy framework and initial project preparation and tendering. In doing so, they become not a pure center of expertise but that they take a very active role in teaching and promoting the PPP message and become adept at countering the

intellectual and emotional objections that the initiative inevitably engenders. The Task Force, as mentioned above, can pave the way for a PPP unit (or units) within different government agencies e.g. Public Works/Highway Agency and Finance.

More details of project preparation may be obtained from:



Launching Public Private Partnerships for Highways in Transition Economies, Cesar Queiroz.  
World Bank, 2005

## Development Path for PPP

The diagnosis performed under Module 1 -> Enabling PPPs should allow an assessment of current performance of the road sector and of current status of the enabling environment for PPPs. This should provide a basis for identifying the nature and scale of the benefits which may be expected from PPP procurement and the scope of the required reforms to provide a suitable enabling environment.

The decision-maker has to make some initial choices; consultation and feedback shall be necessary to assess the results of the diagnosis and the possible courses of action. In the event that a PPP program is launched, there will be a need to define its mandate. Some of the issues to be flagged are the following:

- What are the limits or constraints set by the economic and administrative background?
- What are the possibilities offered by the current legal framework (legislation, contracts, legal culture, legal skills, etc.)?
- What are the functions / activities which can, politically and socially, be delegated to the private sector? (depending on both political choices and the capacity of the private sector to get involved in the process).
- Which implementation process is possible, politically acceptable and preferred? Shall the decision-maker adopt an incremental process, (easier to sustain but postpones some of the expected benefits) or decide on a “big bang” approach, likely to meet the objectives faster but with increased risk of failure?

Since the political, constitutional, legal, economic, social and cultural circumstances of every country differ, there can probably be no blueprint of how to make a PPP program work. Each Administration embarking on a PPP voyage must plot its own particular course. Nonetheless, all the experience of those who have gone before points to two clear pieces of advice.

The journey to a PPP program will be a long one. It takes several years to arrive at an up-and-running program and certainly longer than one political cycle. Therefore, the policy must have very committed high level political support and as a policy it must be broadly acceptable to the majority of political opinion.

It has become clear that it is unlikely that any Public Administration has officials who can, unaided, introduce a PPP program. It is paramount if the PPP introduction is to be a success that the Public administration is prepared to draw on and learn from experts in the field. For Governments and Administrations who have no budget for such help, the expertise can be made available through bilateral and multilateral assistance programs. The use of experienced PPP advisors is also paramount.



Draft Guidelines for Private Public Partnerships for Infrastructure Development.  
UN/ECE Forum on Public-Private Partnerships for Infrastructure: the Next Steps (PPPs). 2000.

Policy makers from low and middle-income developing countries, and especially where progress has been slow in PPP development, should also consider the follow specific guidelines before launching their PPP program:

- When starting from a low base of PPP development, the aim should be to incorporate key principles of good governance but not necessarily to have a complete PPP framework in place. A complete PPP framework can be worked towards while some projects are being developed and experience gained.
- Develop a proper PPP policy and consult widely on it. Take into account views (where they do not ultimately endanger the key concepts of transparency/competition and benefits).
- Build capacity in the public sector institutions and help develop capacity in the private sector. Convince the private sector that doing PPPs well means more and better business for them.
- The policy should encompass a flexible approach that fits the political, financial, economic social situation/conditions in each country. A comprehensive and rigid approach from day 1 is not desirable nor essential.
- If, in the initial stages, a pipeline of PPP projects is difficult to prepare, ring fence several 'good' projects and develop as PPPs, flexibly, but incorporating key minimum conditions for PPP.
- Work towards a pipeline of good i.e. bankable PPP projects.
- Develop 'good' projects, with help of multilaterals/good advisors, with the basic PPP principles of;
  - Good project preparation including sound draft tender documents incorporating the principles of competition and transparency.
  - Consider a range of highway projects; bridges, tunnels, new motorways, brownfield upgrading, maintenance, rural roads, port and airport accesses.
  - Consider a range of PPP modalities PBC, Concessions, BOT, Annuities etc.
  - Select projects that are reasonably large but not too complex or risky and if possible those that need little or no government financial support.
  - Understand and integrate risk management (identification, allocation and mitigation) principles in the selected projects.
- Obtain commitment at all levels, starting at the most senior across the board and within the line ministry/highway authority.
- Prepare projects on a realistic schedule-keep up pressure but not cutting corners to fast track.
- Work towards, have a view to the development of, in the medium-term a more comprehensive framework of laws, regulations and regulatory bodies. Regulate by contract initially.

## From project-level to program-level PPP

Each country has to choose its own course in determining the role of PPP in the highways sector. The path to development of PPP is represented on the figure below.

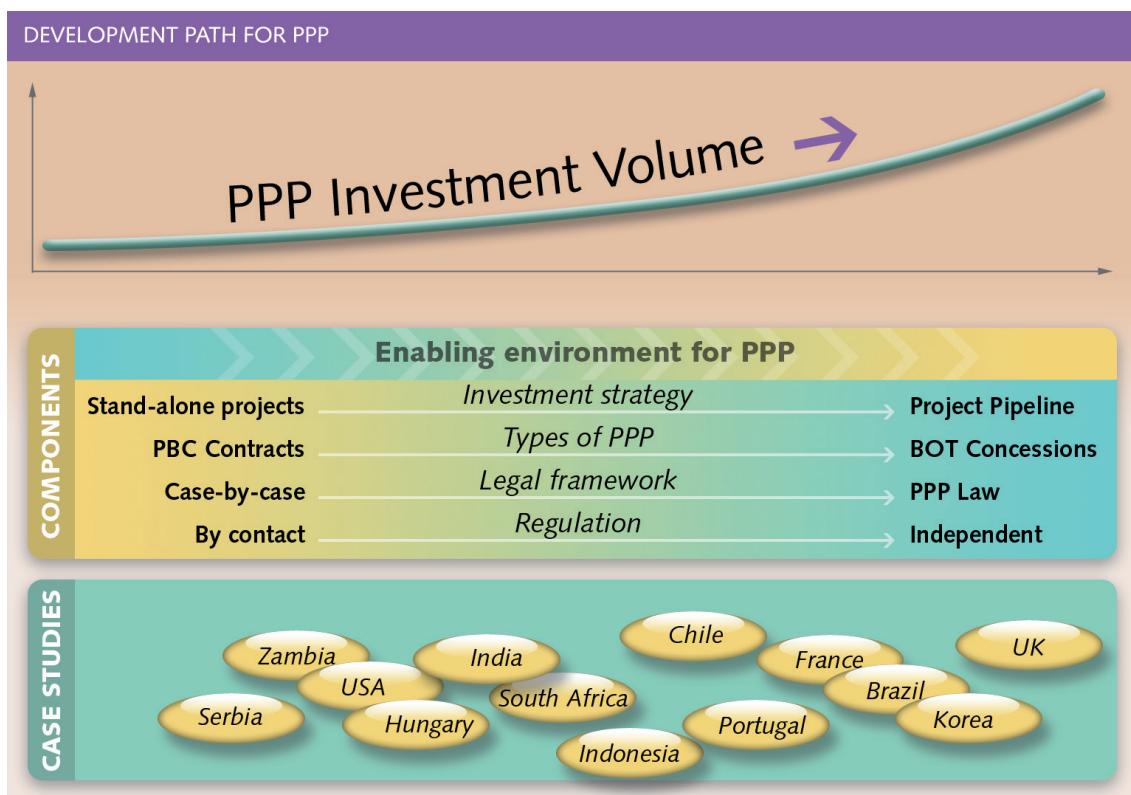
The general path of a given country will be to progress from project-level PPP development on the left to program-level PPP development on the right, a process through which PPP policy would be constantly refined in light of the experience from the initial PPP projects and the evolving political, economic and social environment in the country.

Project-level PPP could be particularly applicable in the development of flagship projects which could serve to launch a wider PPP program.

Bridge crossings are particularly suited to PPP and to an initial project-level approach. This is since they are expensive and challenging to build, generally encounter less opposition to tolling (due to previous charges on ferry crossings) and present more predictable traffic flows, due to the lack of competitive routes. In some cases, their financing could also benefit from the transfer of existing state assets and associated toll revenues. In the UK, the success of the Dartford, Severn and Skye bridge projects in the 1980s served to spur growth of the PPP program; in Portugal, the Vasco da Gama bridge crossing in the 1990s served as a flagship project for the development of its PPP program.

Project-level PPP could potentially be implemented with only limited and targeted structural changes within the PPP policy framework. This could involve a case-by-case legal approach and regulation by contract.

Program-level PPP is only likely to be appropriate where there is a significant program of investment (project pipeline) driven by a long-term investment strategy. Such a program also requires a substantial development of the enabling environment to enable the significant volumes of investment which could be mobilized.



The countries represented are those for which case studies are presented in the Toolkit (Module 6 -> Case Studies). In recent decades, as the theory and practice of PPPs has evolved worldwide, certain national governments have taken a strategic and structured approach to the introduction of PPPs as a new and significant policy initiative. Countries with the most developed programs include the UK, Korea, France, Portugal, Brazil and South Africa. However, Zambia is a good example of a country implementing consistent and progressive reforms with a steady pace of development of its PPP program which notably includes performance-based maintenance contracts. Other notable examples of countries that have successfully revamped their PPP programs include India and Hungary.

What distinguishes the approach taken in the countries included in the case studies is their intention to adopt PPP's as a new way for delivering infrastructure and related services across a range of sectors. In many cases, a common approach is sought to embrace for example road and rail transport projects, water supply and wastewater management, energy and telecoms with, in the more developed examples, the extension to schools, hospital establishments and prisons.

## Road map for PPP

The pace at which countries may be able to initiate PPPs or revamp their PPP programs will largely be influenced by the strength of the PPP drivers and the extent of the constraints to the development of PPP policy framework. The growth in capacity of both public and private sector players should also follow this pace of development, failing which problems are likely to arise in contract implementation, such as for PBC contracts as detailed in Module 2 -> Scope -> Specific Issues for Brownfield and PBC Contracts.

The road map may also be influenced by the following factors:

- In some countries, the existence of State Owned Companies that originally were a department dealing with public toll roads and then grows into a semi private semi public body can distort the competitive landscape, through 'taking' the best projects, winning projects through unfair competition or just hindering the PPP process,
- Traditionally, the public sector has provided public infrastructure and political considerations of this nature, political spelt with both a small "p" and large "P", may have affected progress.
- Governance and corruption influence the attraction of embarking on new types of projects which are not well understood and place the private sector (some of which have governance and corruption issues themselves) in an equal or possibly higher position than the public sector.
- It is likely that the private sector prefers to continue to do business under public procurement rather than a new possibly more expensive/riskier way and would pressure the public sector to continue with public procurement unless tenders can be unsolicited.

The diagnosis phase has allowed policy makers to identify and characterize:

- the areas of poor performance of the present system
- the efficiency gains that could be expected by enhancing private participation in the road sector
- the basic requirements to create an enabling environment for PPP

On the basis of these elements, a road map may be defined to implement PPP with the long-term objective of rationalization of the system. The agenda will consist of:

- identifying long-term reforms for expansion of the PPP program to a project-level program;
- reforming the road agency towards a commercial management of the road assets (assign responsibilities of each part of the network, involve users to gain support and psychological ownership, secure and stabilize flow of resources, introduce commercial management practices);
- selecting PPP options most suitable to address the specific objectives set up for each part of the network;
- preparation of a consistent planning of the above activities.

However, development of PPP shall be a continual and lengthy process through which the program shall develop through project-level and subsequently pilot project phases. Experience from the PPP projects implemented shall provide essential guidance as to future direction. Designing a comprehensive set of reforms for program-level PPP and waiting for all reforms to fully deliver before embarking on a PPP program is neither feasible nor recommendable. The important questions to be asked at this stage are:

- which PPP projects / options would be the most adapted to each part of the country/ region network?

- among those, which ones can be implemented immediately within the existing environment / framework?
- which options require prior outcome of long-term reform and would be implemented at a later stage?

The answers to these questions are the core of the strategy to be worked out. The limits of the “do now” (possible PPP at present) define the steps to be taken to enlarge the scope of PPP in the future.

## Adjust ambitions in project planning

Restructuring a country’s banking system or developing the local construction industry cannot be done overnight. All these in-depth reforms require a firm commitment from government, political stability, time and effort.

Meanwhile, policy makers should be reasonable in the selection and design of PPP projects and take into account the limitations imposed by country constraints. A modest but successful project is more beneficial than an ambitious project ending in failure.

PPP options involving private financing are usually the most complex and the most demanding of an adequate PPP policy framework.

Before deciding on a specific option, it must be borne in mind that a number of factors make transport infrastructure less amenable to private financing than other types of infrastructure.

Firstly, for some types of infrastructure, such as local or urban roads, the physical difficulties of excluding users who do not pay, or the high transaction costs of implementing direct user charges, make it difficult to achieve a competitive market. Secondly, privatization may not be politically acceptable where there is a perception of large, uncompensated income transfers. Thirdly, where there are substantial externalities (such as road congestion and air pollution effects) that cannot easily be addressed by market-based instruments, there is greater likelihood of government intervention. Fourthly, when traffic flows are low, profitability from user charges is also likely to be low. Finally, some transport infrastructure is so intertwined with spatial planning that governments are not willing to leave it entirely to the private sector.



Sustainable Transport - Priorities for Policy Reforms, Development in Practice.  
World Bank (1996), page 45.

The greatest potential for efficiency gains from privatization lies where monopoly protection has traditionally been strongest. The greater the number of dimensions in which prospects are good, the lower the risk to the investor, and the greater the probability of private non recourse finance.

PPP options involving contracting out of maintenance activities under public financing have demonstrated not only very promising results in improving efficiency and reducing

cost but also a lesser need for in-depth reform of the country institutional and legal framework.

Because PPPs are always complex, experience is an important success factor. Most officials who have been involved in the development of these types of project would recommend a step-by-step approach, starting with less sophisticated options and progressing to more comprehensive PPP schemes.



Principles for Private Sector Participation in Infrastructure, OECD, 2007.



Legislative Guide on Privately Financed Infrastructure Projects,  
United Nations Commission on International Trade Law, 2001 (pg 6-18).

## Module 2

# Key Components



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# Module 2: Key Components

## *Concepts and characteristics of PPP projects*

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## Module 2 Key Components



### Concepts and characteristics of PPP projects

Each PPP project must be considered individually. Whilst experience, whether national or international, provides valid and useful reference for project development, each project must respond to its own context, objectives and dynamic.

Module 2: Project Components presents the principal characteristics of PPP projects and describes the process of tailoring the PPP project to its environment. The key components of PPP projects are presented under five main headings.

**Scope** explains the importance of packaging PPP projects in order to implement them successfully covering scope, autonomy and pooling. It also considers the potential influence of packaging on competition.

**Risk** describes the four steps needed to define risk sharing, one of the main issues when considering PPP: (1) risk identification reviews the most common risks in PPP projects, (2) risk assessment provides an overview of tools to evaluate the risks, (3) risk allocation gives the main principles to share risk between the public and private sector with a focus on the allocation of traffic risks, (4) risk mitigation explains the tools available to mitigate those risks.

**Revenues** covers revenue and payments to the private sector, also known as the process for cost recovery. PPP may require a variety of revenue sources comprising the public financial support that may be required for a successful PPP implementation as well as user charges from the conventional methods (toll booth, vignette etc) to the latest toll collection systems (electronic tolls, free flow, heavy vehicle charge system).

**Finance** describes the methods for capital mobilization, both from the public and private sectors and including the emergence of infrastructure funds. It describes financial structure and financial assessment principles, including the weighted average cost of capital (WACC). Financial modeling is explained with an overview of the main financial indicators used to assess PPP projects and introduction to the financial models provided in Module 6 Tools.

**Public Accounting** provides a description of the impact of PPP on the State budget and their accounting treatment. In particular the issue of on or off-budget accounting is discussed.

# Tailoring appropriate PPPs

**Policy makers should design a PPP strategy that will identify which options will best respond the policy objectives of the national road network and the appropriate timing to implement them. Reforms of the public sector towards a more commercial management of the highway sector and the adjustment of the legal, economic and financial framework gradually result in an environment most suitable for PPP projects.**

This gradual approach does not mean that several options cannot be simultaneously implemented on separate parts of the network. Some countries have been very successful in designing a comprehensive PPP strategy involving performance-based maintenance contracts on regional roads and toll road concessions on the most heavily trafficked national roads.

It is important to bear in mind that the choice of a PPP solution should not be the result of any kind of unilateral decision and should be part of a clearly established decision making process compatible whatever the PPP solution. Designing an effective PPP should start with the identification of the main project fundamentals and in particular look at specific issues as well as considering a number of fundamental aspects.

It is the public sector's responsibility to set up the core features of the project and understand the relationship between factors. This is why advisors are so important as it is unlikely that government bodies, generally skilled in public procurement and engineering, will also have the necessary PPP, legal and financial experience.

No two projects are identical and a solution, even with proven efficiency, cannot be replicated mechanically. This is particularly true for PPP. For any given environment, there is no single solution but a range of possibilities from among which the decision maker has to choose.

Each project characteristic is interrelated with others. Initial project evaluation may elicit some knowledge of these interrelationships but it may not be until the project preparation stage that they can be analyzed, possibly with options, and then a choice made when they are fully understood.

Experience is a key factor of success in such a delicate fine-tuning exercise. Good project preparation (studies) with the appropriate advisory support is essential for decision makers in government to be able to make these considered judgments.

Constraints imposed on a PPP project can be:

- objective constraints such as from the type of PPP (Module 1), project background and project characteristics (Module 2), the available legal framework (Module 4) or within the implementation process (Module 5) or,

- subjective constraints from choices, objectives, political and social acceptance of private participation or enforcement capacity of the Government (Modules 3, 4 and 5).

Such constraints can be thought of as areas not to be entered if the project is not to be jeopardized. The area of the possible solutions is between these boundaries.

A suitable PPP framework with an effective long-term reform process to remove those constraints will help in increasing the size of the PPP pyramid (Module 1 -> Overview of PPP Experience -> Application of PPP), opening the field to a wider range of possibilities.

## Key project characteristics

**It is the public sector's responsibility to set up the core features of the project and understand the relationship between factors. This is why advisors are so important as it is unlikely that government bodies, generally skilled in public procurement and engineering, will also have the necessary PPP, legal and financial experience.**

The following key project characteristics need to be defined in order to determine the suitability of the PPP route and to identify the possible PPP options which may be suitable.

**The nature of the project:** The scope of PPP is very wide and features to be considered are significantly different (e.g. between a feeder road and a motorway)... However, any highway project may be suitable for PPP; the actual potential and type of PPP depending on the specifics of each project.

The availability of data from initial project preparation which assesses the suitability of projects for implementation under PPP, shall assist highway authorities in the planning of their overall public road program and budgets.

**Project investment cost:** Independently from the institutional setup, the cost of the project will be conditioned by the type of infrastructure (high-speed road, gravel road, bridge or urban ring road), its size (road or network length, volume and features of structures) and other features such as adverse geology, environmentally sensitive area, etc. For BOT-type concession projects, the transaction costs are generally higher than public procurement; as a result, a minimum investment cost for the PPP route is generally determined by PPP planners. Usually this minimum cost would be fixed at **USD 50 million<sup>1</sup>**, although in some cases, as much as USD 100 million can be regarded as

<sup>1</sup> The UK PFI program is no longer considering projects with a capital value of less than £20 million (USD 40 million), as other procurement routes are deemed more appropriate.

appropriate. BOT-type projects with a low unit cost such as 2 lane highways or gravel roads would thus require more kilometers of project to be incorporated into the package. However, this limit is less of a consideration for simpler forms of PPP (eg PBC contracts).

**Sources of benefits and potential revenue:** The benefits and revenue depend considerably on the level of the transport demand (traffic volumes) with the project and they may or may not be independent of the PPP option adopted.

The implementation of tolls will require trade-offs between financial and economic objectives (Module 3 -> Sector Planning and Strategy -> Planning Process -> Socio-economic Evaluation -> Economic versus financial analysis).

The assessment of potential revenue will be the central issue in all PPP options, but the projected revenue of each project will have different implications and notably concerning Project Finance schemes. For example, a project that can charge tolls at a level such that revenues can cover costs (i.e. cost recovery) will naturally be assessed by stakeholders differently from a project that has insufficient revenues and will require some type of government support

**Socio-economic features of the project area:** This includes a description of the area of influence, population (volume and distribution), characteristics of production and exchanges, access to/from economic centers, access to social services (health, education facilities), various social aspects (gender development, etc.). If the project is a component of an overall poverty reduction oriented policy, PPP design shall take these issues into account as well as describing the monitoring process to be implemented in order to check whether these objectives are being addressed after project implementation. These features will ascertain and justify the level of government support to the project.

**Function of the project in the road network and the transportation system:** This is a necessary step within program and project preparation (Module 3 -> Sector Development). The pattern may vary considerably according to the characterization of the reference (no project) situation and to the response provided by the project to the gaps identified. The project will probably influence transportation time, transport cost, structure and volume of flow; but the quantification and share of each impact will be specific to a given project. Indirect effects (employment), externalities (safety, environment) also vary significantly depending on the specific functions of the project or program.

## PPP Options

**The differences in project fundamentals, country constraints and government objectives prevent policy makers from opening a catalogue and choosing a ready-made solution to identify whether PPP offers good prospects, the functions that could be entrusted to the private sector and which types of solution are appropriate and could be implemented.**

Labels used in PPP jargon such as turnkey contracts, BOT (Build, Operate, Transfer), DBFO (Design, Build, Finance and Operate) PFI, Concessions or performance-based maintenance contracts (PBC) are useful to describe some of the broad options of PPP projects but rarely have single, clear definitions (Module 1 -> Defining the Partnership -> Main Types of PPP). In fact, each PPP solution is too complex and too unique to be characterized in one word or acronym. To define clear-cut categories would always result in projects falling between two categories as their characteristics apply to several categories. In other words, there are an almost infinite number of solutions that seem better described by a continuum than by categories.

Although it will not be possible to apply universal rules and recommendations, defining a PPP solution still requires answering the following fundamental questions:

- 1 What is the scope in PPP terms of the Project i.e. what is to be assigned to the private sector to produce?**
  - Which tasks (design, build, maintenance, operation, financing, etc.) are delegated to the private sector?
  - What is the level of initiative (autonomy) allowed of the private sector and how is it controlled?
  - Will the project be implemented as a single link or as part of the network within a pooling (aggregating) system (geographical area, types of roads)?
- 2 How are risks to be managed?**
  - What are the risks and how will the project risks be allocated between the public and private sectors. How do risks evolve during construction and operation?
- 3 How will the project costs be reimbursed?**
  - What type of cost recovery system (tax payer or direct and/or indirect user, specific taxes, dedicated resources, private sector remuneration linked (or not) to recovered costs, external costs, etc.)?
- 4 What is the fiscal impact or implications for Government?**
  - Which methods of financing (Government budget through taxes and loans, national savings or international funding, private financing with or without support from Government or International Funding Institutions (IFIs) are possible and suitable)?

The fact that each of these questions has a wide range of answers resulting in an almost infinite variety of combinations leaves the project designer with the difficult task of adjusting project parameters appropriately in order to suit project needs.

# Scope

**The possibilities to define the scope of a PPP project are as wide as the range of options available. For a given project, this scope can encompass some or all of the tasks implemented under a number of smaller contracts under conventional procurement.**

Scope allows the integration of services under a PPP contract and the full benefits of private sector efficiencies (Module 1 -> Defining the Partnership -> Advantages). The Toolkit defines scope as the nature of the works, a definition of the performance indicators for maintenance works, packaging of tasks entrusted to the private sector ('vertical packaging') and packaging of projects included under the same PPP contract ('horizontal packaging').

Scope has a fundamental influence on competition and the interest of the private sector and its definition is thus highly country-specific and dependent on the maturity of the local PPP market. Notably in those countries with little PPP experience, the definition of scope shall be an interactive process in which the aim shall be to optimize private sector efficiencies and ensure their interest in bidding, whilst ensuring the compatibility of the project with local capacity of the public and private sectors. Scope will be constantly refined during the project preparation and tendering process (Module 5 Implementation and Monitoring).

## Nature of Project

The initial element of defining the scope of the PPP project is to determine the nature of the project to be delegated to the private sector.

The nature of the project initially comprises the identification and description of the works to be performed.

In maintenance and operation contracts, the operator's role is either only to carry out operation and maintenance (using quantity-based and performance-based maintenance contracts), or to carry out, in addition, at the beginning of or during a contract, new reconstruction, rehabilitation, equipment and signing works, or general surfacing (surface coating, asphalt concrete, etc.). The problem of how to determine and describe the tasks entrusted to the operator arises differently in each case.

The consideration of the nature of the project will need to closely consider the selection of components which will produce the most favourable response from the private sector, and to the highest benefit to the public sector.

## New construction

The private sector can produce considerable efficiencies for construction of new infrastructure under PPP. New construction needs to be described as for a conventional contract, although a more preliminary design level may be preferred with related performance indicators and design constraints and considerations.

## Performance-based maintenance contracts

The nature of relations between the road authority and the operator is very different from a conventional contract, since the choice of the works to be performed is left to the initiative of the operator on the basis that "it is the result that counts".

The responsibilities transferred to the operator are therefore very substantial. The pavement entrusted to him may have hidden defects likely to significant impact on the works which will need to be carried out to keep them to standard, especially for longer contracts. It is therefore necessary, especially for the longest contracts, to pay particular attention to the exhaustive nature and the quality of the information defined and provided to the operator.

The list of available information which needs to be defined and provided to the operator varies from one contract to another but generally comprises:

- **construction documents:** design memo and calculations, reports on the construction itself, handing-over reports, etc.,
- **documents relating to the equipment:** characteristics, dates of purchase, guarantee certificates, etc.,
- **maintenance log books,** road data bases, bridge and tunnel data bases, road management systems, bridge management systems, emergency and accident data, traffic data, historic and forecast spending, etc., if any, should all be handed over to the operator.
- It will generally be necessary to add to existing information by making a detailed expert appraisal of the road, its equipment and structures.

As far as possible, and with the possibility in mind of disputes arising, it would be advisable for this appraisal to be carried out by an entity quite separate from the road authority. As the winner of the contract will not have been designated at the time of making this expert appraisal, it cannot be approved by both parties. It is therefore very important to provide, at the start of the contract, for a period during which the operator may himself make a detailed inspection of the structures and request any adjustments/modifications to the contract.

## Operation

The scope should also define precisely what operation tasks are to be performed. The operation tasks that can be performed by the private sector are the following:

- Traffic management in normal situations, during emergencies (events) and during works,

- Relations with road users,
- Co-operation with police and emergency services,
- Management of third-party claims, etc

There is a close relationship between the maintenance and the operation of a road network. For example, to reduce the impact on traffic, maintenance works are planned and grouped together as much as possible. Safety issues due to poor network condition and identified through analysis of accident data are addressed by carrying out the relevant maintenance works. Therefore, it is generally recommended to have a single contract for both maintenance and operation services rather than two separate contracts.

Like maintenance contracts, operation contracts can be quantity-based (time spent by the contractor's staff, number of road users' phone calls dealt with, etc.) or performance-based. Performance requirements are, for example, periods of traffic congestion per month, road user satisfaction measured through periodic surveys, emergency response, accident reduction, accuracy of road closure bulletins, etc.

All information relating to existing equipment (variable message signs, sensors, transmission equipment, computer equipment, etc.) must be provided to the operator. All instructions, instructions for use, guarantees, etc., relating to this equipment must be handed over to the operator.

## Packaging Tasks

Packaging tasks refers to 'vertical packaging' of tasks or activities within the PPP project.

### Combining the tasks of highway maintenance, construction and operation

The scope of work to be entrusted to private firms is of paramount importance in the design of a road project. Most countries are used to contracting out design, construction and to a lesser extent maintenance to the private sector. PPPs allow not only to enlarge this scope of work to further responsibilities such as design, operation, management, revenue collection and financing the infrastructure, but also to package them into a single contract. Such arrangements directly influence the potential efficiency gains expected from the project but also have implications in terms of risk and competition.

For the Contracting Authority, the conventional way to build a highway involves:

- entering into a contract with an Engineer to whom it entrusts the preparation of a design under his direct supervision,
- with or without an Engineer providing assistance, signing a series of separate contracts with various contractors, who carry out their work in accordance with the specifications drawn up by the Engineer.

The contractors either sign a contract with the Contracting Authority individually or as a joint venture, the Engineer intervening periodically; to ensure that the works are being correctly executed, that the contract provisions are complied with by each contractor and to advise the Contracting Authority should any difficulties arise.

The tasks of design, finance, build or rehabilitate, operate, maintain are performed successively under the control of the Contracting Authority. Under PPP, these tasks may be packaged totally or partially. Almost all the arrangements are possible, each kind of packaging leading to a specific PPP scheme (BOT, BTO, DBFO etc). Financing (providing the investment cost and/or collecting user charges) may or may not be covered in the scope. An open question is also that of legal ownership: Is the infrastructure owned by the private sector (and for how long) or is it to be immediately transferred to the public sector?

### Efficiencies and limitations of packaging

In order to ensure efficiency gains by the private sector and use of the most adapted technological solutions, contractors and operators must be able to work effectively within a PPP consortium.

By packaging the tasks entrusted to the private sector under a single contract, PPP encourages consolidation of the highways sector. This is all the more so in developing countries in which the highways sector is often fragmented, including separation of design and construction activities, absence of product manufacturers from the design process, absence of actors in highway operation, lack of private sector contractors in maintenance works (which often remain largely under the public sector) and disparate training and professional establishments which hinder professional exchange and development of synergies and processes.

Whilst such fragmentation of the highways sector constrains the development of PPP projects, reducing its potential scale and speed of implementation, it also provides the potential of PPP projects by encouraging these actors to communicate, cooperate and, eventually, consolidate in order to provide an integrated and efficient service to the Contracting Authority. PPP consortium shall thus develop interaction and collaboration within the highways sector in the search of improvements in products and processes.

From the perspective of the Contracting Authority, the packaging of tasks granted to a contractor or consortium under PPP (who may in turn subcontract under his own responsibility), by broadening the scope of tasks a contractor is in charge of, allows him to deal with only one actor who has the responsibility of delivering the entire project in conformity with the contract and all the regulations (including environmental). Coordination and management of the related activities thus become the contractor's responsibility which reduces the chances of misunderstanding among the various participants, the difficulties of exchanging information and the risks of contractual claims. Moreover, transaction costs are reduced even if, in fact, they are partly internalized by the general contractor.

When the tasks include maintenance (and operation), the potential efficiency gains are higher still; in particular concerning the balance between the initial investment and maintenance and between developing infrastructure and improved operation and traffic management.

Moreover, the risk of claims is again lower and the contractor shall deal with under-performing subcontractors, notably whenever guarantees are triggered.

The chosen solutions within a project and the operation and maintenance costs are directly linked to each other. As the tasks are broadened to include for operation and maintenance, the contractor is encouraged to produce work of high quality whilst adopting solutions which will meet the project's overall life-long requirements for the Contracting Authority. This broadening would be reflected in the tasks assigned within the PPP contract for the development process:

- **No design at all** - only needs are defined
- **Outline design produced by the Engineer.** The contractor is linked by functional provisions and offers the technical solutions which correspond to the performance required;
- **Preliminary design** and appropriate technical solutions produced by the Engineer.

As a general rule, the broader the scope, the lower the overall costs of the infrastructure. This results from the streamlined procedures and enhanced cooperation even if the cost may initially appear higher since the contractor is responsible for more tasks and bears more risks than in the case of the conventional approach.

### **Autonomy (initiative) granted to the private sector**

Autonomy is a key element for encouraging efficiency gains which stimulate innovation, thus allowing the flexibility for adapting to changing situations and the optimization of resources (e.g. allowing efficient trade-offs between initial and deferred investments).

The level of autonomy should be carefully adjusted to the capacity of the private players to handle greater responsibility. This implies clear rules in both legislation (standards) and contracts.

The main fields concerned by autonomy are:

- Design and technical definition of the project
- Project management

### *Design and technical definition of the project*

#### *Flexibility in applied technologies*

Private firms can come up with innovative techniques and processes, equipment or material that would reduce the project cost or provide a better service for the user. Such initiatives should be encouraged.

However, all technology used should have reasonably proven efficiency and firms should demonstrate their ability to properly use these techniques. An adequate legal framework of laws, regulations and contracts shall clearly define responsibilities and protect the community.

## *Project Management*

### *Investment planning and scheduling level of service*

Autonomy in determining a balance between the initial investment, maintenance and operation costs may also allow a lower global cost to be reached and sometimes provide an advanced level of service. The Contracting Authority can demand that the contractor will implement good quality construction in order to avoid frequent rehabilitation and high maintenance costs since he will be the future owner of the road.

The private firm may prefer to spend less on the original pavement structure and carry out reconstruction at an early stage, when project finance is more favorable. Another example could be found in the use of electronic traffic management techniques which may succeed in improving the capacity of the existing road, resulting in additional investment being postponed and the delivery of upgraded safety and guidance services.

### *Commercial policy and tolls*

This issue is mainly addressed in Module 2 -> Revenues. Nevertheless it may be of some help to stress that the private and public sector stakes are markedly different; indeed the private sector takes care of the financial issues of the infrastructure for which it is responsible, whereas the public sector is concerned about the economic and social issues of the transportation system as a whole.

This does not mean that the private sector is only concerned about short-term issues and the public sector only about long-term ones; e.g., the private sector is concerned by its public image and may choose a lower immediate return to save this image in the medium-term (using a commercial and pricing policy which does not provide higher turnover immediately but avoids congestion and even discomfort).

If there is a gap between the financial profitability and the socio-economic benefits of a project, it can be filled with a public subsidy. That is where the project has sufficient benefits to justify its use of public resources under public procurement but insufficient financial viability to meet the requirements of private financing.

### *Operating policy*

When managing an operating policy, the same concerns are at stake for the private sector. It wants to be accepted and to increase turnover when direct user charges are being collected, and its public image and the perceived level of service are equally as important as the technical issues.

Furthermore, the private sector also shares the concern to maximize traffic in order to maximize its turnover and profits, which shall also improve the economic benefits of the road. For these purposes it will pay a great attention to optimize its operating policy. Once again, flexibility is required, which may allow innovative solutions to be found (e.g. during the construction phase).

An adequate legal framework of laws, regulations and contracts shall clearly define responsibilities and protect the community.

### *Organizational set-up*

The allocation of risks between the different private players and regulation by the public sector lays strong obligations on setting up an appropriate organizational structure or scheme. Nevertheless the supply of public services by an autonomous entity, whether public, semi-public or private, rather than by a government department, has a number of advantages. A convincing advantage is that a company can design, build and operate a motorway more efficiently by having a time horizon which is greater than that of the annual budget and by operating with greater flexibility, taking global cost into account and optimizing investment, maintenance and operation costs alike.

This autonomous entity does not have to be private to be efficient. What is important is accounting discipline, protecting its image and know-how.

The contracting policy between administrative departments adopted in a number of countries, responds to the same concerns with incentives and identification of responsibilities.

### *Benchmarking*

The creation of autonomous entities combined with contracts makes it possible to adopt a benchmarking procedure, either through a process of emulation between public or para-public entities, or through competition in a market context where the entities are private enterprises.

Where the private entity has exclusive rights, and the contract period is long (as is frequently the case in the field of road infrastructure projects), there is competition to enter the market, but none within the market place, and it is important to establish incentive contracts and restrict the economic rent which the private enterprise can extract as a result of the information advantage in its favor.

It is therefore extremely useful, if not essential, for the regulator to have a set of reference points from a number of independent operators for benchmarking purposes.

## Packaging Projects

The packaging of projects serves to determine the "horizontal scoping" i.e. the composition of the sections of highways and/or works to be included in the PPP project.

### Pooling of road sections

Pooling or packaging of projects within a PPP involves entrusting one firm with the construction, rehabilitation and/or operation of a package of road links or structures instead of a single link or works. The package may be grouped together on the basis of geographical parameters (all in the same area) or on the basis of functional characteristics (e.g. parts of a motorway network).

Pooling systems can generally be politically or economically justified by two reasons. The first one is that there is a "network effect," whereby network expansions provide added

value to users of the initial network who then accept to pay for the network extensions. The second one is that road users feels sufficiently united and interdependent so that users from one part of the country accept to pay for the financing of an infrastructure in the opposite part of the country, even though the likelihood for them to drive on those roads is very low.

**Pooling is particularly relevant for brownfield operational and maintenance concessions which may be composed of a number of sections which are financially unviable independently to rehabilitate and/or maintain but financially viable collectively. This is largely since there is a “cut off” length under which maintenance activities are not attractive for Contractors due to the cost of the equipment needed.**

It may also be possible to combine existing infrastructure facilities and infrastructure facilities to be built or rehabilitated in the same package. Moreover, the package may consist not only of roads, but of a global transportation system, especially in an urban area or in transport corridors.

The incentives for pooling of road sections are:

**Planning flexibility.** Beyond the decision concerning which roads should be built and/or maintained, the sequencing and organization of such operations is essential to optimize their function within the network.

- Transaction costs are high and can be offset in larger packages by reducing the number of contracts to be prepared, negotiated and awarded.

**Improved efficiency.** This may be achieved, as large packages allow the following: construction and operation to be standardized, technology and economies of scale in the supply of materials and the use of equipment.

A road system is at its most effective when the entire network is complete (“network effect”). Moreover policy-makers can have an active road management policy, led by general planning objectives such as:

- connecting remote regions to the network to boost their economic development;
- opening connecting routes between major road links and increasing the general efficiency and economic return of the network;
- proposing alternatives to mitigate negative impacts on environmentally sensitive areas;
- anticipating economic growth in order to extend the network.

Tolls may be harmonized. If a contractor's remuneration is based on tolls, when projects are considered on a case-by-case basis, toll rates have to be fixed according to traffic levels and project cost, leading to substantial differences from project to project or region to region. Pooling allows toll rates to be harmonized in the concerned “pool” area, usually resulting in less confusion or feelings of unfairness for road users.

### *Cross-subsidization*

Pooling systems have been widely used, particularly in Japan, Italy and France on toll roads to allow cross-subsidization, i.e. resources to be drawn from a profitable section to

compensate a lack of revenue on a less profitable one. For economically viable projects with weak financial potential, pooling is a powerful alternative for Governments wanting to implement a toll system. It allows decisions to be made on a network-wide rather than a route or segment basis.

However, such a pooling system internalizes cross-subsidy between road sections, rather than leaving it external by government transfers from increased tax payments from profitable sections and to subsidies for unprofitable sections. They thus require complex accounting and financial mechanisms to manage and regulate the transfer of resources from one infrastructure to another. Setting up these mechanisms could lead to hidden, extra (not due) subsidies that would decrease the economic benefits of the project. Moreover, during the project lifetime, unforeseen circumstances often lead to project restructuring and subsequent negotiations between public and private parties. A pooling system makes evaluating the situation even more complex and difficult.

If spread to the entire road network, a pooling system would be equivalent to a general tax-based funding system, but penalized by the additional costs of toll collection (tolling often leads to an economic sub-optimum). Pooling should be limited with clear objectives.

On account of such issues, Japan has instituted a 50 percent limit on expressway development costs that may be paid from revenue pooling cross-subsidies.

### *Pooling and risk*

Large lot sizes and pooling are an efficient way to mitigate risks:

Setting up a mix of risky and less risky projects allows an average level of risk to be reached. Moreover, work planning may be improved based on the results of the first phase of the works.

Adding a new infrastructure onto an existing one (phasing of road development) allows the risks involved in the construction and operation of the initial infrastructure to be avoided and the level of aggregated risk to be reduced.

However, in the event of cross-subsidy, the political issue with respect to people in one region not wanting to subsidize the other regions may be a potential source of problems as regards the acceptance of user charges (willingness-to-pay).

### **Stand-alone projects**

Many PPPs focus on the construction and operation of a single road linking point A to point B. In this case a balance must be found between the length of the infrastructure to build, the traffic and the tariff.

PPP for single link may be unsuccessful when they are the first to be tolled in the country and/or when a toll free alternative is possible for roads users. In order to be attractive for road users, toll roads must enhance the level of service: i.e. reduce travel time, increase road safety, provide users with services, etc. But the road user is more

likely to benefit from these improvements when they are available all along his itinerary and not restricted to a limited part of it.

For instance, the perception of benefit for a tolled 50 km motorway stretch may be reduced if the journey also includes an additional 300 km of unsafe road, with half the driving speed of the motorway or in congestion. The time saved and the comfort gained on the toll road may be a small proportion of the time needed for the other 300 km. Therefore, toll roads should ideally comprise a complete itinerary between major cities or be integrated in an existing toll road network. However, this notion is a guiding principle rather than a rule: experience with the M6 toll in the UK shows that drivers are willing to pay considerable amounts to drive along a relatively short piece of uncongested new road.

### *Bridges and tunnels*

Stand alone infrastructures like bridges or tunnels can be more easily tolled since most of the time there is no free alternative. Therefore the traffic risk for the private partner is considerably mitigated and makes these contracts particularly attractive for private investors. Moreover, the cost to build such an infrastructure is very high and private finance of such infrastructure allows the public authority to use available budgets for the rest of its national highway program.

Bridges or tunnels also offer a clear improvement of infrastructure, whether replacing a lengthy ferry crossing or deviation or a mountainous crossing, and a significant economic benefit. Whilst they are very expensive per km, they are limited in length so that the actual toll charged is low in absolute terms (but high per km) and therefore more politically acceptable. However, approach roads to the bridge or tunnels built with public funds may be considered as a gift in kind.

Many countries have no or very few toll roads when many bridges or tunnel are tolled (eg UK).

## Influence on Competition

The scope of PPP projects, through packaging of tasks and projects, is a key component in providing the extent of competition required to deliver effective PPP projects. In general:

- The broader the scope of tasks in a PPP project, the weaker the competition.
- The size of a PPP project directly impacts on competition, both positively and negatively.

Broadening the scope of tasks may be an efficient way of mitigating risk (at least for the public authorities). The main contractor, whilst accepting a larger share of the risks and remaining responsible to the public authorities, allocates risks among the sub-contractors. A broad scope of tasks shall require a well-established contract framework and skilled public authorities to manage and regulate the PPP contract.

The number of contractors who are able to manage large contracts may in some countries be relatively low, in which case there would not be much competition in the market.

Moreover, the general contractor may have a dominant position vis-à-vis other contractors as well as vis-à-vis subcontractors with the associated risk of abuse of power in taking unfair advantage of such a position. However, a small project size may discourage large efficient contractors, not encourage economies of scale and lifecycle cost benefits and be inefficient under PPP due to transaction and management costs.

A PPP project is always a subtle balance between competition and cooperation. Basic principles should be applied within the very specific nature of each country, market and project. The government, through its advisors, should consider each project individually and draw from the experience of other countries and advice from multilateral/bilateral agencies to plan their approach to PPPs.

Unsolicited Proposals may be acceptable to government in some cases if the project is eventually tendered out (Module 5 -> Procurement -> Unsolicited Proposals).

## Brownfield and PBC contracts

### Packaging of tasks for Brownfield Operational and Maintenance concessions

PPP may not only concern new highways but also highways already existing and operated (Brownfield operations). In this case the project mainly comprises the transfer of maintenance operations to the private sector. These kinds of PPP are the so called Performance-based Maintenance and Management Roads contract (PMMR).

If in addition to the Management and Maintenance tasks, the tasks are expanded to include the rehabilitation, reconstruction or upgrading of the existing road there such PPP are called Output and Performance-based Road Contracts (OPRC).

In the last years, OPRC contracts have been replacing PMMR mainly because they make Road Maintenance a more attractive business for contractors.

These kinds of PPP are mostly service contracts because the contractor has to ensure that road users get a certain level of service. The larger the length of the road network in the PMMR/OPRC contract, the more attractive the contract is. For Brownfield operations the packaging task focuses on the selection of roads with similar characteristics or functions in order to improve efficiencies and improve the chances of success of the contract.

### Introducing PBC to developing countries

Where maintenance has not been previously undertaken under a PPP type contract, many local contractors will be new to the business and will need training on the issues. There are examples of countries where there have been few bidders for maintenance work because many contractors feel they cannot manage the work and so will lose money. Contractors will need to understand that productivity of staff and equipment will be less (compared with road construction) and that operations can be very spread out in time and location, which are also certainly going to be more expensive to supervise. Contractors also need to understand the basics of road deterioration and the timing of

maintenance. Technical assistance to support highway agencies can be complemented by focused, initial assistance to the private sector where this is needed and this can also encourage the private sector to continue training under either joint or individual funding.

Some countries demand a detailed maintenance management plan to be submitted for performance based maintenance bids- often based on modelling by HDM.

Since payment is based on performance standards rather than on work done, there can be a mismatch in the time profile between expenditure and revenue for the work. This often results in the contractor either pre-financing the work at a greater rate than a normal contract (and he will charge a higher price as a result) or receiving funding earlier to perform work later (e.g. periodic maintenance). Seasonal factors are often strong drivers of such cycles (eg periodic maintenance after the rainy season).

Performance-based contracting relies on penalties being applied in the case of poor quality work or of the contractor refusing to implement the required works to improve the level of service. They can thus only function effectively if the contractor is at times earning profits whilst at other times subsidising higher costs, i.e. absorbing the variable requirements for maintenance work whilst maintaining a constant level of service to the user. On their side, the Contracting Authority must ensure prompt payments for contractors who provide the required level of service. However, in many countries, there is a poor history of applying penalties to contractors, for example, in not cashing the bonds supplied by the contractor.

Within weak enforcement for such contracts, the contractor will be unlikely to seek to lose money to maintain the required level of service, thus weakening their ability to deliver the required level of service and value-for-money to the road user.

It is sometimes argued that performance based contracts lead to less corruption. In fact, the incentives for, and nature of, corruption will change compared with other arrangements.

## Performance indicators for maintenance works

The choice of the performance indicators should take two concerns into consideration:

- provide an adequate level of service to users
- preserve the road heritage.

This choice should also take into account the use which will be made of them. Depending on the contracts, not respecting the required performance levels may be penalized in different ways e.g. through;

- Financial penalties
- Formal summons to carry out improvement works, and in case of default, having the works carried out by a contractor chosen by the road authorities, at the operator's expense,
- Financial penalties up to a certain level, then formal summons to carry out the works.

As far as possible, performance should be quantifiable and measurable. Even if the measurement method is not standardized and even if it is not very easy to carry out, the fact that the engineer can appraise it at a glance and that it can be confirmed by an estimate, is already a major advance to provide a legally solid basis for applying penalties. Concrete examples of qualitative indicators are given at the end of this section.

Some imperfections are impossible to measure. They are qualitative and fall into the field of the art of the engineer. They should however not be ignored in contracts.

Two types of indicators are used:

- **Global indicators**, combining several elementary indicators, which aim to provide global information on the quality of the road. Even if they are used as performance indicators in some contracts, these indicators are better adapted to the global assessment of the quality of the networks, useful to the public authorities for determining the means to be devoted to them.
- **Elementary indicators**, relative to certain specific characteristics (evenness, skid resistance, cracking, etc.), which, if not respected, incur penalties or formal summonses to carry out the necessary improvement works. This second category of indicator should be given priority in contracts.

According to the chosen contractual modalities, one or two levels may be determined for each indicator (example of this second case: penalty if a first level is exceeded, obligation to carry out improvement works if the second is exceeded). The World Road Association (PIARC) and the OECD Transport Research Board have published reference documents on road networks.



Integration of Performance Indicators, PIARC, 2008



The Quality of Road Service, Evaluation, Perception and Response Behavior of Road Users, PIARC, 1999.



Development of Tools for Performance Measurement, PIARC, 1998.

As far as qualitative indicators are concerned, the best reference works are the following:



Road Maintenance Handbook, Practical Guidelines for Rural Road Maintenance, PIARC, 1994

Originally produced for Africa, it may in fact be applied in a large number of countries, excepting those subject to severe winter conditions. It also has the advantage of existing in English, Spanish, French, Portuguese and Khmer.

It gives very precise information both concerning defects in pavements and ancillary areas and on how to correct them.



Road Monitoring for Maintenance Management, Volume 2:  
Damage Catalogue for Developing Countries, OECD and World Bank, 1990

This catalogue, which provides photographs of the defects along with a description of their causes and remedies, is an interesting tool.

In what follows, pavement performances of earth and paved roads and those concerning the ancillary areas will be distinguished.

## Pavement

### *Unpaved Roads*

The wide variety of local situations, depending on the nature of the soil, the climate, and the road environment, the characteristics of the convoys likely to travel on the pavement, etc., mean that the performance criteria will inevitably be very different from one country to another.

The main types of deterioration are as follows:

- Deformation, due to materials being worn away under traffic (gravel loss), rutting or subsidence/settling.
- Potholes.
- Corrugation.
- Ravines forming due to water flowing down the pavement.

These may be characterized by direct or indirect measures through their consequences on traffic conditions. Performance-based maintenance contracts for earth roads in Chad are a very good example. They use the following indicators:

- Traffic usability in all weathers for light vehicles, at an average speed depending on the season (dry or wet) to be specified in the contract,
- width of corrugation (e.g. maximum < 4 cm; average, per 50-m section, < 3 cm),
- depth of rutting (e.g. maximum < 5 cm; average, per 100-m section, < 3 cm),
- total pavement distress surface area, such as potholes, sandy pockets and gravel pockets (e.g.: < 60 m<sup>2</sup> per km; and unit surface areas of these distresses < 1 m<sup>2</sup>),
- tolerance over the useful pavement width for traffic (e.g.: 20 cm less than the pavement width specified in the contract),
- tolerance on the height of the pavement axis (e.g. 3 cm less than the theoretical vertical alignment, except during the period when regraveling work is no longer possible).

## Paved Roads

### Quantitative Indicators

Internationally, there is fairly wide agreement on the choice of the main indicators which should respond to the dual objective of maintaining the quality of service to the user and preserving the road assets. The measurement methods have also been subjected to many comparative tests (particularly concerning evenness and skid resistance) which are the basis of a fairly wide international consensus. Despite this, the contract will have to be very precise in determining tests and measurement methods.

Of course, the precise choice of these methods as well as that of the thresholds to be set is for the specialists to decide.

The following table lists the most frequently used indicators for flexible pavements;

FREQUENTLY USED INDICATORS FOR FLEXIBLE PAVEMENTS		
Unit Indices	Surface/Quality of Use	Asset Preservation
Evenness	✓	
Skid resistance	✓	
Macro texture	✓	
Rutting	✓	
Raveling	✓	
Potholes	✓	✓
Cracking	✓	✓
Deflection		✓

For concrete pavements, evenness, skid resistance, macro texture, cracking, faulting, and pumping are the most frequently used indicators.

- Other quantitative indicators may be added.
- Maximum height of water accumulation after a storm.
- Maximum level difference between the pavement edge and the shoulder.
- Qualitative Indicators.
- Those most frequently mentioned in contracts are the following:
- Pavement cleanliness, free of gravel, debris and slippery matter.
- Rapid treatment of areas made slippery by accidental spills.
- Acceptable wear of marking products (paint).

## Roadside ancillaries

A few examples of quantitative indicators can be given: maximum height of grass on the verges, top of the embankment and ditches; minimum height between the road surface and the lowest branch of any tree; maximum water flow of a drainage system.

- The other indicators are qualitative and generally concern the following points:

- Efficient drainage systems both on the surface and underground channels.
- Shoulders in good condition, with no signs of erosion and with a sufficient slope.
- Preserving the grass cover in grassy areas.
- Caring for plants and trees in planted areas.
- Pruning trees overhanging the pavement and felling those likely to fall down.
- Keeping signing, reflectors and safety barriers in good condition.
- Cleanliness of roadside and amenities.
- Good condition of safety equipment.

### Bridges, Tunnels, Retaining Walls, Drainage Structures

Routine maintenance can be performance-based according to quantitative and qualitative indicators (condition of safety equipment, aesthetics of retaining walls, efficiency of drainage systems, etc.).

In most cases, the interval between two sets of major maintenance works is longer than the usual term of a performance contract. Thus, these works can not be generally included in the contract, except as initial rehabilitation at the beginning of the contract or as additional services at the public authority's request during the contract.

For long contracts, these works are usually included. In this case, it is desirable to stipulate in the contract the frequency of inspection visits which the operator should make (e.g. a brief visit every year and a more detailed visit every five years). The observations collected during these visits should be described in detailed reports available to the road authorities.

### Performance indicators for operation

The choice of these indicators should of course be adapted to the road characteristics (motorway or ordinary road, toll road or free road) and to its function (urban or inter-city road, for example).

It should be underlined that the requirement level should remain reasonable as any extra expense will in the end be paid by the user or from the budget.

The requirements most frequently encountered in contracts are as follows:

- Maximum rate of road unavailability, this indicator may be combined with other conditions relative to road availability, for example: the obligation for a motorway to maintain one lane in service in both directions, except under exceptional circumstances; the obligation, in case the road is completely closed, to have planned and prepared temporary replacement route markings, etc.

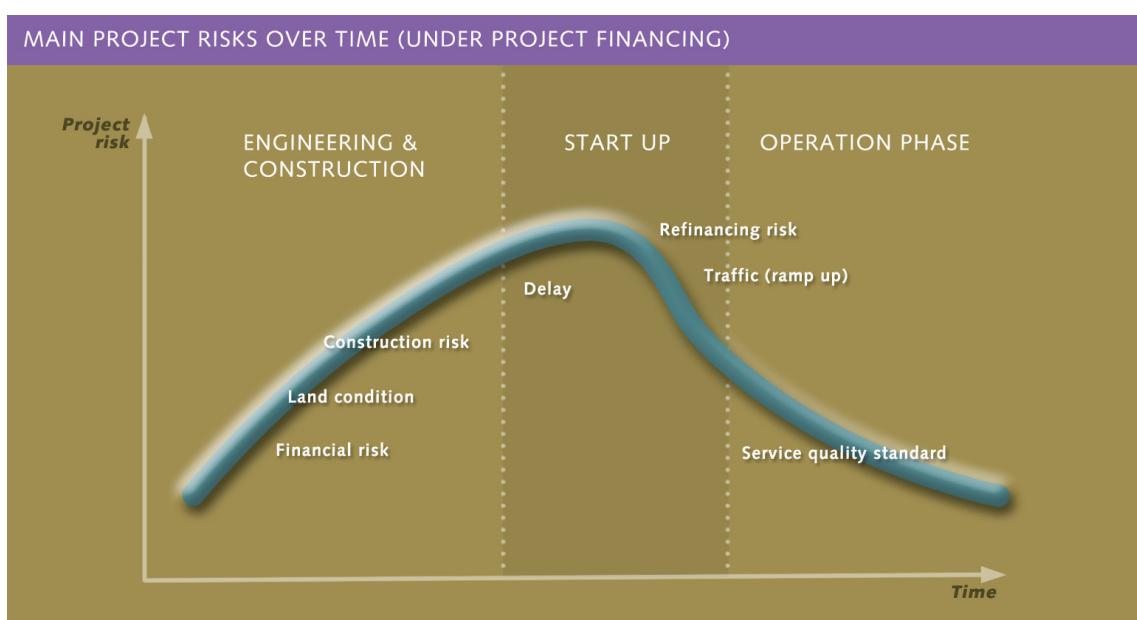
These requirements, whose object is mainly to encourage the operator to maximize organization of maintenance sites, may be differentiated between depending on traffic levels, or according to the season or the time of day.

- Maximum rate of unavailability of equipment, such as lighting, variable message panels, emergency telephone network, traffic surveillance camera, etc.
- Maximum time for repairing faulty equipment.
- Maximum time for warning of and arriving on the scene of an accident. Time allowed for setting up warning devices for users and signing to protect damaged vehicles and emergency service staff.
- Quality of information to users, which comprises two components: Forecast information, concerning, by definition, what is foreseeable, i.e., construction/maintenance sites, demonstrations, traffic conditions, etc. It may use many supports: press, radio, information panels, etc. Internet plays an increasingly important role in this type of information. Real-time information, available to users through variable message panels or specialist radio, whose performance can be measured by the relevance, precision and frequency with which this information is updated.
- The considerable progress already made should be underlined, and that is likely to be made in the coming years, in the field of real-time information, mainly due to on-board information which enables the condition of the network to be visualized at any time from within a vehicle. Such possibilities will only be fully effective if the operators provide relevant information at all times. This is a totally new category of performance which may be required of operators.
- Performance relative to winter service, which very much depends on a country's climate (or on the altitude of the zone under consideration). Depending on the case, this results in aiming at roads totally cleared of snow, or considering it normal to drive on flattened snow. These performances are generally characterized by the time it takes to raise the alarm, the time it takes for machinery to arrive (salting machine for black ice or blade for snow-clearing) and the throughput of the machines. The maximum time imposed generally varies during the day.
- Countries with a rigorous climate are used to dealing with these problems and have frequently formalized the conditions for carrying out winter service depending on the importance of the roads.
- In an effort to preserve the environment, the road authorities are encouraging operators increasingly to reduce the quantities of salt spread, which requires revising traditional strategies and eliminating preventive salting, combined with paying greater attention to weather forecasts.
- Toll-related performances, which may concern the flexibility with which collection systems adapt to users' requests (payment in cash, by credit card, by special card, non-stop tolling, etc.) the maximum length of queues, graft levels, which are a permanent worry to toll motorway operators, and the reliability of electronic payment systems. The best guarantee of good performance is when it is to the operator's advantage to increase toll receipts. An operator paid on the amount of receipts will use as much imagination to find a way of defeating graft as the fraudsters (whose imagination is boundless!). It is essential to have this in mind when determining contractual arrangements.

- Traffic congestion, the operator must facilitate traffic conditions and reduce the average duration of traffic jams. An indicator could be the average transit speeds of a light vehicle on given road sections, for example.
- Safety, indicators could be the average number and seriousness of accidents per km of road.

# Risk

Risks are present throughout the life of a project. They evolve in nature and intensity (and usually tend to lessen with time). The technical risk relates both to the construction and operational phases. Economic and financial risks on PPP projects are basically no different from those encountered on other projects, apart from the fact that they relate to longer periods. The commercial risk results from the application of user tariffs and their impact on traffic levels.



A risk comes from the uncertainty of the assumptions on which estimates of a project's future revenue and costs have been based and also from adverse or favorable conditions. A risk is characterized by its two main components: the probability of its occurrence and its magnitude.

Integration of the notion of risk in PPPs explains, to a very great extent, if not fully, the apparently high cost of private sector financing. This phenomenon is of the same type as insurance. In contrast to a public investor, which internalizes costs due to the occurrence of a risk, the private investor who has identified a risk has two alternatives:

- either it pays a premium to have the risk borne by another entity (if the risk occurs, it is the entity bearing the risk which must pay, and not the entity which paid the premium),
- or it takes responsibility for the risk but expects, as compensation, a profit in proportion to the magnitude of the residual risk (for the cost incurred when a risk materializes).

Risk is a fundamental feature of any public-private partnership and it substantially influences the overall project cost. A detailed analysis shall be conducted by the project players prior to deciding:

- whether to embark on the project,
- what type of PPP would be the most adequate vehicle for the project.

The analysis shall consist in the following phases subject to negotiations among all project players:

- **Risk identification:** set up the list of project risks and identify those with the most potentially adverse impact.
- **Risk assessment:** analyze the risk with dedicated and well-tried tools and methods.
- **Risk allocation:** distribution of the various risks among the project's public and private players, the main principle being to allocate each risk to the player best suited to support it.
- **Risk mitigation:** each player can use techniques and instruments available to reduce their exposure to risk, comprising adjustment to the contractual framework and recourse to specialized institutions.

As a result of the previous steps, each player adjusts the expected rate of return based on its own criteria. The key players will be the government which through its project preparation stage will assess risk and make a preliminary estimate of the likely private sector reaction to risk and the private sector bidders themselves who will estimate risk and its impact on its return on equity (including the risk premium) required for the specific project.

The above phases are conducted as an iterative process through project preparation and procurement. Once negotiations have been concluded to the satisfaction of all parties, they are translated into the various contractual documents.

## Risk identification

The first step is to identify risks: typical country, sector and project specific aspects must be addressed. Risk identification should be performed with representatives of involved parties within a PPP project and can include external experts with experience in the country, sector or the specific project. The identification exercise can be done with checklists, in workshops and/or brainstorming sessions.

When assessing risks, three fundamental types of risks can be considered:

- background risks, i.e. risks not linked to the project but rather to the country,
- cost risks, i.e. risks of exceeding initial cost estimates for the construction or operation of the project, and
- revenue risks, or commercial risks (in revenue-based contracts), depending on the traffic and toll rates applied.

## Background risks

These risks include:

- risks caused or resulting from decisions by the public authorities directly concerning the project and
- risks affecting the project resulting from random factors and uncertainties not necessarily influenced by the Government (or at least not specifically related to the project, such as economic growth).

Generally speaking, these risks are not specific to the highways sector. Nevertheless projects in the highway sector are particularly exposed to several background risks since they are often capital-intensive, have predominant income in local currency, significant capital investments in foreign currency, long project duration and often a high social and political sensitivity.

The main background risks can be categorized as follows:

- Political, legal and regulatory risks
- Monetary/currency exchange rates and macro-economic risks
- Force majeure

## Project Cost risks

These risks are associated not only with construction but also maintenance and operation: failure to complete the construction of the works, suspension of service, failure to meet deadlines, cost overruns, etc.

Compared to other sectors these risks are particularly high in road projects due to the significant investment required, long operation period and since highways are tailor made and individual by nature.

In the past, contractors used a global risk adjustment e.g. by adding 10% contingencies to a bid price. However, such an approach is not sufficient for PPPs which are complex long-term investments with an extended risk profile.

The risk intensity of the construction phase reaches a peak when the design has been completed, especially the geological studies and public hearings. For the operation phase, it may be considered that the risk intensity reaches a peak after a few years.

Cost-related risks can be categorized as follows:

- Project preparation risks
- Land acquisition risks
- Environmental risks
- Social acceptability of the project
- Design risks
- Construction, repair or rehabilitation risks
- Project management risks
- Technical operation risks

## Commercial risks (especially in toll projects)

Commercial risks are perhaps the greatest risks faced by the private parties when their remuneration directly or indirectly originates from road users.

- Traffic is a source risk because it is difficult to estimate and subsequently control;
- Traffic studies include a margin of error, which is sometimes very substantial;
- There is a negative correlation between tariffs and traffic levels;
- The more links there are in a network, the greater the risks of alternative routes being used by the users and/or the difficulty of predicting driver choice.
- For road projects, the private partner is providing an infrastructure but not a transportation service. The many potential users in the road sector are high and can often choose between several options to go from point A to B.
- Alternative routes may be built after the opening of the project.

The tariff level is subject to political risk, namely that of the pressure of public opinion and of the public authorities modifying the legal and fiscal framework or adopting specific unfavorable measures (such as poor integration of the structure in the existing network, or the creation of competing infrastructure facilities).

The difficulty of controlling commercial risks and the nature of the political risks that they may relate to will raise the level of profitability that the concessionaire may hope to secure before committing itself to a project. These higher expectations and a number of unfortunate experiences raise doubts over how appropriate it is to make the private sector bear the commercial risk.

Despite their importance, it must be remembered that commercial risks are only part of the overall risk which may be supported by the private partner and public authorities may have an interest in providing a limit for the level of commercial risk supported by the private sector (eg guaranteed minimum traffic levels), to reduce the risk premium and cost of private capital. Such risk protection by the public sector by no means reduces the need to provide remuneration mechanisms which mitigate excessive risks and stimulate the private sector.

One may indeed ask whether it is consistent to allocate a risk of such magnitude to the private sector.

- In mass transit projects, users have to pay a fare, but most often the operator does not bear the commercial risk (although he may receive financial incentives based on traffic levels).
- The shadow toll system applied in the UK limits commercial risk to the private operator, notably due to lack of risk of loss of traffic due to tolls. However, the UK Audit Office has criticized the shadow toll mechanism as there is no clear link between payment and risk and the UK has stopped using shadow tolls.

Various solutions are used to mitigate excessive risk and encourage the private sector to fund infrastructure but in these cases the user either does not pay at all or pays only part of the costs;

- ① Using shadow toll charges borne by the public authorities. This eliminates the problem of price-related traffic elasticity and traffic rerouting due to the existence of a toll system. In addition, since the road is free, it maximizes its potential use.
- ② Payment of a fixed rent or annuity by the public authorities. This eliminates any commercial risk to the private sector but requires other incentives such as availability payments for the operator to deliver the required level of service.
- ③ Guarantees to cover risks.

These solutions can affect the responsiveness of the private sector partners to their responsibilities for level of service and should thus be chosen with care.

## Risk assessment

Traditionally, provision for risk in public-funded projects has been provided through the use of contingencies, in which an amount (often 10%) is added to the public budget for construction to allow for unforeseen circumstances or additional works.

However, PPP projects require a much more sophisticated analysis of risk and their impacts to support the process for risk allocation and mitigation.

### Composition of risk

The impact of risk may be defined as follows:

$$\text{Impact of risk} = \text{Intensity of risk} \times \text{Likely occurrence of risk}$$

### Risk intensity

The intensity of risk means its magnitude or impact, which is influenced by:

**Effect:** If a risk occurs, its effect on the project may be expressed in a number of ways, e.g. 1-year delay in construction, reduced traffic volumes of 10%, lower toll tariffs by 5%. These will in turn have cost implications and impact on the estimated financial or economic results.

**Timing:** Different risks may affect the project at different times in the life of the project. For example, construction risk will generally affect the project in the early stages. The effect of inflation must also be borne in mind, if likely to be differential over a period.

### Risk occurrence

Estimating probabilities is not an exact science, and assumptions have to be made. Assumptions must be reasonable and fully documented. There are some risks whose probability is low, but the risk cannot be dismissed as negligible because the impact will be high (for example, the collapse of a bridge).

In this case a small change in the assumed probability can have a major effect on the expected value of the risks. Together with estimating the probability of a risk occurring, it is also necessary to estimate whether the probability is likely to change over the lifetime of the project.

A subjective estimation of probability is based on past experience or current best practice, and supported by reliable information, if available. If reliable information is not available, experts will have to make assumptions about the logical, commonsense likelihood of a risk occurring.

However, if the probability of a risk occurring is high or the potential impact is significant, and there is sufficient reliable information, an advanced technique should be used as it can provide more conclusive results.

### *Breakdown into sub-risks*

Risks must be assessed with respect to their component sub-risks. The risk of a decrease in traffic volumes may be linked to a number of economic parameters which could then be assessed more accurately. Construction risk will be composed of the combined risk of a number of contributing factors or sub-risks:

- cost of raw materials is higher than assumed
- cost of labor is higher than assumed
- delay in construction results in increased construction costs

Each sub-risk has its own intensity (cost and timing implications) and likelihood of occurrence.

### **Qualitative risk analysis**

At a preliminary stage, a qualitative risk analysis can be performed. At this stage, the likelihood and consequences can be assessed qualitatively e.g. on a scale from A to E (A very low, B low, C mean, D high, E very high) and later the likelihood can be assessed in percentage and subsequently in monetary terms.

The qualitative risk assessment on an A to E scale can be used to transfer non-transparent lists of risks into a priority list of risks using a scoring-risk matrix. Once risks can be assessed in more detail or exact in percentage (likelihood) and monetary terms (consequences), the applied scores can be adjusted.

Decision makers can develop a risk matrix e.g. with a score from 1 to 10.

If a risk X is predicted with likelihood B and consequences B the score is 2.

If a risk Y is predicted with likelihood C and consequences E the score is 9.

If a risk Z is predicted with likelihood E and consequences E the score is 10.

Consequently Z has the highest priority with the score 10, followed by Y with a score of 9 and X with a score of 2.

#### EXAMPLE OF QUALITATIVE RISKS MATRIX

	5	7	9	10	10
E			Y		Z
D	3	5	7	8	9
C	2	4	6	7	8
B	1	2	4	5	6
A	1	1	1	2	3
	A	B	C	D	E
Likelihood					

#### Quantitative Risk analysis

Quantitative risk analysis is performed from the feasibility study stage, which, for major PPP projects, uses special software with the assistance of an experienced risk analyst.

Quantitative risk analysis determines the impact of risk on major cost and revenue centers in a financial or economic model for PPP analysis.

Project values are entered in the financial or economic model as probable value spreads in place of absolute values. The model can then compute impact on financial and economic indicators in terms of estimated spreads, representing likely overall risk exposure of the project.

The preferred method to present the impact of risks is by a separate cash-flow item which promotes a focus on the costs of each risk and enables an understanding of how risk can be transferred and what its financial effects are. In addition to this, valuing each risk as a separate cash-flow item accounts for the time implication of that risk (some risks may only have an impact at the beginning of a project, and the impact of other risks may diminish or escalate over the life of the project).

There are many tools available to model risk and uncertainty: Work breakdown structure (WBS), risk breakdown structure, fault tree, event tree, cause-consequence analysis, influence line diagramming, CPM and Pert networks, decision tree, decision analysis, stochastic simulation, sensitivity analysis and conceptual models/artificial intelligence.

Sensitivity analysis and stochastic simulation are among the most relevant and used tools by private investors to assess the risks linked to a road PPP project.

#### *Sensitivity analysis*

Sensitivity analysis can be used to model the effect of one or more changes in variables. It is useful but simplistic and does not include the likely possibility of each change. For

this purpose, one or more input assumptions to the financial model are modified which provides an estimate of the impact of this/these variations on the project cash flow/profit. For instance, using this method it is possible to change say, either individually or together, the cost of construction, include a construction delay factor and to reduce traffic to thus calculate the impact of these changes on the cash flow/profit.

### *Stochastic Models - Monte Carlo*

Statistical risk measurements, which are much more sophisticated, are particularly useful for assessing the impact of a number of simultaneous risks and their probability. Multivariable analysis techniques, like Monte Carlo simulation, have been successfully used in the valuation of risks for road projects.

Stochastic modeling builds volatility and variability (randomness) into the simulation and therefore provides a better representation of real life from more angles.

This type of analysis requires estimating a range of possible risks together with their probabilities of occurring, and the maximum and minimum project costs for the different scenarios. For instance, rather than setting investment returns according to their most likely estimate, the model uses random variations to look at what investment conditions might be like. Then this is done again with a new set of random variables. In fact, this process is repeated thousands of times. The result is a distribution of outcomes which shows not only what the most likely estimate but also the ranges which could be expected.

Monte-Carlo simulations can be used to model the range of economic indicators (discounted or undiscounted NPV, IRR, ROI, ROE, payback period, or other economic indicators) or activities from the time schedule (e.g. completion of construction, start of operation or end of concession)

A key disadvantage of multivariate analysis is that it requires a large amount of reliable information and can also be more complicated to calculate and interpret. It may also shift the focus away from the analysis of individual risks that may need to be understood.



Handbook for Integrating Risk Analysis in the Economic Analysis of Projects.  
Asian Development Bank. 2002

## Risk allocation

### What can be done with Risks?

Risks can either be (i) accepted, (ii) transferred, (iii) avoided or (iv) insured.

To create a public-private partnership the principle of risk sharing must be accepted. Private players are willing to take some of the project risks, provided that the nature

of the risks relates to their expertise so that they will be able to properly assess the consequences.

The expected remuneration is also expected to be proportionate to the level of risk they will bear.

The risk management principle that every party should take risks that he can actively manage and control/offset must be understood by all parties who are involved in order to share responsibilities, risks and establish incentive structures.

Asking the private sector to bear risks that could best be handled by the public sector will usually result in:

- withdrawal of the private partners who refuse to take the risk
- excessive risk premiums to be paid, thus losing some or all of the benefit of PPPs
- project restructuring if the risk materializes and the private players cannot handle the associated losses in the foreseen conditions.

In any case, it leads to an inefficient use of public money because the risk premium is high (excessive profits expected by the private sector as compensation) and if the risk materializes it would actually not be borne by the private sector because its magnitude would result in the incapacity of the private party to further deliver its services (bankruptcy, major project restructuring...). The public sector would then have to step in.

Moreover, the economic return of the project is reduced due to the high price paid to the private sector (either directly or through tolls).

Risks are allocated between the public and private sectors but also between private partners among themselves through the contractual framework.

Some risks cannot reasonably be controlled by any of the public or private parties. Allocating these risks to the private entities would be counter-productive as shown above. On the other hand, having those risks borne entirely by the public sector might eliminate incentives for the private sector to perform well.

All project risks should be assessed to the finest possible degree prior to initiating the project. Each risk must be assessed under the responsibility of the entity which will incur the risk. Reasons of efficiency and equity require risks to be taken by entities which will obtain the greatest benefit from the operation, or those whose line of business is concerned, namely technical risks by contractors and operators, and economic and financial risks by the Contracting Authority.

Allocating commercial risk to the private sector seems to be an incentive. Nevertheless, it is a risk which is, to a large extent, beyond the private sector's control (as seen above) and of huge magnitude. Among the private firms competing for the project, those that will accept this risk might not be the most efficient, but only driven (sometimes blindly) by the hope of obtaining the high profit they can expect for this high risk.

Is it consistent in those circumstances to allocate the commercial risk to the private sector?

## Risk-sharing mechanisms:

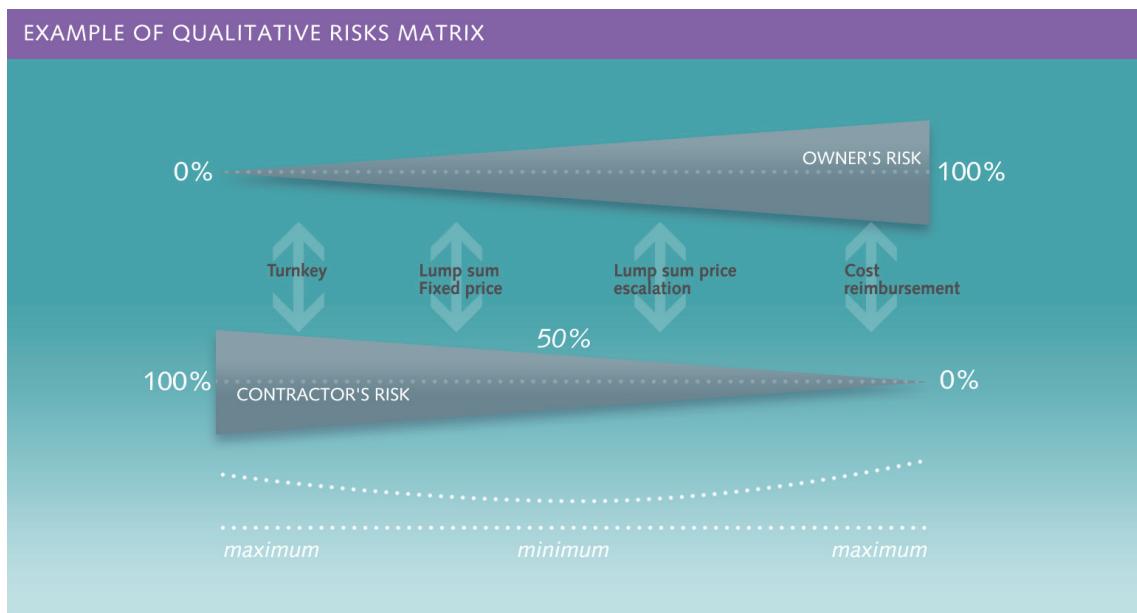
Allocation is made by an up front analysis of the causes of the risks. When this is not possible, a mechanism can be worked out for sharing the consequences of the risk (cost) in proportion to what each player can reasonably bear.

## Typical risk allocation principles

Risks are generally shared by the different partners but some are better able to cope with certain specific risks than others. The table below shows a typical risk allocation matrix.

TYPICAL RISK ALLOCATION MATRIX	
Type of risk	Party which could reasonably take the risk
Political and legal risks	Public sector and international institutions
Economic and financial risks	Government
Construction risks	Concession company and contractors
Operational risks	Concession company and operator
Commercial risks (if pertinent)	Concession authority Operator (?) Concession company (?)

Risk-sharing must be reasonable with risk-taking offset by profit. The objective is not to maximize risk transfer but optimize risk allocation as shown in the following figure:



Main principles to keep in mind in risk allocation and sharing:

- Risk is bound up with expected profit. Imposing too high a risk on the private sector implies that the public sector will eventually have to pay an excessive "insurance-like" payout.
- The risk must be of a suitable size and under reasonable control of the party which bears it.

- Whatever risk is allocated, part of it (even a small part) might be borne by each partner as an incentive.
- Risk allocation must be made at the outset. If this is not so, the chances of disagreement are high and, moreover, if any serious problems arise, the private sector will be in a stronger position to pass the burden on to the public sector.
- If the duration of the project is long it is wise to set up a “rendezvous” clause to adjust the contract on a predetermined basis.
- Risk magnitude and money at stake are not the same thing, i.e. the risk of a project collapsing is very different to the risk of losing money on it.

### Allocation of traffic risk

The traffic risk is a very important issue since traffic is one of the two most important sources of revenue in toll based road PPP projects, the other source being the level of tolls. Traffic risk is difficult to allocate and there is no single rule for its allocation.

First of all, traffic risk is difficult to associate because it is difficult to forecast traffic as shown in the table below.

$$\text{Deviation} = \frac{\text{actual traffic (year1)}}{\text{forecast traffic (year1)}}$$

TRAFFIC FORECAST ERRORS					
Study	Projects	Main geo-graphical areas studied	Sample size	Mean (actual/forecast)	Standard Deviation
Standard&Poor's (2004)	Toll roads	North America, North Europe, Asia, South Europe, Latin America	87	0.76	0.26
Flyvbjerg et al. (2003)	Free roads Toll roads	Denmark, European Union	183	1.09	0.44
Vassallo (2002)	Toll roads Shadow toll roads	South Europe, Latin America	18	1.03	0.24
Athias and Nunez (2008)	Toll roads	Worldwide	49	0.87	0.24

Source: Consultant's compilation based on Athias and Nunez (2008) and Vassallo (2007)

The deviation in the traffic forecast has led many times to a renegotiation of the contract initiated either by the private partner or the government. (See Module 5 -> Amendments to Contracts and Dispute Resolution -> Renegotiation and Amendments) When renegotiation of the contract is possible, in other words when subsequent reallocation of the traffic risk is part of the contract, the bidding process is more competitive because more

attractive for private partners. However, the authority has to ensure that unrealistic bids are not provided on the basis that there will always be scope for renegotiation.



Dealing with demand forecasting games in transport privatization;  
Trujillo L.; Quintet E.; Estache A.; Transport Policy, Volume 9, Number 4, pp. 325-334(10). 2002

The reallocation of the traffic risk is based on the principle that changes of a trigger variable below a minimum and above a maximum lead to compensation either for the private partner or the Government. Various types of reallocation of traffic risks exist.

TYPES OF REALLOCATION OF TRAFFIC RISK											
RISK SHARING APPROACH		TRIGGER VARIABLE									
		Annual traffic or Revenues			Accumulative Traffic or Revenues			Profits / IRR			
COMPENSATION	Subsidy / Payment	Min Point	Max	Min Point	Max	Min Point	Max	Min Point	Max		
Approach 2 Minimum income guarantee Chile	Subsidy / Payment							Approach 1 Highway concessions in France and Spain			
	Toll										
	Contract Length				Approach 3 1 - Severn Bridge 2 - PVR Chile 3 - Portugal						

Source Vassalo (2007)

### *Traffic risk sharing based on the annual revenue*

With this principle, based on the expected annual revenue, maximum and minimum revenue levels are determined which define the minimum guarantee level:

- When the real revenue is **above** the maximum revenue, the concessionaire must share its profits with the public authority.
- When the real revenue is **below** the minimum revenue the public authority shall pay compensation to the private partner.
- When the real revenue is **between** the maximum revenue and the minimum revenue the government is not involved in the revenue of the concessionaire.

Whilst this traffic risk allocation limits the risks of the private partners and the cost of the PPP, the maximum and minimum revenues (contingent liabilities) as well as levels of payment by the government or the concessionaire may be difficult to accept.

This minimum income principle has been used in Chile.

### *Traffic risk sharing based on accumulated toll revenue*

With this method of traffic risk allocation, the length of the concession contract is linked to the traffic. The idea here is to make the traffic risk an endogenous variable of the contract. In fact, the concession contract is terminated once a fixed amount of accumulated revenue is reached. Therefore if the traffic is higher than expected, the contract duration will be shortened. If the traffic is lower than expected, the contract duration will be extended.

With this risk allocation public resources are protected because the compensation is actually based on time and not money. This risk allocation method has been implemented on projects such as the Severn Bridge in the UK, Lusoponte Bridge in Portugal and in several highways concessions in Chile called “Least Present Value of the Revenues”.

Contractors may be dissuaded by a maximum contract duration which would result in a loss of revenue if the targeted accumulative revenue amount is not reached when the maximum contract duration expires. However, a corresponding minimum contract duration allows the potential upside of the contractor’s profits to be achieved and make the contract more attractive.

### *Traffic risk sharing based on profits and IRR*

This traffic risk allocation method is mainly used in France (eg the new Millau bridge) and in Spain, and means that the contract considers the possibility of changing some contract clauses based on the profits gained by the concessionaire or the actual IRR of the project. The clauses concerned by this potential clause are usually those linked with the contract duration, the toll prices or the revenue sharing/subsidies.

A drawback is that IRR and profits may be difficult to monitor without a strong and skilled PPP unit within the Contracting Authority. However, the project could be monitored / audited professionally on a regular basis.

## Risk mitigation

The Infrastructure and Law website of the World Bank presents typical risk matrices for toll roads (a shorter and a longer version) as well as a number of sample annotated concession agreements and links to other concession agreements and DBOs.



Infrastructure and Law website (UserID and password required; refer “Create account” for free access)

### How to Mitigate Risks

Risk mitigation issues can sometimes be confusing when not seen from the perspective of the player who is looking at it.

The global level of risk of the project should be considered, which is the sum of all individual risks involved in the project regardless of to whom they are allocated. Such a

global perspective has to be taken into consideration by Government when deciding if the project should be implemented and which type of PPP can reasonably be considered.

As seen above, each PPP player will price its own services taking into account the profit it expects to compensate for the risks it takes and for the premium it pays for passing it on to another player. Eventually, the sum of all risk premiums is integrated to the overall project cost paid by the tax payer or by the road user.

The global project risk contains the risk of any player failing to conduct its services. It is well known that substituting a PPP player during the course of the project always results in an increase of the overall project cost which, in the end, will be supported by the user or the tax payer.

To reduce the overall project cost, it is therefore the Governments responsibility to ensure:

- that project risks are efficiently shared among the PPP players to minimize the requested premium. Allocation of individual risks is in a sense the best way to mitigate the global project risk.
- the participation of the most efficient PPP players at each level of the project.



Government Guarantees - Allocating and Valuing Risk in Privately Financed Infrastructure Projects, World Bank, 2007



Dealing with Public Risk in Private Infrastructure. T. Irwin,M. Klein,G. E. Perry, M. Thobani. The World Bank.1998.



Review of Risk Mitigation Instruments for Infrastructure Financing and Recent Trends and Developments, 2007

### Mitigating individual risks

Project players also have access to techniques and instruments to mitigate the risks allocated to them.

Project financing techniques allow non-recourse or limited recourse financing arrangements to be set up. In such arrangements the lenders are paid from the gross self-financing margin generated by the project. If the project fails to generate sufficient cash to repay the debt, lenders have access to the project assets provided the assets have a market value or do not revert to the Contracting Authority at the end of the project.

This technique means that lenders are full partners in the project, carrying a substantial part of the risk, insofar as the concession company set up for this purpose (SPV) has no pre-existing tangible assets or antecedents.

Risk sharing between the various partners (lenders, contractors, operator and concession companies) is therefore a core question. Lenders will also seek to avoid the effects of possible insolvency of the concession company (calling for the right to replace the defaulting concession company under such circumstances).

Furthermore, if the concession company makes a public issue of equity, the existence of small shareholders will serve as a means of exerting pressure on the public authorities, the concession company and the lenders alike (Project finance).

### Mitigating technical risk

Technical risks related to construction and operation can be best mitigated by conducting sufficient preliminary studies. Often, the Government rushes into the identification phases and neglects to conduct the required studies. Particular attention shall be paid to the geotechnical conditions of the project that can have a dramatic influence on the project cost. They should be conducted by reliable consultants with sufficient experience. Often, it is more important to perform reliable preliminary investigations and studies rather than detailed studies based on weak base data.

### Mitigating political and economic risks

Commonly used risk mitigation tools protect against the following political risks:

- **Currency or transfer risks:** losses due to the decrease of the currency exchange rate, the currency devaluation or the impossibility to transfer the fund outside the country where the project is implemented
- **Expropriation risks:** losses due to a change in the initial ownership framework of the PPP project
- **War risks**

Traditional political risks can be analyzed and evaluated by insurers based on previous performance of the country where the PPP project will be implemented. In recent years, there has been demand to cover new political risks as:

- **Breach of contract risks:** losses due to a unilateral repudiation of a PPP contract by the government.
- **Non payment risk:** when the government does not pay an amount legally or contractually due to the private partner
- **Regulatory risk:** losses due to a decision's government like changes (not allowed in the contract) of law, regulation, taxes, opposition to the application of the tariffs revaluation formula.
- **Sub-sovereign risks:** losses due to actions taken by lower level government entities like states, counties, municipalities.

The social acceptability of the project, which is a major component of political risk, can be best optimized by involving the public at an early stage of the project. (Module 3 -> Economic Development and Public Interest -> Public Participation and Consultation).

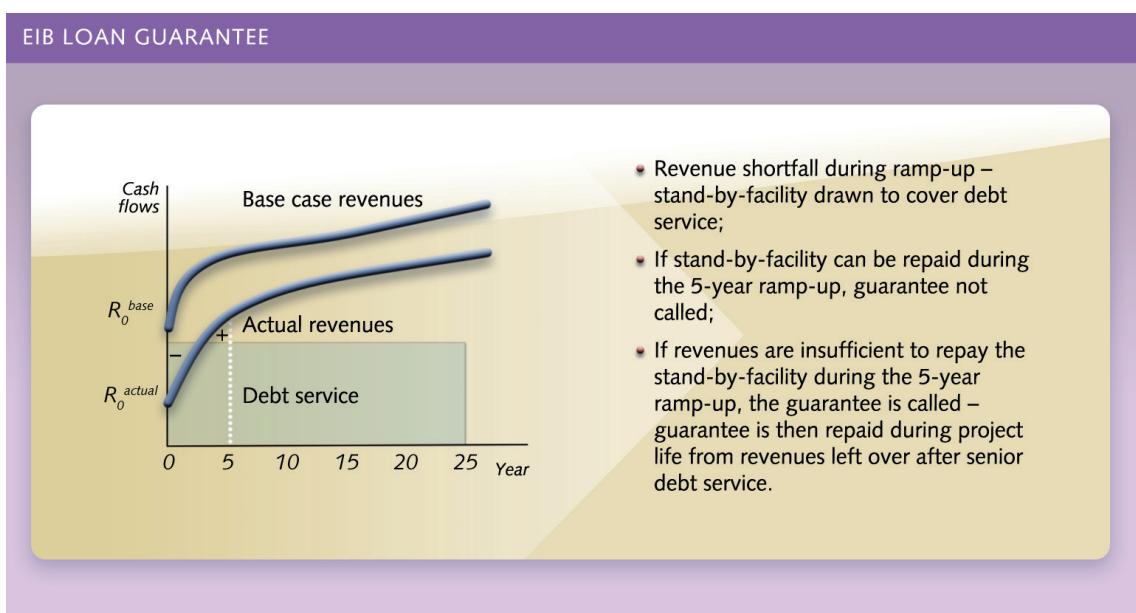
## Risk Mitigation Instruments

PPP players may rely on various risk mitigation instruments to cover the loss due to commercial risks, political risks or both. Most of those tools are called guarantee or insurances. The main difference is in the way to get benefits from the protection. Usually a guarantee is relatively straightforward while insurance typically will require an evaluation of the insurance claim before payment. Some tools provide full coverage while some other tools provide only partial coverage.

PPP players concerned with such tools can be:

- a debt provider concerned with the credit risk of the borrower (the concessionaire) and looking for coverage against potential debt service.
- an equity investor (usually member of the concessionaire JV) looking for protection against a loss related to its investment in the PPP project.

For instance the EIB has developed a Loan Guarantee for TEN-Transport (LTTT) whose principles are shown in the following figure.



Source: EIB

## Specialized institutions for risk mitigation

Some private and multilateral institutions have developed instruments to enhance project feasibility by mitigating risks falling outside the control of private players.

This field, which uses sophisticated financial instruments, is particularly dynamic and it is not possible to propose an exhaustive inventory and description of all mitigation instruments.

The following information may however be useful to project designers.

Export Credit Agencies issue guarantee policies covering investment operations abroad. These instruments usually provide a guarantee for private firms against political risks such as:

Attacks on shareholders' rights

Non payment and non-transfer of the payment or non-transfer of the investment or of the indemnity provided in the concession contract in the event of nationalization.



Principal Guarantees Offered by an ECA, the COFACE example,  
extract from the World Bank Port Reform Toolkit

International Financing Institutions also provide political risk mitigation instruments:



Financial credit with a multilateral "umbrella" (A-loan & B-loan),  
extract from the World Bank Port Reform Toolkit.



The World Bank Group partial risk guarantee program, extract from the World Bank Port Reform Toolkit



Financial instruments available on the market to mitigate risks related to currency conversion and exchange rate fluctuations, extract from the Port Reform Toolkit:  
Financial engineering of the project in terms of "political" risk management.

Private Insurers can sometimes also be mobilized in this regard.

It should however be stressed that all the instruments presented above imply an additional cost for the project that should be weighed against the magnitude of the risk they have to deal with.

The contract itself, given its duration and the scale of expenditure, may offer an in-built performance security. In the event of failure to meet objectives, if the private partners have fulfilled them to a certain extent, the completed works revert to the public partner (whose support, if any, must at all times remain significantly lower than the expenditure already committed).

# Revenues

**This section defines revenues for a PPP project, also known as cost recovery, from the public sector perspective. It presents the sources of revenue available to fund PPP projects, the economic agents within the community from whom those resources will be collected, either toll payers/road users or tax payers or a combination, and the mechanisms involved.**

The associated subject of investment recovery is that addressed in the Finance section and discusses how the private sector is remunerated once it has contributed to pre-financing the project.

## Payment to the private sector

Private firms involved in PPP are obviously very concerned about how they will receive the payments that cover the costs of their investment, including annual operating and maintenance costs. Contracts are often long-term and private firms will be very reluctant to embark on the project if they are not convinced that the funds will be provided and will be sourced from stable sources.

It is important to distinguish the concepts of revenues (eg toll collection) and payments to the private sector, since they are not necessarily linked.

For example, and as discussed in Module 2 -> Risk, it is not always in the public sector's interest to transfer the commercial risk to a private operator. It is possible to engage a private firm to collect tolls on behalf of the Government, which then pays the road operator. The toll collector and the road operator can even be the same company, but in such a case, cash flows are kept separate and remuneration of the operator is not related to the revenue collected. Payment of private firms by the public sector, although leaving the commercial risk outside the operator's responsibility, does not prevent efficiency incentives being included in the contract agreement (performance-based contracts). Such contractual provisions are often used in the mass transit sector.

## Sources of revenues

Revenue for developing road infrastructures comes mainly from two economic agents: road users, tax payers or a combination of the two groups.

Road users should be understood in a broad sense to include private or business owners of vehicles driving along a road from which a charge is collected on a distance, time or usage basis. Various systems are available to collect the revenue whether pre paid, stickers (vignettes) or mechanical/human.

Taxpayers' contributions are made through:

- general taxes (such as income tax or VAT) that enter into the general State budget,
- specific or earmarked taxes related to car ownership or utilization (such as excise on petrol, vehicle import tax, vehicle licensing tax, etc.). These specific taxes can be dedicated to the road network improvement if they are allocated in a Road Fund.

There is however no clear border between road user charges for a specific road, and general taxes related to car ownership or usage since these are paid by all vehicle owners and therefore all road users. Although fuel/oil taxes and vehicle licensing fees are not collected to recover costs for a specific project, they are indeed road user charges at the network level.

Besides, road construction or improvement will also have indirect positive impacts to the surrounding economic environment. Therefore it is reasonable that part of this gain should benefit the project finance through revenues from advertising, land rents along the road corridor or from secondary business activity.



## Payment Mechanisms, 2004

### Revenues from taxpayers

#### *General Taxes: Funding Roads from the General Budget*

General taxes will obviously not be exclusively used to finance infrastructure facilities. Consequently, financing road investments from the general budget is somehow discriminating for non road users who contribute to financing an infrastructure they do not directly benefit from. Also, externalities are both positive and negative, since the general public indirectly benefits the lower consumer prices resulting from reduced transport costs whilst also sharing negative effects from the environment.

Specific taxes are not only justified for the sake of fairness in the collection of resources from the community, they also allow Governments to adjust their general tax policy to their political objectives (energy-saving measures, environmental protection, and transport policy).

However, social considerations can be addressed by specific taxes only to a limited extent. Vehicle licensing usually takes into account either the cost of the vehicle or the engine capacity but which may have little correlation to the users' social conditions.

Beyond the political question about who shall pay for road investment and maintenance, setting up an efficient cost recovery mechanism addresses a vital concern for the management of the road system.

Shadow tolls and/or annuities (also known as availability based payments) are funded either partly or fully by the taxpayer not the road users. Under both schemes the private sector builds the infrastructure and is repaid after the project opens. Under the shadow toll scheme payment is linked to traffic levels. Under the annuity/availability, the concessionaire is repaid according to pre agreed payments when the road is available for use. There is no toll i.e. road users are not charged and the government, through the tax payer, pays the concessionaire directly. Annuities are popular in India and shadow tolls have been used in Portugal and in the UK but there has been less interest in shadow tolls recently. In the UK, the National Audit Office has criticized shadow tolls for lack of risk related incentives and many toll roads have been funded through annuity / availability type schemes.

### *Road Funds: Ensuring stability and dedication of resources*

In strict economic terms, funding the maintenance of infrastructure facilities from the general budget is preferable so that its allocation may be subject to same scrutiny and accountability by public authorities as for other public funds and that the overall use of public resources in the budget may be adjusted to reflect their economic optimum.

However, most countries, and in particular low- and middle-income countries, faced with a shortage of tax revenue and budgets and public budgets combined with political imperatives, often draw resources from road maintenance budgets to other more favored sectors. Such a process often results in insufficient and unpredictable road maintenance budgets which can seriously compromise the efficient long-term management and sustainability of the road network.

Road funds, or road maintenance funds, are dedicated funds for the purpose of road maintenance, funded largely from public sources (taxes, levies and duties), possibly supplemented with road tolls. Road funds are thus intended to ensure stability and dedication of funds for road maintenance and operation by separating the resources allocated to the roads from the government's consolidated budget and managing them on a stand-alone basis.

The notion of a road fund is not a new idea. There were, and still are, a range of such funds in the developed world, notably in the United States of America and Japan established in the 1950s. A central road fund has existed in India since 1929. They also exist in quite a large number of transition and developing countries.

Initial road funds comprised the earmarking of selected road related taxes and charges and their depositing into a special off-budget account, or road fund, to support spending on roads. These funds were not entities as such but national budget line items managed by the sector ministries concerned and which were intended to be dedicated to the funding of road maintenance.

The performance of such funds had, however, been mixed. Some of the common problems cited were: poor financial management; absence of independent audits; extensive use of funds for unauthorized expenditures; diversion of funds; and weak oversight. As a result, many of these earlier road funds, sometimes known as "first generation" road funds, have actually been closed down, very often at the express urging of the World Bank and IMF, notably in Europe and Central Asia (Georgia, Latvia, Romania and the Russian

Federation, for example) but also in sub-Saharan Africa (Mali). A number of other “first generation” road funds in sub-Saharan Africa are under restructuring in an effort to address these problems (Gabon, Madagascar and Senegal, for example).

As a result of these weaknesses, “second generation” road funds have been established. A critical dimension of this form of road fund was the creation of a specific legal and institutional framework, which would assure proper management of the funds and accountability to users and government. “Second generation” road funds are thus governed by specific legislation which sets out the roles and responsibilities of a representative management board to oversee operations and a secretariat to manage the business of the road fund on a day-to-day basis. The legislation has generally sought to set up an institution, which has a unique mandate for securing resources and channelling these funds to mandated road agencies.

The key characteristics of “second generation” road funds, as generally understood are set out below:

- Sound legal basis – separate road fund administration, clear rules and regulations.
- Agency, which is a purchaser not a provider of road maintenance services.
- Strong oversight, board based private/public board.
- Revenues incremental to the budget, coming from charges related to road use and channeled directly to the Road Fund bank account.
- Sound financial management systems, lean efficient administrative structure.
- Regular technical and financial audits.

Road funds must also be reconciled with the concern of the IMF and some ministries of finance, for maintaining a common, disciplined budget. IMF criteria in determining the acceptability of road funds, as outlined by Potter (1997) include:

- a focus on dedicated road maintenance funding rather than on avoiding strict budget discipline
- the separation of the purchaser function of the road fund agency from the road maintenance service provider
- the presence of a management board with private sector participation but free from producer pressure
- the adoption of a robust financial management system to assure equal or better standards to those prevailing in central Government.

In Sub-Saharan Africa, the Sub-Saharan Africa Transport Policy Program, SSATP, contributed to the setting up of second generation road funds from the end of 1980s under the Road Maintenance and Financing (RMI), RMF/SSATP.

The SSATP through analysis of its database (RMI Matrix) considers that whilst road funds have secured overall a more stable and predictable flow of funds for road maintenance, country progress varies widely and, although a country might have established a road fund, this does not necessarily mean that it is either fully efficient, or fully autonomous. In most cases, the establishment of a road fund has not resolved the insufficiency of funds for road maintenance. The results also show that more efforts are required to capture and sustain the efficiency gains that could derive from the improvement of road management practices and better use of available resources.

The RMI Matrix of SSATP is updated on an annual basis, and summarizes the state of advance of reform implementation in 30 countries of Sub-Saharan Africa with a particular emphasis on road funds performance.

Best practice and experience in the setting up and management of road funds are described in:



Transport and Communications Bulletin for Asia and the Pacific, No. 75,  
Road Maintenance Funds, ESCAP, 2005



Financing of Road Maintenance in Sub-Saharan Africa.  
Reforms and progress towards second-generation road funds, Mustapha Benmaamar, SSATP, Sept 2006

## Revenues from road users

### *Tolls*

Tolls are payments required of users to access a section of road network that is directly or indirectly related to the distance driven on the road.

Because of the direct link between the provision of the service and the corresponding payment from the user, tolling can be considered as a fair way of mobilizing resources and an efficient manner of inducing psychological ownership of the roads by the public, who thus become aware of the cost of building and managing these facilities.

Direct collection by the private operator as a basis of its remuneration is the most popular way of structuring privately-financed toll road projects. The feasibility of such a scheme shall be studied by the public sector at an early stage to ensure that revenue to be generated from the project will be in proportion with the level of investment required from the private developers. (Module 5 -> Due Diligence and Feasibility Studies).

When expected revenue is not in line with the investment and the scope of work expected from the private sector, government support (Module 3 -> PPP Policy Framework -> Financial Framework -> Incentives and Guarantees) can enhance the project's bankability by reducing the private share in either the investment or the operation costs and placing the remaining activities and cost under the responsibility of public institutions.

Rules regulating how toll rates, which are crucial for the project's stability, are set must clearly be determined. Toll rates are often subject to specific contractual provision fixing, with a maximum level usually linked to inflation (Retail Price Index: RPI) or a more flexible formula which can incorporate inflation, traffic levels and performance indicators.

Traffic on toll road projects often does not match the forecasts prepared in the preliminary studies/project preparation. Variations both in traffic volume and traffic structure (types) will directly influence the private operator's revenue.

It is necessary to take into account such potential variations throughout the entire project life to ensure that both the community and the private players are fairly treated.

Financial regulation is one of the most important and difficult tasks for the public sector in PPP projects. (Module 3 -> Legal and Regulatory).

### *User Willingness and Ability to Pay*

The acceptability of tolling is however often a challenge for public authorities and for private operators in charge of toll collection.

The principle itself of toll roads is not easily accepted by the public and the first toll road experience in a country often leads to strong protest, political debate and sometimes legal challenges from anti-toll lobbies.

Road users should be associated with the decision-making process at an early stage and efforts should not be spared to justify and explain the advantages of the toll system to the public. (Module 3 -> Economic Development and Public Interest -> Public Participation and Consultation).

People are more likely to pay for a new service rather than for a service which was free before, even if it has been improved. Therefore it is not recommended in countries without any experience with toll to start implementation of tolls with brownfield projects unless a major improvement is proposed.

Even when accepted as a principle, toll rates should be set and evolve at an adequate level. They have an influence on transport demand which is likely to affect both the economic and the financial viability of a project. (Module 3 -> Sector Planning and Strategy -> Planning Process -> Demand Forecasting -> Influence of tolling on transport demand).

Policy makers should decide if alternative "free" roads should be made available to users along the toll road corridor. Such a competing infrastructure facility would automatically capture traffic from the toll road but can be justified:

- socially, by keeping a transport alternative for the poor,
- psychologically, by greatly facilitating the acceptance of users who feel they have a choice,
- economically, by allowing each player to choose between two alternatives with different service levels (travel time, overall trip cost) depending on the importance of the trip,
- by bringing competition into a market that would otherwise be a monopoly and could lead to abuse of the dominant position of the operator.

The decision to allow a free alternative route shall only be made after a sound economic analysis along the corridor to assess whether the transport demand justifies duplicating the link. The rules of the game regarding availability of alternative roads should be clearly specified in the contractual obligations for both private and public parties and should not change over time.

### *Secondary services are another form of user charge.*

These services comprise the provision of petrol stations, rest and service areas (restaurants, hotels, etc.) and the availability of information services along the road. Whereas they are generally directed towards all types of road users, they might also comprise services specifically addressing truck drivers who spend significantly more time on the road than most drivers. As most of the providers of these services have a captive market, they are able to charge a premium which can be shared with the road operator. Such sharing arrangements can take the form of a specific (property) tax collected by the public sector, a sub-concession fee (profit share, percentage of turnover, etc.) or an up-front payment or contribution towards the funding of the project.

Development gains are generated by the development of activities in the vicinity of the road which are not directly focused on the road users.

These activities include the development of shopping centers, leisure parks, office buildings and industrial sites. They benefit directly (access) or indirectly (better road connections) from the road but are developed under a completely different scheme to the road in terms of finance and land requirements.

Development gains also include services such as the installation of a cable along the motorway (i.e. cable companies using the road corridor to develop their networks).

In the case of purely public sector projects, the public sector might consider that it will benefit from such development gains through additional taxes and from the fact that they create employment and it therefore does not wish to negotiate further arrangements with these developers (in fact, the road connection might actually be the result of attracting these developers).

In the case of private sector-led projects, similar arrangements can be developed as for the ancillary services, including an invitation to participate in the funding of the road project.

PPP projects can also be implemented as part of a development, i.e. the private developer agrees to finance and build a road link in return for obtaining the approval to implement its (property) development interests.

## Road pricing

Road pricing (road user charge rates), comprising mainly tolls but also dedicated taxes, is a fundamental question that should be addressed by policy makers beyond the financial constraints of project bankability for privately financed projects.

When determining road pricing, users' willingness and ability to pay should always be taken into account. Road pricing is a very clear method of translating the Government's policy on the portion of the overall cost (investment, maintenance and operation cost) to be recovered from road users and the portion to be recovered from the community as a whole.

## Which part of the overall project cost should be funded by road user charges?

The marginal cost is the cost associated with any supplementary driver using the road once the infrastructure is functioning. Such a cost is typically low for road infrastructure facilities until congestion appears and maximum capacity is reached.

Charging road users at marginal cost would therefore imply low tariffs in non-congestion periods and a sudden sharp rise to adjust the infrastructure when maximum capacity is reached.

To reach the economic optimum (usually called the Pareto optimum) the user price has to be set at marginal cost. This would however result in a project budgetary gap due to the high initial cost of road infrastructure facilities. Two options are available to fill this gap:

- finance the original investment from community funds. Such a choice could be justified by the fact that the community (taxpayers) benefits from the positive externalities created by the infrastructure,
- charge some categories of users a higher rate than marginal cost to recover part or all of the investment cost (Ramsey pricing).

In general, integrating more than the marginal cost into road user charges leads to an economic sub-optimum for the project. To some extent, the economic answer to the question "Should a road be tolled?" is "No". When non-economic constraints are integrated, the practical question is often rather "A toll road or nothing?" Tolling is not a panacea but often a good way of making a project feasible.

## Demand Management

User charges and tolls in particular can also be used for demand management. In other words, toll rates can be used as a factor to discourage traffic on the roads and optimize the use of the road network.

The main objectives of demand management are mainly threefold:

- **Optimization of traffic flow** to enhance the economic benefits of the road. Attention is paid in particular to:
  - **traffic volumes:** when road capacity is exceeded, benefits decrease substantially,
  - **traffic structure:** heavy vehicles with an incomparably adverse impact on maintenance costs (pavement distress).
- **Optimization of toll revenue** is closely related to traffic optimization but focuses on how much road users can afford to pay. On top of the above considerations, revenue optimization would tend to favor higher toll rates for users who are less price-sensitive.
- **Social considerations:** it could be a political objective not to penalize poorer road users. However, tolling is not an efficient tool for taking account of the social pricing of transport services since toll collection constraints do not allow pricing structures to be built on sophisticated parameters. More elaborate systems will probably provide more flexibility to policy makers in this regard. In developing

countries, with much bus use, bus operators could be charged lower toll rates or related bus passenger tolls could be foregone, for example.

**Setting toll rates** is a powerful way of achieving the above objectives. However, it can easily be seen that they may conflict with each other and priorities should clearly be set by the public authorities.

When the public sector is operating a road, adjustments can be made when the original tariff structure does not produce the expected results.

When tolls are directly linked to private sector revenue, these objectives shall be clearly reflected in the rules imposed on the private operator during the selection process: Module 5 -> Procurement.

The following parameters are usually used for demand management:

- Differentiate toll rates over periods of a day, a week or a year. Toll rates are increased during peak hours to minimize traffic and decreased during off-peak hours to encourage a more balanced, regular use of the road.
- Apply different toll rates per vehicle type. Typically, vehicles with an adverse influence on the traffic and on maintenance costs are charged more.

Demand management efficiency greatly depends on the availability and accuracy of information on the road users and in particular:

- Traffic volumes and structures,
- Origin/destination (O/D) matrices,
- Sensitivity of the various categories of road users to toll rates.

These parameters shall be carefully addressed during feasibility studies conducted on the project and in particular during the economic evaluation (Module 3 -> Sector Planning and Strategy -> Planning Process -> Demand Forecasting).

Both public players and private operators should also closely monitor these parameters to further optimize demand management during the operation period. In PPPs, adjustment of the toll rates is a very delicate exercise that is limited by the contractual obligations of both the public sector and the private players.

SELECTED TOLL RATES (2008)			
Country	Project	USD cent/km (approx)	Comments
Austria		13.5	>3.5 and <12 tons
		EUR 72.6 annual vignette	light vehicles
Australia	M5	11	
Brazil		3.5	
Canada	407 ETR	15	Regular Zone Peak Rate
China		3 - 6	
Colombia	Bogota-Cartagena	3.6	
Croatia	Zagreb - Rijeka	6.9	
France		9	
Hong Kong		8	
India		2.2	
Italy		9	
Spain	Barcelona-Bilbao	8	
UK	M6 Toll	16.5	Day (06:00 - 23:00) rate
US	North Carolina Turnpike	8.4	

Source: Consultants, exchange rates at October, 2008

## Toll Collection

### Closed and Open Systems

In a closed system, toll plazas are situated at every entrance and exit of the highway which ensures that all users pay according to their use of the motorway.

In an open system, toll barriers are located at regular intervals along the main highway. Users thus pay a toll that is not directly related to the distance driven but more approximately, based on the number of toll plazas they have passed through.

On sections with particularly heavy traffic, toll collection has an adverse effect on congestion by stopping vehicles at the toll plaza. This problem is usually mitigated through the careful design of toll booths and plazas, in which the number of booths should be calculated based on the average time spent in collecting the tolls and the amount of traffic.

#### *The closed system*

In a closed system the user enters the toll road and cannot leave it without paying a toll based on the distance travelled and the vehicle category. This system requires toll plazas to identify the points of entry and exit of the user and the distance travelled, the vehicle category and to collect the toll. Thus toll barriers are located at the extremities of the network and at every interchange.

Generally, the closed system is considered to be well suited to interurban sections, for the following reasons:

- fairness of tolls: tolls are calculated on the distance effectively travelled;
- the average distance travelled is quite long: the number of toll transactions compared with the distance traveled is low, and the transaction time is short compared with the total travel time;
- outside urban areas, land is usually available at an acceptable price. For the same reasons, the closed system is seldom applied to urban areas.



### *The open system*

In an open toll system, toll fees are levied at certain points on the expressway, either on the main carriageway or at interchanges. These flat toll fees do not necessarily reflect a consistent rate per kilometer since they may relate to different trip lengths (tariff distortions are inherent in most open systems). The system therefore only requires toll plazas where users are identified by their category and pay a fixed toll per category. The toll barriers are generally located at regular intervals.



Usually, the open system implies:

- high traffic levels;
- a relatively large area of land for toll installations, although less when using electronic toll collection (ETC) systems;
- frequent stops over long distances.

Usually, this system is well suited to suburban areas or to urban sections:

- short average distance traveled;
- usually less land required as compared to a closed system.

## Means of payment

The established method of payment in both open or closed systems is “stop and pay”. New methods of toll collection have been developed and are now in operation where the driver is not required to stop; instead, the vehicle is identified by a remote control system as it passes, with or without stopping, through a special lane. The transaction is automatically recorded and the toll is debited from the subscriber’s account. Such a system offers a much better service to regular users.

The following forms of payment are then possible:

- **Cash payment:** cash is the traditional form of payment, and the most common in many countries, especially for small tolls.
- **Magnetic cards:** such cards include national or foreign bank cards, credit cards, and private cards such as petrol company cards or automobile club cards, for example.
- For subscribers, **specific payment systems:** these are of special importance if the toll road is used by a large number of commuters on some of its segments. For regular users, stored-value magnetic cards (chips or stripe), automatic vehicle identification (AVI) systems, etc. could be used.
- For occasional users, **tickets or tokens** are very suitable.

## Electronic Toll Collection Systems

Improvement in toll collection technology results in smoother traffic flow through toll plazas.

New systems based on electronic toll collection have been implemented in various countries with varying degrees of success but which constitute a promising development. Electronic toll collection systems are usually of three types:

- a system based on satellite positioning and navigation systems and cellular phone communication.
- dedicated short-range systems where an on-board unit communicates with roadside equipment.
- a system of cameras with OCR technologies to record license plates.

Such systems are constantly improving in efficiency and reliability and have proven their competitive advantage in particular on high traffic roads. This technology now allows road users to pass the toll booth plaza at a low speed without stopping (see Chile and UK M6 Toll Road case studies Module 6 -> Case Studies).

However, care should be taken to ensure that the user recognizes the service provided by the electronic collection system, and that the cost of the toll and the technology applied do not create additional costs and difficulties compared to manual collection.

The potential drawbacks of such systems shall be carefully assessed and in particular:

- even if equipment can be procured from abroad, adequate technological resources should be available in the project country (qualified labor, spare parts) and legal constraints need to be overcome regarding protection of privacy and enforcement

issues: without full legal and operational ability to claim tolls from non-payers (enforcement rights), any fully electronic tolling system is useless

- multi-lane electronic tolling systems require the availability of well-developed payment systems (credit cards, etc.) and enforcement issues are increased.

Apart from being efficient, electronic toll collection systems create the paradox of making tolling less painful for users (who may barely even notice that they have paid) and who are therefore less aware of the associated costs of construction and maintenance of the highways, whereas such awareness of highway costs may be desirable in order to develop a feeling of "ownership" of the infrastructure facility within the community.

### *Low speed toll barriers*

This technology uses a normal toll plaza with special reserved lanes for subscribers. The vehicle reduces its speed on approach to the toll barrier, to allow recognition of the subscriber and recording of the passenger by DSRC communication, before the barrier is raised a few seconds before the passage of the vehicle. This technology allows improvement of traffic flow through toll without significant changes to the toll plaza structures or to enforcement policy. In the event that the subscriber is not recognized, the barrier does not go up and the road user cannot cross the toll plaza.

### *Free flow tolls*

With this technology the cars cross the toll plaza at normal speed. Free flow tolls uses equipment placed on gantries over the highway; there are no toll booths, which would be dangerous for traffic at normal speed. The equipment comprises DSRC devices to record the vehicles of subscribed users as well as cameras with OCR functions to record the license plates of unsubscribed users. However, such a free flow system requires an enhanced enforcement ability of the toll company, since the toll company must be allowed to check the license plate register for vehicles crossing the free flow toll without subscription (and thus without payment) and recover costs from these users.

### *Toll-free systems*

With this technology there neither toll plazas nor gantries. The distance travelled by a user is calculated with a GPS installed in an On Board Unit (OBU), a communication device installed in the road user vehicle. The OBU contains information such as the type of car or its level of pollution which, combined with the types of road on which it travels, allows the toll to be invoiced at the end of the month. This system is particularly appropriate when governments decide to tax existing roads without the use of toll plazas. The first use of this system was the government of Germany which has introduced a tax for trucks using the Federal road network.

### *Urban tolls*

Several cities, notably London and Stockholm, have introduced an urban toll. The cars which enter the designated inner city zone have to pay a tax and the cars are recognized through cameras with OCR software which allows them to record the license plate. The purpose of this taxation is generally to improve traffic flow and accessibility to inner city

areas by decreasing road congestion and raising funds for associated improvements in public transport. Since the funds are not used to pay back infrastructure or maintenance costs, such tolls are not considered to be directly relevant to PPP funding and are thus not developed further in this Toolkit.

### Vignettes (Stickers)

An alternative way of collecting charges is to sell vignettes (stickers) that authorize a vehicle to use a road for a given period. The main advantage of this system lies in the fact that much less time is needed to control vehicles along the road than to stop them to collect tolls. Adverse effects on congestion are consequently largely limited, particularly when controls are made on the sample basis rather than systematically. Vignettes can be sold on the operator's premises along the road or in shops in neighboring towns.

### Who collects tolls?

Tolls may be collected as follows:

- by a Government entity and transferred either to the general budget or to a road fund,
- by a public organization also in charge of road operation,
- by a private firm on behalf of the Government. In such a case the private firm only provides the toll collection service and is paid separately,
- by a private firm in charge of road operation. Remuneration of the private firm is then linked with the funds collected through the tolls.

# Finance

**For some road projects which are tolled, a gap exists between the socio-economic benefits and the financial profitability, often called a 'Viability Gap'. This needs to be filled by the public sector in order to attract private investors. This is possible through direct subsidies, fiscal incentives and guarantees.**

When direct subsidies are given to the private investors, generally the PPP contract is given to the bidder that claims the least subsidy since this criterion is usually given a high score in the tender evaluation process.

Fiscal incentives can help the PPP project to reach a financial equilibrium, lowering the profit taxes of the concessionaire in the beginning of the contract for instance.

Guarantees are contingent liabilities from the general budget but are only triggered if some future event under the contract does not occur e.g. traffic does not reach a certain minimum level.

Traffic is an important determinant of feasibility, although not the only factor. It is generally considered for normal highway construction standards, that the traffic threshold for a PPP project to be financially viable is 10,000 vehicles per day for a Greenfield project and 6,000 vehicles per day for a Brownfield project.

Some roads are important for socio-economic development in low trafficked areas roads and if governments seek to finance these projects, they will have to give strong public sector support.

## Use of private finance

Analyzing and developing the financing scheme should always be performed after the socio-economic analysis, including the evaluation of:

- The overall cost of the project including construction or rehabilitation costs, and operation and maintenance costs. The flow of expenditure depends to a large extent on the project scope of work.
- The economic benefits of the project are evaluated in the economic analysis. Typically, economic benefits are generated by an increased level of service for the users and mainly take the form of savings in vehicle operating costs, reduced travel time, mitigated impact on the environment and reduced casualties as a result of fewer accidents. Two characteristics of these benefits shall be kept in mind to structure the financing of the project:
  - They are only generated over the entire operation period, typically 15 to 20 years
  - A substantial initial investment is often required to increase the level of service.

If the economic analysis and the other components of the feasibility studies (social and environmental impact assessment) have concluded that the project should be implemented, the Government has a choice between the following funding options (this issue is addressed in Revenues):

- **General budget funding:** resources usually coming from tax payment and revenues from government-owned properties are partially used for the implementation of the project. However the tax burden borne by the public cannot be increased indefinitely by national or local Governments without risking social instability. Moreover countries embarking on massive road rehabilitation and construction programs are unlikely to find the required funds from their budget.
- **Funding from user charges:** funds come from tolls or specific taxes (e.g. fuel tax, vehicle licensing fees) paid by the users of the project.
- Limited user charges and government support.

It is the Government's responsibility to set up an appropriate financial scheme if there is a gap between the funds required for the investment and the resources available and/or generated from the project directly. Two options are available:

- Government financing is still by far the most popular way of financing road infrastructure but demands are huge and resources extremely limited with many competing demands e.g. education and health.
- Private financing through either Corporate Finance or Project Finance offers possibilities for Governments to mobilize extra sources of finance and therefore limit the amount of public funds directly mobilized for the project.

The financing scheme will have some influence on the economic soundness of the project.

The impacts of private financing are:

- an increase in the cost of financing due to the higher interest paid by private sponsors than by Governments.
- and in case of toll implementation:
- a reduction in traffic, depending on the elasticity of demand and the benefits from using the facility compared to the toll charged. The toll rate could potentially be such that it reduces future traffic levels such that the project becomes economically unviable (Module 3 -> Sector Planning and Strategy -> Planning Process -> Demand Forecasting -> Influence of tolling on transport demand).
- an increase in the construction costs due to the additional costs to build and operate the toll plazas.

## Project Finance

Project finance is a term which defines a specific type of financing whereby the expected future revenue stream (cash flow) of a project is almost the only means of paying interest and repaying the required debt to fund it. Another term for project financing is 'no-recourse' financing. As noted in the term 'almost' above, no-recourse is often difficult and more usual or popular is 'limited recourse' in which the cash flow is expected to

finance most of the investment but includes provision for some external (to the project) sources and/or fall back sources.

The concept of project financing is to structure and raise funding of the stand alone project company on the basis of future project cash flows. The responsibility of the project company (special purpose vehicle or SPV), which enters into the PPP agreement, is to implement and operate the project. For that purpose, it raises the financing and often subcontracts construction and operation activities. Government may also support a project through direct support or more likely through risk mitigation measures/guarantees.

Contrary to the other types of financing (corporate financing), the lenders have no recourse or only limited recourse on the entities which have initiated the project (sponsors, shareholders, etc) in case of difficulty for the project to reimburse them.

Project finance thus comprises mechanisms both for Funding, and Investment Recovery, which depend on each other as two sides of one coin: the cash flow (after deducting operating costs and tax payments) must be sufficient to service and repay debt and reward equity.

Project finance is a useful tool for companies with insufficient balance sheet strength to take on the whole debt and who wish to avoid the issuance of a corporate repayment guarantee, thus preferring to finance the project "off-balance".

Although project finance can be used for all types and sizes of projects, it is often used for the financing of more expensive projects, such as larger infrastructure projects and toll roads. The costs related to implementing project finance structures prohibit the use of this type of instrument for smaller scale projects.

## Principles

Several companies forming a Consortium contribute to the development of the project. In order to make a clear separation between the sponsors and the project itself, a Special Purpose Vehicle (SPV) or project company is created after the client has awarded the project to the consortium. The sponsors then become the shareholders of the SPV and their liability is limited to the amount of share capital they have invested in the new company.

Since the SPV itself is usually not competent to construct and operate the project, it will sub-contract these tasks to other companies (most of the time to some of the shareholders which are both constructor and operator). The only purpose of the project company is to raise the financing necessary for the implementation of the project, collect the cash flow generated by the project and redistribute the responsibilities accordingly: the SPV is largely an empty shell.

The total exposure of the lenders in a project finance scheme could reach 80-90% of the funding requirement (project cost). As the lenders have only limited recourse in the project, their behavior is always driven by a risk approach consisting in mitigating the risk of incapacity for the project to repay the debt: they thus require full access to the project revenue stream.

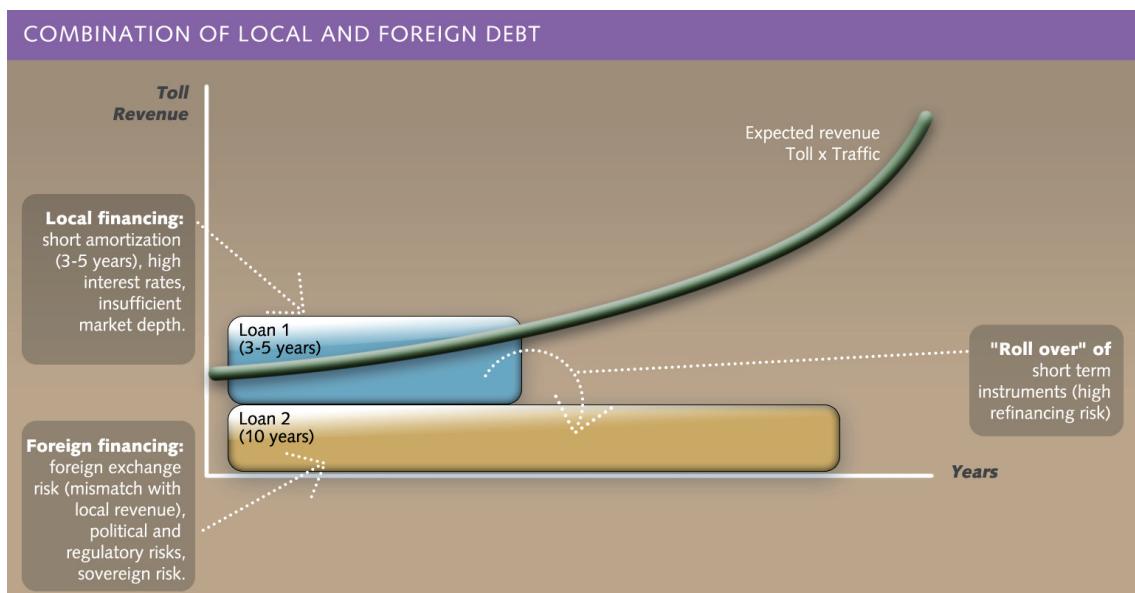
Most project risks should be allocated to others than the borrower or SPV (Risk allocation), and the possibility should exist of intervening in the management of the project company in case of cash flow shortfall leading to incapacity for the project company to repay the debt.

### Specificity of road projects

The nature of road projects introduces a number of specific constraints for financing as road projects involve a large initial investment in order to create a capacity that will often only be fully utilized after 10 or more years, with the consequence that:

- the initial traffic revenue is unlikely to match the financing requirements during this period
- the depreciation period is likely to be significantly longer than the loan maturity period, which, for indirect reasons, sometimes prevents cash flow after debt service being distributed in full to the shareholders.

The following graph is an example of the use of a combination of local and foreign debt, with different maturity, in a motorway project. The local debt, with short maturity, is used to finance projected cash shortfall at the beginning of the concession.



*Source: Irigoyen, 2000*

Moreover, an added complication could be the requirement to mitigate exchange risks. In countries with limited capital markets, funding is likely to be raised in foreign currencies, whilst the revenue, from tolling, will most likely be generated in local currency.

Since only very few projects are sufficiently profitable for them to be developed as 100% private solutions both in terms of funding and recovery, the public sector is likely to be obliged to financially support the project by participating in the funding or the recovery of the investment, or in both funding and recovery.

Participation in the funding could either involve providing capital grants, funding parts of the project, providing subordinated loans, taking out shares in the SPV or providing tax advantages.

Participation in the recovery of an investment could include a range of options such as:

- repaying the investment on the basis of a fixed repayment schedule (Pre-Financing) or through Shadow Tolling or Availability Payments,
- making operational subsidies, which could be linked for example to traffic or revenue levels, or
- providing certain tax incentives and tax exemptions specific to the project.

The choice of each of the above options depends on the viability of the project, the preferred risk allocation and sharing mechanisms and the optimization of the SPV's financial and tax structure. In return for providing such forms of financial support, the public sector could require to be reimbursed if support was provided to cover cash shortfalls during the early stages of the project, or to share in the benefits if the project does better than expected.

Clearly, the above options are not exhaustive, but give an indication of possible solutions that could be proposed and developed depending on the project needs and the public sector requirements. The development and use of a Financial Model is an important tool in evaluating the best solution.

### Investment recovery

The investment is to be recovered through the revenue stream after deducting the annual operating costs, including tax payments. As indicated, this revenue stream could come 100% from private sources, a combination of private sources and operational subsidies, or 100% from payments made by the public sector.

In the case of a 100% contribution from the public sector, the type of payments will largely depend on the type of risks that the public sector wishes to transfer to the private sector. A fixed type of payment (Pre-Financing) leaves the private sector with a construction and operation cost risk, but the public sector guarantees the whole financing as it would have done by taking out a loan directly.

Performance (Availability Payments) and traffic dependent payments (Annuities or Shadow Tolls) allow governments to consider the funding as alternative sources to direct government borrowing which would affect their credit capacities less than direct borrowing.

The impacts on the public sector's credit rating will be minimal or non-existent in the case of 100% private sources with the option of operational subsidies. These operational subsidies could either be provided as annual fixed amounts, a fixed contribution per road user or as a standby facility in case traffic (or revenue, in order to compensate lower chargeable toll rates) falls below a certain pre-agreed level.

As an alternative solution (recommendable if there is a high degree of uncertainty regarding future traffic) the private sector could collect tolls for the public sector and

be paid by the public sector on the basis of a shadow toll mechanism. In the base case projection, toll revenue could cover all or most shadow toll payments, the public sector would directly benefit if traffic is higher (unless it uses this surplus to reduce tolls) and would provide subsidies if traffic is lower.

## Financial structure

The funding of all project finance, i.e. PPP, solutions is achieved through various forms of equity and senior debt ("senior" means, that debt service receives priority payment from the cash flow).

Every project needs equity, i.e. the project sponsor's own money. The amount of equity depends upon: the maximum amount of debt sustainable by the project, given the income flow and risk profile (debt service has to be ensured by project income even in cases where risks materialize), and the return rate expected by investors.

The balance between equity and debt depends on the project structure, the quality of the revenue stream and risk profile. This is the reason why equity level can be somewhat lower in shadow toll and annuity schemes, since the economic risks are much lower than in toll roads.

For example, inter-urban toll roads typically require a relatively high level of equity (20% - 30% of the total funding requirements) but projects funded on the basis of a shadow toll payment or annuity may be only 15%-20% equity. The normal range across all commercial projects whether PPP or private is 20%-40% equity with a usual figure being 25%-30% equity as commercial bankers and public authorities take comfort from the borrower investing considerable amounts of their own money before borrowing. Additionally, if the project gets into financial difficulties and its (resale) value decreases, the equity portion can provide a buffer of comfort for the debt providers.

Depending on the project characteristics and the requirements of the Sponsors and investors (voting rights against return, tax optimization, etc.), the equity could be provided in the form of share capital, preferential capital, various forms of shareholder loans and a combination thereof.

Potential investors include:

- International financial institutions
- Infrastructure investment funds
- Various organizations that might have an interest in the project once completed (petrol companies, property developers, etc).

Debt could be provided in the form of:

- senior debt from International financial institutions and Commercial lenders, or
- mezzanine debt from various Infrastructure Investment Funds, in the form of bond issues or public and private placements), or in the form of a combination thereof.

The nature of the funding and the sources of funding will depend on a wide range of aspects, such as the project characteristics (including possible public sector financial

support), the country in which the project is being developed, the ability of the sponsors to raise capital, the interest of third party investors, the availability of capital markets, the time available for raising the financing and the general risk structure of the project.

## Government financing

### Public loans

Government can raise debt from banks (private loans), multinational institutions (Public loans) and investors (bonds). The characteristics (amount, maturity and interest rate), of the government loans and bonds depend substantially on the country profile and on the debt providers.

Although Governments from low- and middle-income countries have access to loans from bilateral aid, international financing institutions (IFIs) or private lenders to finance their infrastructure, numerous countries have already reached the limit of their public debt. The International Monetary Fund (IMF) closely monitors macro-economic indicators and tends to limit access to international aid for such countries.

All low- and middle-income countries are familiar with international aid made available by International Financing Institutions to support Government financing of infrastructure projects.

It should be noted however that loans proposed by IFIs are particularly attractive for infrastructure financing due to:

- **Below market interest rates.** Such rates depend on both the country profile (Gross Domestic Product) and the IFI, but are always below rates offered by private lenders.
- **Long grace period** i.e. before principal repayments start and very long maturity that could go up to 25-30 years and match project life.

A special attention should be paid to the main drawback linked to public debt increase i.e. credit worthiness. A country with large debt relative to its productive capacity may run into problems with respect to the ability to service its debt. Lenders may require higher interest rates from such countries than from countries with smaller debt/production ratios. The higher interest rate can be seen as a market based way to signal problems with respect to spending.

### Revenue bonds

A revenue bond is a bond issued to finance a specific public-work project and is paid back by the revenue from that project. Thus, a revenue bond is essentially a special type of bond distinguished by its guarantee of repayment solely through a specific revenue generating entity.

## Private Financing

### Types of Private Financing

The financing of private investment in public infrastructure, as in corporate financing, can be classified mainly into two categories - equity financing and debt financing. Equity financing is led by investment companies, venture capital funds, construction firms and banks. Debt financing is mainly conducted through a syndicated loan. The issue of long-term bonds is still quite limited.

This section discusses the financial mechanisms involved when a specific company, often called a Special Purpose Vehicle (SPV), is set up to develop and implement the project and when this SPV uses private sources of finance. Most privately financed PPPs are structured in this way.

In such arrangements, a public entity grants a concession to the SPV for a pre-determined period during which the SPV is responsible for:

- Construction, operation and maintenance of the road in BOT-type projects
- Operation and Maintenance only for O&M concessions

Private financing is required to pre-finance the required investment and is mobilized as either equity or debt.

### Equity

Private firms take shares in the capital of the SPV: Equity investors (as sponsors of the project and/or financial investors), become owners of the SPV in proportion with their share of capital and expect to be remunerated from their invested capital through the payment of dividends from the SPV. Dividends are usually paid on a yearly basis from the (after tax) profit generated by the SPV which means that equity holders are being paid last, after lenders.

Equity typically accounts for 20 to 40% of the overall project cost. The larger the investment required to build or upgrade the infrastructure, the more difficult it will be to mobilize sufficient capital and for the sponsors to share risk with other investors.

Public players and international institutions can also join the project as equity investors, when private capital is insufficient.

The various types of equity mobilized by the different potential investors are similar for other infrastructure projects such as Ports and are discussed in the Port Reform Toolkit sponsored by the PPIAF and the World Bank.



Financial Implications of port reform, Principles of financial modelling, engineering and analysis (Structuring equity). World Bank Port Reform Toolkit.

## Private Debt

This is mainly made available by Commercial Lenders or Capital Markets. Debt will be reimbursed by the SPV during the operation period on the basis of regular installments. Maturity and interest rates of the debt depend on the project specificities.

The loan conditions will depend to a very large extent on the legal and macroeconomic features of the country and in particular:

- political stability,
- foreign exchange reserve for loans in foreign currencies,
- inflation

Governments too often focus on interest rates in the assessment of loans that are made available to them. In fact, maturity often has a greater influence on the future reimbursement installments.

The maturity of loans proposed by private lenders can be lengthened through conducting sound economic reforms that will improve the above-mentioned macro-economic parameters.

Various types of debt instruments and the mechanisms to structure them in an infrastructure project are discussed in the Port Reform Toolkit sponsored by the PPIAF and the World Bank.

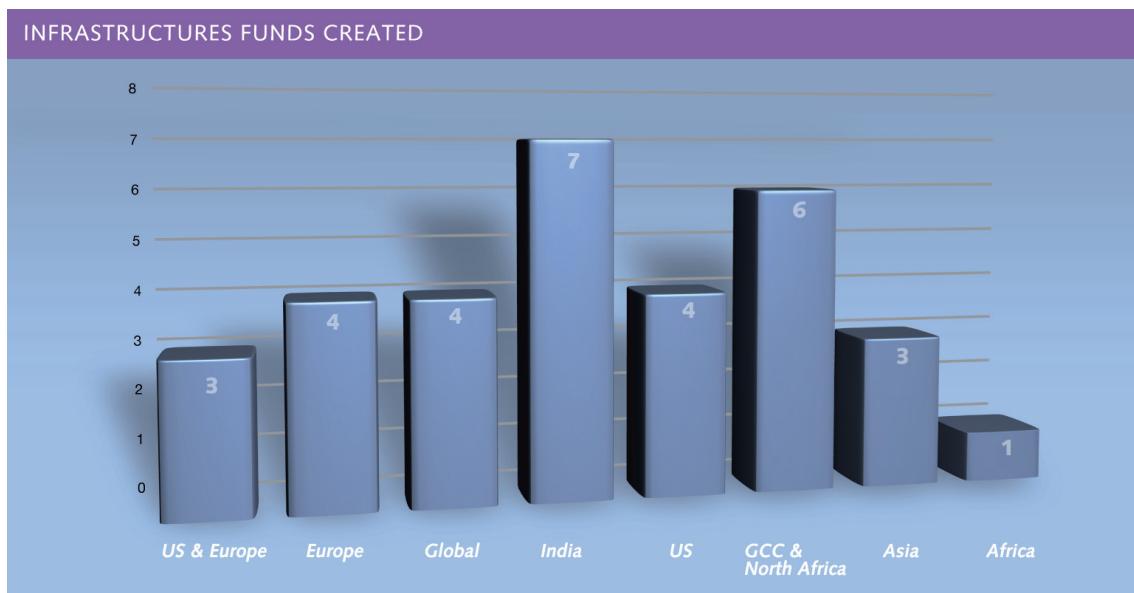
## Infrastructure funds

PPP infrastructure funds attract money from long-term investors (such as pension funds, banks, foundations). They inject equity or mezzanine finance in PPP projects.

Since highway infrastructure projects often offer stable cash-flow businesses with a moderate risk, infrastructure funds have grown rapidly worldwide. The global market capitalization of listed infrastructure funds is estimated to be around USD 2.1 trillion, nearly 5 percent of the market capitalization of the global equity market (Dr Cho Sung-Won 2008).

Australia is renowned for its listed infrastructure funds. More than 23 infrastructure funds are currently listed and publicly traded on the Australian Stock Market with a market capitalization of (USD 43 billion).

Dr Ryan J. Orr in a paper on Collaboratory Research on Global Projects in 2007 notes a rapidly increasing number of PPP infrastructure funds. He notes that 32 new PPP funds were created in 2006 and 2007 and raised more than USD 50 billion. The funds are generally created to invest in a specific geographical area as shown in Dr Orr's survey of the last 32 infrastructures funds created.



Source: Dr Ryan J. Orr, *Collaboratory Research on Global Projects in 2007*

Infrastructure funds help sponsors to:

- Structure project financing and make projects “bankable”
- Face equity needs (both through capital increase and mezzanine financing)
- Control costs during the construction and operational periods

If a PPP infrastructure fund expresses interest in a project, it is also a sign for the public sector of the feasibility of the project because:

- PPP funds stress analysis on economic and financial feasibility of projects in the long-term.
- PPP funds are, by nature, long-term investments i.e. they are not interested in short-term revenues.

## Corporate Finance

Under corporate finance, lenders ask equity investors to pledge their assets as collateral for the loan made available to the SPV. In other words, the loan is backed by the investors. If the project does not generate sufficient cash to repay the debt, lenders will have the recourse of selling the investors' assets.

The use of corporate finance in highway infrastructure projects is limited. Due to the massive investments required in such projects and the consequent magnitude of the commercial loans, private investors are usually unable or reluctant to give such guarantees.

## Financial Evaluation

### Cost of financing and the WACC

Most PPP projects are financed through the project company (SPV) by a combination of equity and debt, in much the same way as investments in the corporate sector. This combination of sources of capital, referred to as financial structure, impacts the cost of capital employed for the funding of a PPP investment. The project sponsors expect to receive benefits for the equity invested in the project and lenders expect to receive interests for the money lent to the PPP shareholders.

In corporate finance, Weighted average cost of capital, WACC is used by companies to determine the feasibility of expansionary opportunities and mergers. Project companies (SPV) financing PPP projects can employ these same methods of financial analysis, with the added precision that the financial structure of the SPV should be considered for the calculation of WACC, rather than that of the investor, insofar as the SPV is non-recourse financing, and thus off-balance sheet.

The WACC calculates a firm's cost of capital in which each category of capital is proportionately weighted. All capital sources - common stock, preferred stock, bonds and any other long-term debt - are included in a WACC calculation. WACC is calculated by multiplying the cost of each capital component by its proportional weight and then summing. WACC is thus the average of the costs of these sources of financing, each of which is weighted by its respective use under the financial structure of the SPV. By taking a weighted average, the WACC represents the annual amount the company needs to pay for every dollar it receives in financing.

The weighted average cost of capital is calculated as per the following formula.

$$WACC = \frac{E}{V} * Re + \frac{D}{V} * Rd * (1 - Tc)$$

Where:

Re = cost of equity

Rd = cost of debt

E = market value of the firm's equity

D = market value of the firm's debt

V = E + D

E/V = percentage of financing that is equity

D/V = percentage of financing that is debt

Tc = corporate tax rate

Whilst the cost of debt may be readily established from local or foreign debt markets or providers, the cost of equity requires a much more detailed assessment, since risk is largely supported by the equity of investors.

### *Cost of equity*

The Capital Asset Pricing Model (CAPM) is used to determine the expected return on equity which would be required by investors on capital markets, in accordance with the specific risk profile of the investment. In that it represents the expected return to the investor, it thus represents the cost of equity to the receiver (project company).

The formula for the CAPM is as follows:

$$C_e = R_f + (\beta \times MRP)$$

Where;

$C_e$ = the required return on an Asset/Equity

$R_f$ =Risk free return

=Market risk (the higher the risk the higher )

MRP=Market Risk Premium

The model takes into account;

- the asset's sensitivity to systemic risk or market risk, often represented by the quantity beta ( ) in the financial industry
- expected return of a theoretical risk-free asset
- the expected return of the market

The **beta coefficient** describes how the expected return of a stock or portfolio is correlated to the return of the financial market as a whole.

An asset with a beta of 0 means that its price is not at all correlated with the market; that asset is independent. A positive beta means that the asset generally follows the market, and a beta of 1 means that the asset is fully correlated to the market. A negative beta shows that the asset inversely follows the market; i.e. the asset generally decreases in value if the market goes up. Correlations are evident between companies within the same industry and beta values are generally determined for industry sub-sectors which are considered to have similar operational characteristics and following similar market trends.

The CAPM is widely applied in countries with well-developed equities markets, with significant economic activity, mature financial markets and for which significant market data is available. However, developing countries may lack equity markets, which considerably reduce the liquidity of equity and for which relevant market data would be sparse or unavailable.

In such cases, and since capital (and debt) would largely be originating outside of the country, the cost of equity would generally be calculated using CAPM with equity data from developed countries. In such cases, it is generally accepted that a country risk premium is then added to the CAPM formula, representing in effect a premium on the risk free rate. The premium of a country's central bank debt over comparable US rates serves as a proxy for country risk in developed countries.

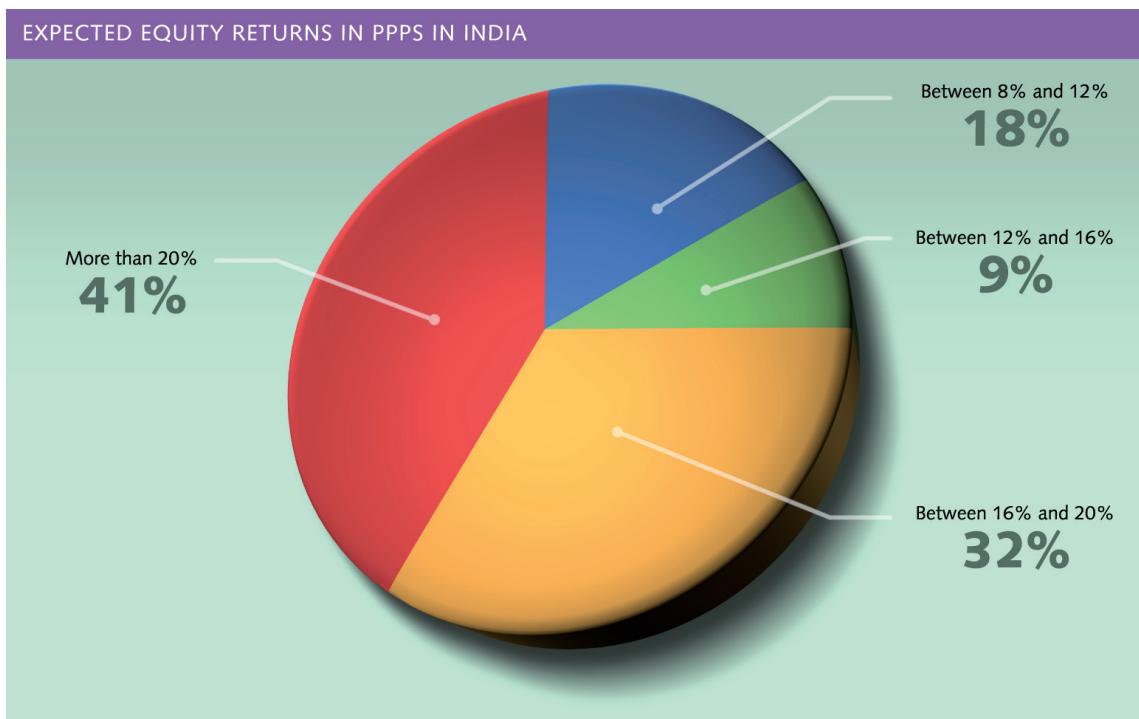
The following table presents estimates for Beta, which are global estimates as measured in developed markets and adapted to the country of Indonesia.

ESTIMATION OF BETA IN VARIOUS CONCESSION COMPANIES					
Company	Country	Industry	Role	Equity Beta	D/E E
Macquarie Infrastructure Group	AU	Transportation	Investor	0.78	0.41
Macquarie Infrastructure Corp	US	Infrastructure Services	Operator	0.62	1.12
Cintra	ES	Transportation	Operator	0.96	7.90
Abertis	ES	Transportation, Telecomm	Operator	0.12	3.59
Vinci	FR	Concessions, construction (energy, transportation)	Multi-div	0.33	2.41
APRR	FR	Concessions, construction (Paris-Rhine-Rhone)	Operator	0.02	14.95
Citra MargaNusaphala Persada	ID	Concessions, construction	Operator	0.99	0.41
Average		Concessions, construction	Operator	0.80	0.50
Average	MX	Concession	Operator	0.84	0.80
CIA DE CONCESSOES RODOVIÁRIAS	BR	Concession	Operator	0.713	0.86
OBRASCON HUARTE LAIN BRASIL	BR	Concession	Operator	0.878	0.45

Source: Hauswald, Robert / World Bank Institute

### Expected equity returns

In India, the average expected equity returns for road investments was around 20%, which has increased from 15-17% in 2002-3 to 24% in 2005-6.



*Source: Presentation entitled 'Financing PPPs in India, Clive Harris, South Asia Sustainable Development / Trends and policy implications' SAR-FEU co-sponsored Workshop "How Domestic and Regional Investors and Local Financial Markets Have Changed the Way Infrastructure PPPs are Financed –Global Trends and a Focus on India, SDN Week 2008*

### Other Comparisons

Estache and Pinglo (WB) estimates of the cost of equity for different countries/sectors:

- Low Income Countries (LICs): 19.2%
- Middle Income Countries (MICs): 14.5%
- Ports: 14-22%
- Energy: 15-19.5%

This is only a broad indication because these estimates use assumptions such as on gearing i.e. debt/equity levels and each set of assumptions will have different implied risks.

In India road PPP expected returns are consistent with gearing (more highly geared projects give higher returns).

Some studies have tried to estimate the implied risk in financing roads and bridges. Alexander et al, WBI estimated the asset betas ( ) for roads as between 0.31-0.48 (see table above for comparison). This could reflect riskier road projects and is consistent with aggressive bidding for road projects in 2006/7 e.g. negative grant bids for some projects, huge developer interest in road PPPs

### Calculation of WACC

The following table presents the calculation of WACC for a highway project in Indonesia.

DETERMINATION OF COST OF EQUITY AND WACC FOR TRANSPORT PSP PROJECTS					
	Cost of Equity i.e. how much return an investor will require				
	Cost of Equity (Ce)=Rf+B(GMRP+CRP)				
Rf	Adjusted risk-free rate (6-12 month Central Bank obligations)	12.75%			
GMRP	Global market risk premium	5.5%			
CRP	Country risk premium (Based on Central Bank rating)	7.5%			
	GMRP+CRP	13.0%			
	Global industry equity beta (B)	0.99			
	GMRP+CRP)*B	12.87%			
	GMRP+CRP)*B+Rf	25.62%			
	Cost of Equity	25.6%			
	Cost of Debt				
	Domestic average 6-12 month rate	17.5%			
	Weighted Average Cost of Capital (WACC)				
	(% equity x Ce) + (% debt x Cd x (1 - tax rate))		Equity	Debt	Weighted
WACC	70/30 Debt/Equity ratio	15.3%	7.7%	8.6%	16.3%
WACC	60/40 Debt/Equity ratio	16.4%	10.2%	7.4%	17.6%

*Source: Consultants*

The WACC calculation recognizes the benefit obtained from the tax-deductibility of interest payments. WACC is higher for the 60/40 debt/equity ratio because that capital structure uses a higher percentage of expensive equity. However, the additional cost can be somewhat offset by the lower financial risk (volatility) of the 60/40 capital structure.

However, WACC and thus transport PPP project discount rates are more likely to be driven mostly by project-specific risks, until a number of successful PPP projects have been in operation for some time. Transport PPP studies generally use a discount rate in the range of 20% to 25% to assess the viability of proposed projects.

### Financial model

The financial model is a tool that simulates the financial performance of the project company. This instrument is used for analyzing projects in order to plan and set up a financial structure (SPV) to meet the requirements of both public and private sectors (a

“bankable project”), evaluate proposals made by the private sector and ensure that the best solution is developed during the negotiation process.

The financial structure of a project has to be consistent with the risk profile and the testing of financial structures is made on the basis of risk occurring scenarios. By varying input assumptions and adopting different financial structures, the financial model is used to assess the impacts on the project company’s cash flow throughout the whole project life.

This section describes what can be analyzed with a financial model and how to interpret the results. The purpose, however, is not to provide detailed instructions on how to create a model for use as a tool during the negotiations with the private sector, as the preparation of such complex models should be left to the specialists.

Three aspects of financial modeling need to be addressed:

- **Financial model structure:** description of the basic structure of a financial model;
- **Financial analysis indicators:** description of the main criteria for project analysis;
- **Financial impacts:** simulation of impacts on the financing structure if certain assumptions and parameters are changed.

Two financial models are available in Module 6 -> Financial Models. These models are intended as educational products to allow the user to better understand the process of financial modeling. However, they should not be confused with the much more sophisticated financial models that are developed on a case-to-case basis for detailed modeling of the detailed financial structure of a project.

These products are:

- **A numerical financial model** that is structured in a similar way to a financial model and is particularly useful to understand the links between the various sections of the model (traffic, toll rates, costs, debt service and impacts on cash flow, profit and loss, balance sheet etc.).
- **A graphic financial model** that represents in a graphic form, the sensitivity or the project financial structure to key assumptions and parameters.

### Financial model structure

The financial models are built using a standard spreadsheet program in Excel whereby the following work sheets are incorporated:

Input and assumption sheets: gather all the input data necessary for the model, classified as follows:

- economic data (inflation, tax rate, etc.)
- construction data (construction costs and planning, etc.)
- source of funds and amount (equity, loans, bonds, subsidies, etc.)
- financial data (characteristics of the loans, bonds, etc.)
- operation data (operation cost, traffic forecast, toll rate, etc.).

Results and summary sheets (including the financial analytical tools described below).

Sheets with cash-flow statement, profit & loss account and balance sheet.

Various calculation and work sheets dealing with taxation, loan structure and other relevant aspects required to generate the cash-flow, profit & loss account and balance sheet for the project.

#### EXTRACT OF RESULT SECTIONS, NUMERICAL MODEL

##### FINANCING PLAN

Uses	781	Sources	781
Capitalised Interests	53	Equity	71
Construction costs (nominal terms)	710	Investment subsidy	0
Structure costs	8	1st tranche drawdown	566
Fees	10	2nd tranche drawdown	71
		3rd tranche drawdown	72
Sum operating subsidies in real terms year 2008		569	

##### FINANCIAL RATIOS

Debt/Equity ratio at the end of the construction period	90.91%
Minimum ADSCR (Annual Debt Service Coverage Ratio)	1.30
Minimum LLCR (Loan Life Coverage Ratio)	1.30
Minimum PLCR (Project Life Coverage Ratio)	3.61
Average life of total debt after the end of the construction	9.0
Interest rate used	4.10%

##### SHAREHOLDERS' RETURN

Project IRR after tax (nominal terms) in 2009	9.96%
Project IRR after tax (real terms) in 2009	7.81%
Pay back period (years into operating period)	13
Project NPV (million USD)	-18
Sum Dividends in real terms year 2008 (million USD)	3.677
Equity IRR (nominal terms) in 2009	24.79%
Equity IRR (real terms) in 2009	22.34%

##### PUBLIC AUTHORITIES' FINANCIAL ELEMENTS

Sum Subsidies in real terms in 2008 (million USD)	567.9
PV on subsidy at 8 % in real terms 2008 (million USD)	289.8
Sum VAT in real terms in 2008 (million USD)	1,370.9
PV on the VAT in real terms 2008 (million USD)	185.2
Sum Corporate Taxes in real terms in 2008 (million USD)	2,757.2
PV on the Taxes in real terms 2008 (million USD)	149.9
Sum state revenues (- Subsidies + VAT + Corporate Tax)	3,560.2
NPV on the State revenues in real terms 2008	65.5

A data book is also provided to assist in the assessment of results.

## Financial analysis indicators

Although each party may have its own specific tools to analyze the robustness of a project and the best way of structuring the financing, the following indicators are the most used and recognized for project finance.

### *Project Internal Rate of Return (or Project IRR)*

This represents the financial return or yield of the project regardless of the financing structure. The project Internal Rate of Return ( $r$ ) is calculated on the basis of the following equation:

$$\sum \frac{R_i - I_i - C_i}{(1+r)^i} = 0$$

whereby:

$R_i$  is the operating revenue at year  $i$

$I_i$  is the amount invested at year  $i$

$C_i$  is the operating cost at year  $i$

The project is considered to be financially viable when  $r$  is above a benchmark rate of return with respect to the country, sector and project characteristics. Generally it should be above 7% - 8% in real terms, depending upon countries and financial markets.

### *Return on Equity, ROE (or Equity IRR)*

This represents the yield of the project for the shareholders through the remuneration of their investment with dividends. The Internal Rate of Return ( $r$ ) on equity is calculated on the basis  $r$  of the following equation:

$$\sum \frac{D_i - I_i}{(1+r)^i} = 0$$

whereby:

$D_i$  is the dividend at year  $i$

$I_i$  is the amount invested by the shareholders at year  $i$

The project is profitable for the shareholders when  $r$  is high. Generally, a minimum expected return rate (real return) is 10% (Shadow Toll) or 17% (Toll Roads).

### *Annual Debt Service Cover Ratio (ADSCR)*

This represents, for any operating year, the ability for the project company to cover/repay the debt bearing in mind the assumptions taken into account in the model. This ratio is determined as follows:

$$ADSCR_i = \frac{CBDS_i}{DS_i}$$

whereby:

CBDS<sub>i</sub> is the net cash flow before debt service at year i (i.e. the amount of cash remaining in the project company after operating costs and taxes have been paid)

DS<sub>i</sub> is the debt service remaining at year i (principal and interests)

The project is estimated viable for the lenders when the ADSCR is greater than 1 (and usually much more than 1.0) for every year of the project life. This means that if, for whatever reason, the project revenue is below what has been forecast in the financial model at year i, the project company should nevertheless be at least able to repay the debt. Generally, the minimum ADSCR should be greater than 1.2 and sometimes 1.4 is used where risk is assessed to be higher.

### *Loan Life Debt Service Cover Ratio (LLCR)*

This ratio indicates, for any one operating year, the capacity for the project company to bear an occasional shortfall of cash due to discrepancies in the assumptions taken into account in the model whilst maintaining its debt service to the end of the debt. This ratio is calculated as follows:

$$LLCR_i = \frac{NPV(CBDS_i \rightarrow end)}{DS_i \rightarrow end}$$

Whereby :

NPV(CBDS<sub>i</sub>-end) is the net present value of the cash flow before debt service from year i to the end of the debt repayment period (net present value is used to neutralize the effects of inflation).

DS<sub>i</sub>-end is the total of debt service remaining at year i (principal and interests).

The project is estimated viable for the lenders when the LLCR is high for every year of the project life. This means that the project company should be able to maintain its debt repayments during a period of cash shortfall.

The ADSCR and LLCR are used by the lenders, to check project capacity to repay debt in adverse risk scenarios, including if revenues are below forecasted levels.

### *Net Present Value (NPV) of Subsidies*

In case the public entities have to subsidize the project over several years, the net present value of these payments gives the real amount of subsidies as if they were paid in a lump sum at present year. The net present value neutralizes the effects of inflation and gives a precise idea of values taken into account in the future. In this case, the discount rate is not the private sector discount rate (WACC) but rather the real public sector rate, indicated at 8% pa.

### **Financial impacts (sensitivity analysis)**

Using the simulation model attached to this Toolkit as a basis, it is possible analyze the impacts of the following Financial Analysis Indicators:

- concession life (currently set at 25 years),
- length of the construction period (currently set at 3 years),
- amount of capital subsidies (currently set at 0),
- amount of fixed annual operational subsidies (currently set at 0),
- equity - debt structure (currently assumed 20/80 after deducting capital subsidies),
- loan maturity period (currently set at 15 years),
- loan grace period (currently set at 4 years),
- loan repayment profile (currently set at Annuity Repayment),
- discount rate for subsidies (currently set at real annual rate of 5%).

Inputting these assumptions provides the estimated financial performance of the initial or base scenario.

Subsequently, by changing each or all of the above assumptions, it is possible to test the robustness of the financial structure related to the changes made including project parameters comprising the following; normal changes for negative risk scenarios are as shown (+,-):

- changes in investment costs due to higher construction costs or cost savings (+ x%)
- changes in operating costs (+ x%)
- changes in traffic either due to changes in initial traffic (- x%) or due to changes in annual growth rates (-x% per year)
- changes in inflation (+ x% per year)
- changes in interest rates (+ x% per year).

The graphic financial model (Module 6 -> Financial Models) shows the sensitivity of a BOT financial structure related to the 13 key parameters shown below the graph.

EXTRACT OF THE RESULT SECTION, GRAPHIC MODEL



# Public Accounting

**Fiscal policy is a key tool at the hands of governments which can directly and significantly affect the viability of PPP projects.**

Fiscal policy provides for fiscal guarantees and incentives as a way for government to support PPP project development: either through guarantees by providing future funds if traffic is lower than forecast and/or through incentives by offering tax reductions.

However, traditional public budgeting, based upon cash flows, does not account for the future outlays that can result from contingent liabilities. The true costs for the government resulting from contingent liabilities employed in infrastructure projects might be masked, thus distorting the true fiscal situation a country will be eventually facing.

The sudden activation of contingent liabilities due to an unexpected event may put government finances under severe strain, hindering development and even reversing economic gains from investment previously attracted to the country by means of contingent forms of support. If impending liabilities are neither known nor recorded, they cannot be effectively controlled.

Most countries are now setting up Risk Management Units (RMU) within their Ministries of Finance (MOF) to determine and manage the fiscal space available for future liabilities and to assess each PPP project that requires support to ensure the project conforms to both national PPP policy and guidelines for the provision of government support as well as their own internal guidelines. The RMUs should work closely with the PPP planning organizations/units and contracting agencies.

Lewis and Mody (1997) advocate an integrated risk management approach to be implemented by governments, comprising:

- compilation, identification and classification of risks confronted;
- measurement of risk exposure;
- incorporation of risk exposure figures in national accounts and budget;
- determination of the government's tolerance to risk and definition of criteria for the establishment of sufficient unexpected loss
- reserves;
- implementation of risk exposure supervisory and controlling systems.



Revision Of State Of The Art Contingent Liability Management,  
Miguel Almeyda and Sergio Hinojosa. Washington DC, May 2001.



The Management of Contingent Liabilities: A Risk Management Framework for National Governments  
Lewis, Christopher and Ashoka Mody. In Dealing with Public Risk in Private Infrastructure.  
Eds. Irwin, Timothy et al. The World Bank. 1997.

# Should PPP costs be accounted off budget?

**In the case of public loans or bonds, governments pay back the loans over the life span of the project or some other period of time and therefore borrowing can be considered on budget since the state debt increases.**

A PPP arrangement may be established, whereby a private partner or special purpose vehicle assumes debt related to the project, and is compensated by the government and/or directly by users over the project's life cycle, thereby allowing it to amortize this debt. In this case, the government makes payments not directly to the original lender, but rather to an intermediary company i.e. the project sponsor or concessionaire that assumes the debt. Many decision-makers in government see in PPP an opportunity to spend infrastructure costs off budget.

However, even if off-budget loans are not registered in any public sector accounting, in reality, they can and might represent in the future the same liability as if the government had taken up the loans itself. This is related to contingent liabilities in Module 3. If the project completely fails, whilst all the debt could come back to government, a more likely possibility is that there will be limited contingent liabilities that will pass back to government. The accounting rules in the USA as well as in the European Union are very restrictive in regard with the possibilities to consider PPP loans as off-budget.

In the US for instance, the Congressional Budget Office has established six points as criteria for recognizing PPP projects as not part of the public sector, as follows:

- The fixed asset serves a general purpose;
- The fixed asset also has a market in the private sector;
- During the term of the contract, the private partner has ownership title to the asset, which is not subsequently transferred to the government;
- The contract does not stipulate a bargain-price purchase option;
- The contractual term does not exceed 75% of the estimated economic life of the asset;
- The present value of the minimum rent payable during the contractual term may not exceed 90% of the fair market value at the beginning of the contractual term.

In Europe, there is a set of common regulations and accounting standards that detail the way in which spending and tax collection should be accounted for. The main reason for these rules is to be sure that the member States are respecting the Maastricht Criteria.

The Maastricht Criteria are defined in terms of national account data and impose that the European member states must respect the following rules for public budgets:

- The overall public debt shall remain under 60% of GDP.
- The annual new deficit shall remain under 3% of GDP.
- Member states shall achieve a mid-term balanced budget.

Usually, public investment in infrastructure projects, as on-budget project, is accounted for in the public accounts, and, where borrowing is involved, results in increased government deficit and debt. However, investment made by a publicly owned corporation can be considered off-budget as long as at least 50% of costs are covered by revenues.

In 2004, Eurostat (the statistical Office for the European Community) defined how PPPs should be treated in national accounting. Eurostat establishes that assets controlled by a PPP body can be considered to be off the public budget only if there is strong evidence that the partner is bearing most of the risk attached to the specific partnership. In particular, Eurostat recommends that the assets involved in a PPP should be classified as non-government assets if both of the following conditions are met:

- The private partner bears the construction risk, and
- The private partner bears at least one of either availability or demand/traffic risk

Therefore a deep analysis of the construction and traffic risk allocation needs to be conducted in order to prove that a PPP involving loans can be considered off-budget.

The point is to demonstrate that construction risk as well as traffic risk are borne 100% by the private partner and not partially. This is particularly difficult to estimate in regard with the traffic risk when some income guarantee or subsidies are given by the public sector when the traffic is less than expected.

This means that the extent to which demand risk is borne by the public or private partner depends on the threshold of the subsidy. If the threshold is very low – meaning that traffic volume must be relatively much lower (e.g. 50%) than expected in order to qualify for a subsidy – most demand risk is transferred to the private partner. But, if the threshold is high (e.g. 80% of the traffic volume), the demand risk is basically borne by the public entity.

Within a shadow toll model, the classification of on or off-budget depends on the applied banding structure, whereby traffic levels dictate the shadow tolls paid, and, in any event, the transfer of the demand risk may only be limited.

The confusion linked to on or off budget classification of PPP project has been particularly deep in the case of the Hungarian motorways (Module 6 -> Case Studies -> Hungary). In September 2005 Eurostat considered that the transfer of the exiting motorway as well as the construction contracts shall be considered as on-budget, when the government was considering removing it from the State budget. As a result of Eurostat's decision, the 2005 country's deficit increased by 1.5% of GDP.

The International Monetary Fund (IMF) has developed a different approach to PPP accounting rules. Considering that most PPPs involve transferring availability and construction risk to the private partner, IMF classifies these loans as off-budget.

PPPs are chosen to move public investment off budget and debt off balance sheet but the government still bears considerable risk, and faces potentially large fiscal costs. Proper accounting, monitoring and reporting is essential to prevent the misuse of PPPs in this way.

The ability to account those expenditures off budget should not influence the decision to tender a project under a PPP scheme.

## Current Approaches to Accounting and Reporting

There is no general accounting and reporting standard for PPPs.

- Existing standards (ESA 95, GFSM 2001) cover some PPP transactions.
- In Australia and the United Kingdom, PPPs may be treated as a financial lease.

The Eurostat Decision mentioned above could result in PPPs being tailored to off-budget treatment but an alternative suggested approach notes that;

- The current approach does not do justice to the fact that PPPs are designed to share risks
- It would better to record PPP assets on private sector balance sheets, consistent with legal ownership

The fiscal costs and risks associated with PPPs should then be assessed, quantified, and disclosed.

Recently, it has been noted that the implementation of IFRS standards for accountability has consequences and could change the determination of whether PPP investments are on or off/balance.

This may result, at least in the UK, in most PPPs for road infrastructure soon going on-balance sheet. It is noted that this change devolves from changing the criteria for on or off balance sheet from which party bore the risk (currently) to which party controlled the asset (proposed).

This change may affect the attractiveness of PPPs because central and local government would have to provide budget cover for the full cost of each PPP asset at the point of bringing into use. The reason for so doing would be that control of the government budgets would be enhanced. This is being done to bring the Public Sector Borrowing Requirement under tighter control as this was a particular UK Treasury (MOF) concern (which is a universal concern but to a different extent depending on the country).

## Module 3

# Policy & Planning



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# Module 3: Policy and Planning

## *Road planning, policy objectives and PPP policy framework*

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## Checklist for Module 3 - Policy and Planning

Toolkit Section	Key Tasks	Comments
• Sector planning and Strategy	Integration of highway sector planning and investment planning.	Overall, note the importance of institutional structures and linkages within concerned highway planning, funding and implementation (delivery) agencies
○ Planning and policy making	Highway development and maintenance plans	Programming at this stage prepares the basis for subsequent PPP project selection. Note that many high grade roads/expressways/freeways may not be initially suitable for tolling but nearly all high grade roads will have potential for some type of PPP whether BOT, concession, shadow toll/annuity/PBC (maintenance contract)
○ Sector Development	Prepare specific sector planning and programming including costs and investment.	This is the basis for the long list of projects evaluated further in Module 5 for the identification of PPP projects
<b>Key Output</b>	<b>Sound policy, institutional and investment planning. Prepare 5 year program of all investment projects as well as toll/high grade highway road program</b>	
• Economic Development and Public Interest	To provide the macro public sector framework for PPP development	Need to be clear on stronger but different role under PPP i.e. government as a facilitator not as a direct infrastructure provider.
○ The role and functions of the public sector	Provide understanding and basis for PPP	The many positive impacts of PPP in highway development not least more roads, safer roads and more efficient delivery and innovation
○ Promoting Positive Impacts	Plan and set up relevant frameworks	Recognise negative impacts; (mainly the same as non PPP roads, e.g. social, resettlement, environmental)
○ Mitigating negative impacts	Plan and set up relevant frameworks	Particular need to consider road safety at strategic and project level under both positive and negative impacts
○ Road Safety	Plan and set up relevant frameworks	Vital need for appropriate types and levels of consultation (see also Module 5)
○ Public Participation and Consultation	Plan and set up relevant frameworks	
Toolkit Section	Key Tasks	Comments
• PPP Policy Framework	List key elements and consult with relevant government institutions	Vital to have at least a basic framework that, <u>at least, allows</u> effective implementation on a project by project basis.  Policy framework supports <u>both</u> the public and private sectors

o The Overarching PPP Policy Framework	Prepare basic PPP policy	Basic statement of intentions of government and how PPP is to be implemented, including the process and the players involved.
o Legal and Regulatory	Draft Key components	Effective and appropriate concession documents are the absolute minimum with inconsistent and contradictory laws removed/amended. At same time, steps towards an effective legal and regulatory framework should be set in motion.
o Risk Management Framework	Draft Key components	Risk is at heart of all PPPs and the principles of risk management framework should be clear at this stage noting that each project will have different risks, allocations and mitigations (Module 5).
o Financial Framework	Draft Key components	Policy towards PPP projects and especially government support.
o Institutional Framework and Reform	Draft Key components	Agencies and linkages between PPP agencies should be in place and described.
o Good Governance	Draft Key components	By introducing good governance principles, can start the sector on the road to reform. Corruption is a major constraint which impedes progress and/or makes projects much more expensive and/or less efficient.
		Vital to include effective dispute resolution mechanisms
o Capacity Building and Training	Draft Key components	Steps to improve governments' capacity for planning and implementation should be built into public sector PPP programs.
<b>Key Output</b>		<b>Comprehensive Policy Framework</b>

## Module 3 **Policy & Planning**



### Road planning, policy objectives and PPP policy framework

A public-private partnership policy can only be successful if the public authorities play their role correctly. Inefficient organization in the management of these partnerships can result in substantial and unnecessary costs for the government, developers, consumers and private partners.

**Module 3: Policy and Planning** describes the public sector functions under PPP in order to ensure protection of the public interest. It includes the definition of the PPP policy framework

Module 3 provides assistance to the public sector to provide the appropriate national and sub national planning framework to give their PPP policy and projects the best chances of success. It introduces the national or macro level of planning for PPPs, the obligations they impose on the public sector in particular and the need for PPP planning and policy frameworks to facilitate implementation of PPP projects. It provides public authorities with an important set of tools at the macro level before considering legal and contract requirements in Module 4 and finally PPP implementation in Module 5. The content of Module 3 is presented under three main headings as follows:

**Sector Planning and Strategy** describes highway sector and network planning, technical standards, maintenance strategies and sustainability principles and tools, and introduces PPPs within the sector planning process.

**Promoting and Protecting the Public Interest** describes the two key important public functions within PPP development of (i) promoting and accelerating socio-economic development and (ii) protecting the public interest. It introduces user and community perspectives including public participation, social and environmental safeguards including identifying and mitigating the negative impacts arising from for example land acquisition and the need for resettlement and on the environment, as well as including both positive and negative impacts on the poor. It also includes road safety.

**PPP Policy Framework** describes why and how the Public Sector can provide the appropriate frameworks and environment for PPPs. It describes the various frameworks needed for successful PPP implementation including policy, regulation and regulatory bodies, risk, financial and institutional/governance (refer Module 5 for PPP project implementation). It includes sector institutional reforms and HRD/ training and enhancing the capacities of the private sector including contracting, advisory services and financing.



Guide to New Methods of Financing and Public/Private Partnership, PIARC, 1999, Ref. 3, page 83

# Sector Planning and Strategy

## Planning and policy making

**The change of focus in transport policy toward a market-based approach implies a radical change in the role of government. The private sector can take on more responsibility for providing, operating, and financing transport services and transport infrastructure through PPP arrangements.**

Thus, the role of the government as supplier or quantitative regulator will decline, but its importance as the sector planner, as the enabler of competition and the custodian of environmental and social interests will increase. The political and institutional framework will remain crucial, and the general orientations of the transport policy should be emphasized in the process of transport planning and policy making.

Cost-benefit analysis remains the central pillar for allocating public resources. However, new skills are additionally required. The public sector also needs to set efficient charges for the use of publicly provided infrastructure, maintain the competitive environment in the sector and develop new capacities in Highway Authority in relation with the evolving roles that have become more important. Increasing community and user participation in decision making, and especially but not only, in regard to minimizing social and environmental impacts and through providing adequate social and environmental safeguards are also required.

For PPP projects, the socio-economic criteria are necessary but not sufficient. In addition to the socio-economic factors, selection of PPP projects will depend on 'bankability' i.e. whether the project's key characteristics are favorable enough that the private sector will provide equity funds and institutions provide loans, on reasonable and acceptable terms. Bankability covers a mix of financial viability and risk, factors which themselves relate to demand, tolls, construction costs, land acquisition, social and environmental safeguards and various other detailed risks and circumstances of a project, impacting both the public and private sectors.

The following gives information on India which is also the subject of a Case study within this Toolkit.

### Country Experience: India

Following many years of hesitation with PPPs, India has made great strides in its PPP program and especially in the highway sector. India is now the fourth largest economy in the world and one of the fastest growing. However it faces both a tremendous backlog and a growing demand for infrastructure. In the highway sector, 40% of villages do not have all weather road access and only 12% of the strategic national highway system has 4 lanes. In the cities, traffic congestion is worsening impacting both public and private transport.

Lack of infrastructure also undermines the competitiveness of the economy and poor infrastructure hinders FDI in non infrastructure businesses. Poor infrastructure also impedes inclusive growth and poverty reduction.

In the highway sector the GOI has established its National Highway Development Program (NHDP) and the Prime Ministers Rural Road program. However, available funding has been providing less than 50% of needs. India now sees PPPs as a necessity to mobilize sufficient resources for its infrastructure needs. (Module 6 -> Case studies -> India)



Facilitating PPP for Accelerated Infrastructure Development in India,  
Regional Workshops of Chief Secretaries on PPPs. ADB Report Dec.2006.

# Planning Process

Roads represent an essential community asset but their financing is often limited and difficult to mobilize. Road development is not an achievement as such, but a medium for services provided to the population. Although it does not directly contribute to overall development, it provides necessary leverage for economic growth and social welfare. Furthermore, roads are essential in the logistics process and condition the efficiency of other transport components (including railways, airports, ports, etc.).

The first decision to be made by Highway Authorities/Government Entities in charge of transport concerns the allocation of resources. There is a balance to be found between:

- Initial investment (construction) / maintenance cost,
- Supply or demand management.

The two corresponding questions are:

- Is it better to allocate money to create new links or to improve maintenance on the existing ones?
- Is it better to handle traffic growth by increasing the capacity of networks or by implementing traffic management schemes?

A strategic planning framework incorporating network analysis is important to optimize the benefits and minimize the costs of road development. Components of such planning should at least include:

- defining the appropriate level of road network including infrastructure and maintenance needs;
- developing medium-term highway program ‘projects or activities’ consisting of links, sub networks and maintenance;
- establishing clear economic feasibility and the initial PPP potential of program links and highway investment activities.

## Management of the Planning Process

To ensure that all the elements of planning complement each other and function effectively, the road and highway administration needs to establish clearly defined processes for carrying out its planning responsibilities. This includes defining a set of tasks; developing a timeline for carrying out these tasks; and assigning responsibility for the tasks to specific people and offices. Established processes include both internal actions (collecting data, conducting analysis, writing plans, etc.) as well as actions that require external contact (public meetings, coordination with other agencies, responding to complaints, etc.) The appropriate managers within the road and highway administration are responsible for communicating the steps of the process to all those involved, and for ensuring that required tasks are completed on time and achieve their objective.

In addition to establishing and following clear processes, a successful administration is continuously assessing and evaluating its processes and their results, and finding ways to improve them. This requires measurement of process performance using categories such as cycle time, waste reduction, product quality, customer satisfaction, timeliness, and accuracy.



Asian Toll Road Development Program, Draft Final Report, PADECO (1999), page I-7.

As a general rule, it is not advisable to use infrastructure investment primarily as an instrument for fine-tuning the economy; investment should basically be planned over the long-term as part of the sector strategy for planning and financing projects and forming master plans or infrastructure development plans.

A highway sector plan is developed within a national infrastructure and transport framework. Highway planning, as for all sectors, consists of a strategic plan covering a comparatively long period of 20-30 years. Establishing and announcing such a plan, with clearly stated objectives for construction and maintenance of networks, is an important step toward assuring the continuity and consistency of policy. Within such a long-term plan it is usual to develop a medium-term plan for the next 5 years which establishes priorities for implementation and expenditure.

Planning helps decide the order of priorities for construction under the prevalent social and economic conditions and to prepare necessary resources for the execution of projects. However, all plans must be flexible to take into account difficulties in implementing some projects or as new priorities and projects are needed.

The following are principles and considerations generally taken into account at the time of establishing or revising a development plan for intercity motorways in selected countries

- Local and national political considerations
- Connecting state, provincial and district capital cities
- Concern for economically underdeveloped areas
- Economic considerations
- Connecting commercial and industrial centers, tourist resorts etc.
- Economic feasibility
- Funding/resource availability
- Enhanced convenience for users
- Estimated traffic volumes by year and traffic type
- Transportation considerations
- Connections with international roads and motorways of neighboring countries
- Supplementary routes to relieve pressure on overused roads, completion of missing links, etc.
- Harmonization with other modes of transportation. (Multi/Inter Modal)
- Harmonization with environmental considerations e.g. climate change

- Other

Other examples are listed in:



Global Toll Road Study, Knowledge Data Base level 2 (draft), MOCJ - EXTEC (2000)

### Specific issues concerning toll road programs

A successful PPP program in highways requires, among others, a supportive transport policy framework. Private toll road programs should therefore be integrated within the national, regional, and local transportation policies and programs.



Private Financing of Toll Roads, Fishbein and Babbar, RMC discussion papers series 117, page 21.



Public Private Partnerships in Transport. Estache, Juan and Trujillo.  
Policy Research Working Paper 4436. 2007.

### Example of network planning reform: Indonesia

Historically, network planning has been politically driven, and has suffered from technical inadequacies and poor institutional structure. The Government of Indonesia therefore embarked upon a program of reforms including the following eight initiatives:

- a new arterial and toll road master plan;
- a new regulatory framework, conducive to public-private partnerships;
- a review of the current toll road program (including major perceived risks and financial and technical integrity, as 60% of the existing program has been deemed inappropriate and government intervention is felt to be necessary);
- an enhanced BOT and project implementation system (featuring improved competition, risk allocation, revenue subsidies, and tariff adjustment mechanisms);
- identifying additional potential sources of finance (including alternative finance mechanisms, maximizing equity, improved debt/equity ratios, and identifying competitive debt resources);
- an accountable BOT structure (one that is consistent, fair, and meets regulations);
- the eventual privatization of the public operator Jasa Marga (a new ministry has been established to supervise state-owned enterprises) and/or formation of strategic partnerships (under solicited procedures); and
- operational improvements (including traffic management and surveillance systems, and improved tariff collection and revenue sharing procedures).



Seminar on Asian Toll Road Development in an Era of Financial Crisis, Proceedings of the Seminar,  
Tokyo International Forum: March 9 - 11, 1999

Interestingly, the above plans were overtaken by the financial crisis that was deeper and lasted longer in Indonesia than elsewhere in Asia. Also in 2000/2001 the 'big bang' modality of decentralization was implemented in Indonesia. However, the above principles remain even if the implementation was weak (See Indonesia Case Study).

In fact, the strategic plan had not been implemented by 2008 due to:

- weak project preparation and detailed planning, especially in (i) the slow development of priorities and (ii) weak project due diligence (Module 5 -> Due Diligence and Feasibility Studies).
- Decentralization has confused responsibilities in many instances and PPP knowledge has been weak especially at local government level. Coordination between the various levels of government has also been difficult.
- Ownership and authority of projects are not clearly delineated as to responsibility
- Responsibility for risk assessment remains diffused
- Corruption still impacts decision making, sometimes indirectly through fear of subsequent allegations/prosecution
- Land acquisition and environmental legal and administrative procedures and costs are not clear
- Social and environmental safeguards compliance, especially if multilateral/bilateral agencies are involved can lengthen implementation
- See also Country Case Study for Indonesia.



France, Japan, Italy, Spain: Table in Asian Toll Road Development Program,  
Draft final report, PADECO (1999), page II-5

### The European Union ISPA Program

In the period between 2000 and 2006 the ISPA (Instrument for Structural Policies for Pre-Accession) Program was one of the main EU financial instruments designed to support the pre-accession strategy of candidate countries. The ISPA Program priorities comprise the development of an efficient transport system constituting a substantial part of the pre-accession strategy. For all 10 candidate countries a sum to the amount of 1.04 billion EURO per year was earmarked for the ISPA Program in the pre-accession period. The claim for financing the projects relating exclusively to the field of transport and the environmental protection infrastructure has been apportioned by the Commission among candidate countries according to the size of their population, the area and GDP per capita. Investment funds will be expended following identified priorities in the network construction so that the necessary implementation of the networks will be ensured by 2015. The priorities and the transport strategy of each country must be developed in a national ISPA Transport Strategy paper.

# Socio-economic Evaluation

## General Principles

A general principle is that the public sector will optimize the economic impact of the road network through embarking on economically viable projects which will contribute to the development of the region and country concerned. The impact of the investment on the poor should also be assessed and measures to maximize the positive impact on the poor introduced.

## Socio-economic Evaluation

Economic feasibility studies analyze the relation between the costs and benefits of a project. But cost-benefit analysis (CBA) is only one aspect of economic evaluation. The evaluation should ask broader questions to address socio-economic impacts overall.

The socio-economic analysis should assess the rationale for public intervention and whether the intervention is the most appropriate means of addressing that rationale.

On the issue of institutional arrangements, the evaluation should focus heavily on assessing whether the various agents involved have the proper incentives to realize the desired outcomes.



The economic analysis of sector investment programs. Suthiwart and Narueput. The World Bank, 1998.

The main purpose of project socio-economic evaluation is to help design and select projects that contribute to the welfare of a country. It is most useful when applied early in the project cycle and of very limited use when employed once the project is committed.



Handbook on Economic Analysis of Investment Operations. Belli, Anderson, Barnum, Dixon and Teng. The World Bank, 1998.

Following the prevailing World Bank approach, the socio-economic evaluation is seen in a broader sense than the traditional cost/benefit analysis. Indeed, the handbook lists ten questions which an economic analysis should answer, namely:

- What is the objective of the project?
- What will happen if it is implemented, and what if it is not?
- Is the project the best alternative?
- Are there any separable components, and how good are they separately?

- Who are the winners and losers?
- Is the project financially sustainable?
- What is the project's fiscal impact?
- What is the project's environmental impact?
- Is the project worthwhile?
- Is it a risky project?

Economic analysis can also indicate optimal project timing through use of the 'First Year Rate of Return' which is shown in the flowchart below.

In addition, it is necessary to analyze whether the project will be better be carried out by the public or by the private sector.



Transport Project Appraisal at the World Bank, Gwilliam, The World Bank, (2000), page 7

## The nature of economic costs and benefits

Module 5 describes the detailed component of costs and benefits within economic analysis.

For most infrastructure projects, annual operating and maintenance costs will relate to the capital cost of the project. Other costs will include land costs and environmental and social mitigation costs including resettlement costs. Some costs are difficult to quantify and some costs are not quantifiable such as the impact on the landscape.

For most transport projects, the major economic benefits are derived from vehicle operating cost (VOC) savings, computed and valued in compliance with the road user (consumer) surplus theory. Benefits for road users may also include reduced driving time, reduced driving costs, fewer accidents, and environmental improvements.

The comparison of traffic volumes, with and without the project, constitutes the basic principle of the analysis. However, in the case of low-traffic roads it may be necessary to consider additional benefits related, for instance, to development of agriculture, improved access to water supply, health or education (see also below "specific issues concerning rural roads").



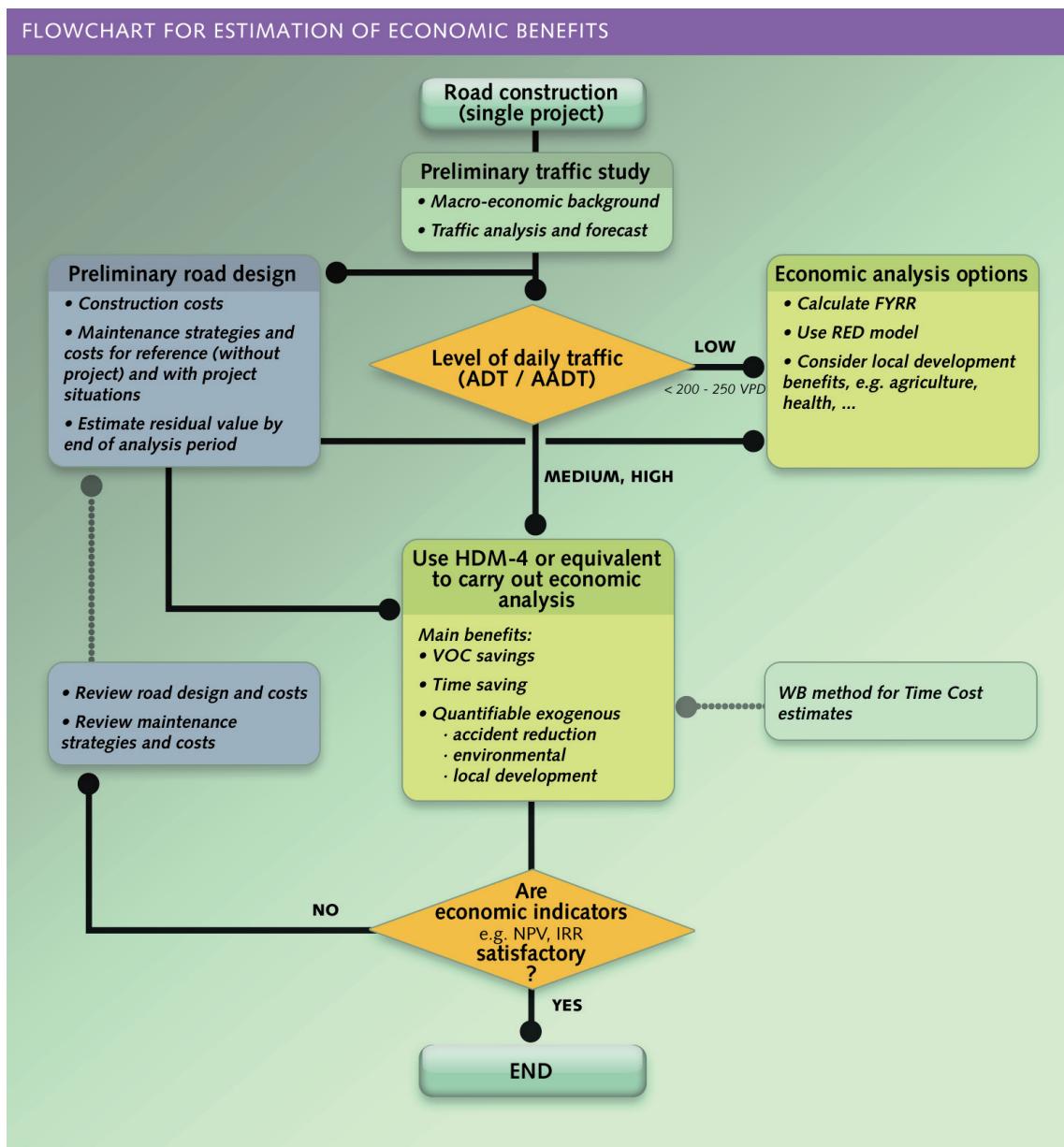
Justification of investments for low-trafficked roads based on the first year rate of return indicator and using vehicle operating cost savings. J. Aron, 23rd World Road Congress, Paris September 2007

## How to estimate tangible and intangible benefits?

Where such aggregate standards are not available, VOCs may be computed on the basis of monetary and physical inputs using dedicated models such as HDM (Highway Development and Management System). The latest version HDM-4 simulates and calculates the cost of accidents based on specific inputs by the users on the value of life or the cost of an accident.

### **Note on HDM software:**

*The Highway Design and Maintenance Standards Model (HDM-III), developed by the World Bank, has been used for over two decades to combine technical and economic appraisals of road projects, prepare road investment programs and analyze road network strategies. The International Highway Development and Management Study was carried out to extend the scope of the HDM-III model and provide a harmonized systems approach to road management, with adaptable and user-friendly software tools. This resulted in the Highway Development and Management System (HDM-4) tool. Benefit estimation usually follows generally accepted procedures of estimating flow and link performances with and without the project. For road projects these are converted into aggregate benefits using standard national vehicle operating costs (VOCs) and benefit valuation conventions for such "intangibles" as time and pain and grief costs of accidents or loss of life, if available.*



ESTIMATION OF UNIT WORKING AND NON-WORKING PASSENGER TIME VALUES			
Parameter		Value / %	Sources and Calculation
a	Gross Domestic Product		Source:
b	Population (million)		Source:
c	GDP / Capita - (value), in year ...		= (a/b)
d	Employment ratio (%)		
e	Total No. employed (million)		= b * d
f	GDP / Employed person (value / year)		= a / e
g	Household Consumption Expenditure (% GDP)		IMF
h	Income - employed person (value / year)		= f * g
i	Other costs of employment @ 33% (Gwilliam)		= h * i
j	Total income and employment costs		= h + i
k	Working hours per year		

<b>l</b>	Average Working Time Travel Cost (value / hour)		=j/k
<b>m</b>	Value of Non-Working % of Working Time (%)		
<b>n</b>	Average Non-Working Time Travel (value / hour)		=l*m

*Sources: Based on K.M.Gwilliam - "The Valuation of Time in the Economic Evaluation of Transport Projects - Lessons from Recent Research" - World Bank Infrastructure Note: January 1997.*

## Commercialization and Contacts:

In the past HDM-4 products were produced by the International Study of Highway Development and Management Tools (ISOHDM), sponsored by The World Bank, the Asian Development Bank, the Department for International Development (UK), the Swedish National Highway Authority, and other sponsors. However, starting with the latest HDM-4 Version 2, the software is commercialized by an international consortium of academic and consultancy companies that formed a partnership under the brand name "HDM Global". At the center of the consortium is the Highway Management Research Group, a UK based association.

The HDM-4 software can be ordered from HDMGlobal who have been granted exclusive distribution rights from PIARC for a period of five years.

Details on the software are available at the following internet site:



<http://www.hdmglobal.com>

There are also three main "intangibles" for which market valuations are not always directly available and which are therefore the subject of debate as to their quantification.

These are:

- Time savings
- Accident savings
- Environmental Impact

In developing countries, there has been a tendency in the past to treat transport project savings related to operating costs as more "real" than savings in travel time. Rates of return have therefore sometimes been estimated initially excluding time values, and enhanced rates including time valuation given as an extra. To justify a project without recourse to time savings was viewed as a test of robustness. This attitude is changing and time savings are often accepted as a legitimate element of benefit. As a compromise, sometimes only working time savings are only fully valued by relating to wage rates with non working time valued much less.

In developed economies, time savings are usually the main economic benefit of a new infrastructure. In some countries standard values of time shall be used in evaluation. Using standard values of time savings in a country promotes equity among different regions and different socio-economic categories.

The valuation of accident savings has been even more controversial, and in particular the question of valuing of pain and grief, including the loss of life. Increasingly, there is a requirement that safety audits be performed on project designs. This may have the effect of incorporating the costs of accident prevention measures within the overall project costs, without considering the counterpart benefits resulting from these safety improvements as project benefits, hence understating the true rate of return.

According to World Bank practice (other international donors have a similar approach), all projects are pre-classified according to whether they have zero, small or large environmental impacts. Those with non-zero impacts are required to have environmental impact assessments (EIA), and to contain mitigation measures to counter any adverse effects. This mandatory requirement covers the more obvious, immediate, consequences of projects. It does not, however, deal with more subtle effects, either positive or negative, associated with traffic generation or modal shift effects. However there is no objection in principle to the inclusion of such environmental effects in the economic evaluation, and it is increasingly done, and always in cases which are primarily viewed as environmental projects. This partly reflects the absence of adequate data on the physical impacts of specific interventions, as well as the absence of evaluation conventions.

For low traffic roads, user cost and time savings may be small and therefore accident and environmental benefits can be significant and again are increasingly included in the economic evaluation of highway investment.

## Specific issues concerning toll roads

It should be noted that in addition to the economic considerations discussed above, policymakers must consider numerous non-economic issues when evaluating toll road programs. These include public acceptance of tolling, the equity of charging tolls for road use, and the impact on the government's flexibility in future road development (see previous Section entitled Demand Forecasting).



Private Financing of Toll Roads, Fishbein and Babbar, RMC discussion papers series 117, page 21.



IRF Bulletin; Special Edition on PPPs, April 2008.

## Specific issues concerning rural roads

Low volume rural roads, and particularly feeder paths and tracks, have created some particular problems. Firstly, where initial/ base year traffic volumes are very low there are usually difficulties to estimate the average daily traffic. Secondly, there are problems of evaluating the benefits to non-motorized transport (NMT) which may constitute an important component of the traffic. Thirdly, the impacts of transport improvements on basic access to services (school, clinic, etc.) are not easy to assess. Fourthly, the cost of detailed appraisals of individual small projects is relatively important in proportion

to the cost of the infrastructure (i.e. it makes better sense to appraise projects whose appraisal costs are lower in proportion to the investment cost).

However, for low traffic roads, quantifiable estimates may be made for accident reduction and environmental improvements.



Transport Project Appraisal at the World Bank, Gwilliam, The World Bank, (2000), page 10 et al



World Bank Global Road Safety Facility Strategic Plan 2006 – 2015.

A report from the International Road Assessment Programme (iRAP) describes the work done to invest in practical new road safety tools for low- and middle-income countries and then pilot their application in four countries around the globe.



Vaccines for Roads, The new iRAP tools and their pilot application. iRAP; International Road Assessment Programme.

## The World Bank approach to feeder roads

International practice regarding local participation in the feeder road area, while motivated by the perceived benefits of local ownership and decision-making, has focused primarily on developing applicable tools for local communities and local governments to plan and undertake their own (simplified) analysis and planning process. Most of these analytical tools are typically based on one of the following approaches:

- the application of simplified or modified versions of economic decision analysis,
- a locally adapted (calibrated) version of multi-criteria analysis - usually based on a combination of observed/ quantifiable parameters (e.g. traffic, trip purpose, economic activity) and selected social weights (typically related to population within the project's "area of influence"), or simply by undertaking an implicit weighting of investment benefits,
- a form of cost-effectiveness analysis - as in the basic access approach which used USD per population to serve as a indicator of the relative value of competing investments.

The motivation for the development of these planning tools is to introduce some form of rational decision making into a local planning process (at least, related to principles of economic analysis and the desire for social/human resource development).

## Cost-benefit analysis (CBA), net present value (NPV), internal rate of return (IRR), discount rate

Over the last 20 or 30 years, various methods have been used to formulate the relation between costs and benefits, including classical benefit/cost (B/C) ratios, incremental cost/benefit ratios, net present value (NPV) and first year rate of return. Current practice among international financial institutions and funding organization, when making decisions on loans, is to analyze costs and benefits in terms of the economic internal rate of return (EIRR) (also see following section entitled Economic versus financial analysis).

The internal rate of return is the calculated discount rate at which discounted costs equal discounted benefits, i.e. at that discount rate the net present value of the annual cost streams equals zero. The time value of the investment should reflect the Opportunity Cost of Capital (OCC), i.e. the value of alternative investment opportunities over time. For example, money invested in the construction of roads could be invested elsewhere and earn a dividend. Normally, the discount rate used is the government accounting rate of interest (ARI), which is the rate at which the value of uncommitted government income in constant price terms falls over time. The ARI is the OCC in the public sector, i.e. the rate of return on marginal public sector investment.

However, there is no standard criterion for defining the level of the EIRR to make any given road project viable. The social discount rate is one indicator, but as yet no one has come up with a concrete formula for obtaining the social discount rate. In practice, the minimum viable level of EIRR will depend on the circumstances of each country, each at a certain point in time.

The following figure illustrates a case where the IRR is approximately 14%.



Generally in developing countries projects with an estimated EIRR in excess of 12% tend to carry a high priority for implementation.

It is recommended to use the NPV economic indicator to choose a scheme among mutually exclusive alternatives, e.g. various possible alignments of a road between similar origin and end points. The EIRR should be used to rank a series of independent projects in order of importance (the higher the EIRR the more important the project).



Global Toll Road Study, Knowledge Data Base level 2 (draft), MOCJ - EXTEC (2000), page 22.

The original CBA of the road could compare alternatives based on the different financing, construction and operating options. Further, the alternative of a privately financed, built and operated toll road could be compared with (i) a road financed with public funds but built and operated by the private sector through competitively tendered contracts or (ii) a road that is financed, built and operated entirely by the public sector. In practice, however, such comparisons are very rarely undertaken: the difference between public and private relies largely on assumptions about the relative efficiency of either sector during each stage of the road development and operation phases, and those assumptions are difficult to model.

## Economic versus financial analysis

Often the differences between economic and financial analysis are not thoroughly understood.

The purpose of economic evaluation is to provide a view on the feasibility of investment from the national, resource viewpoint. It differs from financial analysis which provides information on the direct financial implications of investment including profitability.

Economic evaluation, therefore, considers only resource costs and excludes transfers such as taxes and subsidies. It also takes into account the price of local (non-traded) inputs which may be overpriced or underpriced relative to market conditions. Minimum wages may overprice labor relative to its market value and subsidies, say for fuel or water, may underprice inputs.

Shadow pricing i.e. adjusting for market imperfections and transfers is the mechanism by which these market defects are overcome, and all economic costs and benefits brought to the same yardstick.

Therefore the general equation is:

$$\text{Economic price (cost)} = (\text{market price} - \text{taxes} + \text{subsidies}) * \text{Opportunity cost of local inputs}$$

This means that after subtracting monetary transfers, the local factor inputs such as labor, materials, transport etc. are valued at their opportunity (or market) cost. Imports are usually priced at market levels.

A further important difference is that in an economic evaluation the situation “with project” is compared with the one “without project” i.e. we are only concerned with the difference. By contrast, in a financial analysis, only the return on investment of the ‘with’ project is considered.

The financial analysis consists in comparing revenue and expenses (investment, maintenance and operation costs) recorded by the concerned economic agents in each project alternative (if applicable) and in working out the corresponding financial return ratios.

Unlike the economic analysis, the financial analysis is only concerned with the direct financial costs and revenues of a scheme or project and also only the impacts on the specific organizations concerned not to the country.

Usually tolls are not directly included in the economic evaluation to compute total benefits (except in the case of generated traffic) they nevertheless constitute a key factor of the economic analysis, as the level of tolls are likely to affect the transport demand and hence the economic worth of the project (in particular the economic rate of return).

There is in fact a double trade-off when trying to set-up a toll rate:

- the economic optimum scheme does not necessarily correspond to the financially preferable solution (also see previous section Influence of tolling on transport demand) and it must be remembered that without congestion the economic optimum toll rate is nil (i.e. users do not have an incentive to divert from the existing facility to a toll road and incur a toll if the existing road offers a similar level of service).
- the toll level that would balance economic and financial constraints may not correspond to the willingness-to-pay of the road users.

Finally, it must be remembered that economic and financial analysis are not self-contained topics: they are used to verify the economic and financial sustainability of the projects likely to be implemented.

The financial sustainability of a given project may not be compatible with the economic sustainability, and the value of key parameters such as tolls must be adjusted in order to cope with both economic and financial constraints (see also willingness-to-pay).

Usually an economic analysis is carried out first and only if the results are encouraging i.e. the project is economically justified, will a subsequent financial analysis for PPP be envisaged.

It should be noted that the economic rate of return can be much higher than the financial return because;

Benefits of reduced congestion on existing non-tolled roads are included in an economic analysis but are not included in the financial benefits

The toll road usually only captures, in financial terms, a part of the economic benefits enjoyed by toll road users.

Aspects of the difference between economic and financial viability are discussed in the Case study on the Indonesian Toll Road program.

# Demand forecasting

## Traffic forecasting

Traffic forecasting is a critical part of the PPP planning process. Traffic demand is a direct determinant, with toll rates, of project revenue. Over optimistic demand forecasts will therefore almost certainly lead to financial problems. Sometimes, in practice, over-demand estimates can impact in the first years of project opening.

Therefore, with experience, demand forecasts are often ramped down i.e. only a percentage of estimated demand is used in the first few years say 50%, 70%, 90 % of the original estimates for the first three years respectively, especially for interurban routes.

The use of sensitivity and risk analysis are also essential to consider the project impacts if traffic does not materialize as forecast.

As will be described in Module 5 the need for experienced advisors and good TORs are paramount in the preparation of feasibility studies (F/S), within which traffic forecasting as described above, will be critical. Even in preliminary F/S studies, the need for well prepared traffic studies remains important, even if some other project parameters are still at a preliminary stage.

Such forecasts will be prepared by the public sector and their advisors as a basis for the tendering process. There can be a tendency for the private sector, in order to win a bid, to unrealistically increase their forecasts in bids. The public sector itself may not dissuade from such considerations because for example higher forecasts could lead to an initial demand for lower subsidies and other notional advantages to government but only at the bid stage.

However, the danger is that in accepting bids with higher than realistic forecasts, the project will run into financial problems causing extreme financial and political problems for the government subsequently. The demand forecasts in bids should be therefore critically reviewed to see if any difference in demand forecasts from the original government study have a logical basis or are just an attempt to win the bid with unrealistic forecasts. See Renegotiation Section.

Demand forecasting and techniques for projects are discussed in detail in Module 5 -> Due Diligence and Feasibility Studies -> Technical Evaluation.

Future "demand" or level of use of the transport system may change as a result of two types of factors:

- "Background" increases in population, economic activity, automobile ownership, total trip-making, and other factors that drive transportation activity, occurring independent of transportation improvements;
- Increases in these same factors that are caused (or made possible) by the transportation improvement. This second category is often known as "induced" or "latent" demand. It is of particular importance in the case of significant improvements such as construction of a new highway or a major upgrade in

highway performance. Induced demand is closely related to the impacts on economic growth caused by the highway improvement.

In addition to increasing overall traffic, transport investments may affect the distribution of existing traffic by changing the relative cost of travel on various transport routes. Hence, while this is true for all modes, road transport distributions can change very quickly in response to new or expanded roads, changes in tolling levels and especially so for say new bridges or tunnels. Hence the importance of network forecasting and traffic distribution models in the highway sector.

Demand forecasting involves a set of analytical procedures to estimate future levels of transport system use as a result of changes in population characteristics, economic activity, and transport network conditions, and of subsequent changes in travel patterns. Demand forecasting serves different purposes depending upon the level of the study. For strategic planning, forecasts are needed to evaluate the overall viability of alternative strategies and the demand for individual components of these strategies. For corridor planning, forecasts are needed to determine the adequacy of existing facilities and services in the corridor and the potential need for expanding these facilities and services. For facility planning, forecasts are needed to determine the appropriate capacity of new facilities that may be built and of existing facilities that are being considered for expansion.

Methods for demand forecasting can range from very simple to very complex. At the most basic level, past trends in traffic growth can be extrapolated to predict future levels of traffic in any given year. This method supposes that the past tendencies will pursue in the future; unless there is a strong evidence for this, such method should be avoided. Transport is a derive demand, which means that is explained by other variables and not driven by past trends.

A more sophisticated approach will estimate future traffic based on projections of the underlying drivers of traffic - for example population, economic activity, vehicle ownership and land development.

Either of these methods can be applied at a national, regional or corridor level to provide a broad estimate of future transportation demands. More sophisticated methods of forecasting the underlying variables are likely to result in more accurate traffic forecasts and are fundamental to a network plan.

Population, employment and land use forecasts provide a basis for estimating future origin-destination or "background" flows on the system. The future transportation network can then be varied to describe proposed improvements to the road and highway system. This will predict the changes in the distribution of future traffic over the network, and to some extent will predict increases in travel caused by reductions in transportation costs. Network demand forecasting methods have primarily been developed for urban applications, but these same methods are increasingly being adapted for state, regional and national highway planning. See the following references for additional information on demand forecasting:



Modeling Transport. Ortuzar and Willumsen. 3rd edition. Wiley. 2001.

## Why is demand forecasting important in a PPP?

It must be remembered that demand forecasting is a necessary step in any road project appraisal, whatever the implementation or institutional scheme. But some issues are more specific to PPPs and will be developed below.

While public-private partnerships in the delivery of transport infrastructure and services are expanding, there is also growing evidence of the lack of appreciation of the importance of demand forecasting in preparing and monitoring these partnerships. Financial viability and the success of the project will largely depend on robust traffic forecasts.

However, weak forecasts can also give an opportunity to the private operators of transport services to complain; soon a business starts operations related to the financial impact of underestimations of demand based on the initial information provided by governments. It tends to result in an excuse for the private operators to try to renegotiate the contract to improve its terms. Either by design or accident, it is quite common for both regulators and concessionaires or bidders to devote much more money to the construction cost studies than to the demand analysis. This is an important reason why the public sector needs to prepare sound traffic forecasts during the project preparation. (Module 5).



Forecasting the Demand for Privatized Transport, Trujillo-Quinet-Estache, World Bank (draft). 2000.

The lack of focus on good demand forecasting in the context of the increased role of private operators and investors in the transport sector may be somewhat counter-intuitive. Transport planners have a long tradition of concern for demand. The analysis of demand has been at the core of the assessment of national or sector policy options, including the introduction of new transport modes. But these concerns have generally been addressed through more "macro" or network oriented modeling.

Traffic volume forecasts are the most fundamental data in the analysis of roads from the planning stage onward. They will influence many fundamental decisions on project feasibility, design and management, for example whether the road should be a toll road and which decisions have to be made about toll levels and collection periods.



Global Toll Road Study, Knowledge Data Base level 2 (draft), MOCJ - EXTEC (2000), page 13

## How does transport demand assessment take place in the relationship between the public and private sectors?

The restructuring of the public sector has been influenced by PPP development. However, the increased role granted to the private sector does not mean that the role of the public

sector will diminish. In many ways its roles as a sector planner and as an (independent) regulator are strengthened.

Regulators, which are often Government officials or political appointees in many cases, need to balance everybody's concerns fairly, accounting for many aspects of demand which may be ignored in the PPP development process. It includes a reasonable comparison of the willingness and ability to pay in order to avoid unfair exclusion of some segments of the population, particularly in the case of passenger transport. Adjustment of tariffs during the project operation stage can also influence demand depending on circumstances.

A particularly important aspect of the choice in the context of PPP development is the trade-off between the incentives given to the operator to perform well and the risks that the particular operator is expected to take. The specific assignment of responsibility and of the choice of regulatory mechanisms are the main reasons for the strategic use of demand forecasting by the key players involved in the PPP development process.



Regulatory trade-offs in designing concession contracts for infrastructure networks,  
Crampes and Estache, Utilities Policy (1998)

Demand forecasts can never be precise. However, the more precise or robust the demand forecasts, the lower the risk, and the easier it is to agree more favorable contracts for the public sector. In addition, the reliability of demand forecasting allows the government authority to better assess the actual efforts of the operator to improve efficiency. Thus the authority will have at its disposal accurate data comparable to that of the operator, enabling it to check on the correctness of operator's provided information in its tender documents.

In the context of PPP development, it is not always easy to achieve convergence on the views of what a good demand forecast should be, because both private operators and government authorities have to some extent divergent interests with regard to the demand forecast. Once the government has decided to rely on private operators to provide transport services and transport infrastructures, discrepancies in demand forecasting will lead to tougher negotiation with the private operators and increase the incentive of operators to contest the regulatory decisions on the basis of the doubtful value of the supporting analysis. Even if management instruments that allow the correction of forecasting mistakes exist, these corrections are generally not challenge-free.

However in terms of risk, conversion of an existing toll highway to PPP using approximately the same level of tariffs is relatively less risky than a PPP development with a change in tariffs. The most risky, both relatively and absolutely is a new facility developed under PPP, such as a concessioned highway, that is now tolled where both the facility and a tariff did not exist before.



A few things transport regulators should know about risk and the cost of capital,  
Alexander, Estache and Oliveri, Utilities Policy (2000).

## What kind of mistakes can be made and how it is possible to deal with them?

It should be realized that the impact of incorrect traffic forecasts have a number of dimensions;

- Impact on the facility; underused or over capacity
- Impact on the financial viability of the project and/or impact on government finances
- Short term impacts (i.e. traffic will come back on track) or a long-term problem (i.e. will likely not come back on track within say 10 years)

To be realistic, it is well known that limiting the errors in demand prediction is always a challenge. The best that can be achieved is a robust set of forecasts, within a robust PPP framework, that provide the basis for sufficiently accurate financial forecasts that can reasonably stand up to the actual outturn, especially in the earlier years. That is why the decision makers and contractors linked to this process must be prepared to face overestimates or underestimates of transport demand when the project is in operation.

However, it should be noted that the financially critical 'bottom line' i.e. the cash flow results are dependent on a number of factors, such as types of traffic, toll rates and/or government support, O&M costs and debt service including interest rates. Therefore one variable such as traffic forecasts that are overestimated can be accommodated, to some extent, assuming other variables can be adjusted and/or a lower rate of return accepted.

Some recent surveys show that overoptimistic demand forecasting is common. Recent references are: Inaccuracy of traffic forecasts and cost estimates on large transport projects, Skamris and Flyvberg, Transport Policy Vol. 4, No.3, pp141-46, 1997; Traffic Forecasting Risk Study Update. Standards and Poor's. 2005.; Sources of Errors and Biases in Traffic Forecasts for Toll Road Concessions. Nunez, A. PhD Thesis, University of Lyon.

The conclusions of these sources are that (i) traffic forecasts inaccuracies are much more the rule than the exception (ii) these inaccuracies tend to occur in the sense of traffic overestimation.



Mitigating Toll Road Forecasting Risks, Scott Trommer, Fitch Ratings, 2006



Toll Road Revenue Forecast - Quality Assurance/Quality Control. Samuel Zimmerman, World Bank, 2006

## Why does over-investment arise?

The first reason in the context of PPP development is that one of the changes often made by the private operators is the introduction of cost-reflecting prices and a switch from tax-payers to users for the responsibility of paying for the service. If the use of toll roads is deemed too expensive, many, but not all, users look for free alternative routes and this is why the existence of toll free alternatives must be reflected in the demand forecast. Even when no effective alternative to a toll road is available, the reluctance

of potential users to pay may lead to social pressure and adversely affect the transport demand.

Whatever the case may be, when there is no or little tradition of payment of fair, and/or cost reflecting, prices, the introduction of such pricing policies can result in significant differences between actual and predicted demand on specific links—even though the overall sector forecasts may still be correct. If planners rely on trends, and it is a common practice, to forecast demand, this can lead to significant over-estimation. Traffic trends are more accurate at say a corridor level than related to individual toll road links.

## What can be done to cope with over-optimistic demand assessment?

An over-optimistic demand assessment implies that the actual/observed demand is lower compared to the provided transport system capacity. A possible solution to redress the situation, leading to an increase in transport demand, may be to apply a tariff reduction. The optimal tariff reduction or subsidy will depend on the specific objective of the government. One option is to allow the use of two part tariffs designed to allow the recovery of both operational and capital costs. The idea is to set a unit price equal to the short run marginal cost and at the same time to levy a fixed charge to recover the capital cost. What is interesting from the viewpoint of the government concerned is the risk of having to pay subsidies. Viability Gap Funding is an increasingly popular way to provide targeted subsidies and government support to group/s of users based on an assessment of ability to pay. Such strategies can allow the operator to explore alternative forms of price discrimination between its users. The government should focus subsidies on the poorest users of the infrastructure to ensure the need to achieve a financial balance does not result in the exclusion through price of the poorest users. The results can be doubly beneficial:

- avoiding exclusion of the poor from the use of the new infrastructure, and
- increasing traffic flows and thus increasing viability.

It may also be considered that contracts can be better drafted to allow for more conservative traffic forecasts which may result in subsequent adjustment in favor of the government.

It is also possible that traffic forecasts within tenders will be better scrutinized and compared to the government's own estimates.

## And in case of underestimated demand?

In the case of underestimated demand, the actual/ observed demand is higher compared to the forecasts and/or the provided transport system capacity. Although this situation is less common in the general context of transport PPP development, it does occur. In the case of such an over-pessimistic transport demand forecast, the main outcome can be a lack of transport capacity leading to congestion. This can be quite dramatic in the short-run when it is impossible to revise investment plans to adjust quickly to the larger than expected demand. This is a common problem in urban transport modes.

If, for whatever reasons, demand is temporary or occasionally stronger than expected but a long-term adjustment in capacity is not needed, the short-run solution generally recommended by economists is a temporary rationing through prices. Part of the demand may disappear as a result of this pricing strategy and never return if the prices are not adjusted downward again. This also illustrates the importance of proper project preparation including financial and cost-benefit analysis in projects with detailed analysis of willingness to pay under various conditions.

The problem with the pricing solution is a political one in the context of PPP development. There are many cases in which toll or fare increases have led to riots and therefore regulators or politicians are reluctant to undertake price changes that are politically sensitive. Other types of action may have some impact but may only have limited impact and may only be applicable in some country contexts e.g. limiting trucks at peak hours, car pooling lanes, limiting access etc.

## Influence of tolling on transport demand

It is very important to understand the link between financial and economic viability in toll roads because a distinctive feature of toll roads is that the realization of the economic benefits expected from the investment depends heavily on the financing option chosen. In other words, there are trade-offs between the economic and financial viability of a toll road, which often tend to be overlooked.

The socio-economic profitability is decreasing on the level of toll (in absence of congestion), since higher tolls mean less traffic on the road (due to the price elasticity of demand) and a smaller economic surplus for the remaining users.

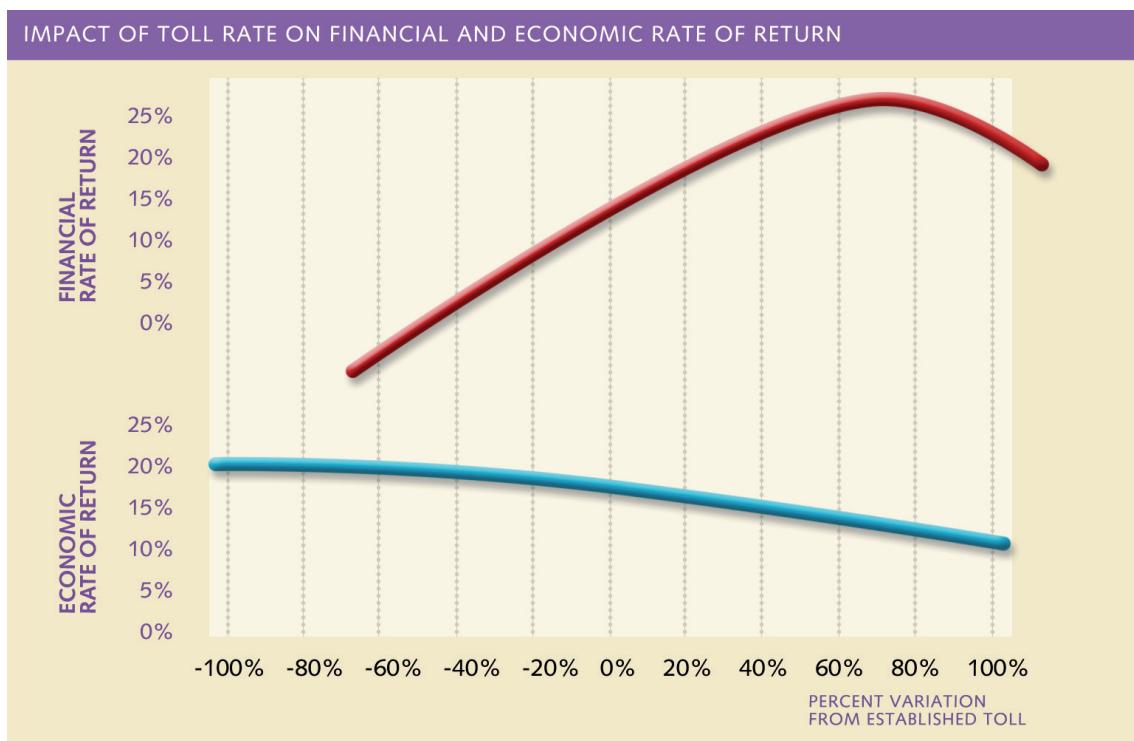
From a financial point of view, two effects counteract. Higher tolls mean higher revenue per user but fewer users on the road. The result is that the revenue increases until a certain level (the optimal private toll or monopoly pricing) and decreases after that.

These tradeoffs could be seen in the report: The Study on Public-Private Partnership Scheme for Trans Java Toll Road in the Republic of Indonesia, January 2007, prepared by Katahira & Engineers International, PriceWaterhouseCoopers and PwC Advisory Co.,Ltd.

In this study, different tariff levels were used in the economic and financial analysis. This resulted in two substantially different traffic forecasts. This methodology is not necessarily incorrect but is certainly not easy to understand. For the economic analysis, the socially acceptable level (SAL) of Rp200/km (about US Cents 2.0/km) in 2010 was used, and for the financial analysis the maximizing revenue level (MRL) of Rp400/km.

Based on project costs, expected traffic and financing structure (interest payments, debt/equity ratio), the level of toll rates that meet debt service and financial returns may cause traffic diversion to an alternative route. This may be a highly inefficient outcome in terms of traffic allocation in the corridor. In such a case, the free-access public road, which is likely to be of less capacity, lower level of service and less well maintained, carries more traffic than is economically efficient while the newly built toll road is under-used and represents wasteful investment.

This can be illustrated by the chart below:



*Colombia - Toll Road Construction Project, 1998 - New highway - Variation of ERR and Financial Revenue depending on the toll rate*

*Source: A. Menendez*

## Why worry about “willingness-to-pay”?

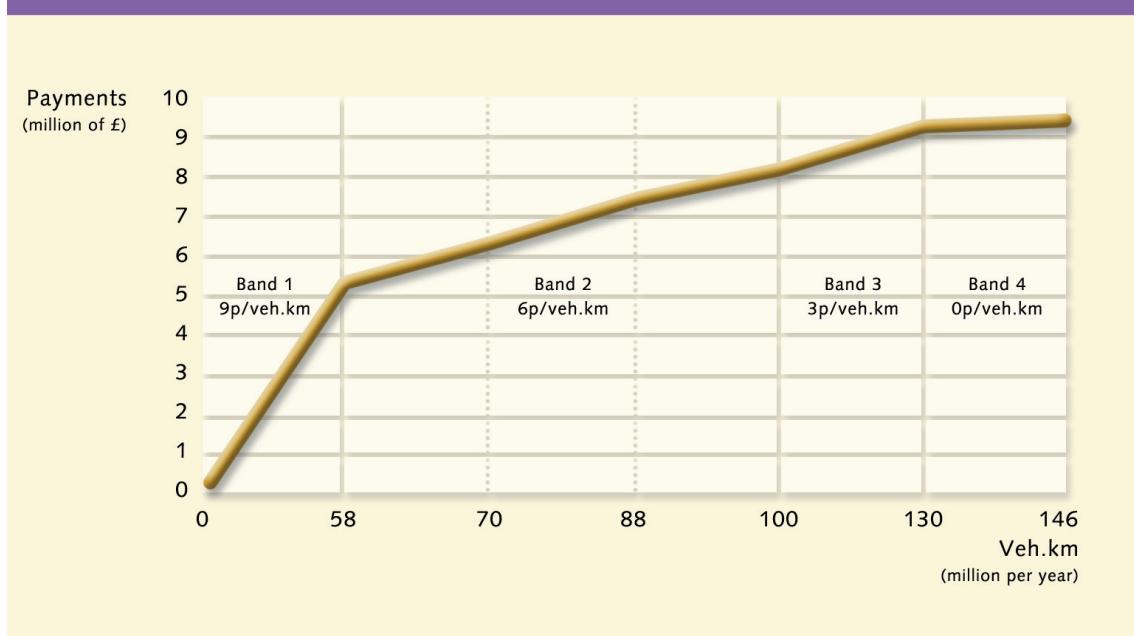
In the case of a toll road project, an accurate estimate of the toll fee the potential users are ready to pay - the willingness to pay - is in theory a prerequisite of toll level setting. In practice, this parameter is very difficult to assess, particularly in countries where the experience of toll roads is limited or simply non-existent. In transition or developing countries, the rapid changes occurring in income distribution and overall wealth make willingness to pay even more difficult to assess over the relatively long periods considered for economic appraisal. Users' willingness to pay tolls is largely a function of their wealth, the value they assign to time savings and other toll road benefits as well as the cost and quality of competitive alternatives. Assessing willingness to pay is in fact trying to figure out the elasticity of transport demand.

Nonetheless, data on the value of time and the willingness to pay for various types of transport service users exist for numerous countries. These indicators may be used when pricing new services to be provided by private operators. It makes sense to compare the calculated tolls or tariffs with these rough estimates of the willingness to pay for some services or with the value of time revealed by the post-mortem analysis of comparable projects increasingly found in literature (see Quinet on Marseille (1998), Small and Winston (1999) on the Dutch data base). Surveys themselves are frequently

difficult to undertake accurately with many road users questioned likely to deliberately underestimate their willingness to pay.

The use of 'shadow' tolls or annuities are possible ways to mitigate traffic risk to be borne by the private sector when the motorists' willingness to pay is unknown. These mechanisms entail paying the investor based on an agreed formula which may or may not include receiving toll revenue. This is discussed in Financial Framework in this Module.

#### EXAMPLE FOR A 100KM LONG SECTION



*Source: Analysis of highway concessions in Europe. Frank Bousquet. French Highway Directorate - 1999*

To find out more about time valuation and relation to willingness to pay, see



On the social valuation of travel time savings, Galvez and Jara-Diaz,  
 International Journal of Transport Economics, Vol. XXV, No. 2, (June 1998).



Transport Policy. Hensher D and Goodwin. Using values of travel time savings for toll roads:  
 Avoiding some common errors. Vol.11:2, pp. 171-181, 2004

Also some useful references and methodologies are contained within:



Good Practices for Estimating Reliable Willingness-to-Pay Values in the Water Supply and Sanitation Sector  
 Herath Gunatilake, Jui-Chen Yang, Subhrendu Pattanayak, and Kyeong Ae Choe, ADB 2007.

## What is the relation between “stated preference surveys” and the “willingness-to-pay”?

The main objective of a stated preference survey is to estimate the utility function for each mode or route, which will determine the probability of drivers switching to a toll road from a free route under different rates of toll. The utility function allows to estimate the perceived value of time, and then the average toll which drivers would be prepared to pay.

Drivers are interviewed using questionnaires specifically designed to avoid the usual difficulties met when trying to obtain sound estimates of time values and willingness to pay. The first part of the survey often consists of general questions about the journey being made. These questions are intended to collect some information on which to base the stated preference situations and to provide a basis for data segmentation. The questions include the following:

- The type of vehicle being driven,
- The reason for being at the journey destination,
- The number of passengers,
- The frequency of making the same trip,
- The country of vehicle registration,
- The driver's approximation of the total distance of the journey,
- The journey origin,
- The distance to be travelled on the toll road,
- The reason for being at the journey origin,
- The driver's anticipated journey time on the toll road,
- The journey destination,
- The driver's age, sex, economic status (employment category) and level of education.
- The stated preference survey itself consists of a predetermined set of pair questions whereby drivers are asked to state whether they would use “definitely” or “probably” the toll road or the toll-free road. The usual variables are toll level, total journey time and freeway standard.

Then questionnaires are usually processed using dedicated discrete choice analysis software, such as, ALOGIT and BIOGEME. General statistical packages can also deal with these surveys.

It should be noted that in order to predict modal split and route choice (which is particularly important for toll roads) the distribution in values of time is essential, not just average values that can be calculated by most discrete choice software. An increasing number of programs can estimate distributed parameters; for example BIOGEME (Bierlaire's Optimization Toolbox for GEV Model Estimation) or specific codes developed for R or Matlab.

## How is it possible to assess how toll charging will affect traffic assignment?

Three methods are commonly used:

- **Time saving principle:** the proposed toll rate (monetary value) is divided by the time value of vehicles (monetary value per time period). The resulting “time value” (e.g. hours) represents the equivalent toll rate in time units. Therefore, for traffic assignment purposes, road links are assumed to “cost” more time when tolled compared with the travel time on the same links in a toll-free situation.
- **Generalised Cost Modelling:** In highway network modelling, each link has various characteristics which impact time, cost and other factors. For each vehicle type, the model will reduce these characteristics to a total generalised cost for each link and the toll road will have the toll fee added to the cost of that link (or links). Application of the OD matrix to the network results in assignment of traffic to routes according to various criteria according to toll fee scenarios, type of traffic, time of day and other.
- **Diversion ratio curves:** these are derived from relation between the ratio of the toll rate and the time saving (resulting from using a toll road instead of an existing toll-free road) and the percentage of vehicles that will divert from the toll-free road to the toll road. These diversion ratio curves are calculated for by type of vehicle. The time value for each type of vehicle can be obtained by calculation but should eventually be based on experience. Time values and diversion ratio curves will have to be revised repeatedly in accordance with the actual traffic volumes measured along toll roads as the years pass.

To estimate route choice it will also be necessary to collect data on perceived marginal vehicle operating costs.

## Conclusions on mitigating the impact of over estimated demand

Forecasts will remain a key input but consideration of the following may mitigate their impact if overestimated;

- Should include a comfortable margin (robustness).
- While there are technical improvements and lessons learned, forecasting errors will remain and therefore other variables such as toll rates etc. need to be flexible as well as the financial structures of the contract.
- Is the project a new Greenfield project or expansion?
- Are key forecasting variables at top end of range such as value of time, population, GDP etc? Or bottom end, e.g. operating costs?
- Common sense; consider increase in traffic from base year to first year of project. Is it believable?
- Does traffic depend on other network and/or land use developments, planned but not yet in place?
- Use of ramp up in first three years of forecast.
- Compare with other projects in country/region.

- As with all projects, make sure senior decision makers and Consultants have undertaken adequate site visits.
- Ensure the financial structures are adequate to withstand reasonable overestimates in traffic i.e. adequate equity and liquidity etc.
- If available, apply for guarantees that would be available at difficult points in the cash flow/debt repayment cycle.

# Technical and Performance Standards

## Set up standards

According to ISO, the International Standards Organization, “standards are documented agreements containing technical specifications or other precise criteria to be used consistently such as rules, guidelines, or definitions of characteristics, to ensure that materials, products, processes and services are fit for their purpose”.

Setting up an appropriate set of standards relative to the various sectors of the economy, under the authority of the public powers, is a necessity for any modern country. They are the basis for exchanges of products and services. They capitalize on the experience of the best experts and summarize the state of the art in technological progress.

## The standards to be used should be listed in highway contracts

The very general meaning given by ISO to the term “standard” and the nature of the documents determining them varies considerably. With the exception of official regulations made obligatory by law, the strength of these documents varies greatly from document to document and from one country to another. It is therefore necessary that the applicable documents be carefully listed in the contract.

This is even more vital for international contracts in which foreign companies are likely to be involved.

This inventory should be strictly limited to the documents useful for implementing the contract, in order to avoid creating confusion by an over-abundance of superfluous references.

In a PPP-type contract, even more so than in a standard contract, only result and performance objectives should be set, thus excluding all regulations concerning the means to attain them.

## International Standards should be considered

International standardization is developing very rapidly under pressure from globalization. A country which does not have a full standardization system may thus refer to international standards (or national standards of advanced countries).

European Union countries and those which are preparing to join the EU (particularly East European countries) should take into account a certain number of specific obligations. All those concerning more especially the weight and dimensions of the vehicles are mentioned below. They are determined in a European guideline which applies to EU countries and will progressively apply to Central and Eastern European countries.



<http://www.europa.eu.int>

They should therefore be taken into account right now in these countries.

## Geometrical Characteristics

No internationally recognized reference documents exist regarding road geometry characteristics. Information on national rules may be obtained through the national committees of the World Road Association (PIARC), on its central website:



<http://www.piarc.org/en/>

## Design Standards

Design standards describe characteristics of the roadway geometry, such as lane width, radius of curves, and acceptable grade, as well as traffic control devices including signals, signage, and pavement markings. The establishment of design standards for roadways promotes safety and efficiency, since the standards are based on established research on the safety and performance implications of various design features. Uniform designs further promote safety by increasing the predictability of the driving environment, so that the road user knows what to expect in any given situation.

Traffic control devices, including signals, signs, and pavement markings, should be applied in a uniform manner and should have uniform design and meanings wherever they are applied. Design standards for roadway geometry, while also important, can have somewhat more flexibility and can vary depending upon the functional class, projected traffic volume, desired design speed, environmental sensitivity, and other considerations. Standards that are reasonable for roads built on flat terrain, for example, may lead to prohibitively expensive construction costs in mountainous areas. Also, roads with low projected traffic volumes generally do not require design standards as strict as those for high-volume roads. Since design standards have a large impact on cost, they should not be set higher than can reasonably be achieved within the highway program budget. Selection of appropriate design standards should be based on a comparison of the costs of achieving these standards with the benefits to users in terms of safety, travel time, and other measures.

Some useful advice may be given as regards the geometry of motorway-standard roads:

- excessive standards should be avoided, e.g., as regards road/lane width, plane and longitudinal radii, and the size of interchanges. Such over-designing does not result in any great increase in safety, whereas it does induce extra costs, takes up more space, particularly in towns, and makes it more difficult to fit alignments into the landscape.

- the intermediate phases may lead to very dangerous situations and should be specifically analyzed: the case of a future dual carriageway for which only one carriageway is built.
- if road widening is likely to be necessary a few years after opening, an economic analysis should be made to determine whether this should be taken into account at the start of the project, by updating the costs for this second phase of works.

## Maintenance Standards

Reference documents regarding maintenance are rare. It is therefore very useful to know that a work exists published by the World Road Association (PIARC).



Road Maintenance Handbooks, Practical Guidelines for Rural Road Maintenance, PIARC 94.

Originally written for Africa, it can, in fact, be applied to a large number of countries, excepting those subject to severe winter conditions. In addition, it has the advantage of existing in English, Spanish, French, Portuguese and Khmer.

## Signing

Unless it is coherent throughout a country's entire network, signing cannot be an efficient tool for improving driver safety and comfort. Determining national standards which apply to all the roads in a country is therefore a high-priority task.

## Some specific effects to be taken into account

In many of the countries concerned by this Toolkit, taking earthquakes into account is of considerable importance. The ruin of structures situated on the major traffic routes may lead to considerable direct and indirect economic losses. The application of anti-seismic standards should be explicitly recommended/stipulated in the contract. The same remark applies regarding cyclones.

# Sector Development

## Transport Sector Organization

At the central government level, the road and highway administration is one of a number of modal administrations contained within or, preferably, located at “arm’s length” from the ministry of transport.

Other modal administrations or offices commonly include aviation, railroads, maritime, and public transport. The ministry itself has crosscutting offices on topics such as policy and planning, safety, and research. Two points are important regarding relationships with the central transport administrations: first, that transport planning is conducted within broad policy objectives and budget allocation (or income source) set by the central government and the ministry of transport; and second, that coordination between transport administrations is required on intermodal planning issues.

## Road and Highway Sector Organization

Within the road and highway sector, two general models exist for the division of responsibilities at different geographic levels and among departments at each level. First, within a national or regional administration, responsibilities are commonly divided functionally. Functional divisions frequently include construction, maintenance, planning and design, technical assistance, administration, and finance. A set of geographic offices may also be designated (regions within a country, or districts within a region) to implement some construction and maintenance activities locally. The current trend is toward decentralization of responsibilities.

In most situations, the broad intersectoral coordination, policy-making and resource allocation occurs, or should occur, politically at the highest level. Once this is done, the transport sector is managed vertically. Multi-sector projects are voluntary local activities rather than results from the design of sector organization. With this broad principle, which is violated in some countries, there is a rich array of institutional configurations. The emerging trend is clear: decentralization, greater private sector and user participation, and predictable financing mechanisms.

In some federally organized countries, the federal government not only funds the (trunk) roads but also is the owner, planner and manager. The functions of this central organization are changing rapidly. The (federal) Ministry, as the representative of the general-purpose government, is responsible for the mission, policies, goals, funding mechanisms and sector oversight, but it has no road management functions.

The trunk road system is delegated to the States or provinces so that there basically are two or three road owners: the State (part of a federal organization or unitary), the local governments, including the municipalities, and private entities or road cooperatives. In some countries there is an intermediate level of (elected) government (such as the county in the US), but this is not common or it is declining in importance.

There will continue to be, of course, national or federal roads. For these roads the federal government sets the design standards and the process of giving exceptions to them, and arranges the funding mechanism (road fund, general fund, etc.). The public authorities are responsible for managing the national network, and may receive national/federal aid to do so.

There is oversight. Part of that oversight, and a condition for receiving the federal funding, could be maintaining those roads in a certain condition and updating the road data bank, including road condition surveys (this is indispensable for money allocation). Other conditionalities for receiving funding could also be set e.g. traffic safety activities.

### Road Ownership and Management

Principally, the government is the owner of the national roads and other levels the owners of the local roads. Private roads (sometimes called community roads) are increasingly owned and managed by the beneficiaries. These principal road owners establish Highway or Road Authorities or a similar name. In the Toolkit we standardize with Highway Authority as meaning an agency of government responsible for managing the highway system as delegated by the concerned Ministry. The Highway Authority that makes the long range and short range plans for the owners' road networks, ensures continuity with them and each other, and manages them.

Within the government, road management functions can be further decentralized--this is the trend--to the regional offices of the national Highway Authority. Local governments also have their Highway Authorities, which may be departments within a larger public works organization, or they contract these functions with the local, regional or State Highway Authority or a private entity. In large metropolitan areas there can be multimodal and multijurisdictional coordinating and planning agencies. Increasingly, there is competition in service delivery. Private sector producers design, build and maintain the roads. Competition will take care of regional differences in geology, geography, etc. and will make the allocation of resources between regions more transparent. For numerous reasons, many States and local governments maintain a direct labor force for road maintenance and operations. However, the trend is toward private sector service delivery of these activities.

### Highway Authority Emerging Trends

Two issues, financing and the responsibilities of the Highway Authority, are undergoing rapid change. In financing, the principle of cost recovery is beginning to enjoy broad acceptance. Regional differences, past policies or future goals and, importantly, if the tariff on vehicle fuel is the user charge mechanism, require that a representative body composed of the road owners and the road users do the allocation of funds between the road networks. This is often called the "Road Board/Road Fund Board".

The Highway Authority also requires a clear method for dividing its budget between its regional offices. In some countries, there is no "Road Board" but the Ministry of Transport (or several Ministries) carries out that function. The Ministry defines the budget for the

Highway Authority and may or may not provide budget monies for the local governments' and private owners' roads.

The Highway Authority is the agent of the road owner and manages the road network. It must have the skills to communicate with a large number people--people affected by the network — to translate the broad road sector goals into a road network plan, and the technical ability to implement the plan.

In order to do this satisfactorily the Highway Authority must undertake numerous activities: track and learn from the past, gather intelligence to understand the present, predict or project the future, plan and coordinate with other relevant actors, sponsor research or experiment with new technologies, and supervise the physical plan implementation process.

### Functional Classification

Functional and administrative classification of roads is fundamental to road management both in urban and interurban areas. Functional classification has a variety of uses including assigning jurisdictional responsibility, system planning, distribution of funds, evaluation of road space needs, access management, design standards, and data collection, to name a few important activities in a Highway Authority.

According to their function, four different levels of networks are identified: national (primary or main trunk) networks, regional networks (also known as secondary, departmental or state networks), rural networks (including community roads, tracks and trails), and urban networks (in turn functionally classified). For sector authorities to be able to establish accountability for the conditions of the road networks, each of these network levels must be placed under a clear management structure and legal ownership.

Functional classification should be based on data on population and employment centers and traffic volumes, from which an appropriate hierarchy of travel routes can be identified. The density of the road network by functional class is also an important consideration, and should be consistent with the region's level of income and economic activity; a rural area with low incomes cannot support a dense network of high-class or even low-class roads. Once a functional classification system for the road network has been established, administrative responsibilities can then be assigned to national or local agencies as appropriate. See the following report for additional guidance on functional classification:



World Bank Transport Sector: Roads and Highways knowledge base on Institutional and Management Structures for Roads  
<http://www.worldbank.org/transport/roads/inst&sm.htm>

# Maintenance strategy

## General aim and features of a maintenance policy

Projects are usually evaluated on the assumption that proper maintenance of new infrastructure will be assured, and in fact the estimated annual costs are always based on this assumption whether or not this will happen in practice. Attention is thus typically given to consideration of the institutional arrangements for financing maintenance. But without an adequate and stable flow of funds, maintenance policies will not be sustainable.

In many countries maintenance expenditure is well below the levels needed to keep road networks in a stable condition for the long-term. Lack of funds for maintenance results in the decay of road networks and increased road transport costs (in terms of travel time and VOCs). The long-term impacts result in reduced commercial and agricultural competitiveness in international and regional markets and consequently slow overall economic growth.

This problem is not confined to only transition or developing economies. Many of the wealthiest nations in the world are also failing to properly finance road maintenance. In the United Kingdom a 1996 Institution of Civil Engineers survey found that maintenance of local roads (96 percent of the total road network) was being under-funded by USD 1.4 billion per year and construction and improvement by a further USD 2.3 million. Recent work in the USA reveals that the deficit there is of the order of USD 1.5 trillion i.e. that is needed to bring the national highway network into good condition.



Commercial Management and Financing of Roads, Heggie and Vickers,  
World Bank Technical Paper N°409 (1998), page 32



Raising Gas Taxes Won't Fix Our Bridges; A T Moore, the Reason Foundation

Lack of funds for maintenance does not lead to immediate, catastrophic failure and there is thus little political pressure or incentive to support maintenance. Likewise, maintenance can always be postponed in the hope that the fiscal situation will improve.

Depending on the road management scheme chosen, the Highway Authority can use various methods to increase the allocation of funds devoted to network maintenance. Two examples can be given:

## Better balance between maintenance and new investment

Road maintenance can be underfunded because some countries still spend too much on new investment and thus scarce resources are misallocated. Donors have since recognized

this mistake and will no longer finance rehabilitation programs until governments have introduced sustainable road maintenance policies.

The justification for road funds normally relates to several basic principles:

- Establishment of a consistent level of funding for road development and particularly maintenance to allow for multi-year contracting and to ensure that essential asset management services can be provided by the responsible agencies at different levels of government;
- Establishment of an equitable means of charging for road services and allocating funding among the various levels or organizations responsible for development and maintenance of road assets. This may involve different levels of government, different organizations within the same level of government, or different user groups; and
- Creation of an efficient and effective implementation process with sufficient accountability checks to ensure that the funding reaches the targeted areas and that works contracted are, in fact, completed.

## Road user charges policy

Road maintenance is also underfunded because road users do not pay enough for their use of the road network. They pay the usual import duties and excise and sales taxes—but so does everyone else on all the other goods exchanged in the economy. Since private cars are a luxury item for low and middle-income economies, a higher level of general taxation, at least on private car ownership and use, would be justified on equity grounds.

Yet road user charges—in the form of vehicle license fees, a specific surcharge added to the price of fuel (the fuel levy), and international transit fees—rarely cover more than 50% of expenditure on road maintenance and, in some countries, barely 25%.

Until the beginning of the 1990s, most reform efforts sought to strengthen road management, improve policies governing user charges, and increase allocations for road maintenance. But these reforms lacked a comprehensive vision focused on technical rather than institutional solutions.

Donor countries often ask governments to set aside part of their general tax revenue (usually specified as a percentage of overall fuel tax revenue), deposit the money in a road fund, and use the proceeds to finance maintenance of the core road network. But apart from pointing out the economic costs of deferred maintenance and suggesting that funds be reallocated from construction to maintenance, little advice was offered on where the additional revenue might come from and how the road fund should function.

Against this background two regional programs have sought to give more focus to road sector reform. The first and most successful is the Road Maintenance Initiative (RMI), renamed the Road Management Initiative in April 1997. The United Nations Economic Commission for Africa and the World Bank launched this program in the late 1980s as one of the five components of the Sub-Saharan African Transport Policy Program. The second regional program is PROVIAL established in 1992 through an initiative of the

World Bank's Economic Development Institute (former EDI, now WBI) to address road maintenance management in Latin America.

To know more about these programs:



Commercial Management and Financing of Roads, Heggie and Vickers,  
World Bank Technical Paper N°409 (1998), page 16

# Road Management Systems

## Importance of road management systems

To properly decide on a maintenance policy, choose between alternatives, input data into deterioration and economic models such as HDM (Highway Development and Management), and finally come up with maintenance programming, it is necessary to rely on a good knowledge of the main characteristics of a road network and transport system over time. The main purpose of road management systems or pavement management systems (PMS) is to provide data and tools fitted for this issue.

The development of PMS in many countries is most often the consequence of the awareness of severe gaps concerning basic data characterizing the network, such as traffic volumes, structure and deterioration indicators, roughness indices, etc. At the same time, the increasing use of tools like HDM or various other maintenance optimization programs makes it necessary to catch up with the delay in this field.

Implementing a road maintenance system mainly consists in:

- taking into account the whole of a network through the use of a road data base;
- seeking a maintenance strategy corresponding to an economic optimum, by simulating the consequences of various alternatives;
- developing a sound maintenance multi-annual programming method.

Some difficulties attached to the development of road management tools and PMS exist; they can be overcome but specific attention must be paid to some important topics:

Data collection process: the scope of data and parameters likely to be collected in order to feed a data base is wide: traffic, technical data, road characteristics (geometry, deterioration, structure, etc). Nevertheless it is important to bear in mind that the (i) possibility of getting reliable values in the field must be thoroughly investigated and the corresponding collection methods assessed and tested, (ii) the data set feeding the system must be in line with the general aims of the maintenance policy and with the programming tools as well, (iii) the ranges of accuracy attached to all the parameters must be consistent, (iv) data monitoring and updating methods have to be defined and implemented .

Therefore the initial design of the PMS is crucial to avoid further failures and the subsequent necessity to permanently revamp the system.

## Analysis and reporting

Many road management systems are not really helpful because they generate inappropriate outputs; this is mostly due to insufficient analysis and erratic reporting. For example, in several countries where a PMS has been implemented, after several years it is still impossible to get a picture of traffic structure and growth trends, although traffic counts covering a significant period of time are in PMS computer files.

The skills of the staff assigned to road management offices may be questionable; this makes it crucial to assess the skills and identify appropriate training from the very beginning of the system implementation. Some mistakes often occur in relation with a poor assessment of the nature and scale of the analysis likely to be carried out: as a planning tool, the PMS refers to road networks, either regional or national; it cannot be used as a substitute for detailed project studies, which remain necessary and will require more sophisticated data.

It is also observed that too many PMS are to some extent "self-contained": They do not interact with the maintenance policy really applied in the field. This may be due to some of the technical reasons exposed above, but the explanations are also institutional and political: the attempt to rationalize maintenance planning can be a source of conflict of interests at various levels, and the Authority in charge of maintenance policy and planning must show a real determination to give a PMS its best chance to succeed.

**The Indonesian Road Management System (IRMS)** is the result of many years of development of successive computerized models, which balance road user cost savings due to better roads against cost of road improvements based on a regular assessment of current road conditions. The models have been developed by the Ministry of Public Works mainly with the support of the World Bank and cover all road categories, including kabupaten roads. They produce an annual works program and budget. The works program is flexible according to the available budget, but is always based on optimizing the trade off between user cost and cost to the Government.

*Source: Policy Paper on Road Fund Establishment ADB TA 4728: Support for Infrastructure Development (SID) February 2008 Republic of Indonesia National Development Planning Agency (BAPPENAS)*

# Sector funding

## Investment Programming

This section provides an overview of the programming function and process. While the description provides a common framework for reviewing programming practice, the approach to programming varies widely from country to country in response to a range of institutional, political, and financial factors.

There are three key objectives of the investment programming and project selection process.

These objectives are:

- Effective allocation of resources to address policy objectives;
- Facilitating tradeoffs among competing investment opportunities, including among program areas (capital, maintenance, operations, etc.), geographic areas, and individual projects; and
- Supporting efficient program and project delivery.

## Types of Projects

Investment programming involves three major types of projects:

- Capital investment, or construction of new or expanded facilities and operating controls;
- Maintenance, including ongoing reconstruction and rehabilitation to preserve the quality of existing facilities; and,
- Operations, such as signal timing, traveler information, ITS and pricing and other control systems that manage transportation flows to make more efficient use of physical facilities.

It is important to direct sufficient resources to each of these program areas and to consider the tradeoffs among them. In the absence of regional inequities in accessibility, capital investment projects should not be programmed unless there is adequate funding available to maintain the facilities. If projects are built and then not maintained, facilities will deteriorate, leading to a reduction in system performance in the future and the need for expensive reconstruction and rehabilitation.

Reducing maintenance budgets, an obvious cost-cutting strategy when there are funding shortfalls, can therefore increase the long-term costs of maintaining a road infrastructure. A variety of analytical tools and methods are available for determining the optimum schedule for maintenance (e.g., that which minimizes “life-cycle” costs); these are discussed in the section under asset management.

The trade-off between capital investment and operational improvements should also be considered. In many cases, comprehensive operational strategies can improve capacity and safety at a much lower cost than expanding the physical infrastructure. For example,

motorized and non-motorized traffic can each be given separate lanes to improve traffic flow, reduce crashes, and make more effective use of road space.

Also, new Intelligent Transportation Systems (ITS) technology is greatly increasing our ability to improve the efficiency and safety of existing infrastructure. Commercial Vehicle Information Systems Networks (CVISN), for example, can be used to establish improved permitting procedures to ease permit approval, speed customs inspections, and maintain safety records for trucks. These technologies can reduce delays in shipping and help ensure that vehicles are being operated safely.

## The Investment Programming Process

The primary steps of the programming process include setting goals and objectives; establishing performance measures; assessing needs and identifying potential projects; evaluating projects; establishing program categories; prioritizing projects within categories; evaluating tradeoffs among program categories; identifying financial resources and setting budgets; and implementing and monitoring programs.

The Process includes:

### *Program Goals and Objectives*

The first step in investment programming is to develop explicit goals and objectives that will enable the transportation agency to implement its core policy objectives.

### *Performance Measures*

Performance measures are established so that Highway Authority managers can assess the degree to which the selected investment program is successful in terms of improved system performance, cost, and benefits.

After performance measures are defined, performance standards can be identified. Performance standards are target levels of performance measures, for both system service and design characteristics, that are not subject to further trade-off analysis.

### *Needs Assessment and Project Identification*

Highway Authorities need to establish procedures for identifying deficiencies, needs, and candidate projects. Although this activity typically falls within the planning (rather than programming) function, it is critical to the programming process as a source of basic inputs. Needs estimates and project identification are done through a combination of methods:

- Results of system-wide, corridor, and local planning efforts;
- Facility inventory and inspections;
- Facility management systems;
- Review of accident, traffic, or ridership statistics, and vehicle or equipment breakdowns;
- Sufficiency ratings or deficiency threshold criteria;

- Comparison of outcome-based performance measures and standards; and
- Suggestions by administration staff, elected officials, and citizens.

After needs are identified, specific projects can be developed for consideration, including whether by PPP or not.

### *Project Evaluation*

A key program development activity is to evaluate and compare candidate projects to provide a basis for deciding which projects should be funded. There are a number of methods (see the references in Module 3 and Module 5) for evaluating projects, ranging from informal and qualitative to highly complex and technical.

Methods include:

- Setting priorities based on the judgment of elected officials and/or
- Ranking projects based on the severity of the problem or the estimated benefit or impact of the project;
- Formal cost-effectiveness or cost-benefit analysis; and
- Optimization methods, particularly for pavement and bridge preservation.
- Program Development

Program development includes organizing projects and initiatives into logical program categories from several perspectives, such as project type, policy objective, and scale. For example, a program structure might organize projects into capacity expansion, maintenance, operations, and management/efficiency.

### *Priority Setting and Program Evaluation*

The priority setting and program evaluation builds on the established program categories as well as analysis results for individual projects. The objectives of this step are;

- to develop the most cost-effective mix of projects within a specific category and
- to examine the implications of shifting funds between categories.

A number of analytic approaches are possible to support program evaluation and tradeoffs. For example, economic analysis and optimization approaches are most frequently used to rank projects where the data allows. Where data is inadequate or incomplete, a multi-criteria summary of program impacts - incorporating both quantitative and qualitative criteria – can be a more practical and effective approach.

## **Sector Funding: Financial Planning and Budgeting**

Financial planning includes assessing future sources of revenue, assessing costs of identified projects, and making program tradeoffs so that costs match expected resources. A key step in financial planning is revenue forecasting, or projecting future revenues by source and by year. Techniques for revenue forecasting include expert judgment, trend analysis, component forecasts (trend analysis on more than one variable), and even statistical models.

Various software packages are available to assist with financial planning, revenue forecasting, and cash management.

## Program Development: Implementation and Monitoring

System performance, costs, and benefits should be monitored as programs are implemented and program results become available. This monitoring process provides an important feedback loop into both the technical assumptions made in the process and the policy decisions regarding priorities, strategies, and emphasis areas.

Monitoring can be conducted using the system and program performance measures established earlier in the planning process. To support monitoring as well as other planning activities, it is critical to establish a regular program of data collection along with a system for storing and managing the data ("data bank"). Methods for doing this are discussed in a later section.

A monitoring program will help determine whether capital projects and programs are meeting their desired goals. It will also provide an indication of the efficiency and effectiveness of project and program delivery and help identify areas in which delivery can be improved.

### Selected Reference:



Methods for Capital Programming and Project Selection. Neumann, Lance A. National Cooperative Highway Research Program (NCHRP), Synthesis of Highway Practice 243, National Academy Press, Washington, DC. Available at the Transportation Research Board on-line Bookstore.

Book Code: SYH243, ISBN: 0-309-06022-2. 1997.

# The Planning Process

Planning roads and highways requires a series of decisions at different levels. The organization of the planning process, or the series of steps for making these decisions, can affect the quality of the outcome. The decision process varies from country to country, some requiring detailed public participation, others requiring a decision in a single ministry.

The overriding objectives should be to clarify public goals and provide reliable information in order that decisions are based on good technical information. Decisions are also affected by political considerations, but adequate information enables a much clearer understanding of the added costs or benefits of a political rather than purely technical decision. The policy framework establishes the basis for judging projects, and the technical analysis provides the information for a project to be judged.

The planning process begins with the establishment of an overall framework by the central government, including strategic goals and policy objectives for economic development and transportation. It then involves the preparation of legal plans by the regional road and highway administration. The long-range plan (typically 20 years) identifies general needs and choices and establishes the framework for project and programming decisions. Once the long-range plan is established, the investment programming process identifies and evaluates specific road and highway projects and makes tradeoffs among program areas. The outcome of the investment programming process is the implementation plan, which lists all the projects to be undertaken within a one- to five-year period. The implementation plan must be consistent with local and national program objectives and budget constraints. See the following examples of a planning process:

## Long-range Plans

The long-range plan (rolling business plan) presents a long-range vision of the regional road and highway system, providing a perspective for at least a 20-year time frame. The long-range plan should be updated by the regional road and highway administration on a rolling basis, every five years or less, to respond to changing conditions and needs. The plan may include some or all of the following elements:

- A statement of the mission and vision of the road and highway administration;
- Policy goals and objectives for the road and highway system;
- Specific strategies and actions that will be taken (studies, types of projects, policy changes, etc.) to achieve these goals and objectives;
- Identification of important trends influencing highway needs (e.g., population growth, automobile ownership, industry expansion, environmental issues);
- An inventory of the road system and current conditions;
- Identification of key road system needs and identified deficiencies (both current and future);
- Potential projects and other actions to address these needs;
- Major investments and required studies; and

- Budget factors, including required funding for the identified projects, sources of funding, and revenue projections.

The plan should be consistent with overall policy goals related to transportation, economic development, social policy, and environmental protection. The plan should be coordinated with transport planning at other levels of government, including cities and rural road agencies, and for other modes, including transit agencies, ports, and airports. Intermodal linkages and needs (e.g., truck-to-rail, bus-to-rail, and port-to-truck) should be identified and addressed, as should the needs of freight shippers. The plan should be developed through a process that involves all stakeholders including government agencies, business and private sector groups, and the general public. Finally, the plan should be realistic and fiscally sound, including a financial element that identifies future needs and resources as well as possible shortfalls in funding.

## Implementation or Short-range Plan

The implementation plan or short-range plan is a complete list and description of funded projects that are to be advanced over the next one to five years. It also includes actions relating to vehicle weights and dimensions, changes in operating policies such as pricing and ITS, and the more traditional transport system management measures. Projects contained in the implementation plan should be consistent with the long-range plan. The selection of projects for inclusion in the implementation plan is based on the outcome of the investment programming process (described in more detail below). Projects should be identified in cooperation with local road and highway planning administrations, including metropolitan and rural agencies, to ensure that projects implemented by different agencies are consistent with each other.

Projects in the implementation plan should be identified by program area (capital, maintenance, etc.), and project scheduling and costs should be identified by the year in which they will occur. An important characteristic of the implementation plan is that it is financially constrained. This means that the plan should identify the sources of funding for all proposed projects in the plan, while ensuring the continued operation and maintenance of the existing transportation system. The implementing agency (the national or regional road and highway administration) is responsible for scheduling projects for implementation once included in the plan. See the following examples of implementation plans and guidance on the World Bank transport web site.



<http://www.worldbank.org/transport/roads/>

## Corridor management in India

Many parts of NHDP have been commissioned, and the focus needs to now shift from construction to “corridor management”, i.e. the process of managing the highway so as to deliver maximal throughput in terms of velocity and number of vehicles, while minimizing the cost to the economy of accidents.

Road safety is a particularly important area of focus, particularly given India's lack of experience with high speed roads. The maintenance of completed sections of the National Highways is being carried out by NHAI through short-term improvement and road maintenance contracts and long-term performance based maintenance contracts. The scope of work includes road maintenance, road property management, incident management, engineering improvement of toll-fee collection, traffic management, facility management, planning of operation and maintenance (O & M) center, training and road safety provisions.

In order to make the journey safe, under the corridor management policy, various safety measures are being provided on the National Highways:

- Provision of thermoplastic line marking on carriageway;
- Provision of crash barriers at location of high embankments;
- Provision of informative, cautionary and mandatory sign boards;
- Provision of declinators, studs and railing at the central median; and
- Provision of shrubs and plantation in the central median.
- Preliminary Identification of Potential PPP Projects

Based upon the medium-term highway development program, the government or highway agency can evaluate its program for potential PPP projects at an early stage.

Module 5 indicates in stage 1 how such an evaluation can be formally undertaken through multi criteria analysis.

At an early stage all projects can be evaluated through a simple ranking procedure into several categories. These categories could be high, medium, low and no potential for PPP.

Criteria could include at this stage

- Economically viable
- High total project value (but only average capital cost per km)
- Tolling is possible
- Levels of Traffic demand: for example <10,000 vpd: 10-20,000 vpd: >20,000 vpd
- Types of traffic: % Heavy Goods; Specific access etc
- 'Acceptable' Risks
- 'Acceptable' Social and environmental impacts

## Reporting Mechanisms

It is important to generate reports on the results of planning efforts and to make these reports publicly available. Regional long-range highway plans, implementation plans, and corridor or project studies should be available to all parties affected by the plans, including other government agencies, transportation agencies, businesses, interest groups, and the general public.

This should include the release of plans in draft form, for public comment and review, as well as the release of final plans. The feedback from this process helps ensure that

the selected projects are the most effective projects in terms of improving both freight and passenger travel. Public reporting also allows people and businesses to anticipate changes that will take place as a result of the plan, allowing businesses (for example) to plan their operations to take advantage of the road and highway improvements.

# Economic Development and Public Interest

The public sector has a number of important and critical roles and functions within the PPP process. Its overarching development role is to promote social and economic development, through a number of mechanisms, and includes reducing poverty i.e. not only encouraging economic growth. Infrastructure provision is one of these mechanisms and PPP is one part of its overall means or tools to develop adequate infrastructure.

Therefore in terms of highway development, the government's highway planning institutions should develop a highway planning framework as described in Module 3 -> Sector Planning and Strategy.

In its goal towards socio-economic development the public sector has a number of functions at different levels:

- Meeting macro economic development goals such as access, opportunity
- Meeting economic needs such as cost reductions, global competitiveness, etc
- Meeting social needs such as poverty reduction
- Mitigating social and environmental impacts through design and planning safeguards
- Assessing infrastructure needs and required facilities
- Providing funding either directly or through facilitating the private sector or through a mixture by support measures
- Regulation of the sector
- Monitoring the sector



Public Private Partnerships in Transport; Policy Research Working Paper 4436;  
Estache, Juan and Trujillo. 2007.

In undertaking these roles and functions, the public sector has the responsibility to promote positive impacts and at the same time protect the public interest through the elimination and/or mitigation of negative impacts.

# Promoting Positive Impacts

## Is there a link between investment in infrastructure and Growth and Poverty Reduction?

This link has been the subject of research for many years. One researcher comments that:

*"So while most officials, agencies, consultants, practitioners and people living in developing countries know about chronic infrastructure deficiencies, and it is possible to appeal to statistics showing cruel deficiencies in sectors such as sanitation, water or electricity, there is no completely satisfying way to systematically document the state of infrastructure in and across many poor countries".*

At the macro-level, the relevant challenges imply to move away from a long string of contributions that have tried to estimate the link between output or growth and aggregate indicators of infrastructure (public capital or physical indicators) and rather concentrate on how aspects linked to the political, institutional and regulatory environment have affected the delivery and efficiency of services in the different sectors".



Infrastructure and Growth in Developing Countries: Recent Advances and Research Challenges.  
Stéphane Straub, Policy Research Working Paper 4460 The World Bank. January 2008.



PFI: meeting the investment challenge. HM Treasury, 2003.

"Given these difficulties, what are the potential lessons? Overall, our results give only limited support to the notion that infrastructure investment has driven growth. Our results in E Asia do not seem to be inconsistent with a story in which infrastructure can constrain growth, when that growth potential is generated exogenously, and that East Asian countries have been relatively successful in addressing infrastructure constraints as they arise. But the weakness of our data and results do not permit any definitive conclusions about the theoretical channels by which infrastructure may have influenced growth in East Asia.

If indeed East Asia is more effective than other regions at responding to infrastructure constraints it would be useful to understand why. Various arguments could be mounted. For example, East Asia has high levels of savings, and the availability of financing may facilitate more rapid responses. East Asian countries have typically relied on powerful planning agencies, such as Japan's MITI, etc. And to the extent that private investment in infrastructure has played a role in total investment, it is notable that the modalities employed in East Asia have differed from those employed elsewhere: for example, while East Asia focused on attracting investment at the wholesale level and greenfield sites (e.g. independent power producers), Latin America placed greater emphasis on

the concessioning of existing retail systems. Testing such hypotheses is a subject for separate enquiry".



Infrastructure And Economic Growth In East Asia. Stéphane Straub, Charles Vellutini, Michael Warlters.  
Policy Research Working Paper 4589. The World Bank April 2008.

## Poverty and Transport

**The provision of transport services has a direct impact on the poor. Transport both facilitates the delivery of goods and services, and helps people to gain access to them. It thereby influences poor people's economic, social, and cultural lives.**

Both transport and energy have indirect impacts on the poor by facilitating other socioeconomic development to improve poor people's incomes and well-being. Virtually all the activities commonly associated with poverty reduction depend indirectly on transport, including elements of economic growth, such as agriculture, industry, tourism, and mining; government services, such as education and health; and social safety nets and emergency relief programs.

In some cases, improved transport or energy is an essential requirement for poverty reduction interventions (e.g., increasing economic opportunities for people living in remote areas). In others, transport and energy infrastructure contribute to poverty reduction by increasing the efficiency, growth, and spread of socioeconomic activities. Transport is essential for the free movement of goods and services required for market-based private sector development. It helps to empower the poor by ending their physical isolation, enabling communities to work together, and giving poor people a voice in society.

The contribution of transport and energy infrastructure to poverty reduction is likely to vary between and within countries, depending on the underlying causes of poverty and requirements for reducing poverty, the macroeconomic environment, and cultural and other factors.

While the existence of these indirect impacts is generally appreciated, there is at present only a limited understanding of their precise nature and extent. It is difficult to trace the complex chain of relationships through which transport and energy indirectly impact upon poor people's lives.

The different impacts may sometimes be hard to identify separately. In some cases the impact on individual beneficiaries may be relatively small and hard to identify, although the macro-level impact may be significant. Over a period of some years transport and energy may have dramatic impacts in terms of the transformation of economic or social activities in the areas served, but their enabling role may not be noticed by outside observers, or may be taken for granted, confused with other factors, or forgotten.

Comparatively little attention has been paid to documenting and quantifying the many influences of transport and energy on poverty reduction. Multilateral and bilateral project economic analysis has rarely required this. In the case of transport investments, the main emphasis has been on demonstrating economic efficiency, based on estimates of the savings in transport operating costs and journey time for forecast traffic. Although useful as a test of economic soundness, such analysis has offered little insight into how or how much the poor will benefit.

This conservative approach has been used because it is difficult to forecast the impact of transport and energy improvements on the numerous socioeconomic activities they make possible.

Poverty reduction goals require a shift in strategic focus in the transport and energy sectors, from formulating projects on the basis of economic efficiency and economic value added alone, to supporting transport and energy projects that best perform the complementary role of facilitating socioeconomic activities that reduce poverty.

To do so, all those involved in socio-economic development urgently need to develop an improved understanding of how different types of transport and energy infrastructure fulfill this complementary role, directly and indirectly, and to establish benchmarks in quantifying the contribution of transport and energy to poverty reduction.

This need is shared by other development agencies that have adopted poverty reduction as their goal, including the World Bank, the Japan Bank for International Cooperation (JBIC), and the Department for International Development (DFID) of the United Kingdom.

There are also important gaps in knowledge about how private sector participation modalities can contribute to the poverty reduction impact of transport. Developing countries are turning increasingly to the private sector to develop infrastructure and provide transport services. The private sector has often proved better at (i) mobilizing additional investment resources to finance service expansion and improvement; and (ii) introducing new technologies, better management, and competition.

Private sector participation is often an important factor in ensuring the sustainability of transport and energy sector projects. Poverty reduction and private sector development strategies recognize that private sector participation in transport can contribute to poverty reduction through the expansion of facilities and services, and improvement of corporate governance and responsibility.

## How to ensure benefits to the Poor

However, comparatively little attention has been paid to examining which models of private sector participation contribute most effectively to poverty reduction. This is somewhat surprising given the importance of the issue and length of time PPPs have been in operation in some countries. However, in most countries PPPs are still at an early stage. Certainly, in the future, for example, another question that will be increasingly asked in project studies, “what are the best ways of ensuring that the private sector extends affordable services to the poor”?

There is a need for analysis of (i) the poverty reduction impacts of the many approaches followed by the private sector and private-public partnerships in developing infrastructure, and (ii) the models for structuring and regulating the market to protect the interests of the public, particularly the poor.

Multi lateral agencies have been developing and examining the range of methodologies and tools are needed for examining the poverty reduction impacts of different types of infrastructure in different settings.

Some types of infrastructure, such as rural roads, may have a vital but relatively localized area of influence. In such cases, it may be possible to trace the various contributions to socioeconomic activities leading to poverty reduction. In other cases the influence of an infrastructure improvement may extend far beyond its physical location, and more complex methodologies may be required to distinguish impacts. This is generally the case with primary transport links, such as trunk roads that form part of national and international networks that can also have a general influence on trade.

This also links into concerns by all agencies that merely building or providing the infrastructure may not generate full or any benefits to the poor because of market deficiencies for example in the trucking and bus industries in being able or wanting to respond to market opportunities at least until business builds up. Further expansion of public and private facilities related to the road may take some time to develop due to a number of different types of constraints e.g. funding, cultural etc.



Fighting Poverty in Asia and the Pacific:  
The Poverty Reduction Strategy of the Asian Development Bank. 1999.



Assessing the Impact of Transport and Energy Infrastructure on Poverty Reduction.  
Asian Development Bank. 2004.

## Poverty Alleviation

The development of an efficient transport system (supply of infrastructure and services) is necessary to promote and facilitate economic growth. Lower cost and better quality transport services reduce the delivered price of domestic products and inputs to production and living activities. Investment in the transport sector contributes to economic diversification, enabling economies of scope and reducing an area's vulnerability to economic shifts.

Furthermore the transport sector is a major source of employment in many poor countries. Transport commonly accounts for 5 to 8 percent of total formal sector employment, and in some countries, total employment (formal and informal) engaged in transport is estimated at 15 to 20 percent.

Transport problems and the needs of the poor are also about accessibility, a central concept used in relating transport to the basic needs and well-being of the poor. Accessibility in this case typically focuses on the transport time, cost, availability and service reliability to move from the residential areas to destinations of work or social activities.

While private sector participation in transport infrastructure PPP development and financing is growing in many developing countries (major toll roads, railways, ports, and airports), public investment in transport will continue to be significant in low-income countries, where market size and risks are high and private financial markets are not well-established. More importantly, public investment in the transport sector, especially for road upgrading, will contribute considerably, both directly and indirectly, to economic growth.

Indirect effects of infrastructure management schemes may help or harm different groups, including the poor. Following the terminology of the World Development Report 2000, the effects of transport on the personal welfare of the poor can be examined in terms of three fundamental aspects: economic opportunity, security, and empowerment;

- **Economic opportunity:** adequate physical access to jobs, markets, schools, and health clinics is an important determinant of an individual's ability to earn money, and keep a lengthy, satisfying and productive life.
- **Security:** seasonal road closure, common in many poor rural areas regularly affected by severe weather conditions (such as monsoon), often isolates a large population for long periods. These closures affect the living standards of the affected population and their vulnerability to factors such as famine, violence, etc. For instance, the impact of famine can be substantially reduced if a country can move food easily from areas with surplus to those with a deficit.
- **Empowerment:** geographic isolation can prevent poor people from participating in social, economic and political processes, or enjoying a fair treatment of grievances or legal due processes.

The over-arching concern with transport to address the needs of poor should be establishing the conditions to support the lowest-cost/most-affordable transport services that will provide adequate accessibility to an area. The private sector has a major role to play in meeting this objective.

Where adequate capacity of the private sector exists or can be developed—such as development of microenterprises for maintenance (the functions associated with operating or maintaining the road system may be contracted out to the private sector under performance contract arrangements). However, a key question usually remains: is public expenditure for the sector adequate and responsive for addressing the needs of the poor? What is the local fiscal capacity if some transport responsibilities (for example, road maintenance) are decentralized?



A Sourcebook for Poverty Reduction Strategies, World Bank, 2002

In a first stage, the specific needs of the poor must be assessed; in a second stage, an evaluation of the best road management system likely to satisfy these needs will be carried out; in a third stage, if a PPP scheme is adopted, the commitments of the private contractor shall be thoroughly stated in the contract.

The overarching objective leads to the need to consider the following key dimensions/strategies:

- **Poverty focus.** How are interventions selected in the context of the characteristics of the possible targeted areas? In order to achieve a noticeable impact the requirements for the selection of the investment likely will require being part of a network connecting the poor areas to markets and other economic centers or social services. In addition, it is important to evaluate the effects of the arrangements for the interventions or their maintenance on local employment, as this is often a mechanism for the reduction of poverty.
- **Participatory emphasis.** To ensure responsiveness to community needs and the consideration of local solutions, a participatory approach must usually be applied to the selection and design of the project investments. Local government officials, community leaders and communities at large can be called to participate in the screening of subprojects and in validating the design of the selected projects to include local solutions and respond to local needs. NGOs can also be involved in these activities and participate in project monitoring and evaluation. Other stakeholders are government agencies involved in development activities in poor areas.
- **Gradual financial arrangements.** Given the limited revenue-raising and mobilization capacity of poor communities, a PPP initiative should include the analysis of the amount of support that may be necessary to ensure that the maintenance of the road infrastructure is adequately funded. A plan of incremental contributions from the community (which would depend on the specific characteristics of the decentralization framework in the country or the prospects for the transfer of specific resources to the local level) can help increase the participation of the poor communities in the ultimate management and financing of the maintenance of their road networks.

Beneficiary participation and a clear perception of the social impact of a project invigorate the sustainability of PPP interventions by incorporating local priorities in

project design and facilitating the ownership of the project by its eventual beneficiaries. Furthermore, the pro-poor design of those interventions, with low-cost investments and local micro-enterprise activities, can help communities take ownership of the project and support the various activities related to it.



The economic analysis of sector investment programs, Suthiwart and Narueput, the World Bank, 1998

# Assessing Distributional Aspects

All multilateral agencies now insist that socio-economic analysis include distributional analysis for a number of reasons.

Distributional analysis is an interesting component of economic studies, in order to determine the respective share in the distribution of costs and benefits attributed to each of the stakeholders involved.

It should be noted that distributional analysis is not all about poverty. For example the evidence that truckers will record the largest vehicle operation savings may be considered as an opportunity for reducing freight rates and in the mid-term for developing the transport of goods. Generally speaking, showing road users the evidence of significant savings can be an incentive to increase traffic flows relating to one or several vehicle/road user categories.

Example:



Colombia - Toll road concession project, The World Bank, project appraisal document, (1998)

On the other side, the financial effort made by the Government can be related to 1) the expected benefits for the community, and 2) the overall financing capacity of the State.

Project costs were compared to the current budget levels of the executing institution and of the national government to assess the possible fiscal impact of the project. With no participation by the private sector, the project would represent between 7 and 18 percent of the road sector investment program for the national network during the construction period.

However, with partial private financing, the Government contribution would be reduced to between 4 and 10 percent, and hence the project's fiscal impact from the perspective of the executing agency would be manageable. For the new road, road users will enjoy substantial savings in vehicle operating and travel time costs.

The proposed tolls represent a contribution from users varying between 9 and 36 percent of users' savings (the lowest value corresponding to buses and the highest to medium-sized trucks). In short, the users of the road would be significant beneficiaries of the investment, and the Government's contribution was critical for undertaking the project. Given the limited impact on Government finances, and given the highest priority of the project within the context of the development strategy in Colombia, it is reasonable to assume that the project has generally satisfied the requirements of the general public and the public sector.

## Guidelines for Distributional Analysis

Project sustainability is strongly affected by who benefits, and by how much, relative to who pays. In lending to the private sector for provision of public goods and services, for example, the distribution of project benefits among government, consumers, and private investors is a key input in negotiating build-own-operate-transfer agreements, in pricing services, and in the economic return to the national economy. One form of distributive analysis considers the distribution among operators, customers, and government, and how it is affected by different charge levels. This is pertinent to highway projects.

The following sets out some key guidelines for distribution analysis;

- The identity of the groups that gain or lose, and the size of the gains and losses, can be documented during the project design and appraisal process. The analysis of distribution effects begins with analyzing financial benefits and costs. This first step disaggregates the financial impact of the project on the main beneficiary groups. Six groups can be considered:
  - the owners of project operating entity,
  - those working in the project,
  - the government,
  - the consumers of project outputs, and
  - those providing material inputs to the project, and
  - lenders to the project.
- The second step is to account for the distribution of the economic benefits and costs, over and above financial benefits and costs. The differences between financial and economic costs and benefits should be allocated to owners, labor, government, consumers, suppliers, and lenders, or to different categories of producers in agricultural projects. The adoption of the domestic price numeraire enables financial benefits and costs to be compared directly with economic benefits and costs to identify the effects of government policies, externalities, and user charges.
- Distribution analysis can show the extent to which public pricing policy can affect the share of the private and public sectors in the net benefits of a service project. It can also be used to test the extent to which the project design directs benefits to particular income groups. Distribution effects can be important in the economic analysis of private sector projects in which IFIs take equity positions (see ADB reference, Appendix 25).
- A second form of distribution analysis considers the distribution of net benefits among beneficiary groups according to their income level. A particular focus on net benefits going to the poor is pertinent to many agricultural, social sector, urban development and public utility projects that often focus on or at least include the least well-off. A statement can be provided of the incremental financial benefits to different project participants. For road sector projects, the benefits to different final users can be broken down among users with different income levels. Such statements, showing the distribution of financial benefits,

can be the basis of assessing the division of benefits between the poor and non-poor. For several projects, financial benefits cannot be calculated. It is still desirable to obtain information on the income level of different beneficiaries. Where possible, the proportion of benefits, in physical terms, going to the poor and the non-poor should be stated.

- In general, the analysis of the impact of projects on the poor should be based on specific information about direct project beneficiaries, and not merely about the district or province in which a project is located. Poverty reduction will be assisted where projects are targeted in ways that will assist groups of poor people directly. Obtaining information about likely beneficiaries is part of the process of project identification and design, and not just appraisal.
- Project costs and benefits may also have a different gender impact. Where a project generates substantial net benefits and extra incomes for project participants, this will be at the cost of additional work. The burden of additional work rarely falls equally on all members of a household. At the same time, those who benefit or who control the additional financial resources may not be those who contribute most of the extra effort. For some types of project, for example, health, education or agricultural development projects, a distribution analysis can be undertaken on a gender basis, to identify the additional costs and benefits to women in particular.
- A third form of distribution analysis considers the effects of using foreign resources in production and funding. The economic analysis of foreign investment projects should be undertaken from both the project and host country perspective. The use of foreign financing, either equity or loans, results in an initial inflow of capital into the host country, but an outflow in later years to service foreign debt and interest payments and the repatriation of foreign equity, capital gains, and earnings. From these two flows, the net foreign capital flow to the host economy can be calculated.
- More generally, the division of benefits between the host country and the foreign investor typically will depend upon government policies. For example, taxes are a source of revenue to the host country and a cost to the foreign investor, reducing the level of repatriated profits. Subsidies are a cost to the host economy and a benefit to the foreign investor. To encourage foreign investment, protection might be provided to the foreign investor. Tariffs on project outputs will increase the profits of the foreign investor and, therefore, potentially increase the outflow of benefits from the economy. Tariffs on project inputs will increase the benefits to the economy. Fees paid by the government for privately provided services represent a benefit to the investor, but a cost to the national economy.
- Economic prices should be used to estimate net economic benefits of the foreign investment project from the efficiency viewpoint. However, financial prices determine the share of overall benefits that accrue to the foreign investor and to the host country. Changes in financial prices affect the distribution of benefits between the host country and the foreign investor without necessarily affecting

the total economic benefits of the project. Both the underlying economic return and the net benefits to the foreign investor and country should be calculated for such investments, particularly when the Bank both extends a loan and takes an equity position in the project company.



Guidelines for the Economic Analysis of Projects, ADB, 1997



Economic Analysis of Investment Operations: Analytical Tools and Practical Applications.  
The World Bank. 2001.

# Mitigating negative impacts

This section considers the need and mechanisms to protect the public interest and prevent/mitigate negative impacts.

While there are normally negative impacts from new roads, especially major roads, there are also positive impacts such as lessening heavy traffic from small towns and villages. There are also design possibilities to mitigate impacts (See section...).

Policy makers in public authorities responsible for road network development act on behalf of the Government. As such, they are entrusted with the role of protecting the interests of the community. Such a responsibility is particularly important when assessing and mitigating negative impacts.

Protecting the public finances from the fiscal/financial risks inherent in contracting and partnering with the private sector. This issue is described in Module 5.

In the field of public welfare, protecting the environment and taking sustainable development into account feature increasingly among the main concerns of the public authorities, particularly when dealing with the development and management of road networks, and more generally with transport infrastructure facilities.

In the case of PPP-type relationships, there are two reasons why the public authorities must clarify the rules to be respected in this matter:

- The private operator will bear part of the environmental responsibility, which is variable according to the specific characteristics of the PPP. It must therefore know precisely what this responsibility involves.
- Even in the case of a PPP, part of the responsibility remains within the public sector, which is mainly in charge of the preliminary/scoping studies. It is essential that these studies be carried out so that any subsequent difficulties may be avoided, as they may have serious consequences for the operator. The procedures and integration within FS studies is shown in Module 5.

When establishing these rules, the public authorities should take into account the main environmental aspects to be considered in the road sector.

## Main environmental aspects

The environmental impacts of a road to be considered, and the hierarchy of these impacts, vary considerably according to local conditions: climate, vegetation, population density, hydrology, etc.

It is nevertheless useful to give an exhaustive list of the possible impacts to help each decision-maker to draw up its own list, taking into account its specific situation.

The following check lists have been prepared using the following two references, but are not exhaustive:

- Noise (traffic, works).
- Transport of dangerous materials.

- Vibrations (traffic, works).
- Loss of interesting habitats.
- Air pollution: local (CO, NOx, particles), regional (ozone, NOx, smog, acid rain), global (CO<sub>2</sub>, CFC, greenhouse effect).
- Reduction in agricultural production due to the reduction of the productive surface.
- Road safety.
- Increase in speed of propagation of endemic diseases.
- Land acquisition and resettlement.
- Drinking water quality.
- Impacts on indigenous or traditional populations.
- Effects on the inhabitants' way of life and culture.
- Aesthetics and landscapes.
- Protection of archaeological sites.
- Surface water quality (traffic, works).
- Erosion.
- Ground water quality (traffic, works).
- Sedimentation.
- Modifications of the flow of surface water due to cuts (borrow areas or trench sections of road).
- Floods upstream of embankments.
- Losses of topsoil in borrow areas.
- Risk of pollution of sensitive areas (mangrove, etc.).
- Erosion.
- Subsidence of areas of soft soil.
- Modification of soil texture in the neighborhood of backfill and excavations.
- Reduction of the number of species (biodiversity).
- Disappearance of reproduction and food zones for fish, aquatic and migratory birds.
- Deforestation.
- Reduction of the surface area of pasture land.
- Destruction of rare plants.
- Various consequences of an increase in tourism.
- Wild flowers specific to the wetlands.
- Severance effect.
- Increase in poaching during the works period.
- Reduction in the number of species (biodiversity).
- Increase in fishing and hunting due to easy access.
- Extinction of rare species.
- Wild animals specific to the wetlands.



Roads and the Environment: a Handbook, World Bank, Technical Paper 376. 1997.

## Archaeological discoveries

Special attention should be paid to regulations relative to archaeological discoveries which exist in most countries. They will generally require reporting on the discoveries to the appropriate department and interrupting the works until investigations can be made and the discovery saved, sometimes with a serious effect on costs and schedule.

As such, they constitute a risk. This risk should incite maximum effort to be made to detect archaeological sites during the preliminary study stage. Besides carrying out surveys among specialists of the regions concerned, the performance of aerial photography detection methods should be underlined in such research.

## How Environmental concerns should be taken into account at the design stage

The most useful, relevant references for integrating environmental concerns into the design and the construction of a new road are the World Bank (Roads and the Environment: a Handbook) and European Bank for Reconstruction and Development Guidelines.

The WB Handbook and EBRD Guidelines are, in fact, very similar in spirit. They use the same vocabulary. Both recommend a progressive process combining design, environmental studies and public consultation.

According to the Guidelines, the process of environmental assessment for road projects consists of a number of distinct steps, including screening and scoping the studies required, environmental assessment studies, mitigation plans, training and monitoring.

It is important to synchronize environmental studies with the project development process and its technical studies in order to integrate the findings into planning, design and further analysis as early as possible and get the best results from both types of activity.

The main steps to be considered are described below.

### Screening

Screening is the term used to describe an assessment of the potential magnitude of impacts and hence the depth of the study required. This should be the first stage in incorporating environmental considerations into a road development project. While the methods used by various agencies vary in their details, projects are generally classified in one of three categories.

- Full environmental assessment (also known as an Environmental Impact Statement - EIS).
- Limited environmental analysis or mitigation plan.
- No environmental study.

Sometimes, there are precise regulations as to which study should be applied to a project. In other cases the degree of study needed will be at the discretion of the agency. In these instances, the factors to be considered are:

- Scale and type of project.
- Location and sensitivity of the site.
- Nature and sensitivity of potential impacts.

### Scoping

The aim of this component of the preliminary evaluation is to determine the focus of the environmental assessment studies, including what can and cannot be accomplished. Definition of the scope of the study will enable the most important environmental impact of the road project to be concentrated on. This stage should achieve the following objectives:

- Define the spatial limits of the study.
- Select the method and parameters to be used.
- Consult with interested organizations and the affected population to identify environmental concerns.

In establishing the scope of the study, it is highly desirable for the different parties concerned to arrive at a consensus. Involvement of interested parties such as ministries (for the main projects), project designers, local officials, associations, community representatives and local residents can help to ensure that the program will not be subject to last-minute disputes. Meetings and discussions on the scope of the environmental study should:

- Provide information on the objectives of the project.
- Identify the natural, economic and social resources of importance in the area.
- Agree on the issues which should take precedence in the study.

### Choice of alignment

Having determined, in the scoping studies, the field of environmental constraints to be considered, the next stage is to take them effectively into account in the studies which will lead to choosing an alignment and general characteristics for the road.

The environmental constraints are, of course, only one of the elements to be considered, the other determining physical data being topography, the nature of the soil, hydrology, the landscape features of the site, etc.

As for the other physical data, the designer's first step is to represent the environmental constraints to be taken into account in map form.

These constraint maps are drawn up for the main potential impacts listed during the scoping phase: protected areas, wetlands, predominant forms of agriculture, forests, interesting habitats, etc.

Based on this data, the designer carries out a series of repetitive steps. He selects possible alignments (or rather alignment zones), numerous at the first stage of the project, then becoming fewer and fewer until the final stage of the public inquiries is reached.

At each stage, the different possible alignments are assessed from various angles including:

- project cost,
- diverted or induced traffic,
- acceptance by the public and politicians,
- social-economic profitability,

It is in everyone's interest that this complex but necessary process is carefully codified. This is particularly important when alignment studies are taken charge of by a private partner (Module 2 -> Scope). Codifying this process consolidates the legitimacy of the operator and reduces the risk of excessive extension of the pre-construction period.

### Information, consultation and participation

Consultation and communication with various interested parties are an integral part of this process. To be successful, they must be carefully planned and managed.

### Mitigation plan

The last step, once the alignment has been determined, is to identify feasible and cost-effective measures that may reduce environmental impacts; prioritize their relative importance and their capital and recurrent costs, along with the institutional, training and monitoring requirements involved by these measures. The mitigation plan (also known as an action plan) should provide details of proposed work programs and schedules. The plan should consider compensatory measures if mitigation measures are not feasible or cost-effective.

An early indication of the scale or likely cost of mitigation is very useful input to any preliminary project financial studies.

### Environmental concerns during the O&M stage

At the road operation and maintenance stage, the responsibilities incumbent upon the government in standard contracts are mainly transferred to the private operator in the case of PPP-type contracts.

The nature of the impacts to be considered, along with their ranking, varies considerably depending on local conditions such as climate, vegetation, population density, hydrology, etc.

The following list is therefore only an indication, to be considered as a memory jogger by decision-makers and engineers.

## *Water*

The existing road networks generate several types of pollution:

- solid particles being carried along from bank, shoulder and ditch erosion,
- chronic pollution mainly due to pavement and tire wear and the emission of exhaust fumes. This results in the presence of heavy metals, rubber and oil, etc., in the run-off, which are particularly dangerous for the natural drainage systems (containers),
- seasonal pollution from de-icing products,
- accidental pollution from spills of dangerous products and pollutants.

Measures to eliminate or limit the causes of this pollution should be introduced at the design stage and others at the operation and maintenance stage.

For example, the following should be dealt with at the operation and maintenance stage:

- preserve vegetation in erosion-prone areas, strengthen this natural protection, if necessary (fascine work, geotextiles, etc.),
- keep settling tanks, lagooning basins, de-oiling tanks, storm water basins, etc., in good repair,
- limit the quantities of de-icing salt spread on the pavement and when choosing such products, consider their effect on the environment as well as their efficiency and cost,
- make sure that action in case of accidental spills of dangerous products is well organized. This problem should be examined with particular care when preparing operation manuals in close agreement with the public authorities.

## *Noise*

Noise from road traffic is unfortunately inevitable. Efforts can only be made to reduce it. The main noise-reduction measures should be taken at the design and construction stages. Some, however, concern the operation and maintenance stage:

- choosing noise-free pavement surfacing. However, the quietest types of surfacing which often have a very fine texture, do not provide much grip when wet, with one exception, porous macadam, which is both silent and provides a good grip, but is costly and has other disadvantages,
- operation measures to avoid congestion, which considerably increases the noise caused by road traffic, or to divert HGV traffic from certain sections in sensitive areas.

## *Flora (wild plant life)*

The extent of green areas surrounding roads is far from negligible. They usually account for nearly one percent of the surface area of some developed countries.

From an environmental point of view, they often have the advantage of not being part of the intensive production system, thereby avoiding the harmful effects of fertilizers

and weed killers. They also act as substitute habitats, providing a sort of sanctuary for wild flowers and plants.

It is desirable to take these considerations into account as regards roadside maintenance, by not scything cut or fill embankments, for example, so as to allow the natural vegetation to regain ground. Generally speaking, it is advisable to take advantage of every opportunity to restore new areas to nature (road extra-widths, settling tanks/biological purification tanks with vegetation growing up the sides rather than concrete tanks, etc.).

Trees planted along roadsides cause other types of problems. They contribute to the quality of the landscape and to a certain degree to traffic safety by serving as markers. They contribute to the richness of the plant life in the areas travelled through and as such, should be preserved as far as possible.

At the same time, they are a danger to vehicles leaving the road (accidents) or when they are in a bad condition and fall onto the road. The operator's road management plan should therefore include a tree component and periodic inspections of their physiological condition should be planned (e.g., every five years).

### *Fauna (wild animals)*

As for the wild plant life, the various ancillary parts of the road may constitute advantageous, useful refuges for some species of insects, birds and small mammals. Any care taken to preserve local plant life will also be beneficial to them. Another precaution which should be systematically taken during the nesting period is to limit scything to a narrow strip on either side of the road pavement. This will provide satisfactory visibility while still preserving the nesting species.

Another aspect to be considered is the risk of collisions between cars and animals. This constitute a danger for both and may also contribute to the disappearance of rare species. Precautions should therefore be taken involving maintenance of protective fencing, additional protection in accordance with the number of collisions, maintenance of wild animal passages and setting up dissuasive devices during the night (reflectors).

Lastly, in countries where hunting and fishing are not strictly regulated, the contract should specify the constraints imposed on works and maintenance staff in this matter.

### *Re-using pavement demolition materials*

Techniques for recycling deteriorated pavement materials have considerably progressed. They concern both pavement surfacing and its structure.

By reducing the quantities evacuated to rubbish dumps and economizing new materials, these techniques, which are moreover often more economical, fit well into the perspective of sustainable development. As such, their inclusion in the specifications should be encouraged.

### *Nuisances caused by maintenance work*

The consequences of maintenance work are very similar to those of construction work, i.e., noise and dust, pollution, soil contamination, impacts on the population, noise and vibration caused by explosives.

### *Rules concerning contact with the local population*

The conditions specific to certain countries may lead to imposing precautions to be taken by staff as regards hygiene and relations with the inhabitants of the areas concerned.

In conclusion, even if it is not easy to formalize the various environmental protection requirements in the form of performance obligations, it is essential that they be respected and therefore set down either in national standards and rules, or in the contract.

This contract comprises both rehabilitation works and routine maintenance and emergency works and thus covers all the circumstances to be considered for earth roads in developing countries. It should be noted that some passages go beyond merely wanting to protect the environment, but cannot easily be separated from it. Another solution for wording the contract could have been to include environmental clauses in each of the general or specific technical clauses.



Environmental, Health and Safety Guidelines for Toll Roads



Road Maintenance and the Environment, World Bank 1994



Environmental Impact of Existing Pavements, PIARC Environment Committee, PIARC, 2000.

# Social Impacts: Land use and resettlement

**In the case of a concession, the land purchased will be returned to the State at the end of the concession period. The act of purchasing this land by the operator is then of the same legal nature as if it were purchased by the public authorities.**

Depending on the case, land is purchased either by the road authorities or by the operator, or by both in succession according to the stage the project has reached at the time of purchase. (See also: Module 4 -> Contracts -> Contract Provisions-> Land use rights).

To enable them to acquire all the land necessary for the project, they should be able to rely on the support of legislation relating to Expropriation.

Expropriable categories of land are determined by national rules and jurisprudence. It is essential that the expropriation of all the land required for building and operating the road is conducted fairly under the relevant legislation and rules.

## Expropriable land

It should be possible to acquire all the land required for building, maintaining and operating the road and its ancillary services by negotiation and/or design. However, there may be land which the owners refuse to sell. In such a case, appropriate legal means are required to force recalcitrant owners to sell: this is the object of the expropriation procedures.

This procedure, which transgresses property rights, is based on the notion of public interest. In a desire to avoid expropriation rights being abused, the extent of land declared to be of public interest is generally strictly defined and controlled.

Too narrow a definition of land categories which can be declared to be of public interest is likely to cause serious difficulties, so governments should be careful not to define the notion of expropriable land too restrictively.

Land may be required for:

- the road and its access roads,
- rest and service areas,
- toll equipment,
- operation centers,
- maintenance centers, equipment storage areas and/or buildings,
- storage areas for de-icing and/or other products or equipment necessary for road maintenance,
- accommodation for staff on stand-by for emergency duties,

- transverse roads, until construction has been completed. When the road is opened, this land is usually handed over to the owner of the transverse road in accordance with pre-agreed conditions. The wording of this agreement should be very precise, particularly as regards handing over and sharing responsibility for the bridges carrying the transverse road,
- the status of the quarries and borrow areas should be examined in accordance with national legislation. A distinction is also to be made between quarries and deposits of materials operated solely for building the road and those which will be used later for commercial purposes.

The case of a road crossing land belonging to minorities with special land property rights, namely collective soil property (Indigenous and traditional populations) requires special consideration and is described further below.

## Resettlement

On account of the difficulties and distress caused by involuntary displacement of populations, it should first be underlined that the desire to minimize the need for resettlement should be taken into account during the examination of the various alternatives and that the cost of this resettlement should be taken into account in the overall cost of the project. The private operator should be informed of the charges incumbent upon him.

Furthermore, it is advisable to keep to the following principles:

- resettlement conditions should be analyzed in the earliest phases of the project and considered both from the social, economic and financial (compensation) angles.
- even if, in the case of a PPP, the private operator is one of the actors in the operation, it is the public authorities which are ultimately responsible for the conditions under which resettlement will take place. Very close collaboration between the operator and the public authorities is therefore necessary.
- the populations concerned should be consulted concerning the possibilities for their reinstallation, directly or through their leaders, representatives or NGO representatives. This consultation supposes a thoroughly well thought out consultation mechanism. It should integrate not only the displaced populations, but also the host populations.
- in large towns, it will be necessary not only to re-house the displaced people but also to endeavor not to aggravate home-work journeys. The problem of the occupants of commercial premises should be given particular attention.
- the road authorities are not necessarily in the best position to deal with these problems on their own and will benefit from establishing the necessary contacts with the social administrations as early as possible in the project cycle. Naturally, action by all these entities should conform strictly to the national laws as regards expropriation and compensation.
- in poor districts, financial compensation is very rarely a good solution to the problem of housing expropriation. The beneficiaries may have a tendency to use

the funds for things other than purchasing a new home and thus the problem of re-housing them will remain unsolved.

The difficult problem of resettling people, including squatters, living on the alignment of the road must also be addressed.



Involuntary Resettlement in Development Projects: Policy Guidelines in World Bank-financed projects,  
Michael M. Cernea, World Bank Technical Paper No 80, 1990.

## On Poor and Indigenous

Indigenous or traditional populations require special attention in road projects because they have limited ability to assert or defend their interests and rights to land and other productive resources.

These people are sometimes defined in national legislation, or are identified by a close attachment to ancestral territory, and often have a subsistence-oriented lifestyle. There is no clear definition that fits all countries and regions; the important issue is to identify groups which have no land tenure legislation and are particularly vulnerable to rent increases.

Assessments and actions should protect the interests of these populations to ensure that their dignity, human rights, and cultural uniqueness are respected and that they do not suffer adverse effects because a road crosses through their traditional territory.

Where impacts are unavoidable, road agencies should act to protect and preserve the traditional rights of these populations.

The main way of mitigating any harmful impacts of a road is through consultation and participation. Consultation can help road planners understand and incorporate local views and opinions; for example, so that the road follows the most mutually acceptable and least destructive route and mitigation measures are realistic and culturally compatible with the needs of the indigenous community.

Local consultation also provides an opportunity to determine whether traditional groups wish to remain in the area or relocate to some other area. In the former case, some restrictions of access may be considered, and authorities may wish to employ indigenous populations as guards in order to ensure that any incoming populations do not over-exploit the area. In the latter case, the authorities can assist the group to relocate. In both instances consideration should be given to helping indigenous populations obtain a formal title deed of their territory.

From a legal point of view, national legislation needs to be examined to determine whether, and, if so, how, indigenous populations are to be compensated for the loss of part of their ancestral area. The highway authority or private operator should propose to the public authorities that they should take exceptional measures to ensure the cultural integrity of those populations and defend them from encroachment by new settlers.



Road and the Environment: A Handbook, the World Bank, September 1997.



Environmental And Social Safeguards Framework (ESSF),  
India Infrastructure Financing Company Limited (IIFCL) 2007

## Road Safety

**Every year over 1.2 million people are killed and 50 million injured in road crashes worldwide. If this continues we can expect to see 250 million people killed or seriously injured over the next 20 years. Road crashes will remain the leading cause of death among the young.**

It is essential that toll road planning includes practical, affordable, economic solutions that will maximize safety. It also makes sound economic sense to invest to prevent the road casualties which bleed away up to 3% of world GDP. The immediate costs of crashes are obvious – the costs of the damage itself, emergency services and hospitals and doctors. To this must also be added the cost of decades of care for those disabled for life and the loss of productive (often young) breadwinners, which often throws whole families into poverty in the developing world.

The world experience is that major reductions in road casualties can quickly be achieved by taking action on basics including providing safe basic road infrastructure so that road users know-how they are expected to act and traffic law can be enforced.

It has been known for over half a century that low-cost engineering improvements to the safety of roads can save lives quickly and affordably. The methodology, however, has not been available to inspect existing roads systematically and then target programs where they can save the most lives. Even new roads often fail to improve overall safety, particularly for pedestrians.

The World Report on Road Traffic Injury Prevention on World Health Day 2004 was issued jointly by the World Health Organization (WHO) and the World Bank and was dedicated to the improvement of global road safety. Since then the mobilization of global, regional and country efforts to address the widening road safety performance gap between poor and rich Countries has increased. However, more needs to be done to address the growing vulnerability of communities experiencing the negative impacts of rapid motorization and major road infrastructure provision.

To address this urgent priority the World Bank established the Global Road Safety Facility to generate increased funding and technical assistance for global, regional and country activities designed to accelerate and scale-up capacity building and results-focused initiatives in low- and middle-income countries. The Facility commenced operations in the first quarter of 2006 and it is now implementing a small start-up program of global, regional and country activities.

The Strategic Plan specifies the mission, goals, objectives, activities, governance arrangements, funding mechanisms and implementation priorities of the Facility. It provides the formal partnership framework for dialogue, cooperation and action concerning the ongoing management and operation of the Facility.

The Facility has been established with World Bank Development Grant Facility financing and donor contributions from the FIA Foundation for the Automobile and Society, the

Government of the Netherlands and the Swedish International Development Cooperation Agency.

Another useful and relevant report on road safety from the International Road Assessment Programme (iRAP) describes the work done to invest in practical new tools for low- and middle-income countries and then pilot their application in four countries around the globe.



World Bank Global Road Safety Facility Strategic Plan 2006 – 2015.



Vaccines for Roads, The new iRAP tools and their pilot application.  
iRAP: International Road Assessment Programme. [www.irap.net](http://www.irap.net)

## Public responsibility

The public authorities have broad general responsibilities as regards road safety including vehicle regulations, delivering driving licenses, taking account of safety in standards and laws relating to road safety, laws relating to maximum loads and the transport of dangerous goods, collecting and analyzing road safety data, etc. This broad responsibility cannot be delegated to a private partner as the public authorities are answerable for it to the public.

When drawing up a PPP contract, the public authorities should determine how safety is to be taken into account in the design, construction and operation of the roads. In particular, they should stipulate any special equipment required, taking account of the road characteristics (emergency telephone network, automatic incident detection, variable message signs, automatic black ice detection, etc.) as well as how this equipment should be managed and used. In particular, they should provide broad guidelines as to how roles should be shared between the operator and the police force, details of which should be set down in an agreement between these two partners.

Only the Police have the power to enforce the law by controls in the field (speed limits, safety belts, alcohol restrictions, safety distances between vehicles, dangerous overtaking, etc.) and to fine dangerous drivers. This is valid for all roads, even those entrusted to a private operator, who should facilitate this work by the Police in accordance with conditions settled by mutual agreement at the start of the contract.

If law enforcement is the sole responsibility of the Police, other road safety actions involve the road manager, alone or in collaboration with the police. As these actions concern safety, it is absolutely necessary that the respective roles of Police and road manager be clearly defined, both in the road safety manual required from the operator and in the agreement between the operator and the Police.

Finally the responsibilities incumbent upon the operator in case of accident should be defined in the contract (Module 4 -> Contracts -> 'Boiler Plate' Provisions -> Liability and indemnification). This point is extremely important.

## Role of the police, role of the operator

The relationship between the Police and the road managers is necessarily close and therefore, they should examine together and in detail, right from the start of the contract, how each will perform their duties and how they will collaborate.

The tasks to be considered are as follows:

- **Checking that drivers observe the Highway Code** (speed limits, seat belts, alcohol, safety distances between vehicles, dangerous overtaking, etc.).  
These tasks are the responsibility of the Police alone, but they may be assisted by the operator for installing control equipment, parking vehicles immobilized for infringements, etc.
- **Checking behavior at the toll barrier:** Non-payment of tolls or fraud should normally be punished. Support by the Police may prove useful for enforcing punishments.
- **Checking vehicle loads:** Respecting the maximum axle loads prescribed by law is of the utmost importance if pavements are to last. Checking that the law is observed is therefore essential. According to the individual organization of each country, it may be carried out by various authorities, generally at the same time as other checks relating to transport regulations (total vehicle weight, nature of goods transported, driving hours, etc.).

The Police are very generally called upon to support and reinforce weighing teams but they can also make checks themselves. The operator should facilitate these checks by making available suitable areas maintained for this purpose. Weight checking may also be contracted out to it. Weight checks on stationary vehicles may be accompanied by weighing in motion for which a range of measuring devices exists (based on piezoelectric sensors or wires). Setting up and managing this equipment may be obligatory for the operator as part of traffic data collection work.

Data collection concerning accidents with bodily harm: In most countries, the Police collect basic information on accidents with physical injury and draw up the reports which will then be used for producing national accident statistics. The operator should figure on the list of recipients of accident reports to which he may add complementary information with no legal value, in order to better determine his action.

- **Alarm in case of accident:** The alarm system devices are varied: emergency telephone network, cellular telephone, operator or police patrols, automatic incident detection, etc. Sharing out the roles as regards receiving the alert depends on how the various parts of the system are managed and particularly the emergency telephones. Very generally, the Police are alerted first and are therefore responsible for alerting and dispatching the emergency services (ambulance and fire brigades) and contacting hospitals, garages, etc. along with the operator.
- **Action on the scene of an accident:** The operator and the Police are both concerned and have different tasks to accomplish. The Police are generally responsible for organizing and supervising the emergency services, regulating traffic around the scene of the accident and drawing up a report. The operator is responsible for setting up protective signing around the scene of the accident,

supervising the evacuation of damaged vehicles with the Police, assessing damage to the infrastructure facilities and equipment, conducting repair works and giving formal notice to insurance companies to reimburse the damage incurred to public property.

The following remarks should also be made:

- If the road to be operated is a motorway, it is strongly recommended to entrust policing tasks to specialist units, trained specifically for this task. Motorway working conditions are rather unusual mainly due to the amount of traffic and high speeds.
- In any case, and even if only the territorial Police patrol, the specific nature of the tasks to be performed to operate the road involve setting up an ad hoc organization, comprehensible to drivers and road manager alike. Last-minute improvisation may result in catastrophe.
- Still in the case of a motorway, the very high risk of "secondary" accidents should also be underlined. It is vital that both the emergency services arrive on the scene of the accident as quickly as possible and that measures be planned and taken instantaneously in order to warn drivers as early as possible that an accident has occurred. Progress achieved in road operation, which enabled the concept of the "intelligent road" to emerge, thus open up completely new possibilities and provide hope that further significant progress will be made in the short-term. Operators should be encouraged to take advantage of this.

# Public Participation and Consultation

**Participation and Consultation ensure that the communities directly concerned by highway programs and projects are properly informed and participate in the decision-making process.**

## Why is public consultation important?

Consultation increases the level of transparency and it may help to improve regulatory quality by:

- Bringing into the discussion the expertise, perspectives, and ideas for alternative actions of those directly affected;
- Helping regulators to balance opposing interests;
- Identifying unintended effects and practical problems. Using pre-notification it is possible to foresee more easily the consequences of some planned policies, becoming one of the most productive ways to identify administrative burdens;
- Providing a quality check on the administration's assessment of costs and benefits;
- Identifying interactions between regulations from various parts of government;

Consultation processes can also enhance voluntary compliance for two reasons:

- First, because changes are announced in a timely manner and there is time to adjust to changes, and
- Second, because the sense of legitimacy and shared ownership that gives consultation motivate affected parties to comply.

## Ensuring public participation

When designing a new road, public participation is not only part of the environmental procedures, but in fact an integral part of a PPP process as a whole. In such a process, not only the project itself has to be accepted, as in a traditional procedure, but also the fact that part of the public responsibility is transferred to the private sector. Informing, consulting and encouraging the public to participate is, in this case, of the utmost importance.

Depending on the type of project, the type of PPP and the stage of development, more or less public information and consultation are under the responsibility of the private operator. In many cases it is necessary for the operator to have strong support from the public authorities, because they alone are legitimate in the eyes of the public. To be successful, such a communication process must be carefully planned and managed.

## Planning and managing public participation

When maintaining and operating a road, public opinion is useful for the private operator to improve its operating processes. Public consultation is also, for the public authorities, a way to assess the performance of the operator and constitutes an integral part of the regulation process.

In developing plans for consultations, the first requirement is to identify the stakeholders, i.e. individuals and groups who have some interest, direct or otherwise, which should be involved in this process. They typically include:

- Project beneficiaries, including the users of the new highway facility and those benefitting from less traffic on existing roads.
- Private sector.
- Potential losers or those at risk from negative impacts from the project.
- Other stakeholders or parties with an interest in the project, such as local and national governments and elected officials, experts and non-governmental organizations (NGOs).
- Other actors whose local knowledge may assist in identifying potential impacts and assessing the viability of proposed alternatives.

At the local level, social science analysis techniques can be used to examine the relationships between groups and individuals, identifying those with the greatest power to influence decisions and outcomes, and the forms of consultation which are most likely to elicit the knowledge and input of people with different interests.

# Definitions and Descriptions

## Types of contact

Possible approaches to be used to involve the public can be broken down into increasing levels of action:

- **Information disclosure:** Very early in the process, it is recommended to disclose information, in summary form, to stimulate public interest.
- **Consultation:** Prior to every major decision, the public, NGOs and other interested parties should be able to ask questions of those in charge of the project and give their opinion on the different possible orientations.
- **Participation:** In participation, the public is invited to give its opinion before a design decision. This includes considering alternative alignments and determining solutions aimed at limiting or compensating negative impacts.
- **Negotiation:** Negotiation is a form of participation that enables the proponent and the public to arrive, jointly, if possible, at a solution. It is often used to define compensation measures or for land acquisition purposes.

## Techniques

Basic communication techniques that can be used are numerous:

- **Oral communication:** the oldest and most widely-used form of expression.
- **Written communication:** characterized by documents that can be distributed in large quantities.
- **Graphic expression:** cartography and models are indeed widely used to illustrate road alignments, but also changes in the environmental factor.
- **Exhibitions:** these have advantage of being presented to the largest number of persons and allow for concerns and opinions to be recorded.
- **Surveys, polls:** these are particularly useful for sociological and social-economic studies.
- **Meetings:** the characteristic of a meeting is to test ideas, compare viewpoints and provide additional information in a well-defined lapse of time. They are widely used in the various participation phases.
- **On-site tours:** these provide a concrete understanding of the physical realities and the possible impacts of the project, but can only be done for small groups.
- **Internet:** Internet is a new and powerful method of providing information to a wide audience and, through discussion forums, obtaining the opinions of a large amount of people in a very simple way.

The guidance provided by the US FHWA is a good example of what could be done in this matter, observing that in a PPP, it is the operator who is in charge of implementing some of these recommendations.



Roads and the Environment: A Handbook, World Bank, Technical Paper 376 1997, pages 25-33.



US experience of planning public involvement in road projects, Environmental Impact Assessment of Roads, Report prepared by an OCDE group of scientific experts, pages 147-173.

Important aspects within the Consultation process;

- Ensure inclusive participation by all concerned stakeholders, especially traditionally excluded groups;
- Prepare a comprehensive scope of participation in all types of initiatives and from identification and design to monitoring and evaluation; early timing to allow for decisions that are responsive to the views of stakeholders;
- Ensure quality provision of information designed and disseminated in ways that are socio-culturally appropriate to effectively reach stakeholders;
- Ensure appropriate participation strategies that elicit the interest and active participation of stakeholders, and promote equitable access and legitimate outcomes;
- Prepare accountability mechanisms that assure the quality, transparency and legitimacy of the participation process;
- Provide good coordination to optimize costs and benefits to all actors involved.



Building a Framework for Consultation and Public Participation. WB-Sustainable Development Department Washington, D.C., March 7, 2000

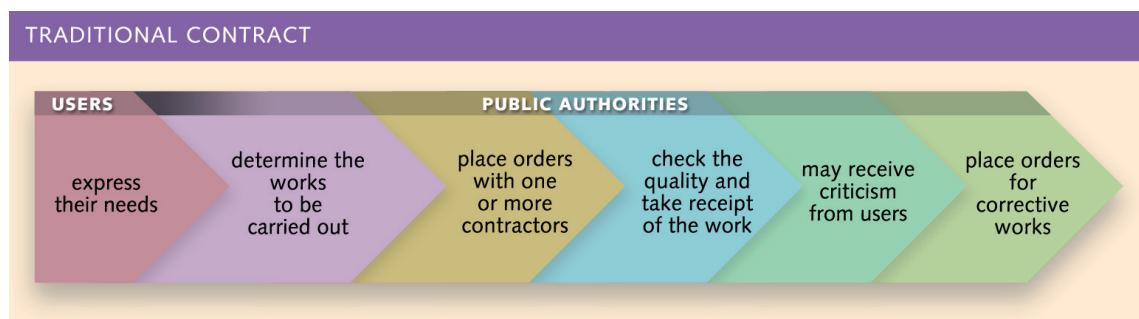
# Users and Community Perspectives

**The role of users, for a PPP, is not the same as in a traditional contract.  
 The consequences of this should be examined.**

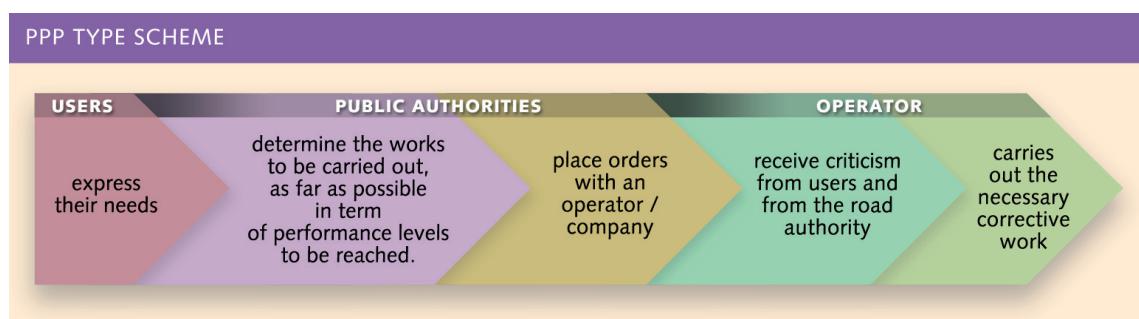
## The role of users

As is widely illustrated in many publications, there exists throughout the world a strong tendency to encourage road users to participate in determining how road policy is to be orientated. The role of the users concerned here is of a slightly different nature and results from the PPP philosophy itself.

In a traditional contract, the chain of action is as follows (schematically):



In a PPP type scheme, ideally the sequence of action should, as far as possible, be as follows:



In this second scheme, the road authorities are responsible for organizing free expression of opinion by the public/users (complaints books, audits, etc).

This is one of the objectives of the regulation (technical aspects)

## User participation

Road users may be willing to pay for roads, but only if their money is actually spent on roads and the work is executed efficiently. Road users involved in the management of roads generally press for the introduction of sound business practices to ensure that their

constituents get value for money from road spending. This will encourage the highway authority to use resources efficiently and prevent it from abusing its monopoly position.

Road users have an important role to play in the following areas:

- facilitating public acceptance of periodic increases in road user charges;
- supporting reasonable attempts to prevent encroachment and control of land use along the road right of way;
- raising awareness about the importance of axle weight regulations and helping to enforce them
- raising public awareness of road safety and environmental impacts and helping to enforce them;
- encouraging better vehicle maintenance;
- strengthening the overall management of roads;
- facilitating community participation in the planning and implementation of works to encourage community ownership of roads;
- in actively participating in a representative management board and other key road sector committees.



Commercial Management and Financing of Roads - I. Heggie and P. Vickers  
World Bank Technical Paper N°409 - 1998 page 43.

## Who are the Road Users?

Organizations Representing Road Users: Most countries possess a number of such organizations that are influential at different levels of government. These include:

- National, economy-wide organizations: chambers of commerce, farming organizations, consultant organizations, engineering societies, pedestrian and cycling lobbies, consumer groups, and women's organizations;
- National transport sector organizations: transport institutions, transport training institutes, transport consultative councils, and transport workers unions; National road sector organizations: road associations (or federations or societies), motoring organizations, trucking associations, and national organizations representing bus owners and operators.
- Local transport organizations: taxi associations and local organizations representing bus owners and operators.
- Local community organizations: village associations, parent-teacher associations, and other local community groups.

Organizations representing car drivers and public transport operators are less common in developing and transition economies. Many of these countries have no formal mechanism for carrying on a dialogue with these potentially influential road users, cannot effectively involve them in discussions on road management, or cannot work with them to confront

other road sector issues. Establishing and strengthening such organizations should be an important part of any agenda for improving the management and financing of roads.

## Expectations of Road User Involvement

Once road users are convinced that the government is trying to serve their needs, they will support a whole range of initiatives designed to improve the road sector. Road users also emphasize technical considerations over narrow political interests and help to depoliticize the setting of priorities. Politicians, both national and local, help to set road sector priorities, while the road users strengthen governance and provide access to private sector commercial know-how.

A genuine partnership between road users and the government can take place; there are numerous examples of road agencies and road users working together to solve common problems. Several topics can be tackled through this common involvement:

- **Road Financing and Management:** road users can take part in road management and financing by participating in management committees of road funds, road boards and other comparable structures (see examples below). They can help to better address some important issues in connection with the impact of road policies on the quality of the infrastructure. Service level specifications, for example, for successful implementation, should be based on consultation between all parties -- client, manager, service provider, ratepayers, road users and other stakeholders.
- **Regulations:** e.g. to improve road safety and control overloading. Road Users can be consulted about changing regulations, particularly those relating to vehicle weights and dimensions, and enforcement of axle-weight standards.

The active participation of road users is requested to help win public support for secure and stable road funding. Support for more road funding through a user-pay or fee-for-service arrangement requires that steps be taken to ensure that road agencies do not operate as public monopolies and that no more is spent on roads than the country can afford. It is thus critical to involve road users in road management -a precondition for getting them to pay for roads willingly.

Despite the advantages of having road users participating in road management, some conflicts may arise: When a country is trying to restructure its road management, the community representatives (normally local government) maintain that road corridors are an integral part of land use management and utilized by many utility operators in addition to the road manager. Road users, on the other hand, are more interested in congestion free safe travel on smooth roads. Any road reform must recognize these differences of opinion, and accommodate both in the final design.



Managing Performance of a Highway System in the 21st Century.  
R. J. Dunlop/PIARC XXI World Road Congress (Kuala Lumpur)1999, page 5

## Ways of Involving Road Users

Two different levels must be distinguished:

- **the project level:** in the process leading to the implementation of road improvement projects, construction of new infrastructure or other major road programs, the opinion of future users has to be sought through specific surveys or dedicated meetings. This is a specific step in the project planning;
- **the overall road management level:** here, the objective is to identify an appropriate institutional mechanism for building a permanent public-private partnership between the politicians who represent the consultative councils, and the road users.

Road users can be easily involved through constituencies, which link the representative individual with large, assertive groups that have compelling interests in well-managed roads.

Road users can be involved in an advisory or executive capacity, in overall management, in management of parts of the road network. Most countries invite outsiders to join steering committees that guide consultants working on the road sector, or to sit on specialized advisory boards that review departmental research programs, training programs, road design standards, and other technical matters.

For example, in England there is a Road Users Committee that facilitates dialogue between the Highways Agency and representatives of both motorized and non motorized road users.

Involvement of Road Users in Road Management Boards: At the national and regional level, road users may participate in the management of road management boards. Some of these are executive boards that manage the main road network, such as the boards of FinnRA and the Ghana Highway Authority; others manage the road fund, such as the Ghana Road Fund Board, the board of the Malawi National Roads Authority, the Yemen Road Fund Board and the Zambia National Roads Board (in Sub-Saharan Africa, 12 road fund boards out of a total of 25 have a majority private sector representation, source: RMI matrix, SSATP). Still others merely advise the appropriate minister on road management and financing, such as the Japan Road Council and the U.K. Highway Agency Advisory Board.



Commercial Management and Financing of Roads - I. Heggie, P. Vickers  
World Bank Technical Paper N°409 - 1998 page 64-66.

Indirect influence of road users on PPP's; the case of contracting procedures: The needs of road users can indirectly be taken into account when defining the terms of a contract with a private provider of services. In the example below, the CREMA ((Contrato de Recuperación y Mantenimiento) system focuses on road users' satisfaction and on Contractor's performance to achieve a minimum level of service, rather than on inputs, i.e., quantity activity and unit rates compliance.



Area-wide Performance-Based Rehabilitation and Maintenance Contracts for Low-Volume Roads  
(Seventh International Conference on Low-Volume Roads).  
G. Cabana, G. Liautaud and A. Faiz. World Bank, 1999 page 14.

### Example: The South African Roads Board Experience

The South African Roads Board had an interesting history. First established in 1935, it started off with six members, four representing the provinces and two appointed by the Minister of the Interior. Although the Board was meant to function autonomously with the provincial representatives acting "in the national interest," it quickly lapsed into gridlock because the provinces expected their representatives only to promote their own local interests. In 1948 the Board was therefore replaced by another composed exclusively of civil servants. This worked better, although it led to a large and controversial freeway program and to the accumulation of a large surplus in the road fund which led to the suspension of the fuel levy in 1988.

Following the suspension of the fuel levy, the board was expanded to include representatives of local government, the engineering profession, road users, and industry and commerce. This board functioned well, initiating a successful toll road program and, in 1995, membership was further widened to comprise three members from central government, three from local government, five from the private sector and one from academia.

However, government reforms introduced from 1996, which sought to reign in public spending and increase its accountability, resulted in the dissolving of the South African Roads Board in April 1998. Its responsibilities were transferred to the newly-created South African National Roads Agency (SANRAL or NRA), an independent statutory company operating along commercial lines and at arm's length from Government. The purpose of the company, which is registered in terms of the Companies Act – with the Minister of Transport as the sole shareholder – is to maintain and develop South Africa's expanding national road network (currently 16,150 km).

The status of SANRAL as a road agency is intended to better enable constructive engagement with the private sector and the seeking of alternative sources of finance for road infrastructure to reduce dependence on tax-based revenues.

The Board of SANRAL consists of eight members of whom seven are appointed by the Minister of Transport. The eighth member is the Chief Executive Officer, by virtue of holding that office.



The South African National Roads Agency Limited and National Roads Act, 1998

# Public Consultation and Regulation

**Public consultation is one of the key tools employed to improve transparency, efficiency and effectiveness especially but not only related to regulation. This is in addition to other tools such as Regulatory Impact Analysis (RIA), regulatory alternatives and improved accountability arrangements.**

There are three related forms of interaction with interested members of the public. In practice, these three forms of interaction are often mingled with public consultation programs, complementing and overlapping each other:

- **Notification.** It involves the communication of information on regulatory decisions to the public, and it is a key building block of the rule of law. It is a one-way process of communication in which the public plays a passive consumer role of government information. Notification does not, itself, constitute consultation, but can be a first step. In this view, prior notification allows stakeholders the time to prepare themselves for upcoming consultations.
- **Consultation.** It involves actively seeking the opinions of interested and affected groups. It is a two-way flow of information, which may occur at any stage of regulatory development, from problem identification to evaluation of existing regulation. It may be a one-stage process or, as it is increasingly the case, a continuing dialogue. Consultation is increasingly concerned with the objective of gathering information to facilitate the drafting of higher quality regulation.
- **Participation.** It is the active involvement of interest groups in the formulation of regulatory objectives, policies and approaches, or in the drafting of regulatory texts. Participation is usually meant to facilitate implementation and improve compliance, consensus, and political support. Governments are likely to offer stakeholders a role in regulatory development, implementation and/or enforcement in circumstances in which they wish to increase the sense of "ownership" of, or commitment to, the regulations beyond what is likely to be achieved via a purely consultative approach.



Background Document on Public Consultation. OECD.

# Tools Used For Public Consultation

**Basically there are five instruments or different ways to perform public consultation, depending on who is to be consulted, how formal the process is, and the communication means used.**

## Informal consultation

Informal consultation includes all forms of discretionary, ad hoc, and unstandardized contacts between regulators and interest groups. It takes many forms, from phone-calls to letters to informal meetings, and occurs at all stages of the regulatory process. The key purpose is to collect information from interested parties. This approach can be less cumbersome and more flexible than more standardized forms of consultation; hence, they can have important advantages in terms of speed and the participation of a wider range of interests.

The disadvantage of informal procedures is their limited transparency and accountability. Access by interest groups to informal consultations is entirely at the regulator's discretion. Informal consultation resembles "lobbying", but in informal consultation it is the regulatory agency that plays the active role in establishing the contact. The line between these two activities, however, is potentially difficult to draw.

## Circulation of regulatory proposals for public comment

This form of public consultation is a relatively inexpensive way to solicit views from the public and it is likely to induce affected parties to provide information. Furthermore, it is fairly flexible in terms of the timing, scope and form of responses. That is why it is among the most widely used form of consultation.

This procedure differs from informal consultation in that the circulation process is generally more systematic, structured, and routine, and may have some basis in law, policy statements or instructions. It can be used at all stages of the regulatory process – but is usually used to present concrete regulatory proposals for consultation. Responses are usually in written form, but regulators may also accept oral statements, and may supplement those by inviting interested groups to hearings.

The negative side of this procedure is again the discretion of the regulator deciding who will be included in the consultation.

## Public notice-and-comment

Public notice-and-comment is more open and inclusive than the circulation-for-comment process, and it is usually more structured and formal. The public notice element means all interested parties have the opportunity to become aware of the regulatory proposal and are thus able to comment. There is usually a standard set of background information,

including a draft of the regulatory proposal, discussion of policy objectives and the problem being addressed and, often an impact assessment of the proposal and, perhaps, of alternative solutions.

## Public hearings

A hearing is a public meeting on a particular regulatory proposal at which interested parties and groups can comment in person. Regulatory policymakers may also ask interest groups to submit written information and data at the meeting. A hearing is seldom an independent procedure; rather, it usually supplements other consultation procedures.

Hearings are usually discretionary and ad hoc unless connected to other consultation processes (for example, notice-and-comment). They are, in principle, open to the general public, but effective access depends on how widely invitations are circulated, the location and timing of the hearing, and the size of the room. Public meetings provide face-to-face contact in which dialogue can take place between regulators and wide range of affected parties and between interest groups themselves.

A key disadvantage is that they are likely to be a single event, which might be inaccessible to some interest groups, and thus require more co-ordination and planning to ensure sufficient access. In addition, the simultaneous presence of many groups and individuals with widely differing views can render a discussion of particularly complex or emotional issues impossible, limiting the ability of this strategy to generate empirical information.

## Advisory bodies

Besides informal consultation and circulation-for-comment, the use of advisory bodies is the most widespread approach to public consultation. Advisory bodies are involved at all stages of the regulatory process, but are most commonly used quite early in the process in order to assist in defining positions and options. Depending on their status, authority, and position in the decision process, they can give participating parties great influence on final decisions, or they can be one of many information sources.

There are many different types of advisory bodies under many titles – councils, committees, commissions, and working parties. Their common features are that they have a defined mandate or task within the regulatory process (either providing expertise or seeking consensus) and that they include members from outside the government administration.

There two main different kinds of advisory bodies: first, the bodies seeking consensus are interest groups where they negotiate processes, and secondly, technical advisory groups are formed by experts and their aim is to find information for regulators. The first kind tends to have a permanent mandate while the technical bodies are often ad hoc groups to work in concrete issues.

## The six consultation criteria

- Consult widely throughout the process, allowing a minimum of 12 weeks for written consultation at least once during the development of the policy.
- Be clear about what your proposals are, who may be affected, what questions are being asked and the timescale for responses.
- Ensure that your consultation is clear, concise and widely accessible.
- Give feedback regarding the responses received and how the consultation process influenced the policy.
- Monitor your department's effectiveness at consultation, including through the use of a designated consultation coordinator.
- Ensure your consultation follows better regulation best practice, including carrying out a Regulatory Impact Assessment (RIA) if appropriate.



Code of Practice in Consultation. British Government. 2008.

These criteria must be reproduced within all consultation documents.

Written consultation is not the only or even always the most effective means of consultation.

Other forms of consultation may help in this process. These might include:

- stakeholder meetings;
- public meetings;
- web forums;
- public surveys;
- focus groups;
- regional events; and
- targeted leaflet campaigns.

More generally, seek to ensure that the Principles of Good Regulation are included in consultations whenever policy is being developed. These are:

- proportionality;
- accountability;
- consistency;
- transparency; and
- targeting.

Other specific consultation with the private sector for PPP projects is discussed in Module 5 under implementation of PPP projects.

# PPP Policy Framework

**Under PPP procurement, the public sector role changes from that of provider to that of facilitator. A core element of any national or sub national PPP strategy is the development of a PPP policy framework.**

Experience with PPP worldwide, suggests that is useful, if not essential, to have a framework in place, to instil confidence and understanding in all participants in the PPP process. This includes both public and private partners. The following components provide framework for accelerating the development of PPP into signing of PPP agreements (closure of the PPP transaction) and the completion of funding (financial closure). An overall comprehensive PPP policy framework would set out.

This policy framework provides a set of rules that gives confidence to both the public sector which has to implement the rules and also the private sector which has to invest time and money and aims to ensure that both will achieve, within acceptable bounds, their objectives.

The PPP policy framework is not necessarily the ideal or even something to be aimed at in total at once. It describes a framework that is considered will facilitate PPP development at least in the short or medium-term.

The PPP policy maker's objectives should be focused on developing PPPs that can be implemented and that also will not create nasty surprises after a few years into the future.



Infrastructure in Latin America and the Caribbean: Recent Developments and Key Challenges,  
Foy and Morrison, WB, 2007.

## Background and Sector Information

This would include;

- Objectives and Principles
- Responsibilities, Procedures and consultation
- Sectors covered
- Availability of Guidelines and Documentation
- Projects and Pipelines
- Progress with PPPs

## Specific PPP Frameworks

A specific PPP framework would include;

- The legal and regulatory framework,
- Procurement guidelines,
- Model PPP contracts, and
- Risk Management Framework,
- Financial guidelines (Tariffs, payments and Government support),
- The Project Cycle and the role of Advisors,
- Technical design and service standards,
- Institutional and Approvals Framework (Including Dispute resolution mechanisms).

The implementation of PPP investments, especially at the provincial and municipal levels is a very challenging process and often major efforts do not result in closure of a transaction. Various levels of Government jurisdiction and regulation often blur clear assignment of ownership and accountability.

Local governments may lack the requisite skills and financial resources to fulfil service functions effectively. However, throughout the world, local governments are, in cooperation with the central/federal government, increasingly working to overcome these deficiencies. (See Module 6 -> Case studies -> India)

While there are many viable projects, there are also many economically and socially worthy projects that lack the ability to generate the requisite revenues to ensure adequate risk related returns for the investor. Also infrastructure projects require long gestation periods to ensure affordable tariff levels, which may expose private investors' investment to undue risk. However, the key message of the policy framework is that PPPs with appropriate arrangements in the sharing of risks in financing, operating and maintaining infrastructure services can provide the solution.

In the UK, the government only uses PFI where it is appropriate and where it expects it to deliver value for money. In assessing where PFI is appropriate, the UK Government's approach is based on its commitment to efficiency, equity and accountability and on the principles of public service reform. PFI is only used where it offers value for money, where it can meet these requirements, and where the value for money it offers is not at the cost of the terms and conditions of staff.

The UK Government states that it is committed to securing the best value for its investment program by ensuring there is no inherent bias in favor of one procurement option over another. The UK policy lays out in more detail the Government's approach to PFI, and its analysis of where it is appropriate and effective.



PFI: meeting the investment challenge; UK Treasury 2003.

It should be noted that good policy frameworks are not common, and especially policy frameworks that get passed into law. However, they give confidence to investors and clarify policy within government.

**Why a legal framework?**

To persuade investors to put their money (and others) into long-term investments and to allow the government to contract with the private sector.

**Why an (economic) regulatory framework?**

So that the contract can operate over a long period in a manner that is fair and equitable to all stakeholders.

**Why a risk framework?**

So that investors and the government can assess whether and how to contract with each other and the 'price' of that partnership.

**Why a financial framework?**

To detail how these parties financially partner each other.

# Legal and Regulatory

## The Regulatory Framework

**Regulation in a PPP context is about economic regulation, tariffs, licenses, provision and market control in general, not technical regulation.**

Countries have different legal systems but frequently higher level PPP laws have implementing regulations. Such laws and regulations cover the whole PPP cycle (as discussed in Module 4 – Laws and Contracts), while regulators are generally only concerned with PPP projects once implemented.

All infrastructure provision is regulated through some body or another. Many regulators are internal departments of line ministries, some are external departments of line ministries, some are in other ministries (i.e. not the line ministry) and some are independent or semi independent bodies.

Generally, market forces will normally be preferred to economic regulation.

### Functions of the Economic Regulator

Typically, the economic functions of a regulator include the authority to:

- Issue, review and cancel licenses
- Establish standards for the terms and conditions of supplying goods and services
- Regulate rates (tariffs) and other service charges
- Make market rules for the sector
- Monitor performance of the regulated entities.
- Arbitrate and settle disputes within the sector.

The economic regulations which govern transport are important in situations where:

- the transport infrastructure or service involved is a natural monopoly (such as a bridge or tunnel where there is no effective alternative), and/or
- where it confers significant market power (for example a highway where the alternatives are not attractive e.g. congested or difficult driving conditions etc.); and/or
- when the rights and obligations contained within a PPP or concession agreement rely on regulatory interpretation.

Normally, where the establishment of a regulatory entity can be justified on public interest grounds, independent regulation rather than regulation by a government department is generally favored. However, fully independent regulation is not always achievable in the short-term, but it should be an explicit or longer term objective and should be reflected in the way that service is regulated from the outset.

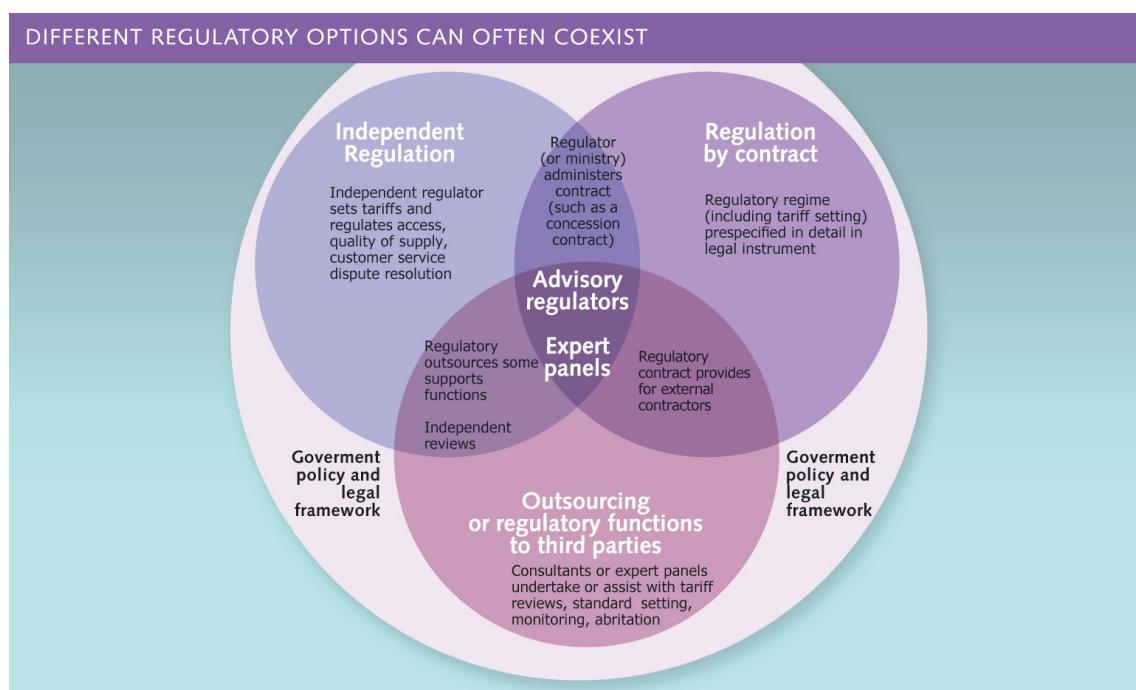
Even where independent regulation is established, experience suggests it can be ineffective, captured or subverted by special interest groups, including government. The basis of any proposed regulatory structure should be fully analyzed, namely:

- its real independence from special interests of any of the parties to the regulation, including any government-owned participants in the industry;
- the effectiveness of its legal rights and obligations to meet its regulatory objectives; and
- the skills and resources available to it to carry out its functions on a continuing basis. In some countries resource constraints may suggest the desirability of a multi-sector regulator or the contracting out of some regulatory functions.

Specialist PPP units or departments, IFIs and advisors should consider how to give support to governments to establish appropriate regulatory regimes. They should also try to ensure availability of financing and skills for at least a basic regulatory system:

- PPP procedures
- asset valuation,
- regulatory accounting methods,
- efficiency measurement techniques,
- consultation processes

Monitoring of regulatory performance should thereafter be an important part of the project monitoring.



Source: *GRIDLINES NOTE N°23 - May 2007, Anton Eberhard*



Matching Regulatory Design To Country Circumstances, Anton Eberhard, PPIAF Gridlines, 2007

## How the Regulator operates

The regulator should:

- operate in a transparent manner and pro-actively provide information to stakeholders about regulatory matters under consideration, decisions taken and the rationale for decisions.
- encourage stakeholder participation in regulatory decision-making by convening public meetings on regulatory matters at which stakeholder comments would pro-actively solicited.
- set forth the principles and procedures by which it will review and approve tariffs.
- also help create an environment that encourages private sector participation (PSP) and PPPs.

## Type of Regulators

There are, generally, three generic types of regulatory arrangements:

- **Embedded Regulators** – A regulatory organization that is comprised of one or more offices or functional groups within a ministry that compiles information, conducts analyses and makes recommendations on regulatory issues to the minister.
- **Separate Regulators** – A separate organization that gives regulatory advice to a higher authority (e.g. a minister or via a minister to the president) but does not necessarily take a final regulatory decision.
- **Independent Regulators** – an organization set up outside of a ministry that has final authority over licenses, tariffs and service quality.

## The necessary levels of institutional and regulatory capacities

The creation of a regulator alone (i.e., the passage of enabling legislation) is not enough, particularly in transitional economies where there is neither institutional history of regulation nor adequate training in regulatory principles for those who are charged with the responsibility of being regulators.

Thorough organizational planning, including the recruitment and training of regulators and their staffs should precede operationalization of the regulatory body.

A principal objective of the independent regulator is the creation of an environment that will provide prospective private sector investors with a degree of security and that encourages investments critical to the nation's economic development.

A newly constituted regulator including organizational issues such as insufficient or untrained staff and inadequate secondary legislation (rules, regulations and procedures) will convey to potential investors a high degree of risk that could have a negative impact on their interest in PPP projects.

The timing of regulatory start-up is also important with respect to PPP projects that are well along in the pipeline. Serious investors who have been working with the Government

for many months (or even years) to approach a deal with respect to an important infrastructure project may be apprehensive about the possible implementation of a regulator.

Without a track record, what certainty does the investor have that its long-term deal with the Government will survive under their purview? Bilateral contracts – i.e., Regulation by Contract – may address these concerns over the near term, but it is only over time and with dedication to implementing internationally accepted best practices that the regulator will develop the credibility that an effective regulatory framework” is intended to provide.

Regardless of the interim structure, the elementary principles of freeing the conditions of market entry and the level of market pricing from unilateral control (either political, or the influence of one stakeholder group) are not in dispute. They form the generally accepted preconditions for the attraction of investment in infrastructure and utility services that are essential for the development of national and regional economies.



Where Do We Stand on Transport Infrastructure Deregulation and Public-Private Partnership?  
Antonio Estache and Tomás Serebrisky World Bank Policy Research Working Paper 3356, July 2004.

A recent World Bank Working Paper (No. 14, 2003) considers the merits of specifically setting out the specific rights and obligations of the public and private parties, within PPP structures, rather than relying on the interpretation of a regulatory body. Creating “regulatory contracts” or regulation by contract could be used for specific projects rather than industry-wide regulation.

Toll-road concessions and long-term ports and airport concessions are often regulated by contract. A regulatory entity may not required if there is sufficient confidence that contract law and arbitration arrangements can provide a remedy to the parties in the event of dispute.

Safety regulation is not an explicit part of regulation but is essential for transport operations. However, economic regulation, introduced alongside private sector approaches, should be structured in a way which will enhance safety incentives and not create safety disincentives.



Regulation by Contract: A New Way to Privatize Electricity Distribution?  
Bakovic, T., B. Tenenbaum, and F. Woolf. Working Paper No 14. World Bank. 2003.

Technical and safety regulations would fall outside the scope of PPP regulation. However, the need for technical and safety regulation remains high and would operate in addition to, and has integrated with links with, economic regulation.

The aim of regulation and regulatory systems is to on the one hand encourage low cost, reliable service provision and on the other promote financially viable and increased, new

investment in the infrastructure sectors especially where there are natural monopolies or market failures.

The most widespread feature of infrastructure reform in developing and emerging economies has been the establishment of new regulatory laws, systems, contracts and processes. According to A. Eberhard/ Working Paper 4 in the source below it is estimated that some 200 regulators in 130 countries in infrastructure sectors have been created.

The conclusions of Working Paper 4 indicate that:

- While these new models of regulation (Independent and other) have not been trouble free and could have worked better, there remain problems with the old models of direct regulation by government.
- Therefore, there remains the need for policy intervention for better regulatory systems
- However, the need is for government and decision makers to examine and design regulatory systems that are more focused and appropriate to the country context and especially commitment, capacity and other frameworks.
- Practical advice includes focusing on:
  - Selected parts in a value in rather than all parts
  - Develop regulator competency
  - Consider consumer complaints to build legitimacy
  - Areas such as building in and or developing incentives for efficiency and cost reductions need further consideration
  - Widespread access to affordable services remains an important objective and regulators have an important role in encouraging and monitoring activities that support wider transport access and not just the most viable toll roads

The last piece of advice suggests that 'mantras' should not become substitutes for thinking. Decision makers should select from the 'menu' those options, possibly hybrid, that are appropriate to their country, recognizing that these rules will probably need to change over time, as PPPs and the country develop and change too.



Infrastructure Regulation in Developing Countries, A Eberhard, World Bank Working paper N. 4.  
PPIAF. 2007.

# Regulation and Regulatory Bodies

Once PP contracts have been signed and sealed, giving the private sector the responsibility for financing and delivering the services, the government needs to make preparation for monitoring the following issues:

- legal barriers inherited from past regulatory regimes that need to be sorted out,
- privatized services are natural monopolies, which come with risks of abuse of dominant position such as abusive pricing,
- safety cutbacks are likely to be an easy way to reduce costs.

These responsibilities are to be included in the mandate of the economic regulators. This is not the only responsibility of these regulators. In addition, the government needs to monitor compliance and enforce the contractual commitments – investment, quality and service obligations – of the private operators.

From this government monitoring need, a new term “regulation” has emerged over the past 20 years or so, which is common to all types of transfers from the public sector to the private sector. Regulation encompasses actions aiming to ensure that the services transferred are performed in compliance with the law, the specifications and obligations of all kinds for which the operator is held responsible.

The difference between a maintenance contract for a section of earth road and privatizing the telecommunications system for an entire country, but also between that same earth road and a motorway concession, is such that it may seem audacious to use the same vocabulary for both cases. However, a sufficient number of principles, such as dealing with the issues listed above, are common to all regulation mechanisms to justify using this term.

To learn more about the basic principles of regulation, the following publication may be consulted:



Privatization and Regulation of Transport Infrastructure, Guidelines for Policymakers and Regulators, Antonio Estache and Gines de Rus, World Bank Institute, 2000 (cover and table of contents)



Evaluating Regulatory Decisions and Sector Outcomes in Infrastructure Industries Results from Africa and Other Developing Countries. Jon Stern. PPIAF Working paper no. 3. 2007.

## Developing a Regulation Capacity

If it is clear that there is a need to develop a major regulatory capacity within countries, in practice, developing the regulatory capacity involves two main risks. The first risk is having the regulators controlled by the operators, and being lenient in the case of conflict. The second is having the regulator controlled by the users or customers, and imposing demands not covered by the contract.

Cumbersome regulations tend to dampen innovation and efficiency, as it is difficult to regulate for the many circumstances that might arise. Light handed regulation relies on a number of checks and balances, including:

- Information disclosure on pricing policy or decisions made;
- Pricing principles which have to conform to pre-set conditions;
- A requirement to competitively tender all significant work;
- Compliance with all safety, environmental, planning and commercial legislation;
- A procedure for dispute resolution.



Managing Performance of a Highway System in the 21st Century,  
Dr. Robin J. DUNLOP-PIARC XXI World Road Congress (Kuala Lumpur)1999, page 3

## Developing a Regulatory Body

The most common commitment device is the creation of an independent regulatory authority, free from the risk of control by politicians, the government, the operators or the users of the service. Clearly, this authority must not only be financially autonomous but also accountable for its decisions.

There is a risk that the gains from PPP development do not reach the people simply because governments are ignoring the importance of their role to ensure the fair distribution of the gains through the creation of independent regulatory institutions.

It is very difficult to find details of what such a regulatory body could be, since its structure and functions will be in direct connection with the type of PPP envisaged.

In most countries, the solution has been to create units within the responsible Ministry (usually Transport or Public Works) that monitor concessions or other contracts with private operators. The main disadvantage is that in the case of disagreement with the government, conflicts of interest emerge quite quickly. Various experiences in Latin America suggest that the lack of transparency in the decision-making process of these monitoring units often creates tension which is widely reported by the press. This then becomes a source of political debate about the PPP development process.

An incompetent or controlled regulator is the best indicator that the outcome of PPP development will be unfair. Previous experience shows that unfairness tends to favor the investors and operators, rather than the users, when contracts are poorly designed and this often results in conflict.



Privatization and Regulation of Transport Infrastructure Antonio Estache, World Bank, 1999, pages 24-35

## What organization to set up to ensure regulation?

There are now over 200 independent regulatory agencies around the world and all EU member states have them.

In particular, studies of these provide no information on how and why regulators have improved the performance of infrastructure industries in meeting consumer, investor, and development outcomes. The studies cannot explain the following:

- What works well and what works badly
- How infrastructure regulatory agencies can improve their performance
- The role and importance of regulatory agencies relative to industry structure, the actions of the regulated companies, and of government
- The role of infrastructure agencies in helping (or hindering) the finding of good solutions to problems and crises

However, these questions are discussed with useful commentary in detail in the;



Handbook for Evaluating Infrastructure Regulatory Systems (Brown, Stern, and Tenenbaum 2006), hereafter referred to as **the Handbook**

The Handbook discusses in detail the issues arising from ex post evaluations of infrastructure regulatory agencies, including the following:

- The type of evaluation (basic, mid-level, or in-depth)
- Who should carry it out and how
- The purpose and uses of regulatory evaluations
- Evaluation tools (including model terms of reference and questionnaires)
- An annotated bibliography and a summary of previous evaluation work in this area.

The key characteristics of infrastructure industries that, in combination, require economic regulation are as follows:

- They are highly capital intensive with very long-lived assets, which are typically sunk assets in the sense that they cannot be sold or reused.
- They have considerable economies of scale, particularly where there are monopoly networks, as in electricity and water. These features often create a natural monopoly in transport.
- The outputs of infrastructure industries—the services they provide—are consumed by and necessary to the welfare of all citizens as well as being crucial inputs for all businesses.

These characteristics have the following consequences:

- Consumers need protection against market abusing behavior by monopoly providers.
- Investors need protection against strategic behavior by governments that have a strong incentive, once investments have been installed, to keep prices no higher than operating cost levels.
- In fact, both governments and existing consumers have an interest in keeping current prices low.

However, maintaining low prices may be at the expense of unconnected consumers and deterring further investment in viable projects. In developing countries, particularly in Africa, the prosperous urban populations are usually connected to energy, water, and telecom networks while the majority—often the overwhelming majority—of the poorer rural populations is not connected.

The key purposes of regulation are summarized in the Handbook's three Meta-Principles of regulation as being:

- **Meta-Principle 1: Credibility:**  
Investors must have confidence that the regulatory system will honor its commitments.
- **Meta-Principle 2: Legitimacy:**  
Consumers must be convinced that the regulatory system will protect them from the exercise of monopoly power, whether through high prices, poor service, or both.
- **Meta-Principle 3: Transparency**  
The regulatory system must operate transparently so that investors and consumers know the “rules of the game”.

There are many variations in the type and form of regulatory agencies. Nevertheless, all regulators and quasi-regulatory agencies (such as concession monitoring agencies) should observe the three recommended Meta-Principles of infrastructure regulatory systems listed above.

# Technical aspects of regulation

From the standpoint of supervising them, PPP-type contracts differ from traditional contracts as follows:

- they are multi-annual and may in certain cases (motorway concessions) spread over several decades;
- the idea is to draw maximum benefit from the private sector's capacity for innovation, and therefore leave it maximum freedom as regards the means to be used to attain the specified performance;
- as manager of part of a public property, the operator should be obliged to report on his actions;
- the idea, as far as possible, is for him to be directly confronted with the users and encourage him to decide himself what corrective measures to take;
- in the end, the regulation body is the final guarantor before the citizens and political powers that the contract will be performed in the best general interest.

Each of these considerations has consequences on the way in which regulation should be carried out.

## Contracts may cover long periods

During this period, changes in the legislative and normative context may occur. Changes may occur in social requirements, resulting in pressure to change the performance levels required by the contract. The two parties may finally agree that some of the requirements of the contract are inappropriate.

A fundamental principle of PPP is that if these developments mean that the contract has to be adapted and if this is prejudicial to the operator, such damage should be compensated for.

The role of the regulator is thus to be attentive to these changes, to inform the operator of them, and if necessary, negotiate with him any modifications or adjustments to the contract which may result there from.

Good practice, for technical and financial aspects of regulation, is to plan regular meetings to jointly examine all modifications which may prove necessary due to events arising during the previous period.

## Maximum initiative should be left to the operator

The performances to be attained having been determined in the contract, current practice is to ask the operator to describe in a manual how he proposes to attain them.

It is essential in this matter to specify in the contract that the fact that the regulation authority has to approve the manuals does not reduce the operator's responsibility in

any way. This approval should not result in a performance obligation being transformed into a means obligation.

Manuals may be revised at any time by the operator, on condition that the regulation body is informed. The manuals to be prepared vary depending on the projects. The public authorities should concern themselves with remaining reasonable and only requiring truly useful information from the operator for exercising their responsibilities.

The manuals may concern the following topics, for example: road operation; information and communication; routine maintenance (road, ancillaries, and structures); winter maintenance; operation and maintenance of the tolling system; etc.

The following topics dealt with in the manuals may include the following:

- the general organization planned by the operator and how the roles are to be distributed between himself and his sub-contractors. Personnel and equipment planned for various tasks;
- the frequency of inspections made by the operator (for the road, ancillaries, structures and equipment);
- the frequency, nature and modalities of carrying out measurement campaigns;
- measures to be taken in case of an accident. Agreements with emergency services (breakdown service, police, fire brigade, ambulance, etc.);
- possible means of payment for tolls and how it is planned to develop them;
- the organization of information in case of programmed (sites) or unexpected events (accident, weather, etc.);
- precautions to be taken in case of works under traffic or any other event requiring the road to be partially closed;
- how, in case of a major event requiring the road to be closed, the measures to be taken will be examined with the public authorities;
- how complaints registers, or any other means allowing the users to express themselves, will be placed at the public's disposal;
- other.

### **The operator's obligation to report**

The counterpart of this freedom of action left to the operator is that he must report back on his actions or make vital information available to the regulatory body.

This obligation has several objectives:

- to enable the regulatory body to ensure that the contract is correctly performed and provide information for any adjustments which may prove necessary;
- to provide input to the road network data bank, which is vital for a rational management of the whole of the road network, whoever the operators, public or private, responsible for managing it are.

The obligation to report back or make information available should apply both to;

- works performed, and the results of measures taken, which should be made available to the regulatory body, and
- road accidents and the circumstances in which they occurred including traffic restrictions etc.

### Confronting the Operator with Users' Claims

Whereas in traditional schemes, the government collects complaints and claims from users and decides what action to take, the trend in PPP cases should be for the operator to be directly confronted with users' reactions and decide as often as possible himself of the measures to be taken when these claims are justified.

Of course, this ideal plan is not always feasible and the role of the regulatory body is precisely to ensure that the operator will make a reasonable decision between the requirements of the public authorities as determined in the contract, those of the users and the cost of corrective measures.

It is in any case vital to oblige the operator to set up the necessary means to collect users' comments on a permanent basis. The simplest way is to make registers available to the public but other means may be used such as making special telephone numbers or dedicated e-mail addresses available.

### Checking by the Regulation Body

Any delegated responsibility must be checked and private operators in the context of PPP are no exception.

The regulatory body is responsible for this checking and generally for making any investigations, inspections or audits necessary to ensure that the operator is correctly carrying out his responsibilities. Those investigations will be used as a basis for calculating penalties for the operator or any other sanction foreseen in the contracts.

The means of action available to him, which must be implemented in an appropriate way in each particular case, are mainly the following:

- double-inspections whose frequency should be stipulated in the contract;
- surprise inspections;
- measures of any kind in order to check those taken by the operator;
- periodic audits on safety and respecting the environment;
- user opinion surveys;

As regards user opinion surveys, the following work may prove useful:



The Quality of Road Service, Evaluation, Perception and Response Behaviour of Road Users,  
World Road Association (PIARC), 1999.

A long-term relationship between public and private actors is a key parameter of PPPs and induces the following constraints that are the main justification for setting up an adequate regulation framework:

- When the private operator operates a natural monopoly, provisions should be made to ensure that it does not abuse this dominant position
- Rules regulating the PPP should take account of the inevitable changes that will occur in the project environment over a long period.

The primary approach of regulation aims to optimize the economic and social impact of the project. However, complex PPP schemes and in particular those involving private financing should also incorporate the identification, assessment and allocation of a project's risks from a financial standpoint.

# Financial Regulation of Infrastructure Companies

The theories developed for monopoly regulation have been oriented towards utility companies, such as waste management, electricity, water, and telecommunications. The functional structure of these companies is that of a corporation, whose real assets are composed of its facilities, machinery, equipment, and the corresponding contracts to deliver services to its customers. The ownership structure of utility companies is diverse: public monopolies, companies partially owned by the state, corporations entirely owned by private investors, and enterprises with rights over a previously defined time period on assets that belong to the state.

## Regulation and Tariffs

The most common regulation techniques derived from utility companies to prevent them charging elevated prices are also applicable to highway infrastructure and include Rate-of-Return Regulation, and Price-Cap Regulation.

**Rate-of-Return Regulation.** Under this technique, the authority sets a fixed rate of return on the assets so that the utility company is able to charge a price that is consistent with the objectives of the regulators. Prices of utilities provided can be adjusted depending on the returns on assets realized by the company. Prices can only be increased/decreased if the realized rate of return is lower/greater than the rate of return.

**Price-Cap Regulation.** This type of regulation has been increasingly applied in regulated industries under the belief that it provides strong incentives for the enterprise to be efficient. Under this technique, prices are yearly adjusted according to inflation plus or minus a fixed amount that is not related to the company returns. Price-Cap Regulation does not indicate how prices should be set for the first year of operation; it only establishes an indicative rule of how these prices will change over time.

In order to comply with their commitment to deliver services in the most efficient manner, monopolies must carry forward an investment plan that is often agreed with the regulatory authority. However, the implementation and financing of this investment plan is the sole responsibility of the regulated company. Monopoly regulation theories do not contemplate how monopolies finance their investment plans, and what risks they undertake in doing so.

Possible explanations for this might be that:

- in the case of natural monopolies under state ownership (public companies), there is always present an explicit or implicit guarantee from the government.
- in the case of natural monopolies in private hands (privatized companies), financing is often conducted under a corporate finance context, where the backing of the debts incurred is the valuation of the company per se and of its real assets.
- in the case of public infrastructure monopolies, and specifically in the case of roads, the primary real asset in general does not belong to the firm. This is the

case under the Public Private Partnership scheme, where financing takes place under three conditions:

- that cash flows from the project should offer a return sufficiently attractive to risk capital;
- that the level of guarantees, collateral, and insurance provide creditors with confidence regarding the commitments and debts contracted;
- that the capital structure of the project be capable of separating the risks of the project from the risk of the project promoters.

Private participation in ground transportation infrastructure has generally taken place by means of contracts with governments, with defined time periods, where the private sector has the obligation to build and/or operate and/or a determined infrastructure in exchange for the right to charge a tariff or toll that remunerates the provision of such services and covers the investments allocated to that end. Such an association contract (henceforth denominated PPP contracts) establishes the risks to be assumed by the state and the private sector. The PPP's are materialized through a policy of risks distribution to the agent best prepared to assume them.

Since private participation in infrastructure projects does not take place through a corporate finance structure, but rather by means of Special Purpose Vehicles in which corporate capital budgeting techniques are not directly applicable. In this case, project finance comes forth, and is applied as a financial structuring technique to projects where, given the magnitude of investments and the extension of capital recovery periods, promoters often cannot participate alone without assuming unreasonable risks.

Projects undertaken through PPP schemes share characteristics that differentiate them from traditional projects, including:

- A primary asset, a roadway for instance, which is not the property of the firm, but rather of the State; hence, the real asset is not liable for use as collateral. Consequently, other assets are used as collateral.
- In general, the projects have no representative "history" to allow the forecasting, with a certain degree of confidence, of net cash flows of the project. In cases of projects of the green field type and/or non-tolled roadways, traffic statistics do not exist, thus the evaluation of costs and cash flows in these cases requires a greater degree of sophistication.
- Project financing and PPP concepts in infrastructure monopolies lead to the incorporation of a new perspective in natural monopoly regulation: the financial dimension. Regulation of infrastructure monopolies (IM) should not be governed only by economic efficiency and social welfare criteria. It should also incorporate the identification, assessment and allocation of a project's risks from a financial standpoint.
- Financial Regulation is the utilization of a series of financial and economic techniques and tools on the part of the State. Its objective is to maintain a stable relationship between risk and expected return, throughout the maturity of the contract. Financial regulation should be incorporated in the contract from the very beginning in the request for proposals (RFP) and/or in the PPP agreement by means of two procedures:

- On the risk side, through a series of clauses and/or covenants that specify the measures and define the responsibilities of the concessionary entity, along with the design of guarantees provided by the State;
- On the return side, in the definition of the life-span of the contract, the tariff scheme (absolute and relative levels of tolls depending on type of vehicle and its adjustment formula over time), the time schedule and investment program, and the definition of adjustment mechanisms in the case where the risk-return relationship becomes unbalanced during the period of the contract.

A functionally independent Regulator will assist to ensure compliance with the PPP 'rules of the game'. For private investors to consider partnering with the public sector in a sector regulated under price caps, or some type of incentive based regulatory regime, the business needs to generate a return at least as high as the cost of capital they will be paying.

Getting regulators to get organized to be able to estimate average tariffs in a way that gives an incentive to operators to commit for the long run is one of the major adjustments needed to the PPP model that was implemented during the 1990s. Regulation matters and hence regulatory institutions do too, and yet the development of the regulatory capacity of the transport sector continues world-wide to lag the development of the equivalent capacity in other public services.



Where Do We Stand on Transport Infrastructure Deregulation and Public-Private Partnership?  
Antonio Estache and Tomás Serebrisky World Bank Policy Research Working Paper 3356, July 2004

### Financial equilibrium of the concession

Financial regulation is closely related to the definition Financial-Economic Equilibrium (FEE), which is the upholding of a targeted profitability (e.g. rate of return) on the part of the conceding party for the benefit of the concessionaire. The targeted profitability is the financial engineering included in the bidding document which is reflected in a mathematical model that is structured according to standard parameters associated with investment valuation.

The model, and thus the target profitability, can be known by the conceding party throughout the contract if it was established for tendering and evaluated in the tender presentation. In this case, financial regulation should keep both the risk and the expected return stable throughout the contract.

Alternatively, the model and the targeted profitability of the concessionaire may not be explicitly known by the conceding party throughout the contract. In this case, the financial model and targeted profitability may only be known (or guessed) implicitly by the conceding party when agreements between the two parties are negotiated in relation to contractual modifications leading to compensating the concessionaire. Financial regulation should keep only the risk level of the contract stable, throughout the contract, given an expected profitability known only to the concessionaire.

## Financial regulation when the state is not acquainted with the financial model

### The Risk return relationship

A basic principle in finance is the existing relationship between the risk assumed in a given project and the expected return from such investment. The total risk has two components which are known as systematic risk and non-systematic risk. The systematic risk is an endogenous factor that is not under the control of the investor, and reflects the sensibility or volatility of the expected return on the project in relation to the overall market; in other words, it is an elasticity measure that determines how changes in the economy affect the profitability of the project.

This type of risk is measured by means of a factor denominated Beta ( $\beta$ ), which is the covariance between the profitability of the project and that of the overall market, divided by the variance of the overall market.

On the other hand, the non-systematic risk is an endogenous factor to the project and can be controlled through diversification. It plays an important role in the financial and operative leverage that can be achieved by the firm.

In this respect, a public works contract can be analyzed as a project with cash flows with given expected returns and risks.

In general, the profitability of a project  $E(R_p)$  is defined in the Capital Asset Pricing Model (CAPM) as:

$$E(R_p) = R_f + \beta b \times (R_m - R_f)$$

Where  $R_f$  is the risk-free rate of return,  $R_m$  is the return of the overall market, and  $\beta b$  is the marginal contribution to the portfolio risk of the project.

Alternatively, this equation can be rewritten as:

$$E(R_p) = R_f + \beta b \times PR$$

Where  $PR$  is the risk premium and is defined as  $R_m - R_f$ .

A modification to this model for countries with high country risk implies the modification of the traditional CAPM model. This modification is denominated "Zero Beta CAPM", where, instead of employing the risk-free rate of return and zero variance, a risky rate of return with minimum variance is used given the conditions of the country. This change entails adding on to the standard risk free rate, a term that reflects a risk-premium according to country risk.

This approximation is detailed in section 2.5 of Hinojosa (2001) and was elaborated in Module 2 under the description of the Weighted Average Cost of Capital (WACC).



New Issues in Natural Monopolies Regulation: The Financial Side in Infrastructure Projects Through Public Private Partnership. Hinojosa, S. 2001.

## Business design in the public-private partnership arena under a consistent risk return context

On many occasions, either because of public welfare reasons, economic policy, or unwillingness of users to pay, it is not possible to raise tariffs, all the more so, if a price elasticity appears that leads to a decrease in the total income of the project. This restricts a contract from applying any acceptable tariff from both social and private standpoints.

On the other hand, the time term of projects is usually limited by the present value of the cash flows, in the sense that long terms (over 30 years) contribute little to the present value of the project. Moreover, extension of terms over 30 years obstruct the possibility of financing projects by means of fixed income instruments, because their trading is very limited.

Finally, state contributions are available only in limited amounts, and are difficult to politically defend when they are directed towards increasing the private profitability of a project, and even more so when these funds could be better used in other socially sensitive sectors, such as education or health.

Therefore, the key question is how to design a project contract in a risk-profitability context, assuming that the project is socially profitable, that its risk is high, and that management of variables such as tariffs, time terms, and state contributions is not feasible. The response implicitly applied in contract schemes has been a public-private partnership (PPP) based on sharing the risks entailed by any given project. This way, the conceding party (the State, ministry or state agency) reduces the  $\beta$  of projects by directly assuming the risks that cannot be diversified by the private sector.

### Residual Public Risk

An example of a methodological proposal for the hypothetical estimation of the expected returns under the Zero Beta CAPM model is provided in section 2.5 of Hinojosa (2001)



New Issues in Natural Monopolies Regulation: The Financial Side in Infrastructure Projects Through Public Private Partnership. Hinojosa, S. 2001.

### *Re-establishing profitability of a project*

There exists a broad criterion for the reestablishment of the economic and financial equilibrium of a contract in the face of situations affecting it. It is known as the reestablishment of the profitability of the project.

The objective of this approach is to modify the financial and economic conditions of the project, after the occurrence of endogenous or exogenous events affecting these conditions, so as to ensure that the project demonstrates again the profitability level that it enjoyed under the original conditions at the time of adjudication.

In order to attain this objective, it is necessary to reproduce the evaluation of the project performed during the tendering process, including the values for the variables that

determined the adjudication. In general, the evaluation performed by the concessionaire will not be available to the State, which will result in a negotiating process between the State and the concessionaire where each other's model profitability results will be compared for particular events affecting the economic and financial equilibrium.

The inconvenience of this process is that the concessionaire will be in an advantageous position to conceal the positive effects that may be generated over the project's profitability, and will simultaneously have the instruments to request compensation for events which do, or do not, require compensation.

This reinforces the recommendations in this Toolkit that the state must always have advisors either on call or by tender to review any contract revision proposals of a concessionaire.

## Financial regulation when the state is acquainted with the financial model

### Risks

The underlying concept in a public works contract is the allocation of project risks to the agent best prepared to cope with them. Therefore, this should be the central element guiding the necessary adjustments to the financial model in order to reestablish Economic and Financial Equilibrium (EFE). This objective is pursued by clearly and precisely differentiating:

- between the concepts of Real Firm (RF) and Model Firm (MF), and
- between the risks to be allocated to the RF and MF,

while meticulously observing the dispositions defined in the legal body of the contract as defined in Module 4.

### *Real Firm (RF)*

This is the regulated enterprise (neither the promoter enterprises nor the parent company). It is the enterprise that assumes the responsibilities established in the contract. It takes the respective risks and receives remuneration in exchange. In legal terms the real firm is the Special Purpose Vehicle.

### *Model Firm (MF)*

This is understood as the instrumental virtual company established by the RF in the tender process. The MF is translated into a mathematical cash flows model, whose dynamic structure depends in time on the specified and assigned risks defined in the contract. During the extension of the contract the MF obtains profit exactly equal to the profitability reported in the bidding process, which must be upheld in the contract. The MF also defines the compensation associated with the materialization of the risks assigned in the contract.

The distinction above has the objective of allowing the involved counterparts to separate those risks that are assigned to each one of them. Therefore, if the Economic and Financial Equilibrium (EFE) is based on fixing a determined profitability, the adverse events affecting the RF, and which are the responsibilities of the concessionaire, must not be compensated by the State.

Given the above definitions, it is possible to express the effective profitability of the RF as:

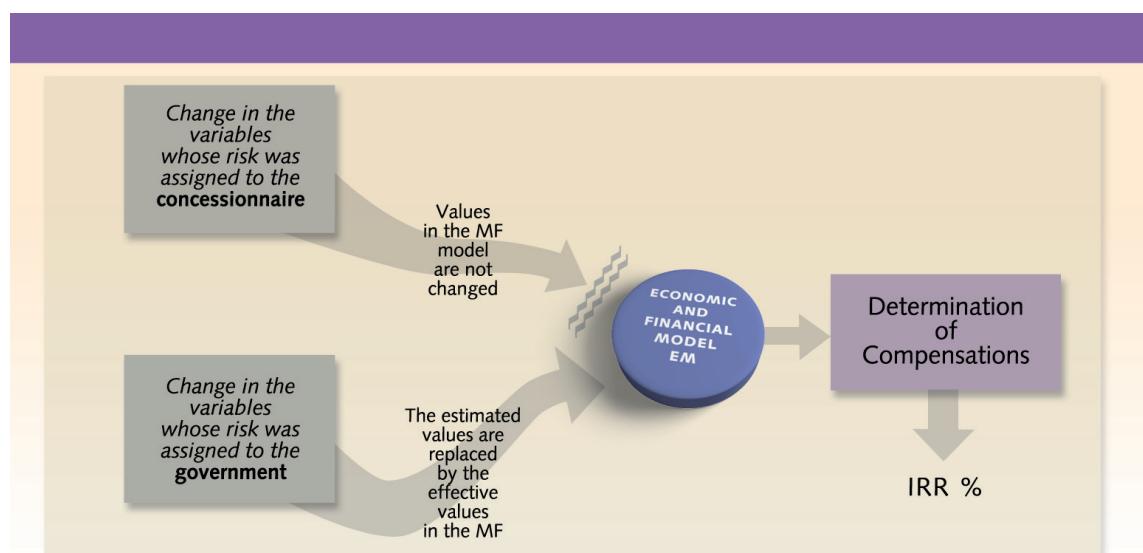
$$IRR_{RF} = f(IRR_{MF,E})$$

Where  $IRR_{RF}$  is the effective profitability of the real firm,  $IRR_{MF}$  is the profitability of the model firm, which should be upheld throughout the lifetime of the contract, and  $e$  is a random variable equal to the difference between the effective and projected values of the project, for those variables that correspond to the risks assigned to the concessionaire.

For instance, if the traffic risk is assigned to the concessionaire, and the effective value of the traffic is greater than the value projected in the bidding process, this will contribute to a greater  $e$ . If on the contrary, the effective traffic is exactly equal to the projected traffic,  $e$  will tend to zero.

### Effects of Risk allocation between Real Firm and Model Firm

As expressed previously, the MF incorporates effective values of those variables corresponding to the risks assigned to the conceding party. This isolates the risks assigned to the firm from the risks assigned to other agents, thus facilitating the determination of the exact compensation required to immunize the RF from the risks that have not been assigned to it, and simultaneously avoiding compensating the RF for risks that were effectively assigned to it.



Thus, some of the systematic risks (risks that cannot be controlled) are removed from the MF and assigned to the state or directly to the users of the infrastructure project. Consequently, the removal of this systematic risk must be considered as a factor in the determination of the expected profit of the contract. In the case of the non-systematic risks, these are entirely assigned to the RF given the intuition that they can be diversified away.

As an illustration, assume the existence of a contract where the inflation risk is assigned to the user and to the state, by readjusting the tariff as defined. The risk is assigned to the user, because he will ultimately pay a higher tariff if inflation is high, and to the state, because it will have to pay the political costs associated with authorizing higher tolls on conceded roadways. Thus the firm should be compensated for this risk when the effective inflation is greater than the inflation assumed in the bid. This is expressed in the incorporation of the effective inflation values in the MF, which in turn affects other variables within the model, such as investments, other costs and the tariffs. The resulting change upholds the IRR at its fixed level.

An opposite example would be the case in which the demand risk has been assigned to the concessionaire. Should the traffic flow drop, no compensation should take place. Consequently, in the MF the traffic variable should not be altered. Otherwise, the model would signal a compensation that would not be in compliance with the terms of the contract, given the fact that demand risk was originally assigned to the firm.

In short, the effective values of those variables that correspond to risks assigned to the state should be incorporated in the model in order to determine in the MF the compensations that should take place. On the contrary, those variables that correspond to risks assigned to the concessionaire should be kept fixed within the MF, since no compensation is to be determined.

## Conflict Resolution

Regulatory conflicts are common in the infrastructure sector. Typically they may involve disputes between government authorities or regulators and private companies and will concern subjects such as tariff reviews, award of concessions, permits, enforcement of and operational obligations.

The mechanisms that are available to resolve disputes and conflicts are a major part of the assessment of regulatory risk by private investors in PPP projects.

# Risk Management Framework

## Typical Risks in Highway PPPs and Usual Arrangements for Sharing Them

Major risks in a highway PPP project usually include the acquisition of right-of way, construction, environmental, Operation and Maintenance (O&M), traffic, collection of tolls, competing roads, political intervention (policy reversals), inflation, forex (in cases involving foreign currency financing) and force majeure.

Of these, risks related to time and cost overruns during the construction phase as well as traffic volume and user fees (tolls) are of particular significance from the standpoint of private operators, as they are normally expected to absorb these risks.

In cases where private operators are not undertaking the construction on their own, this risk is mitigated through selecting an Engineering, Procurement and Construction (EPC) contractor through a bidding process, and entering into an agreement with suitable incentives and penalty clauses.

Traffic risk, on the other hand, is usually handled in two ways. Under the toll-based Build-Operate-Transfer (BOT) projects it is borne by the private operators (and investors financing them). An important variant of this approach is shadow tolling, wherein private partners do not collect tolls from the road users but nevertheless bear traffic risks, as they are paid on the basis of the volume of actual traffic.

In contrast, in the second approach, the government or its agency absorbs the traffic risk and the private partner is paid for making the specified level of road service available regardless of the extent of traffic, e.g. BOT-Annuity projects; these are also known as availability-based projects.

The Infrastructure and Law website of the World Bank presents typical risk matrices for toll roads (a shorter and a longer version) as well as a number of sample annotated concession agreements and links to other concession agreements and DBOs.



Infrastructure and Law website (UserID and password required; refer "Create account" for free access)

## Risk analysis

It is important to address risk in the economic evaluation in order to assess the robustness of the conclusions and evaluate the likelihood of not achieving the intended economic objectives (as reflected by the NPV or EIRR).

In many cases this takes the form of showing the sensitivity of the rate of return to a number of separate eventualities (changes in assumptions about cost, construction

period, traffic growth rate, etc), and of demonstrating the switching point with respect to these variables, either singly or cumulatively.

More recently, however, it has become increasingly common to employ simulation methods (Monte Carlo type) to estimate a distribution of rates of return based on what are considered to be reasonable assumptions about the range and distribution of specific risks. The appraisal process requires evidence of the actions taken within the project design to mitigate major risks.



Transport Project Appraisal at the World Bank, Gwilliam, The World Bank, (2000), page 10



Recent trends in risk mitigation instruments for infrastructure finance; Innovations by providers opening new possibilities. Tomoko Matsukawa and Odo Habeck. PPIAF GRIDLINES 2007

### Example: Colombia - Toll road concession project

A risk analysis was performed to test the effect on the economic feasibility of the project of probabilistic changes in the assumptions related to traffic growth, construction and maintenance costs, and generated traffic. Traffic was varied according to major deviations in economic growth during the analysis period, assuming a beta distribution of economic (and, consequently, traffic) growth rates between -0.2 and 1.5, with a median of 0.75. Generated traffic also is varied assuming a beta distribution with changes in the percentage of generated traffic from 0 to 1.2 of the estimated values and a median of about 0.9. Construction and maintenance costs were varied following a triangular distribution with a maximum of 1.7 and a minimum of 0.95 of the estimated costs. A Monte-Carlo simulation of these risks yields a distribution of economic rates of return with a probability of 25 percent of being lower than 12 percent in the case of not considering the passenger-time benefits and of about 11 percent in the case of including those benefits.



Colombia - Toll road concession project, The World Bank, project appraisal document, (1998)

## Infrastructure Risk Modeling through INFRISK

Increased exposure to risk has been an inevitable consequence of recent economic, technological, and project finance transactions.

In the face of such developments, the viability of long-term capital investments—particularly in the core infrastructure sectors of power, transport, and telecommunications,

hinges critically on how the risks associated with such investments are evaluated and managed.

The World Bank Institute (WBI) has developed INFRISK. This is a powerful tool for quantitatively measuring and analyzing project risks, and also can serve as training for raising awareness and building expertise in the application of modern risk management techniques.

INFRISK is a flexible computer risk analysis approach to infrastructure project finance transactions.

With a user-friendly interface, INFRISK can analyze the exposure to a variety of market, credit, and performance risks from the perspective of key contracting parties (project promoter, creditor, and government) for both the construction and the operation phases of a capital investment project.

The output includes deterministic scenario analysis, probabilistic simulation, and multi-period Value-at-Risk analysis for key decision variables, such as net present value, internal rate return, debt service coverage ratio, and government tax revenues.

Drawing on recent developments in the literature on project evaluation under uncertainty, the program enables the use of a broader set of probability distribution (uniform, normal, beta, lognormal, student (t), and Bernoulli) in conducting Monte Carlo simulations rather than relying only on the commonly used normal distribution.

INFRISK works in conjunction with Microsoft Excel. A Getting Started booklet is provided for instruction on the use of the software.

A Global PPPI Portal has been developed in order to accommodate the demand for a more organized and systematic PPP network. The portal's virtual library of documents, e-discussion forum, calendar of events, and other functions is proposed by the WBI to improve the connection of remote PPP professionals around the world and enhance the global PPP knowledge economy.



<http://info.worldbank.org/etools/PPPI-Portal/>

Two factors distinguish the financing of infrastructure projects from corporate and traditional limited-recourse project finance:

- a high concentration of project risk early in the project life cycle (pre-completion),
- a risk profile that changes as the project comes to fruition, with a relatively stable cash flow subject to market and regulatory risk once the project is completed.

In the reference below, Dailami, Lipkovich, and Van Dyck describe INFRISK, a computer-based risk-management approach to infrastructure project finance transactions that involve the private sector.

Developed in-house by the World Bank Institute, INFRISK is a guide to practitioners in the field and a training tool for raising awareness and improving expertise in the

application of modern risk management techniques. INFRISK can analyze a project's exposure to a variety of market, credit, and performance risks from the perspective of key contracting parties (project promoter, creditor, and government). Their model is driven by the concept of the project's economic and financial viability.



A Computer Simulation Approach to Risk Management in Infrastructure Project Finance Transactions.  
Designed and developed by Mansoor Dailami, Ilya Lipkovich, and John Van Dyck. The World Bank Institute.

## Financial Framework

Ultimately nearly all PPP devolve to money and financial aspects. We want a sound PPP policy to attract investors, but not just that. We want to attract as many financially strong and sound investors as possible in order to make the principles of competition work as well as possible.

The financial framework links and interacts with all other parts but can be described under the following headings. The Concession Agreement or PPP Contract will naturally include and set out all the financial rights, obligations, details and timescales etc. for the parties to the contract. These are usually set out in draft form in Standardized Provisions or model contract agreements already prepared to provide a comprehensive basis to assist potential PPP investors by providing a clear and transparent basis for payments (and support to investors if applicable).

In the initial estimation of the total revenue accruing to a service provider/concessionaire under PPP, there are several potential sources of revenue or income depending on the type of project and the likely financial performance of the project.

Sources of revenue and/or income to the concessionaire include:

- Revenue solely from user charges/tariffs which would be the case if the project is financially viable,
- Revenue from user charges with government support if the project is marginally viable and financial support is justified,
- Unitary/Annuity/Availability type payments wherein the Government contracts to pay the concessionaire for providing the infrastructure and related services either an agreed fixed amount each year of operation or an amount based on the future situation e.g. availability of a certain highway standard/capacity and/or future traffic levels. Such payments can either be linked with user charges or can be independent of them.

# Payments and Revenue

## Tariff Setting

For many infrastructure projects such as transport, a user tariff based agreement is appropriate. Initial tariffs and subsequent tariff escalation are initially determined within feasibility studies to ensure a proper or market acceptable rate of return based on an efficient operation. The competitive bidding process aims to minimize the initially government estimated tariffs and the subsequent escalation rate.

The concept of a proper return incorporates several important subordinate, and sometimes contradictory, principles;

- The need for full cost recovery (capital, operating and financing costs) to ensure, if possible, that the project is viable and users pay (rather than general taxpayers).
- Affordability and ability to pay the proposed tariffs by users complemented by a subsidy if such level of tariffs precludes project financial viability. This is based on the viability gap concept that some potential and targeted users would be unable to afford a full cost recovery based service. Therefore a gap exists between how much investment the toll rates will support and the actual cost of the project.
- The proposed tariffs and basis for tariff escalation during the concession period should be project, not sector, based and both written into the concession agreement.

Any proposed subsidy will be finally determined through competitive bidding to ensure the lowest liability for Government

## Tariff Adjustment

Tariff adjustment mechanisms are vitally important to transportation project concession agreements. Although the initial tariff and tariff adjustment formulas are normally negotiated and agreed prior to contract signing, there may remain many tariff uncertainties that are likely (or almost certainly likely) to occur during the concession period.

Over the concession period, much is likely to change, from the costs of major inputs, to specific service requirements and to the wider legal environment in which the concessionaire operates. In practice, many of these changes cannot be predicted accurately or even at all. Accordingly, concession contracts must allow prices to be adjusted over time, without prior knowledge of what those adjustments should be or what will trigger them.

To the extent possible, the length of Concession Agreements should be designed to initially meet and reflect financial targets to provide the right incentives to the private sector. However, concession periods can also have other objectives such as to encourage future competition and in consideration of what will happen at time of transfer, if a

BOT type project. Tariff adjustments should provide for reviews of efficiency to ascertain whether services are continuing to be provided at the lowest cost possible.

Within the Concession Agreement, governments should also consider how practical and meaningful incentive links can be established between the tariffs and the concessionaire's performance, i.e. if a concessionaire fails to meet performance guidelines by 'x', tariffs might be reduced by 'y'. The partners to the Concession arrangement can draw up a set of performance principles applicable to tariff setting and any revisions thereof. Such principles would differ between modes of transport.

For developing PPP transport projects, it is expected that exchange rate risk is to be largely (Except where major devaluations occur) borne by private operator. Therefore, it is generally proposed that the tariff adjustments should be linked to inflation rate, but that this may vary by project and/or sub-sector.

The methods recommended therefore must take into account the need to promote annual efficiency (Normally, encouraging efficiency, protecting the consumer from excessive tariff increases but also assuring the private sector operators that they will be able to stay profitable by recouping justified cost increases).

Both types of tariff determination systems i.e. rate of return regulation (profitability) and tariff cap formula (inflationary but may also include some type of mitigation of the risk related to major exchange rate movements), or a hybrid version which incorporates the best features of each are the basis of recommended tariff setting for PPP projects.

## Unitary, Annuity and Availability Payments

For certain types of projects, i.e. those;

- without a direct revenue stream, or
- with a weak revenue base or
- with a weaker than acceptable demand or
- with higher than acceptable risks,

the Government's own feasibility study may recommend a system of annual unitary payments to the concessionaire based solely on availability or outputs (i.e. the meeting of specific project targets) by the concessionaire.

An example of an annuity is that the concessionaire contracts to fund and build the project and bears the construction cost and time-overrun risk. The opening of the project triggers a payment per year based on the concessionaire meeting certain pre agreed targets such as number of lanes, pavement standard, toll gates, toll queue times etc. The annual payment can be either (i) dependent on standards/performance of the operator or (ii) related to both traffic demand and performance standards. In the example (ii) it can be termed a shadow toll.

In the UK, the UK version of PPPs, called PFIs, the unitary payment system is very common and especially in the health and education sectors as well as roads. In India, the use of annuities to fund toll roads is also very popular.

# Financial/Fiscal Support, Incentives and Guarantees

For projects that have been appraised under the process described herein, as not being bankable without support, such support may be offered by government and can comprise various types and sources. This is to ensure that with such support, the project is, ultimately, financially viable and is therefore attractive to bidders. Any proposed subsidy will be finally determined through competitive bidding to ensure the lowest liability for Government.

It should be noted that funds available to support projects are limited and therefore only the highest priority projects will likely receive financial or fiscal support.

Such support can include the following:

## Project Development Facility Funds

In order to put PPP projects out to tender successfully and to obtain the best possible deal, the implementing agency of Government needs to understand, plan and structure the project.

The Government, in order to undertake full and proper studies as described below under the project cycle, may establish a fund to properly resource feasibility studies which may cost from several hundred thousand dollars for small projects to several million dollars for large complex projects. This may be a revolving fund with the study costs reclaimable from winning bidders in some instances, for example where the project is financially feasible.

## Viability Gap (VG) Concept

The Government will provide viability gap funding, or targeted subsidies, for PPP projects that are economically and socially justified but fall short of financial viability. In theory subsidies should not exceed the net economic benefit of a project, but firstly fiscal space for subsidies will be limited and secondly several countries have capped their VGF to a maximum of 20% of the total project cost.

## Guarantees and the Guarantee Fund

Risk sharing and contingent support may be available where studies indicate that a project is considered financially viable but where there are higher than acceptable risks such as fuel prices, traffic demand etc. The future fiscal impact of contingent guarantees will be quantified.

As part of the government's risk framework, a guarantee fund would need to be set up which will cover and monitor all guarantees for PPP projects.

## Longer Term funding Support

An Infrastructure Project Funding Facility may be considered to provide residual long-term funding at commercial rates for PPP projects.

## Government Incentives

PPP Projects will be eligible for fiscal and other investment incentives, which will be listed and available to all interested PPP participants.

## Other Direct and Indirect Support

PPP Projects may receive other direct and indirect support. In general the need for other types of support should be established by the Government's transaction advisers when preparing the project feasibility study such that all potential tenderers will be aware of, and take into account, such support within their bids.

## Ceilings for PPP Project Support

Ceilings are normally established for support to PPP projects. Such ceilings could be general caps and include those related to the VG and financing funds, as well as the fiscal space for guarantees and the maximum volume of the future annual annuity payments. Other caps could be related to individual projects.

## Financial Support and Guarantees

### Initial Approach - Select bankable projects

The selection of bankable projects is essential if PPP projects involving Project Finance are to become a success. However since "bankable" depends largely on the constraints and opportunities of both the definition of the project and the environment in which this project is to be implemented, there are either no bankable projects, or all projects can be considered as bankable.

For example, if the private sector has to fund development, land acquisition and construction costs on the basis that it has to take all the planning risks and can recover the investment only through raising tolls even though tolls are capped and all projections indicate that traffic would be low, there will probably be no project that is bankable. If, on the other hand, the public sector takes all the planning risks, pays cost overruns and agrees to repay the private sector through a cost plus fee system, virtually all projects may be considered bankable.

Bankability is therefore determined by how the project is defined (e.g. starts after land has been acquired by public sector following the completion of the planning process) and the constraints that are imposed, or the incentives that are provided, in respect of

the implementation through the Concession Contract or Regulations. This means that many projects could be made bankable if well defined and if the environment provides sufficient incentive.

The process of selecting bankable projects, therefore, comprises selecting projects that can be given a serious chance of success by providing sufficient incentives through Government support and Regulations, whilst keeping these incentives within acceptable limits and in line with risk transfer objectives.

### **Governmental support and Guarantees**

Government support to a PPP project can be provided in various forms and serves primarily to facilitate its financing. The instruments and level of support provided depend on the risks involved for transfer to the private sector and the financing requirements of the project once a risk allocation structure has been established. These instruments do not however include structures whereby the public sector is 100% responsible for either funding or cost recovery.

Government support could be provided in the general framework for PPP solutions (Financial regulation) or as a result of direct negotiations in setting up the PPP structure for a particular project. It consists of:

#### *Tangible support*

**Direct Financial Support** in the form of grants, capital and operating subsidies, tax holidays, provision of land, provision of existing roads, VAT relief, etc.

Direct financial government support relates to instruments that will form part of the project funding or the income recovery instruments. They can be provided in the form of:

- **Capital funding** in the form of grants or capital subsidies, share capital or subordinated loans, whereby the precise form will depend on the project structure, the depreciation aspects, the profit sharing arrangements, etc.
- **Operating subsidies** in the form of traffic related payments or as fixed annual contributions.
- **Indirect financial contributions** could be provided in lieu of capital funding in respect of the provision of land or of connecting roads and interchanges for example or possibly in respect of some operational activities.

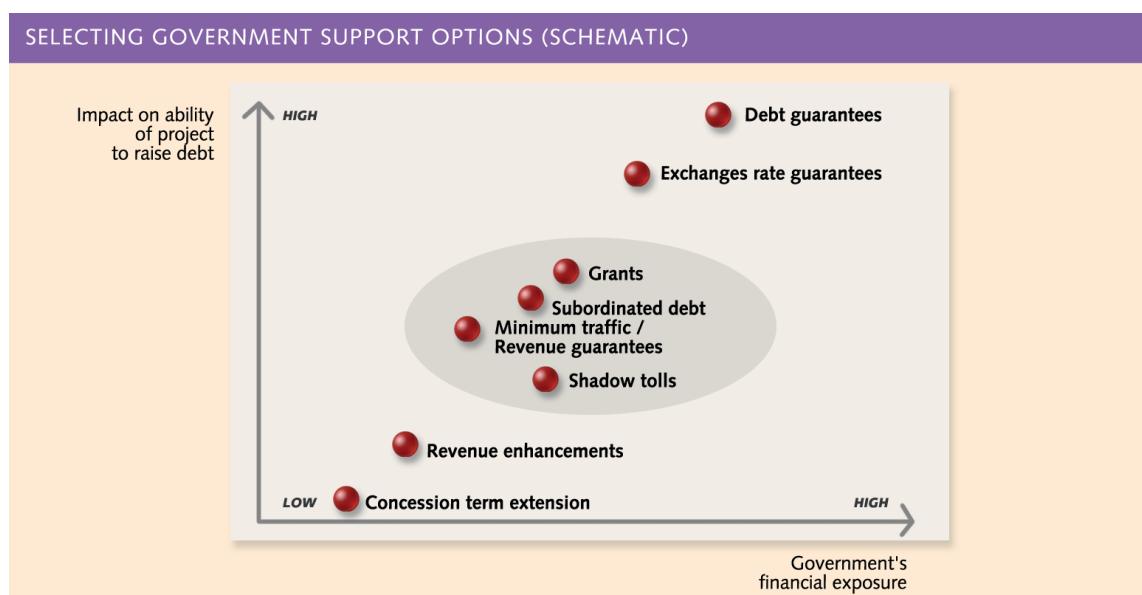
Both the amounts required in respect of capital funding and operating subsidies depend on the ability of (i) the project to service debt and equity and (ii) the ability and intentions of the public sector to make up-front contributions or not. The possibilities of providing indirect contributions depend largely on the individual project structures and such support in respect of operations is unlikely to be significant compared to the financial requirements and might even contradict the general efficiency aims of setting up a PPP.

### *Intangible support*

This includes the implementation of restrictions on using existing parallel roads (for example weight restrictions for long distance traffic), the creation of new parallel (free) roads, introducing tolls on connecting roads, major changes in law or regulations affecting the project economics, etc.

Most of the intangible support items are very project specific and/or are difficult to define when creating the project and establishing the public-private partnership. Whereas for example the public sector can accept the consequences if parallel roads are created, it can never fully guarantee that such roads are not built. This means that if the construction cannot be avoided, the partners will review in good faith their contractual relationship, whereby the extent to which such a review will take place depends on the quality and impact of other forms of support that may have been put in place.

The chart below compares in schematic way the various types of Government support to PPPs.



*Source: Private Financing of Toll Roads. Fishbein and Babbar. 1996.*

### Guarantees

The most common form of government contingent liability support is a guarantee, which in broad terms is a commitment to bear a risk or more specifically, "a contractual arrangement under which a third party (the guarantor) agrees to fulfill the financial or other obligations of the guaranteed party (the principal obligor) to another party (the beneficiary) in the case of default by the principal obligor".

Other forms of contingent support instruments are: State insurance schemes, bailout of sub national entities or financial system, and disaster relief, among others. Guarantees can be structured in respect of debt, foreign exchange, demand, construction cost, interest rates and other forms.

Guarantees differ from each other depending on the kind of risk that they shield against and also in the proportion of the underlying obligation value that they cover for. Hence, there are guarantees on political and regulatory risks, exchange risks, force majeure risks, interest rate risks, default and credit risks, construction cost risks, and demand risks, among many others. Simultaneously, these guarantees are categorized in full and partial guarantees, depending on the level of support a government considers convenient to provide and the degree of risk exposure it is willing to bear.

Commonly used guarantees are:

- **Partial risk guarantees**, which offset risks associated with specific concerns regarding the host government;
- **Partial credit guarantees**, which back debt payments for certain periods of maturity, or certain proportions of total loan obligations, in case of project default arising from a variety of risks;
- **Full coverage guarantees**, which cover against all risks and where the guarantor is committed to fully pay the liabilities of the project to a lender in case the former defaults due to any risk;
- **Counter-guarantees**, where the government undertakes to compensate an external guarantor for all amounts disbursed due to the activation of the guarantee.

Simultaneously, these guarantees mentioned above may take the following forms:

- **Equity guarantees**: The public sector could accept to buy out the private sector under certain circumstances at a price that provides a minimum return.
- **Debt guarantees**: The public sector accepts to guarantee all or part of the debt service requirements or to refinance the debt at maturity in case of a bullet repayment. This guarantee can be called for whatever reasons or in respect of some well defined circumstances and can be provided to the private sector as a whole or to lenders through a direct Agreement for example.
- **Foreign exchange guarantees**: If the devaluation of the local currency in comparison with the currency in which the project is financed surpasses certain limits, the public sector could cover (part of) the difference. In turn, the public sector could require a share in the benefits if devaluation is significantly less than assumed.
- **Traffic & revenue guarantees**: If traffic (or revenue) is below expectations, the public sector could provide financial support to cover (part of) the difference, whereby a revenue guarantee is wider than a traffic guarantee as this also covers the toll rate risk. In turn, the public sector could require a share in the benefits if traffic (revenue) is substantially more than assumed.

Guarantees are instruments devised to facilitate risk sharing between the economic agents involved in a project. Sound and rigorous design and monitoring of these instruments can allow objectives to be attained with no excessive costs being shifted to the government while still attracting private investment. For instance, provision of partial guarantees (covering less than 100 percent of the underlying loans) may moderate the moral hazard that the guaranteed party would incur by aligning its interests with those of the government, rather than if it had been offered a full guarantee.

Limiting guarantees to cover debt payments, and not equity returns, or charging a premium on the guarantees issued may also encourage the guaranteed party to perform thorough risk assessments and to check its operations. It may also deter the guaranteed party from conducting the careless operation of projects, expecting the government to bail it out in the event of a negative situation.

If the expected costs of guarantees remain hidden within the government fiscal system, they have the tendency to stealthily accumulate risk and thus financial exposure on the part of government. Therefore, guarantees can ultimately result in ultimately, becoming a severe burden on a country's fiscal resources especially in the event of an economic downturn. Hence the importance of estimating the cost of guarantees, and making provision for them.

### Guarantee costing

Guarantee costing is a powerful course of action to reduce the likelihood of moral hazard implied by a non-priced guarantee, decrease investors' temptation to demand for excessive coverage, shift the cost of the guarantees to the consumers of the services provided by the guaranteed project rather than to the general taxpayer, and allow governments not only to cover downside risk, but also to share the upside potential through the acquisition of warrants on the relevant project.

Four general approaches to guarantee costing can be listed:

The first two, actuarial and econometric models, are disadvantageous for infrastructure-related guarantees since there is no usually available historic data on such projects from which to run calculations.

The third approach is based on stock option pricing theory, where a guarantee is regarded as a (European) stock buying and selling option, and may employ stochastic techniques to overcome the drawback of lacking historic data.

The fourth method, defaultable bond analysis, perceives the guarantee as the difference between a risk-free bond and a defaultable bond, and thus employs rating agencies' data or financial market assessments to value the guarantee. Further details are provided in Almeyda and Hinojosa (2001).



Revision of State-of-the-Art Contingent Liability Management. Almeyda and Hinojosa. 2001.

### Residual risk, contingent liability

The private sector is often reluctant to bear some of the risks implied by the nature of infrastructure projects. Due to the prolonged construction periods entailed by these projects, investors in infrastructure generally confide their financial resources to host-countries over very long periods, even decades. Unlike portfolio investments, investors lack the option of promptly withdrawing their resources in the case of political instability or economic volatility.

Thus, infrastructure investors face not only business risks that are considered normal for any investment, such as commercial and financial risks, but also risks that might be under the direct control or influence of the governments of host-countries, and directly associated with policies undertaken over extended periods of time.

The perceived existence and degree of these risks determine the risk assigned to a given country by investors, and thus the rate of return required by them in order to allocate their funds in that country. Country risk assessments are commonly offered to international market participants by credit rating agencies such as Standard & Poor's™, Moody's™, and Duff and Phelps™.

Generally, investors are willing to allot their funds at low capital cost in countries with low country-risk, that is, with macroeconomic and political stability, and strong and credible regulatory frameworks. In contrast, in cases of high country risk, the cost of capital will be substantially elevated, and it may even be difficult to attract investments at all.

### Recent Developments in Planning for Contingent Liabilities

When governments seek private investment in infrastructure projects, they usually find themselves asked to provide grants, guarantees, or other forms of fiscal support. If they make the wrong decisions, the costs can be high. Seeking to provide support without any immediate spending of cash, for example, governments often agree to shoulder project risks and sometimes encounter fiscal problems later. Yet even when governments have chosen to provide cash subsidies they have not always achieved their apparent goals. In still other cases, governments' decisions not to provide support may cause problems: some governments might arguably have averted opposition undermining private projects if they had temporarily continued to provide the subsidies they had implicitly been giving to loss-making state-owned enterprises. Governments that do not provide support to reduce political and regulatory risks may fail to obtain investment at all.

This Toolkit sets out a framework intended to help governments make good decisions about the provision of fiscal support (such as output-based cash subsidies, in-kind grants, tax breaks, capital contributions, guarantees of risks under the government's control, and guarantees of risks not under the government's control). It provides tools to facilitate analysis and the decision making process.

The Toolkit considers five possible government goals:

- internalizing externalities in infrastructure markets,
- overcoming failures in markets for financing infrastructure,
- mitigating political and-regulatory risks,
- circumventing political constraints on prices or profits, and
- redistributing resources to the poor via infrastructure.

And it considers six possible fiscal instruments designed to achieve those goals:

- output-based cash subsidies,
- in-kind grants,

- tax breaks,
- capital contributions,
- guarantees of risks under the government's control, and
- guarantees of risks not under the government's control.

Because each infrastructure project is different, the Toolkit does not try to draw universally applicable conclusions about the usefulness of the various instruments of fiscal support available to the government. It argues, however, that output-based cash subsidies have two valuable features: they can be carefully targeted towards the achievement of the desired objective, and their costs are usually clear. This does not imply that cash subsidies are always cost-effective; in practice, they often appear poorly targeted.

Whenever another instrument is used, however, the question naturally arises: is this instrument being used because it most efficiently achieves the objective or only because its cost is opaque and its use not subject to standard expenditure controls? In some cases, instruments other than output-based cash subsidies should be considered. In particular, political and- regulatory risks are likely to be best addressed through government guarantees of the particular political-and-regulatory risks of concern.

Government decisions are rarely driven solely by the dictates of cost-benefit analysis. Generating good decision making about fiscal support also requires processes for decision making that facilitate good analysis and temper the influence of self-interest. Fundamentally, such processes ensure decisions are made by people or organizations that have enough information, and strong incentives, to make good decisions-either by assigning decisions to those who already have good information and incentives or by improving the incentives of, and information available to, existing decision makers.

Several policies can enhance the collocation of information, incentives, and decisions: giving responsibility to people working on the objective (rather than the instrument or the infrastructure service); separating decision making from delivery; involving those responsible for costs; utilizing decision making forums that emphasize tradeoffs; routinely generating information on costs and benefits; requiring routine disclosure of information; charging for certain types of support; and ensuring accountability for decisions.



Public Money for Private Infrastructure - Deciding When to Offer Guarantees, Output- Based Subsidies, and Other Fiscal Support Timothy Irwin August 2003 World Bank Working Paper No. 1

In cases of high country risk, contingent liability instruments have been widely employed by governments to attract private capital to infrastructure projects at satisfactory rates to support them. Through these instruments, governments share some or all of the risks listed above, with the private sector thus lowering investor's required rate of return.

Contingency is defined by the International Accounting Standards Committee as a situation or condition whose ultimate outcome is determined only by the occurrence, or non-occurrence, of one or more events. Hence government support committed through a

contingent liability instrument, is provided only in the presence of an event determined ex-ante. In such case, the commitment becomes a direct liability for the government.

The flexibility of contingent liability instruments and specifically guarantees, offer some advantages to governments: as indicated before, they might drive down the cost of capital for a project in a given country; they help reinforce commitments of government agencies and sub national entities; they can be shaped to cope with a wide assortment of risks that are not subject to project or country limits and they do not represent immediate cash outlays.

On the other hand, contingent liabilities pose potential fiscal risks to governments and create moral hazard in the markets. They are often not officially reported, in other words, they are not directly associated with any existing budgetary program, which obstructs their monitoring and control. Since they are not current outlays and they are not reflected in the budget, contingent liabilities allow politicians to pursue policy goals that are not necessarily budgeted and may also compel governments to delay structural reforms. This situation can encourage short-term minded policymakers to provide concealed government support to determined projects and interest groups, while simultaneously accumulating excessive contingent commitments whose fiscal costs may not be disclosed for an undetermined period of time until a discrete event activates the claims against the government's resources. Such behavior generates uncertainty about future public financing requirements and endangers future fiscal stability.

Basic guidelines are provided in this section to assist policy makers in managing contingent liabilities.

## Fiscal Guidelines

### Fiscal Transparency Code

The International Monetary Fund has drawn up a comprehensive set of guidelines conducive to the sound control of contingent liabilities on the part of national governments. In particular, the IMF Code of Good Practice concerning Fiscal Transparency provides a series of steps oriented towards enhancing the accuracy of fiscal planning and reporting in the presence of contingent liabilities, thus improving the credibility of fiscal policy through public disclosure and government accountability in the face of risk, to ultimately ensure macroeconomic stability and economic growth.

In this respect, the Code asserts that "Statements should be published with the annual budget giving a description of the nature and fiscal significance of contingent liabilities, tax expenditure, and quasi-fiscal activities".

Accordingly, section 2.1.3 of the corresponding Manual on Fiscal Transparency offers relevant examples of contingent liabilities, both explicit and implicit, warns against the risks that they might entail and the shortcomings of traditional cash flow based budget accounting. The Manual further describes the advantages of accurate reporting of contingent liabilities in the management of fiscal risks and in the design of policies that involve risk-sharing between the government and the private sector.

It also recommends the inclusion of a statement of the main central government's contingent liabilities, and that they should be reported as part of a broader fiscal risk assessment. It is suggested that the statement should include a brief indication of the nature of each contingent liability and the beneficiaries, both to enable adequate assessment of "potential fiscal significance and to reduce the possibility of abuse through preferential treatment".

Finally, it advises: a) the inclusion of an estimate of the expected cost of each contingent liability (up to the limit set by technical possibilities); b) the provision of information about the basis on which the estimates have been calculated and, c) the registration of those contingent liabilities reported in the previous year's budget resulting in expenditure during the current year.

To the extent that these guidelines may be gradually adopted by IMF members, and thus might eventually serve as a benchmark of sound fiscal policymaking, it is advisable for national governments to take into consideration the measures proposed by the Code, in particular regarding contingent liability management.

### Public management of contingent liabilities

Four different approaches to controlling and managing fiscal risks entailed by contingent liabilities are suggested by Schick:

- the first one requires a publicly open stance on the part of the government regarding the types of risks it faces, as well as the volume and eventual costs these commitments will represent, and an estimation of the probability that such contingent obligations will be eventually triggered;
- the second approach implies the incorporation of risks assumed by the government in the current budget process, where the more direct and explicit the risk, the greater the suitability of budgeting proper resources to cover for the estimated costs of the existing contingent liabilities;
- in the third approach, the government should limit risks before they are taken by establishing criteria ruling whether or not governments should assume contingent commitments;
- the fourth approach envisages the reliance of governments on market-type mechanisms to either entirely or partially transfer risk, or risk assessment, to the private sector.

In line with Schick's first three points, Lewis and Mody (1997) advocate an integrated risk management approach to be implemented by governments, comprising:

- compilation, identification and classification of risks confronted;
- measurement of risk exposure;
- incorporation of risk exposure figures in national accounts and budget;
- determination of the government's tolerance to risk and definition of criteria for the establishment of adequate unexpected loss reserves;
- implementation of risk exposure supervisory and controlling systems.

As can be perceived, these authors agree that governments should systematically monitor and acknowledge their exposure to future liabilities. They should therefore record, assess, budget, and publicly acknowledge the risk exposure resulting from their contingent liability holdings.

The next subsections will describe the components of an integrated risk management approach following Lewis and Mody's proposal.

### Contingent Liability Management Methods Employed by the Private Sector

The private sector, specifically corporations, commercial banks and insurance companies, has made substantial progress in dealing with contingent liabilities in the past decade. Along this line, Schick (2000) suggests that since the business sector has more advanced statistical tools and hedging strategies for risk assessment, measurement and management, there is no reason for governments not to adapt relevant commercial practices to their fiscal risk analysis and supervision. In this respect, two examples of contingent liability management and determination of capital adequacy in commercial banking that could be illustrative to the public sector are offered: Basle Agreement Capital Adequacy Ratio and Value at Risk VAR.

More details on contingent liability management are provided in Almeyda and Hinojosa (2001):



Revision of State-of-the-Art Contingent Liability Management. Almeyda and Hinojosa. 2001.

# Institutional Framework and Reform

## Managing Institutional Change

A road management structure should be designed to meet the key outputs that road users consider essential and at the same time provide the efficiency that should be inherent to the private sector. The cost of poor road management and inadequate road financing are borne primarily by road users.

Structures which exist to manage roads range from traditional government public works departments through to government-owned commercial companies. The further you move toward a company structure, the greater the focus is likely to be on the efficient use of funds and customer satisfaction.



Revision of State-of-the-Art Contingent Liability Management. Almeyda and Hinojosa. 2001.



Managing Performance of a Highway System in the 21st Century, R. J. Dunlop.  
PIARC XXI World Road Congress (Kuala Lumpur). 1999.

The various ways of moving towards a company structure may involve contracting out implementation to the private sector, learning effective ways of contracting out, recruiting and paying capable staff, and setting up sound management structures and appropriate management information systems.

These reforms improve market discipline, give managers the freedom to operate commercially, and strengthen managerial accountability. They also encourage objectivity in setting priorities, adopting quality assurance programs, comparing in-house work to that done by contractors, and evaluating appropriate technology for road works.

It appears from the other sections of the Toolkit that many organizational structures can be developed for road management. However some aspects are paramount:

- Accountability
- Efficient use of funds
- Customer satisfaction
- Responsibility for safety and environmental concerns.



Commercial Management and Financing of Roads. I. Heggie and P. Vickers  
World Bank Technical Paper N°409. 1998

# Public sector institutions

Governments and public sector agencies remain at the heart of infrastructure planning, regulation and delivery whether none, some or all infrastructure is financed through a PPP option. Those three scenarios and intermediate conditions obviously require different PPP arrangements for government institutions.

It also means that governments have to manage the reform process which is always difficult given that there are almost certainly winners and losers.

Governments also remain responsible for economic development including social goals which can be partly achieved through PPP programs if built into design objectives.

Governments are also responsible for infrastructure finance, fiscal space and overall risk mitigation for all 'public' sector projects whether PPP or not and whether developed at central sub national level. This has also implications for the local capital market, financing institutions and funding instruments which the government can support, regulate for, possibly fund where appropriate and encourage.



Infrastructure in Latin America and the Caribbean-recent Developments and Key Challenges,  
Foy and Morrison, WB, 2007

## Scope of PPP development

As already mentioned, PPP and its mechanisms cover many different forms of private partnership. The most successful outcome of PPP development would result in the private sector being responsible for a large share of transport provision and services. Even in the roads sector, where public investments will continue to be needed for low traffic roads, toll roads are becoming increasingly important and are increasing shares of all traffic needs, as in Argentina and some parts of Brazil. It is not too risky to predict that this trend is likely to continue as the demand for transport services continues to grow much faster than the government's ability to raise the resources to finance it.

A key advantage of having the private sector provide public services is that it allows public administrators to concentrate on planning, policy and regulation. The private sector, in turn, is empowered to do what it does best, and in particular improve the efficiency and quality of service.

In some cases, governments have recognized that it is also fiscally profitable to privatize services that demand huge amounts of subsidies at high delivery costs, as private operators can often cut these costs quite quickly.

Privatizing public services raises many questions that have to be tackled by the reform teams: the forms of competition, the type of unbundling, the sequencing of the process together with the ranking of government objectives. The most difficult challenge for governments is to prepare to enforce the commitments made through the PPP development transactions. This means that after PPP development, the Transport

Ministries and Secretaries have to resist the temptation to create a shadow management of the activities they used to run.

On the other hand, the transfer of infrastructure services to the private sector should not lead to privileged deals or profit secured by government guarantees. They should be businesses with regulated income streams which derive their profits from increased efficiency and the attraction of additional demand.

## The Different Steps

According to A. Talvitie, a five-step sequence is identified for the evolution of Highway Authority toward a client-producer system in which public service operation is eventually transferred to the private sector:

- Establishment of a traditional construction and maintenance organization;
- Identification of client and producer functions. The client organization is responsible for governmental functions: administration, management and planning; contracting, and associated information collection and dissemination functions related to roads. The producer organization is responsible for execution: design, construction, maintenance, and operation of the road system.
- Separation of client and producer organizations; introduction of a road board.
- Corporatization or PPP development of the producer organization and establishment of an autonomous (client) Highway Authority; installation of a road fund.
- Corporatization of the (client) Highway Authority or agency.

To move from stage 1 to stage 2 means that the Highway Authority adopts a deconcentrated form of organization. Specialization gains in importance and the client and producer roles became identified. Later in this phase, the Ministry of Transport begins to concentrate on multimodal policy, and the Highway Authority begins to decentralize.

In stage 3, greater reliance on the market mechanism leads to the separation of the client and producer organizations. The client organization remains as the Highway Authority, and the producer organization reports either directly to the Ministry of Transport (as in Poland) or to the central management of the Highway Authority (as in the Scandinavian countries). The road board normally appears in this phase. The Highway Authority decentralizes its organization. The central office manages and the regional offices reporting to it are responsible for the quality and quantity of the service delivery. The ministry delegates budgetary and other responsibilities to the (client) Highway Authority and the road board. It defines only the mission of the administration, its broad goals - which change from time to time- and fixes the annual budget.

In stage 4 the producer organization is privatized and a road fund is established to provide for partial autonomy of the Highway Authority. The ministry is likely to delegate all budgetary responsibilities to the Highway Authority through the road board and concentrates on defining and developing the policy framework. The central office of the Highway Authority, now responsible for policy uniformity, budget distribution, important goals and performance audit, is small and manages effectively using modern technology and management systems. The road program is managed by the regional offices. They also carry out performance measurement, which is institutionalized.

In stage 5 the (client) Highway Authority is corporatized and becomes the formal owner of the roads on behalf of the government. The Highway Authority simulates a private corporation under the ministry's authority. Its source of income is the road fund financed from road user charges.

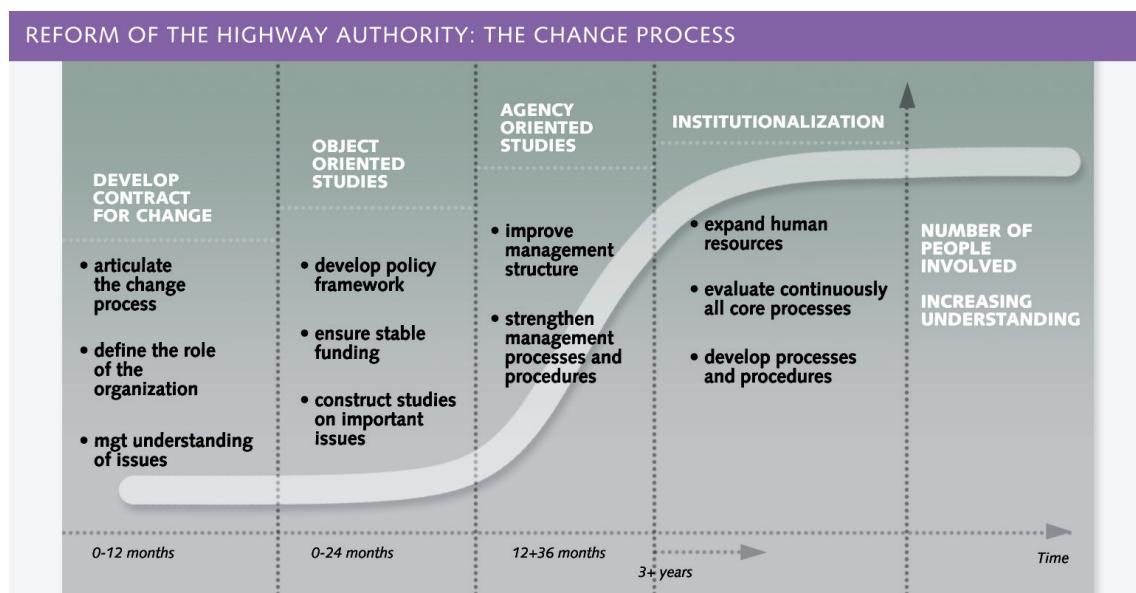
The following principal problems may persist even in Phase 4, after the Highway Authority has become the client organization, and production is privatized: unclear administrative performance, suboptimal network size, budget, neglect (or surplus) of maintenance, ineffectiveness of management, and inattention to social effects of roads. A remedy for some of these issues can be the corporatization of the client organization, proposed in Phase 5 as the culmination of a mature evolutionary process.

Can a country successfully skip some of these stages? Proposals are often made to jump from Phase I to Phase 3 and skip Phase 2. However, many important, often simultaneously occurring activities are accomplished in Phase 2, without which Phase 3 cannot succeed. These include identification and learning of new roles (client, producer), reorganization of the sector, legal and regulatory development, improvement of contracting procedures, emergence of new issues (traffic safety, public transport, engineering-economics), and development of modern management tools (road and traffic data collection, road data bank, management systems).

The evolution described must be revised when greater skills are acquired in managing institutional change. A great deal of experiential learning must take place by the professionals in the institution to manage a modern Highway Authority.

## The Change Process

In the chart below, Antti Talvitie further describes the various stages in the reform process and the core activities to be performed at each stage. The chart shows an increased level of understanding of the process by the highway authority and the growing number of personnel involved.



Source: *Talvitie (1998)*

For more information, consult the reference by Antti P. Talvitie:



International experience in restructuring the road sector, A. Talvitie,  
Transportation Research Record 1556, 1998, page 6

## Examples of Experience

### The Colombian Institute of Highways

In 1994, the Ministry of Transport of Colombia transferred the national highways function from the Ministry to a semi-autonomous institute, and eliminated all force account work. In 1996, the new National Institute of Highways (INVIAS) decided (with financial support from the World Bank) to initiate a major modernization program to strengthen institutional and financial resources for management of road networks and infrastructure.

INVIAS was then working with a team of consultants to rapidly diagnose, plan and implement their program, including new financing strategies and procedures, contracting and project management processes, human resource approaches, and executive and technical information systems.

INVIAS which is taking advantage of the comparative advantages offered by the private sector, and has identified the transitional steps to move in that direction, aims at becoming, in the near future, a high performance public organization.

### Commercialization of Roads in the Dominican Republic

In the Dominican Republic, maintenance neglect between 1980 and 1986 led to a badly deteriorated network, which could only be corrected by major rehabilitation or reconstruction. At that time, the Secretariat of State for Public Works and Communications (SEOPC) had responsibility for overall transport sector management. In practice, however, SEOPC concentrated on the road sector, ranging from road planning, maintenance and construction, as well as road transport activities.

The first major restructuring initiative dates from 1987, when a major nationwide road rehabilitation program was launched, funded by the government and multilateral sources including World Bank loans. Among the objectives of the project, the improvement of the institutional capacity of SEOPC to plan and maintain the road system was stressed.

Apart from a significant improvement in the network quality, another achievement of the program was major reforms in the organization and financing of the road sector. Contracting out maintenance and rehabilitation activities has reduced costs by as much as 30%; the contracting out of maintenance was part of the process to strengthen SEOPC's project management and road maintenance planning and monitoring capacity. Contracting out activities also helped develop the capabilities of local construction companies, especially in the areas of pre-qualification and the quality of bidding documents and proposals.

# PPP Units and the role of the Highway Agency

**The overall objective is to develop and implement policy and regulatory reforms, and to build the institutional and social foundations, needed to enable, promote and facilitate efficient and sustainable large-scale private investment in infrastructure.**

The expansion of Public Private Partnerships (PPP) is viewed as essential to develop sufficient infrastructure to maintain and expand economic growth. Expanded growth means more employment, more inward investment in other areas of the economy (other than infrastructure) and the continued promotion of exports which the macro economy urgently needs. Better and safer infrastructure under PPP also serves an important socio-economic function by helping to expand services to the whole population.

Reform programs overall address the legal and regulatory constraints to this expansion at both cross-sectoral and sector levels.

## PPP Units-Centralized and Sector related

Institutions form an equally important element in developing an effective PPP framework. Regulatory reforms need institutions for their implementation, hence the relevance of a PPP central unit and the need for related sector PPP Cells in the line ministries. The inter-connection of these units is important.

The basic premises underlying recent developments are described below.

The central unit is usually an integral part of a planning ministry, although it might be located in a ministry of finance. PPP implementation is normally decentralized to respective sector agencies with the consequent need for PPP Cells in either line ministries/specialist agencies or both.

The tasks of a Central PPP Unit include:

- Coordinate with ministries of finance, planning ministries, line ministries and PPP cells on PPP matters
- Assist in the evaluation and coordination of PPP projects
- Coordination with the PPP Cells in line ministries and local government and/or government institutions responsible for the preparation, implementation and monitoring of PPP Transactions
- Evaluate project preparedness to assure project feasibility/ bankability and risk management
- Identify cross sectoral problems and solutions
- Prioritize priority of infrastructure projects under PPP
- Review the output of PPP Cells to verify consistency with prevailing strategies and procedures

- Prepare briefing notes on the feasibility of Government support.
- PPP Policy and Development
- Institutional Capacity Building for PPP, including to PPP Cells, local government and other government institutions responsible for PPP
- Prepare Database and information on PPP projects
- Collect, process and disseminate information relevant to PPP

The PPP Central Unit usually has the authority to:

- Access data and information, as necessary, from parties related to a proposed PPP, and
- Propose the priority of PPP projects
- Prioritize and Recommend projects for government support

Regulations should reflect all or most of these activities.

The PPP units can also develop Policy and Institutional capacity relating to their sectors and specific PPP projects

## PPP Cells or Units

PPP Cells are part of a national PPP network under consideration, and may well be planned as part of wide ranging or specific technical assistance.

PPP Cells should be considered for establishment in the sector ministries/agencies overseeing the implementation of PPP projects. Regional PPP units, to assist PPP implementation at the local government level, should also be considered.

The network is expected, at least, to maintain and update information on PPP policies, regulations and procedures, disseminate such information and promote the private provision of infrastructure, including current and potential PPP opportunities.

The mechanisms for coordination necessary to enhance the network's effectiveness also need to be defined. This must be borne in mind when considering PPP units.

The PPP Cell will then serve as a repository of expertise and skills within the ministry and will continue to facilitate PPP projects after any TA is completed. However, other consultants may be recruited to facilitate the implementation work of the PPP Cell.

Building an institutional capacity is always considered to be of paramount importance.

PPP Cells are planned within the proposed national institutional PPP framework. Therefore, linkages, functions, responsibilities and authority of each part of the PPP system should be clarified at the outset.

## The Regulatory Function, the Regulator and the PPP Cell

Institutional reform and improvement of the regulatory framework are key components of any PPP programs. It is useful therefore to provide the context for the PPP Cell and the institutional reforms.

The most significant difference between the PPP Cell and the Regulator is that the PPP Cell's most important functions are pre transaction and the regulator's are post transaction. However, the PPP Cell will also be involved in the entire PPP cycle including contract management.

The PPP Cell, while having to be aware of what would generate private sector interest in PPP projects, is largely a facilitator, a monitor and an internal ministry adviser. The regulator by contrast is an external body which has several functions including;

- Advising on the tariffs/tariff adjustments for PPP projects
- Creating a competitive environment in monopoly/semi monopoly situations
- Advising on regulatory reforms to improve PPP

In terms of the PPP Cell and the Regulator, the PPP Cell is part of government and relates especially to the line ministry and the Contracting agencies. The ideal regulatory body is independent but is likely to have some ad hoc interaction with the PPP Cell. The PPP Cell may also have some interaction with the operators of PPP projects. (See section on Regulation)

## PPP Cells within National Highway Authorities

Due to the need for specialist inputs at an early stage in project development, PPP Cells should be considered for highway agencies.

The fundamental objective of a PPP Cell is to facilitate the development of infrastructure through the mechanism of Public Private Partnerships, thereby increasing both the quantity and quality of public services.

### Purpose

The fundamental purpose of having a PPP Cell is to provide a repository of information and skills which will facilitate Public Private Partnerships by:

having an in-house capability within the authority and/or ministry to help plan, mobilize, structure and implement PPP projects according to national laws and regulations. In particular the PPP Cell would be involved in assisting the contracting agency in project identification and preparation, including due diligence related to the required Pre or Full feasibility studies and in structuring and preparation of bid packages including draft contract documents;

- to provide a “one-stop-shopping” entity that potential private sector investors and operators can deal with in pursuing PPP opportunities.
- To coordinate with the PPP Centre and thus to cross-sectoral policies, regulations, risk management and fiscal support (if any) under a Risk Management Unit in a MOF.

## Tasks and Functions

The tasks and functions of a PPP Cell include the following;

- An organization with appropriate mix of skills with a culture to reflect the change in the line ministry's role as provider of infrastructure to enabler of PPP projects
- Sector policies, regulations and procedures to enable and facilitate PPP in infrastructure
- Reliable and up to date information on PPP practices, policies, regulations and project opportunities.

## Scope of the PPP Cell

Internationally, PPP Cells vary in scope, and range from those which function as centers of PPP knowledge and skills to those that provide a full range of project, transaction, analysis, monitoring and implementation support.

The extent to which a PPP Cell can provide services in support of increased PSP and PPP for improved service delivery depends both on the structured requirements of PPP within the line ministry but ultimately its budget and resources.

A PPP Cell budget normally includes funds or access to funds for international and national expert advisors who will transfer skills to local counterparts through on-the-job training. There is usually also a budget for formal training, and site visits or study tours, for local counterparts. Substantial capacity building is usually required.

As the number of PPP projects and transactions increase, the PPP Cell can develop into a fully functioning, semi independent, unit. It is then common practice to develop the PPP Cell into a PPP Unit that has a budget for contracting analytical work to outside consultants and may even have its own revenue generating sources. Indeed it could be envisaged that some sub sectors with expanding PPP programs might start with an external liaison function.

Development of PPP cells has to be undertaken within the overall principles, frameworks and procedures for PPP within a country. In some countries, the major responsibility for PPP project selection, evaluation and implementation will be with the 'contracting agencies' (CAs). However, strong support and guidance will be needed with all the connections which will form part of the PPP 'network'.

The scope of work of the Cell will, in particular, be to provide or undertake the following functions;

- Guidance and Support for PPP Development
  - Act as the focal point for all matters (including legislative, policy, regulation, structural, implementation and coordination) relating to undertaking PPPs
  - Information and Assistance within its ministry on transport specific projects
  - Help analyze sector needs and the contribution of PPP to those needs
  - Any other supporting role for PPP development
  - Public Consultation
- Oversight:

- Related to procedures and regulations for PPP implementation including due diligence and including risk management
- Compliance monitoring
- Scheduling and coordinating procurement of private sector partner(s)
- Assistance with contract management (monitoring)
- Coordination:
  - Coordination with Contracting Agencies (CAs) and other agencies related to project planning and development processes through to financial closure
  - Coordination of the provision of information to public and private parties
  - Project Monitoring System to keep track of projects being undertaken in the sector/sub-sector
  - Disseminate (via website, periodicals, seminars, workshops etc.) relevant issues (such as plans, progress, project pipeline etc.) to stakeholder

In particular the PPP Cell can be designed to;

- Supervise and monitor the implementation of PPP consistent with policies, regulations and laws
- Coordinate with the PPP central units for cross and inter-sectoral issues including but not limited to;
  - Accessing to technical assistance available
  - Accessing best practice available
  - Accessing funding for hiring Transaction Advisory Teams via the proposed Project Development Facility
  - Ensuring quality control and consistency during project development
  - Accessing Ministry of Finance for subsidy and guarantee (if required)
  - Assisting in developing Guideline and Standardization documents
  - Monitoring and developing status reports
  - Linking up to any proposed 'PPP Intranet'
  - Assist in the preparation and implementation of bankable proposals
- Prepare Operating Procedures and Guidelines for PPP Cell operations and when agreed implement same.
- Assist in the evaluation of PPP projects and especially assist the contracting agencies in preparing Information Memos and pre- and/or full Feasibility Studies
- Provide assistance in negotiations
- Respond To Requests For Assistance In Developing Project Portfolios
- Support Requests for Assistance in Screening and ranking viable Projects
- Advise on Prequalification, Tender Documents, RFPs and on the Evaluation of Bids to ensure compliance with law and international best practice
- Review Draft Negotiated Contracts
- Assess the existing Legal and Regulatory Framework and Propose New or Modify existing Laws and Decrees to Enhance PPP Implementation
- Help strengthen the legal capacity of various levels of the line ministry to enter into PPP arrangements with the private sector.
- Assist with drafting future legislation for PPPs
- Develop Minimum Standards and Regulations Governing Contracts

- Collect and disseminate information on PPP through website, seminars, socialization, etc.
- Provide training

## Setting up PPP Cells

While it may seem that there may be a number of options for the institutional framework for PPP Cells, realistic options may be few. In consideration of its potential importance to the national economy, a permanent PPP Cell is obviously essential. Consultation and discussion within government is clearly needed on the institutional framework for setting up new bodies.

### Staffing

Staffing of the Cell must relate to its foreseen functions based on a timeline of proposed activities. Staffing should be limited to a small number of well qualified personnel with sub-sector specialists;

- Head of Unit: Experienced financial specialist or PSP economist with experience of infrastructure development
- Procurement specialist/legal
- Regulatory Expert
- Economist
- Financial analyst
- Sub sector Specialists-Technical
- Trainer
- Consultation/public relations specialist

## Recent International Experience of PPP Units Incl. Decentralized Units

PPIAF undertook this study to assess if PPP units have contributed to the development of PPPs and if so under what conditions. The study concluded that;

- Units with executive powers tend to be more effective than those that are purely advisory
- Ineffective governments tend to have ineffective PPP units
- Without high level political support, PPP units will fail
- The appropriate location of the unit, according to its purpose and function, within the government system is critical to its success.
- In parliamentary systems, effective PPP units tend to be attached to Ministries of Finance as among others it coordinates government policies and expenditure. In a non parliamentary system a PPP unit may do better attached to a powerful coordinating agency

- Where there are failures that the Unit tries to address (a common role) a clear focus on the role of the unit is needed if it is to succeed.

The discussion on whether establishing PPP units is merely a trend or whether benefits can be achieved through their institutional development. PPP advisors are now suggesting that the development of a PPP unit may not offer a universal solution.

As with other comments in this Toolkit, there is not one single 'best practice'. There are instead lessons from other countries to be avoided, combined with experience as with PPP units, as to what has worked well in some countries.

Establishing PPP units takes time and many countries go through studies on whether and how to establish PPP units. The studies once decided upon may be relatively short and may be included within longer term technical assistance.

However, planning and obtaining technical assistance may take several years and then implementation requires a further period. This is not to indicate that PPP units are not worthwhile. If any country is going to develop a serious PPP program it may need a number of PPP cells at sector and cross sector level. But their development should not hold back ongoing PPP projects and indeed experience with ad hoc projects can be extremely helpful, not least in that ongoing projects build capacity through 'doing'.

A further practical issue is that although advisors may help start up PPP units, they will need to work alongside and train government staff, who may or may know very little about PPPs and indeed may not even be very convinced that PPPs are beneficial.

Initial staffing should therefore be, if possible, senior, qualified, committed to the concept and aware of both advantages and drawbacks of PPPs. It is possible that some line ministry PPP units could employ generalists or specialists such as from ministries of finance or other relevant ministries.



Public Private Partnership Units: lessons for their Design and Use in Infrastructure. PPIAF. 2007



Designing and using public-private partnership units in infrastructure; Lessons from case studies around the world; PPIAF Gridlines, 2007

## Some International Experience in Institutional Development and PPP cells

It was noted recently (See also the India Case Study) that the progress that India has made in the field of PPPs, and the institutional steps that the government had taken to encourage this at the Federal level. State governments are working on establishing robust PPP units, and to develop clear procedures for dealing with potentially contentious issues such as unsolicited proposals.

The Government of India has taken recently to develop the framework for PPPs and build up capacities. These steps included:

- The creation of PPP Cells in all central ministries and state governments;
- The creation of the Public Private Partnership Appraisal Committee (PPPAC) at the national level;

These institutional measures are supported by:

- Establishing PPP as the preferred mode in sectors such as highways;
- Strengthening the regulatory and policy framework, including the expansion of user fees;
- Providing fiscal incentives in terms of “tax holiday” to infrastructure projects and tax incentives to investors providing long-term finance or investing in equity capital;
- Permitting FDI up to 100% on the automatic route in several infrastructure sectors;
- Preparation of standard documents such as Model Concession Agreements,
- Pre-bid qualification methodology and procurement processes.

It was noted that a key part of the growth of PPPs in India represents a paradigm shift, with line agencies initially reluctant to embrace the concept.

Successful pilot projects and a major emphasis on PPPs, from the Prime Minister’s Committee on Infrastructure with Empowered Sub-Committees, have provided both overall leadership as well as strategic direction. PPPs have now become integrated in the planning process, and in some cases PPPs are now the default option, for example national highways.

The Government is undertaking an active program of capacity building, including support to PPP nodal cells at the state government level and in central government line agencies; the development of an on-line toolkit for PPPs, a database on PPPs and working on the fiscal costs of PPPs and training programs, all supported by the World Bank; and capacity building visits of PPP-related officials to countries with successful PPP programs under an Asian Development Bank Technical Assistance facility.

The following are some of the lessons learned:

- The benefits of specialized and efficient dispute resolution and arbitration mechanisms, as seen in Chile, are substantial;
- The need to adapt and develop institutions over time, of which the UK is a good example;
- How to build on the achievements in one sector and broaden the program, as has been seen in South Korea and the UK.
- PPPs can encounter difficulties during implementation and operation which, if not resolved efficiently and transparently, can impact not just the project but the credibility of the broader program. As far as public works contracts are concerned,
- Chile has both Conciliation Commissions and Arbitration Commissions, which deal with disputes
- In both the UK and Korea, developments in the PPP program over time required the strengthening and adaptation of the institutions involved. Both countries have opted for a key role for a central PPP agency.

- In Korea, a new agency Public and Private Infrastructure Investment Management Center (PIMAC) was created to replace an earlier central PPP unit, as part of a broader set of reforms to the government's PPP program that were legislated in 2005. PIMAC has a number of different functions. To reflect the need to evaluate and manage effectively the current portfolio of PPPs, increasingly emphasis is being placed upon the implementation of methodologies for decision-making, on whether to pursue PPPs through the Public Sector Comparator, as well as the evaluation of outcomes. The latter has also been an important feature of the UK program, with the National Audit Office publishing reports on individual PPPs as well as the program overall, which has helped considerably in refining the approaches adopted.

It was noted that the UK and Korea showed that specialized PPP institutions can help by:

- Imparting greater visibility and commitment to the PPP program;
- Facilitating quicker assimilation and dissemination of best practices to various levels of government; and
- Preserving institutional memory and facilitating cross-sectoral pollination of good ideas.

This has been particularly useful as the PPP program in these countries has expanded across different sectors, including roads and the social sectors.

As far as international experiences were concerned, the main lessons for countries in transition from procuring and bidding out a large portfolio of PPPs, to managing and overseeing this portfolio and spreading the program to other sectors, are:

- Capacities for PPPs have to be institutionalized within the system, within specialized units, for the expertise to be retained over time;
- More resources and attention will have to be devoted to contract management and oversight skills;
- Efficient and transparent dispute resolution systems will be important in ensuring that PPPs continue to perform effectively over time; and
- PPP programs need a robust evaluation mechanism, to ensure that they are delivering value for money, and to provide for corrections related to course and approach over time.
- International Conference on Meeting India's Infrastructure Needs with Public Private Partnerships The International Experience and Perspective February 2007



Road Funds and Road Maintenance, An Asian Perspective, July 2003, ADB.

SUMMARY OF SUCCESS OR FAILURE OF PPP UNITS				
Jurisdiction and unit	How much success did PPP program achieve?	What were PPP unit's objectives?	Did PPP unit meet its objectives?	How many functions necessary for solving government failure? Did PPP unit perform effectively?
<b>Bangladesh IIFC (1999)</b>	Little success	<ul style="list-style-type: none"> <li>Advise line ministries and government agencies in identifying, evaluating, awarding, negotiating, and implementing projects</li> <li>Promote private participation in infrastructure and serve as clearinghouse of expertise on PPPs</li> </ul>	No apparent effect on private participation in infrastructure	None to few <ul style="list-style-type: none"> <li>Technical assistance</li> <li>Policy formulation, but no implementation authority</li> </ul>
<b>Jamaica NIBJ (1988)</b>	Little success	<ul style="list-style-type: none"> <li>Secure greater efficiency</li> <li>Reduce fiscal drain</li> <li>Optimize government's management resources</li> <li>Secure enhanced access to foreign markets, technology, and capital</li> <li>Broaden ownership</li> </ul>	No, especially not the reduction in fiscal drain	None to few <ul style="list-style-type: none"> <li>Managed some transactions, but real power never effectively delegated</li> </ul>
<b>Portugal Parapública (mid-1990s)</b>	Much success	<ul style="list-style-type: none"> <li>Help structure higher-quality PPPs</li> </ul>	Yes	Some <ul style="list-style-type: none"> <li>Policy formulation</li> <li>Technical assistance</li> <li>Quality control</li> </ul>
<b>South Africa Treasury PPP unit (2000)</b>	Much success, despite low deal flow	<ul style="list-style-type: none"> <li>Filter out fiscally irresponsible PPPs while creating a structure for PPPs that would reassure private investors despite its being a fine filter</li> </ul>	Yes, but scant impact on infrastructure deals	Some <ul style="list-style-type: none"> <li>Technical assistance</li> <li>Quality control</li> <li>Policy formulation</li> </ul>
<b>Republic of Korea PIMAC (2005)</b>	Much success	<ul style="list-style-type: none"> <li>Provide technical assistance to government agencies and private sector</li> <li>Promote infrastructure projects and educate private sector about PPPs</li> <li>Review unsolicited proposals, feasibility studies, and bidding documents</li> <li>Conduct value-for-money tests, evaluations, and negotiations; formulate PPP policy</li> </ul>	Yes	Most to all <ul style="list-style-type: none"> <li>Technical assistance</li> <li>Quality control</li> <li>Policy formulation</li> <li>Promotion and marketing</li> </ul>

<b>Philippines BOT Center (1993)</b>	Some success, though IPPs of the 1990s left significant contingent liabilities	<ul style="list-style-type: none"> <li>• Provide technical assistance</li> <li>• Promote and market PPPs</li> <li>• Monitor PPPs</li> </ul>	Yes, but not for all PPPs	None to few <ul style="list-style-type: none"> <li>• Assigned many functions but effective only in technical assistance</li> </ul>
<b>United Kingdom Partnerships UK (1996) and Treasury task force</b>	Much success	<ul style="list-style-type: none"> <li>• Improve quality of PPPs</li> <li>• Shift focus away from financing infrastructure to value for money and risk allocation</li> </ul>	Yes	Most to all <ul style="list-style-type: none"> <li>• Technical assistance</li> <li>• Quality control</li> <li>• Policy formulation</li> <li>• Promotion and marketing</li> </ul>
<b>Victoria, Australia Partnerships Victoria (1999)</b>	Much success	<ul style="list-style-type: none"> <li>• Improve quality of PPPs in infrastructure</li> <li>• Ensure that PPPs provide for optimal risk transfer, maximize efficiency, and minimize lifetime costs</li> </ul>	Yes	Most to all <ul style="list-style-type: none"> <li>• Technical assistance</li> <li>• Quality control</li> <li>• Policy formulation</li> <li>• Promotion and marketing</li> </ul>

*Source: PPIAF and World Bank forthcoming. [www.PPIAF.org](http://www.PPIAF.org). The year in parentheses is the year the unit was established.*

## Good Governance

The IFIs noted in several recent reports that governance issues have been based mainly or partly on inadequate responses by governments to how institutions and the national environment in which they operate, have been slow to change. A specific issue within governance of dealing with corruption was also addressed by both the WB and ADB in 2004 when new guidelines were issued.

PSP in infrastructure development still requires the government to play a key role in planning, policy, and regulation. The reason that infrastructure industries have remained so long in the public sector is that they have components that are natural monopolies; e.g., the costs are lower with only one provider and the services are often essential (water, power and transport). It was previously a common judgment that state ownership of such monopolies, rather than state regulation of privately owned assets, was likely to deliver the best outcomes.

However, it is now regarded that public ownership and management is neither necessary, nor the best way to ensure universal access. Subsidies can easily be a requirement of a competitive tender or can be directly financed by government. A key advantage of having the private sector provide public services is that it allows public administrators to concentrate on planning, policy and regulation. The private sector, in turn, is empowered to do what it does best (i) invest capital; (ii) manage the businesses; (iii) manage and create appropriate incentives for staff and management; (iv) deal with customers; and (v) improve the efficiency and quality of service; more recently, under the spur of benchmark competition.

Governments should allow the private sector to provide infrastructure services to the maximum extent possible, with governments concentrating on planning, policy and regulation, and with the private sector on efficiently investing capital and improving the efficiency and quality of such services.

In reality, in most countries, PPPs are at an early stage. Therefore, the organization of the infrastructure sectors (i.e., ministries, regulatory agencies, and utilities) has remained largely unchanged with the introduction of PPPs. With financial transactions being the primary mechanism for transferring infrastructure services to the private sector, insufficient attention has been given to the broader issue of institutional reforms. It has been implicitly assumed that the introduction of private management into the ownership or operation of specific assets would obviate the need for such reforms.

Instead, the weaknesses of existing institutional structures have limited the effectiveness of the private sector initiatives. In most countries, the piecemeal transfer of infrastructure components has proceeded slowly and the controlling bureaucracies that add overhead costs and often limit improvements in infrastructure performance, have remained relatively unaffected. The importance of institutional reforms is clear but government bureaucracies rarely reform themselves. Governments should carefully review the structure, size and responsibilities of state-owned utilities and other entities in the infrastructure sectors and establish special reform units reporting directly to top level ministers to spearhead the necessary reforms.

Governments' acceptance of private sector investment in infrastructure has been due, in part, to their failure to anticipate future bottlenecks and make timely strategic investments to prevent shortages in capacity. The increased role of the private sector in developing infrastructure has caused many governments to neglect their responsibility for sector planning.

Instead, governments have offered assets and public services to the private sector in an ad hoc manner, often failing to ensure that individual investments were complementary. In certain circumstances, unsolicited proposals have been used as a surrogate for planning. For its part, the private sector has selected projects that had already been identified in government plans, giving preference to those which offered the highest rate of return, the lowest risk or the greatest short-term benefit. The private sector has had neither the interest nor the capacity to consider the network implications of its proposals. Governments have failed to subject these proposals to rigorous financial and risk analysis to determine their sustainability in the absence of major increases in user charges or government guarantees. Governments have also often overlooked the complementary investment required from the public sector to make the private investments successful. The results have been unsolicited proposals that involved little commercial risk (government guarantees, wrap-around provisions, transfer of existing assets, granting select rights of way) or politically generated proposals. Governments should maintain and strengthen their role in strategic planning of the infrastructure sectors and in the process identify where PSP should be encouraged and the level of complementary support that should be provided.

The effectiveness of PPP has suffered from the lack of adequate regulatory structures to control both technical and economic performance. Regulation of tariffs and other economic factors is particularly undeveloped. The basic objectives of autonomy, accountability, transparency and predictability have been difficult to achieve. More importantly, the mechanism for consultation between the public and private sector and for dispute resolution between the providers and users of the network has not been fully developed. A further problem has been the failure to separate regulation from administration in order to avoid conflicts of interest. Most countries have been slow to establish autonomous regulatory agencies with independent funding and professional staff.

## Corruption

The problem of corruption, here defined as the misuse of public or private office for personal gain, has been one of the most enduring dilemmas confronting governments throughout history. Although differences may exist in the nature and scope of corrupt behavior, and the extent to which anticorruption measures are enforced, the phenomenon can be found at all times and within virtually every political system. It can also be found within the private sector. Indeed, the linkage between public and private sector corruption is an area of particular concern for both developed and developing countries.

All IFIs now emphasize combating corruption as part of its broader work on issues of governance and capacity building. These recognize the importance of accountability for

public officials, and transparency and predictability in government operations—critical principles in the fight against corruption.

The emphasis upon strengthening the essential prerequisites for effective public administration is designed to ensure that the fundamental building blocks for transparent, predictable, and accountable administration are in place. These building blocks include an appropriate legal framework and effective enforcement mechanisms; a professional, competent, motivated, and meritocratic civil service; transparent procurement practices; effective internal control systems; and a well-functioning independent audit office. Participation, the fourth major principle in the IFI's governance policy, is also of relevance. The experience of Hong Kong, China, and Singapore demonstrates that public support is a critical asset in the long-term struggle against official malfeasance.

The stance on anticorruption issues is intended to reduce the burden that widespread, systemic corruption exacts upon the governments and economies of the region and is centered upon three objectives:

- supporting competitive markets and efficient, effective, accountable, and transparent public administration as part of broader work on good governance and capacity building;
- supporting promising anticorruption efforts on a case-by-case basis and improving the quality of our dialogue with the developing countries on a range of governance issues, including corruption; and
- ensuring that IFI projects and staff adhere to the highest ethical standards.

It should be noted that corrupt decision making has a number of direct financial consequences:

- Direct project costs are inflated by the additional amounts demanded.
- The indirect financial consequences of bad planning and decision making which will be felt over many years into the future. These costs can far exceed the direct costs above.
- Other financial consequences.

The Public Sector Governance Program (PSGP) of the World Bank offers guidance and lessons from practices that promote responsive, responsible, and accountable public governance in developing countries via multiyear learning and country-focused programs that support World Bank operations.



<http://go.worldbank.org/N14HUIK3J0>



Guidebook on Promoting Good Governance in Public-Private Partnerships.  
United Nations Economic Commission for Europe, 2007



Guidelines for Procurement under IBRD Loans and IDA Credits, 2004.



Operations Manual Bank Policies, Anticorruption Policy, ADB 2006.



Anticorruption Policy: Proposed Clarifications and Related Changes to Consulting and Procurement Guidelines, ADB 2004



ADB's Anticorruption Policy, 1998.

An illustrative list of corrupt behavior:

- The design or selection of uneconomical projects because of opportunities for financial kickbacks and political patronage.
- Procurement fraud, including collusion, overcharging, or the selection of contractors, suppliers, and consultants on criteria other than the lowest evaluated substantially responsive bidder.
- Illicit payments of “speed money” to government officials to facilitate the timely delivery of goods and services to which the public is rightfully entitled, such as permits and licenses.
- Illicit payments to government officials to facilitate access to goods, services, and/or information to which the public is not entitled, or to deny the public access to goods and services to which it is legally entitled.
- Illicit payments to prevent the application of rules and regulations in a fair and consistent manner, particularly in areas concerning public safety, law enforcement, or revenue collection.
- Payments to government officials to foster or sustain monopolistic or oligopolistic access to markets in the absence of a compelling economic rationale for such restrictions.
- The misappropriation of confidential information for personal gain, such as using knowledge about public transportation routings to invest in real estate that is likely to appreciate.
- The deliberate disclosure of false or misleading information on the financial status of corporations that would prevent potential investors from accurately valuing their worth, such as the failure to disclose large contingent liabilities or the undervaluing of assets in enterprises slated for privatization.
- The theft or embezzlement of public property and monies.
- The sale of official posts, positions, or promotions; nepotism; or other actions that undermine the creation of a professional, meritocratic civil service.
- Extortion and the abuse of public office, such as using the threat of a tax audit or legal sanctions to extract personal favors.
- Obstruction of justice and interference in the duties of agencies tasked with detecting, investigating, and prosecuting illicit behavior.

# Capacity Building and Training

As shown in this Module launching a PPP Policy requires a move to a new organization which is often accompanied by training for professional staff to cover such key areas as planning and economic analysis, environmental assessment, contract management and supervision, and prioritization of works.

Private contractors can play a greater role in road maintenance but may require support and training in estimating and understanding specifications and in output measures.

As regards the Public Authority, there is a need for the relevant authorities to have personnel with the requisite technical and negotiation skills to support that framework. These skills should strengthen the deal-making capacity of those authorities and promote a basis for a strategic orientation of infrastructure development.



Constraints and opportunities for PPP transport projects, Menendez, Lahmeyer International, 1998

## Public Authority Staff

Training Administration staff can be done on different bases, depending on the type of PPP and the initial level of skills of both public and private sector.

The following questions can help in the choice of an appropriate training program:

- Are the skills present at the different level of the public sector organization sufficient to set up an efficient training?
- What could be the benefits of private sector participation in the training of public staff?
- What could international expertise provide?
- In most simple projects (maintenance contracts, for instance), the required skills are available within the road authority so appropriate training by the public sector should enable staff to acquire the right levels of skills.

In more sophisticated projects (concessions), the required skills are not available within the road authority, typically those relating for the financial and legal fields, and so appropriate training should be led by outside advisers, from the private sector of the country or from foreign countries. This training could be courses or seminars inside or outside the country, led by national or international specialists. It could also consist in integrating private specialists (foreign or not) of the required level in order to combine in an appropriate manner the skills of staff in the public sector with that of outside advisers. The government could thus put together a multidisciplinary project management team representing expertise that has a critical bearing on the project. This team would, in most instances, be led by a senior official from the government department in charge of leading the PPP policy.



Commercial Management and Financing of Roads. I. Heggie and P. Vickers.  
World Bank Technical Paper N°409, 1998

Most road agencies only have limited capacity to supervise contracts, and several initiatives are under way to strengthen this capacity. Many African countries are building or strengthening control units in the highway authority to adequately supervise contracts. In each case foreign experts are involved in compiling sample documents for preparation, procurement, and supervision; staffing the unit during the initial years; and training civil servants in this new activity.

In most countries the training center of the Ministry of Public Works was the only institution in charge of educating road specialists, and training was often tied to the implementation of projects. Training must be funded on a permanent basis, it must be open to contractors, and the curriculum should include contract management. Institutes in former centrally planned economies are in danger of failing because of lack of funding and inappropriate PPP development arrangements. It is important to keep these institutions alive and to extend their curricula to include contract management and cost control.

## Examples

*Private Infrastructure and the Inter-American Development Bank Group, (IDB) 1998.*

An operation recently approved for Peru is a good example of a specific institutional strengthening subprogram. It focuses on two aspects: first, the design of the legal and institutional structure of an independent regulatory agency for the concession system; and second, the training of officials of the institutions responsible for the concession system. The latter included the provision of aid for the exchange of experience through field trips to countries with more developed systems, and local training through courses and seminars given by international consultants.

Municipal Institutional Strengthening in Colombia a municipal institutional strengthening plan has been designed and is being implemented by INVIAS (the road authority). This program will:

- provide technical assistance to municipalities to review, update or strengthen municipal land use plans and strengthen their enforcement capacity;
- finance, through an Agreement with the National Training Service (Servicio Nacional de Aprendizaje, SENA), a training program aimed at developing basic skills for more than 500 local workers to perform intermediate road construction jobs (topographic survey assistants, equipment operation and maintenance), thereby allowing them to have access to employment opportunities generated by the construction of the road; and
- implement a community information and consultation program during the construction period.



Project Appraisal Document on a Proposed Loan to Colombia for a Toll Road Concession Project, 1998,  
World Bank

### *Training actions backing the reform: the case of Algeria*

Several actions have been taken to ease the transition from force account to competitive contracting of road maintenance:

- reorganizing the Ministry of Infrastructure substantially strengthened the organization and function of maintenance, and gave CTTP autonomy and greater authority for works' supervision and quality control;
- specific training seminars have been offered on: (i) network condition assessment; (ii) surface dressing techniques; (iii) technical standards and use of sample bidding documents; (iv) Responsibility for safety and environmental concerns;
- some higher level staff from DDM, CITP (Administration), regional laboratories, and some field staff were sent abroad for training; contractors have been allowed to participate in some training seminars.



Assessment of Road Maintenance by Contract. S. Miquel and J. Condron. World Bank Document, 1991

### **Private sector - Local Contractors**

A number of initiatives have been taken to develop the capacity of local contractors. They include providing preparatory and hands-on training, providing access to works, plant and equipment, helping road agencies to acquire the skills needed to supervise contracts, simplifying government procurement procedures, and setting up, adapting, or strengthening permanent education and training institutions for road specialists.

**What is hands-on training?** Hands-on training is when potential contractors have been permitted to work on small projects to gain practical contract experience. Hands-on training covering labor-based construction techniques has been used to develop small firms for over two decades in Latin America, particularly the "micro-empresas associativas" in Colombia and the Dominican Republic. Similarly, in Guinea Bissau, the International Labor Organization has organized training sections for labor-based rehabilitation of feeder roads. In Kenya contractors have been trained to bid for rehabilitation works.

**What is preparatory training?:** Preparatory training involves seminars, organized in transition economies (such as Estonia, Latvia, Lithuania, Poland and Vietnam) to introduce consultants, contractors, and civil servants to competitive bidding, cost control, and contract management procedures. Similar seminars have been organized in Africa to teach contractors how to manage small civil works contracts.

With less experienced contractors, especially newly formed small-scale road maintenance enterprises, training in management, financial and technical issues is essential for the success of the pilot projects. Uruguay, for example, was most successful in this respect, implementing a broad training program for small enterprises which produced excellent results.



Performance based Road Maintenance Contracts: the Road to the Future - the Latin American Experience,  
G. Zietlow, A. Bull - IRF

A more complete section on how to enhance the capacity of the private sector (contractors and consultants) is proposed in the present Module (Enhance capacity of the private sector) with examples of practical training programs conducted during the course of projects.

### Enhance private sector capacity

Transferring tasks previously carried out by the public sector to the private sector supposes that it is capable of carrying them out correctly.

If it is not, the question of how to organize the development of the PPP policy must be asked and how to accompany it to enable a fabric of companies and design offices to emerge, capable of taking on these new tasks without damaging the quality of the projects or that of service to the user. The problem is posed very differently depending on whether very large projects are involved requiring a high level of technical skills and considerable financial capacity (e.g. major motorway concessions or very large bridges or tunnels) or more routine tasks (rehabilitation, maintenance, operation) which neither require heavy investment nor exceptional technical skills.

In the first case, the solution generally consists in involving foreign contractors who are invited to form an association with local companies to enable them to benefit from their experience.

In the case of routine rehabilitation and maintenance work, local companies obviously have an essential role to play. The solution is then very different depending on whether or not a well developed road industry exists.

### If a well developed road industry exists

If a suitable fabric of road contractors exists, the problem is to enable them to adapt to new tasks which are not particularly difficult, but for which the contractors are neither equipped nor prepared at the outset.

Obviously, each case is a specific case, but certain conditions have universal value.

- Financing stability should be ensured over a long period. Taking on these new tasks obliges the contractor to equip and organize itself. As maintenance tasks are very labor-consuming, new staff will have to be hired. The consequences of credit restrictions will then be dangerous.
- There is the greatest advantage to be had in ensuring that prior consultation takes place between the public authorities and professional representative organizations to examine how to develop a successful PPP policy. It would even be desirable to plan regular meetings to establish reports and together find

ways of making improvements; these meetings could advantageously be based on jointly financed audits. Such practices give full significance to the notion of partnership and ensure projects their best chance of success.

- The rate at which a PPP policy will be undertaken should be given full consideration. It is necessary to plan how to progress in the development of the programs so that the contractors can become familiar with and organize themselves to face new tasks.

The first contracts could, for example, only concern a small part of the network, before gradually extending to cover the entire network.

They may, at the beginning, be of the quantity-based type, and then become performance-based in the short-term and then in the long-term.

Contractors and road authorities will have to train themselves in these new contractual practices and professional organizations will need to be invited to reflect upon how to organize this training.

### If the road industry is insufficiently developed

Besides the problem of adapting existing contractors, there is the problem of strengthening the industrial fabric in all its components (construction companies, materials' suppliers, design offices, etc.). Several publications deal very precisely and fully with this problem. The main ones are as follows:



Commercial Management and Financing of Roads, Ian Heggie and Piers Vickers, World Bank, 1998.

A certain number of successful examples also exist. The conditions most generally quoted or observed for the rapid, harmonious development of a national road industry are the following:

- As in the previous case, financing stability over a long period is always considered as an essential preliminary;
- The same applies for the necessary progressiveness in developing PPP policy. It is advisable not to over-hasten the movement, but to proceed by stages and take stock of the situation periodically.
- The existence of a favorable institutional environment is not specific to the road sector. It is a condition for developing an industrial fabric for all sectors, just like the possibility of having access to credit.
- Training, in this case, takes on decisive importance. The work programs of international financing institutions are very generally accompanied by a training program. Some useful indications will be found in the book by J-M. Lantran. The training program set up in Cameroon, to accompany the policy of transferring road maintenance to the private sector, is a recent, successful example of what can be achieved in this field.



Developing Domestic Contractors for Road Maintenance in Africa, Jean-Marie Lantran,  
The World Bank, December 1990.



Road Maintenance Program in Cameroon, Training Plan for Contractors and Design Offices

## Possible Capacity Building Needs

### *Subjects for Capacity Building*

- Introduction to PPP: Modalities, Scope, Why, How, Experience Worldwide
- Case Studies of Good and Bad Experience
- PPP Frameworks (Introduction and/or Specialist Courses);
- Policy
- Legal
- Economic Regulation
- Risk Management
- Government Support and Financial Frameworks
- Consultation
- PPP Modalities
- Financial Management
- Funding including IFIs/Commercial banks/ Bonds/Institutional Finance etc.
- Private Sector Modalities
- Procurement and Use of Consultants/Transaction Advisors
- Other

### *Locations*

- In country/Regional/World
- Institutional Locations; ADB/WB/Other/Focused Educational HQs
- Project/Case Study Locations; Regional/Worldwide

### *Target Groups/Associations to be trained*

- Ministry of Finance/Risk Management
- Planning Ministry/Line Ministries/Highway Authority/PPP Cells and Units
- All other Relevant Parties

### *Levels of Staff*

- Highest Levels only/Senior decision makers
- Mid levels and above
- Administrative/Technical

### *Types of training courses available that would be useful*

- Designing Legislative, Institutional and Regulatory Frameworks for PPPs
- Fundamentals of Project Preparation (Why and How)
- Stakeholder Consultation Processes
- Public Sector Management and Governance
- Risk Management
- PPP Skills and Competency
- PPP Project Officers Management Skills
- PPP Strategies, Methods and Project Structuring
- Contract Compliance and dispute resolution
- Fundamentals of Project Finance

### Some basic references



World Bank-Financed Procurement Manual [Draft]. World Bank. 2001.



Granting and Renegotiating Infrastructure Concessions Doing It Right. Guasch, J. Luis. World Bank. 2004.



Guidelines: Procurement Under IBRD Loans and IDA Credits. World Bank. 2004.



Launching Public Private Partnerships for Highways in Transition Economies. Queiroz, Cesar. Transport Paper TP-9. World Bank. 2005.



Concessions for Infrastructure: A Guide to Their Design and Award. Kerf and et al. Technical Paper no. 389. 1998.



Bidding for Private Concessions. The Use of World Bank Guarantees. RMC Discussion Paper Series, no 120. World Bank. 1998.

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## Module 4

# Laws & contracts



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# Module 4: Laws and Contracts

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## Module 4 **Laws & contracts**



### Legal, legislative and contract bases for PPP

**Module 4: Laws and Contracts** examines the legal and regulatory environment to PPP. It provides a framework for diagnosis and reform and provides the basis for preparation of PPP contracts.

Module 4 defines the legal framework that can facilitate the successful implementation of PPPs in the road sector. It contains the two main elements of such a framework found within any legal system in the world: laws and regulations on the one hand and contracts on the other hand.

**Legislation** considers the institutional framework that fosters private investment in infrastructure. Legislative Framework explores host country's legislative provisions when promoting and implementing a PPP in infrastructure; other sections address the issues of modification and adaptation of such a framework and assessment of this legal framework.

**Contracts** explores what can be a maze of contractual arrangements involved with such a PPP and addresses the issues regarding contract formation, contract types and provisions, other agreements, guarantees and bonds and the renegotiation and adaptation of contracts.

The broader the scope of work, the more complex are the PPP contracts, which determines the risks and responsibilities of each actor involved in the project. For instance, if only maintenance of a road is required, the work involved can usually be done by a single shareholder project company without the need for additional project financing; however, if the scope is to include the construction of a new road, several different actors will share responsibilities and risks and there will most probably be a need for substantial project financing from commercial lenders and international financial institutions.

The information provided herein does not constitute, and shall not be construed as, legal advice. All parties should seek advice from their own legal consultants familiar with their particular circumstances.

# Approach

## Conciliating Objectives

One of the biggest challenges in any PPP is attempting to reconcile the differing objectives of the various interested actors in such a way that each party stands to gain if the project is successfully completed. Although such objectives are sometimes difficult to reconcile in the short-term, they are often found to match in the long-term.

A government's objectives are usually shaped by what is in the public interest such as promoting a new highway around its capital to ease traffic congestion. When a government decides to allow the private sector to develop a project, it will typically have some of the following objectives:

- satisfy the public interest and having the project completed (to the government's specifications) as quickly as possible;
- bring the project back into public ownership once the private sector has received an acceptable return on its investment;
- have adequate safeguards and assurances that the project will be operated properly and safely;
- reduce or eliminate the need to use the taxpayers' money or government's borrowings;
- limit the tasks allotted to the State to the most essential public tasks or functions;
- benefit from the private sector know-how and technology while keeping the government's discretion unrestricted as far as possible;
- transfer risk from the public sector to the private sector.

The private sector's *raison d'être* is about taking risks and making profit, and that is true in any country where there is a private sector. Private entrepreneurs are keen to access the large infrastructure markets and road construction and maintenance is one of the largest in the world. Then, investors and lenders are also prepared to take bigger risks associated with infrastructure project finance in order to make bigger profit. However they would assume only measurable risks, have control over key project decisions and take control of the project as soon as possible in times of difficulties.

## Enabling framework for PPP

A PPP legal framework, as it has been described by its two components, Legislation and Contracts, is not something carved in stone forever that should be adopted and implemented universally. On the contrary it is infinitely diverse in the form and combination of these two components. However, underlying such diversity, there are a number of well-established guiding principles.

Some countries have developed private sector participation in road infrastructure without specific PPP or road sector legislation, leaving it to the parties, public authorities and private sector entities to agree on terms and conditions on a purely contractual basis. This can be described as a contractual framework. Historically this path has been followed by countries of both continental law and common law systems, in developed economies, some with long-established traditions of State intervention in the economy and others with relatively well-defined market structures.

Other countries have adopted extensive legislation and regulations, either general or sector specific, particularly where the remuneration of the highway operator was to come from tolls paid by users, precisely in order to allow the operator to collect such tolls. This can be described as a statutory framework. It has been adopted by countries which have come more recently to the promotion of private sector participation in public infrastructure, in developing or transition economies.

These two approaches are not mutually exclusive. On the contrary, several countries which had favored a contractual approach are now legislating, for a variety of reasons. Others which had adopted general or sector specific legislations are now discovering the flexibility and adaptability of the contractual approach.

The perfect system would be the one which finds the right balance between what should be addressed by the law and what should be left for the parties to negotiate in the contract, that is a law which is not over prescriptive, but still protects the legitimate interests of both parties.

The objective of this toolkit is not therefore to advocate for the statutory or the contractual framework, as both have their merits, but to describe them highlighting their strengths and weaknesses so that each country can choose for themselves what suits them best depending upon their own legal tradition and culture as well as their state of economic and social development and organization.

Furthermore, recent experiences and studies have shown that an enabling framework is not in itself a guarantee for successful partnerships. This also requires mature partners that are dedicated and competent operators and public authorities, with adequate skills and resources to select and implement projects, as well as independent adjudicators to enforce their rights and settle their disputes.

Module 1 provides an overview of the enabling framework (Module 1 -> Enabling PPPs) and of the strategy required (Module 1 -> PPP Strategy). Module 3 -> PPP Policy Framework provides details of the components of the PPP policy framework.

# Legislation

Every PPP is developed and operated within a legislative and regulatory environment. It can be considered that the contractual framework breathes life into a PPP project whilst the legal and institutional framework of the host country breathes life into the PPP contracts.

Countries which already have such a framework should ensure that it is flexible enough to adapt to the changes in the infrastructure sector concerned, as well as to attract private investors. Adjustment to the framework will therefore be required.

However prior to adjusting their legal framework, Governments will need to assess it, and evaluate its strengths and weaknesses. Also, private investors and lenders may not be familiar with the jurisdiction in which the highway infrastructure will be situated. It will therefore be necessary to examine and gauge the ability of the host country's laws and regulations to provide the environment that will maximize the opportunity for profitability and the long-term success of the project. Several methods are now available to policy makers, investors and lenders to assess a country's legal framework, both in its content and implementation.

This section is thus comprised of the five following sub sections:

- ① Institutional framework;
- ② Legislative framework;
- ③ Regulatory framework;
- ④ Framework assessment.
- ⑤ Framework adjustment;

# Institutional framework

Countries which are minded to establish an enabling legal framework or would like to review the adequacy of their existing legal framework may wish to start by considering the few guiding principles for a constitutional and legislative framework which are favorable to private sector participation in public infrastructure projects.

They should ensure that such principles are enshrined in their highest legal norm, usually their constitution, so as to guarantee that they will not be flouted by successive governments or legislators.

Having established the principles, governments should then adopt a clear policy in favor of the participation of the private sector to public infrastructure delivery and make it widely known to local and foreign operators. To implement such a policy, the country's public administration, at the central and local levels, would then be expected to provide the support and coordination required.

## Constitutional principles

These are the principles of transparency, fairness, sustainability and proportionality.

### Transparency

A transparent legal framework is one which has clear and readily accessible rules and efficient procedures for their application. It creates predictability thus enabling investors to measure their risks and costs, and therefore offer their best offer. It also fosters openness by requiring public authorities to give reasons for their decisions and publish them, thereby protecting against arbitrary decisions and promoting confidence in such country, which is particularly important if the country wishes to attract foreign investors, unfamiliar with local rules.

### Fairness

A fair legal framework is one which takes into account the conflicting interests of the Government representing the public interest and that of the private sector operators, who ought to be subject to the same rules, and attempt to strike a balance and maintain equilibrium between them.

### Sustainability

Equally important for a country infrastructure policy is to ensure the provision of public services in the long-term and with particular attention to environmental sustainability. A country should therefore have the institutional capacity to undertake the tasks entrusted to the public authorities throughout the project phases of planning, implementation and

operation. It should also aim at the most adequate balance between a monopolistic and a competitive supply of public infrastructure services.

### Proportionality

Closely linked to sustainability is the principle of proportionality by which any measure taken should be necessary and appropriate in the light of the objectives sought or for the issue to be addressed. A country PPP legislation should for example not impose conditions, financial or technical or otherwise, that are excessive or disproportionate when selecting candidates, or should not revoke a contract for a small offense.

For countries wishing to promote PPP in infrastructure, it is important to ensure that each of the above mentioned principles translate in the constitution by the adoption of rules which guarantee the protection of the said principles including possibly against legislators or governments actions.

By way of examples, transparency requires that public decision makers be held accountable for their actions, which assumes the existence of a number of rights and obligations such as access to information and to an independent justice system. Fairness requires that public authorities do not discriminate among candidates with positive and negative obligations to ensure the effectiveness of the rule. Proportionality requires that property rights and contracts be protected and respected. A PPP friendly constitution would therefore set out clearly the sanctity of contract, the right of ownership and its corollary, the protection of such a right against expropriation without compensation, the right of access to judicial review, the freedom of and public access to information.

One would also find in the constitution specific rules regarding the duty of the State to ensure the provision of public services. In certain constitutions this duty may be reserved exclusively to public authorities, in others the State may be expressly allowed to grant concessions to private entities for the provision of public services. Some constitutions may also restrict the participation of foreigners in certain sectors, or the ownership of land or infrastructure facility.

Governments and legislators should therefore review their existing constitutional rules to identify possible restrictions to the implementation of PPP projects in public infrastructure, as such restrictions have often led to disputes and judicial challenges against concession agreements after they had been awarded.

Several international organizations have developed guidelines which highlight these principles and explain how relevant they are for PPP projects in infrastructure.

The most comprehensive ones are the



Legislative Guide on Privately Financed Infrastructure Projects (2000) and the Model Legislative Provisions on Privately Financed Infrastructure Projects (2003), by the United Nations Commission on International Trade law, which can be found at [www.uncitral.org]



Model Legislative Provisions on Privately Financed Infrastructure Projects. Uncitral, 2003

The European Commission has also published extensively on this subject. The most recent relevant documents are:



The Green Paper on Public-Private Partnerships and Community law on Public Contracts and Concessions, COM (2004) 327.



Commission interpretative communication on the application of Community law on Public Procurement and Concessions to institutionalised PPP (IPPP), 2008/C 91/02 of 12/04/08



The Commission Interpretative Communication on concessions under Community law.  
OJ C 121 of 29.04.2000

It is worth noting that the European Commission declared in its 2000 Communication that public service concessions, although not specifically regulated, were subject to the principles of transparency, fairness, and proportionality, which are enshrined in the EC Treaty, the European constitution, and enforced by the European Court of justice.

## PPP promotion policy and Administration support

While principles embodied in laws and regulations or implemented by contracts are necessary to successfully develop PPP in infrastructure, they are not sufficient. Public Private Partnership projects also require able and willing partners.

A willing public partner is one which has adopted a clear policy promoting private sector participation in infrastructure development that signals to private investors its commitment to seek their participation.

In addition to policy issues presented in Module 3 Policy and Planning, this section shall present specific legal issues relating to policy and refer to one specific case in Russia, which is particularly relevant to the road infrastructure sector.

A clear PPP promotion policy in road infrastructure will (i) set out the reasons for the policy, that is the government goals in its long-term strategic plans – eg, increase transport and trade between regions; introduce market competition in a traditionally monopolistic sector-, (ii) detail the objectives sought – eg, improve the rehabilitation/maintenance of the existing road network; freeing public funds for other uses- (iii) state with reasonable level of detail the measures that are being taken, the means and resources that are being deployed to carry out the policy – eg. creation of a PPP advisory unit at central government level; the setting up of an road fund to channel financial resources for future funding- .

The higher the authority in government which develops the policy statement is, the stronger the commitment from the potential investor standpoint will be. Indeed because PPP infrastructure projects necessarily involve several public authorities, government

ministries and agencies, central and local government authorities, appropriate administrative coordination will make the difference between success or failure.

Because Administration support and coordination will be needed at all stages of the process: policy planning, project identification, project implementation and project operation, most governments have created a dedicated PPP unit or “task force”, either as part of a government ministry or a separate agency, which sometimes is itself a public private partnership, as in the United Kingdom (refer Module 3 -> PPP Policy Framework -> Institutional Framework and Reform -> PPP Units and the Role of the Highways Agency).

Russia provides a good example of a PPP promotion policy.

#### **RUSSIA PPP in the transport sector promotion policy**

One of the most recent examples of an elaborated PPP promotion policy in the transport sector is that adopted by Russia.

Partnerships with the private sector were obviously unknown in the Soviet Union, but have now been rediscovered in Russia, in its transition to a market-based economy. The Russian Government estimated that to reach the level of investment required in transport infrastructure comparable to most other countries, that is 4 per cent of GDP, compared to its two per cent, it needed about 2 to 3 USD billion of private investment per annum by 2010.

It then set itself a series of preconditions about the use of PPPs including:

Adopting a federal law on concession agreements;

Changing from one to three-year budget plans;

Adopt a regulation on investment funds;

Adopt standard concession agreements;

Establish special economic zones.

It then listed the various activities eligible to concession agreements in the infrastructure sector, among which motorways and transport ranked in the first place, together with railway, ports, airports, underground and other public transport.

The first challenge of adopting the required legal framework was passed in 2005 with the adoption of the Law on Concession Agreements N° 115-FZ, 21 July 2005, followed by Russian Government Regulation 319 of 27 May 2006 which approved concession agreements for motorways and engineering infrastructure, including bridges, overpasses, tunnels, parking, checkpoints and toll booths for trucks.

On the basis of regulation 319, the Ministry of Transport developed with the Ministry of Economic Development and Trade draft concession agreements for other types of infrastructure. It created an advisory council on PPP development in order to assist with entering into PPPs and signed an agreement with the Vneshekonombank to act as an investment adviser in such projects.

The Government then set about providing the resources required by its new policy, both financial and in human skills.

A special education program was organized by the Transport Engineering institute of Moscow to provide the Ministry of Transport with specialists in the field of transport concessions.

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The Russian Investment Fund was created in 2005 to provide state co-financing for strategically important long-term projects which have a low level of return, and expand the opportunities for the private sector to invest in projects through direct co-financing and the sharing of commercial risks. State support will also be available through equity participation or state guarantees.

A number of projects are already under way on the basis on this new framework.

Documentation for competitive tenders for the construction of a toll road in Saint Petersburg, the Western High Speed Diameter (WHD) has been prepared and the Russian Federal Road Agency, Rosavtodor, has been appointed as the Contracting authority.

Tender documentation for the construction of a high speed motorway between Moscow and Saint Petersburg has also been prepared. Other toll motorways projects at different stages of advancement are being processed, one between Krasnodar-Abinsk and Kabardinka, and another one between Moscow and Novorossiisk.

Even though substantial results have been achieved in terms of adopting a PPP friendly legal framework, the Russian government is aware that some important issues remain outstanding. Among these is the concern about the availability of long-term finance, and also on the legal front a number of issues that will need addressing : issues about land legislation and property rights over public assets (inability to pledge project assets or project rights); inadequate protection of the rights of the concessionaire (loopholes in the protection of property rights against expropriation without adequate compensation, lack of protection against early termination of the concession without compensation); inadequate regulations governing permits and licenses; uncertainties in the tax treatment of concession assets; lack of an adequate definition of a concession; duplication of procurement laws for PPP projects, some being procured under the Concession law, others under the Federal law on State and Municipal Tenders.

However, what is most felt is the lack of practical experience of carrying out project in partnership between the public and private sectors.

Also, as indicated in the EBRD Law in Transition 2007 Russian transport sector report, market studies have showed that private investors would not take part in concession tenders if there were not minimum income guarantees for these pilot concession projects.

More importantly the report stresses that "The future of public-private partnerships in Russia depends on the success of large infrastructure projects. Both the public and private sectors need to prove that they are reliable partners that are capable of meaningful dialogue and mutual cooperation". As experience has shown, this is an even bigger challenge than adopting new laws because mutual trust cannot be obtained by decree. It is the result of years of cooperation.



Public Private Partnerships in the Transport sector: a Russian view, in Law in Transition 2007, European Bank for Reconstruction and Development.

# Legislative Framework

In the context of this toolkit, the legislative framework includes two different types of laws: (i), the laws that make PPP possible, also called the “enabling” law or framework. This would be a country concession law or PPP law, and (ii) the laws that may have an impact on a PPP project. These are numerous because PPPs are large and complex multi faceted projects. The most relevant ones will be addressed here.

The enabling law could either be general or sector specific:

- Concession and PPP laws;
- Sector specific laws.

The following laws typically would have the most impact on a PPP project in highway infrastructure:

- Public procurement;
- Foreign investment laws;
- Property laws;
- Dispute resolution;
- Company laws;
- Security and insolvency laws;
- Tax laws;
- Accounting standards;
- Labor laws;
- Intellectual/industrial property laws;
- Environment laws;
- Competition laws;
- Tort laws.

## Concession and PPP laws

Legislation plays a central role in promoting PPP in infrastructure projects. The law embodies a political commitment, provides specific legal rights and represents an important guarantee of stability of the country legal regime.

Under their constitutional law, certain countries need to adopt specific legislation for individual projects. In other countries with a well-established PPP tradition, the Government is authorized by general legislation to award to the private sector any activity carried out by the public sector with an economic value which makes it worthwhile being exploited by a private entity. Such a general legislation creates a framework for a uniform treatment of issues common to PPP projects in different infrastructure sectors.

Even when general legislation was enacted, supplementary sector specific legislation may allow the legislator to formulate rules that take into account the market structure of a specific sector. As in many countries these were adopted when the infrastructures were

under State monopolies, it is advisable to check the existing sector specific legislation so as to ensure it is suitable for privately financed infrastructure projects.

Legislation may also be required to authorize the State to award concession to private entities. Enacting such legislation will contribute to foster the confidence of potential investors in the country PPP in infrastructure policy. This may be particularly important where it is envisaged to engage private entities to provide certain services that used to be available to the public free of charge.

Where general legislation is adopted, it is advisable to clearly identify the competent public authority to award infrastructure projects and act as contracting authority. Likewise it is advisable to identify the sector in which a concession may be awarded, or alternatively, where this is not feasible, the law may identify the activities which may not be the object of a concession, such as national defense or security.

It may also be useful for the law to define the nature and purpose of PPP projects, according to the extent of rights and obligations assumed by the private investor (eg, BOT, BOO, BTO). However given the wide variety of schemes, it may be difficult to provide exhaustive definition of all of them. Therefore given the wide scope of PPP projects that Governments may wish to develop and that PPP Laws are intended to cover, it would be sensible for legislators to adopt a broad definition of PPP projects that goes beyond BOTs and BOOs, including for example operation and maintenance contracts.

One additional important point to address in the law concerns the nature of the rights vested in the concessionaire, in particular whether the right to provide the service is exclusive or whether the concessionaire will face competition from other infrastructure facilities or service providers; however, in some countries this point would be left for negotiation in the concession agreement between the contracting authority and the private investor.

This point is illustrative of the difficulty to arbitrate between the law and the contract. Whilst it is perfectly legitimate for the contracting authority to decide how the road infrastructure market is to be structured and whether or not competition should be introduced, setting this in the law might just be a deterrent to private investment from the outset. Moreover, the same result could easily be achieved at the contract negotiation stage by providing for this requirement in the request for proposals.

This could be an example of the law being over prescriptive, with potential adverse consequences on the feasibility of the project since what would have been set in the law could only be varied by amending the law, if this is what the parties finally agreed. Needless to say that such a process could add substantial delay and costs to the project.

Concessions and PPP laws:



Bulgaria: New Concession Act 2006  
*Source: Ministry of Administrative Reform*



Peru: Supreme Decree N°059-96 Infrastructure Concession  
*Source: Official gazette*



Russia: Federal Law on Concessive Agreements, N°115-FZ of 21 07 2005  
*Source: Kodeks Law Database*



Tunisia: Law on Concessions regime, N° 2008-23 of 1st April 2008  
[www.cnudst.rnrt.tn](http://www.cnudst.rnrt.tn)  
*Source: Official Journal of the Republic of Tunisia*



Ukraine: Law on Concession N° 997-XIV, 16.07.1999  
*Source: JSC Informtechnology (unofficial English translation) ;*



France: Ordinance 2004-559 du 17 06 2004, Les Contrats de Partenariat (in French)



France: Law 2008-735 du 28 07 2008, Les Contrats de Partenariat (in French)  
*Source: The Official Journal <http://www.legifrance.gouv.fr>*



Greece: Law N°3389 Partnerships between the public and private sectors  
*Source: Ministry of Economy and Finance <http://www.mnec.gr>*

**The Infrastructure and Law website of the World Bank (General Legislation section)** presents more detail on PPP and concession laws a number of sample annotated concession agreements and links to other concession agreements and DBOs.



Infrastructure and Law website (UserID and password required; refer "Create account" for free access)

## Sector specific laws

Many countries have also adopted laws specifically governing the granting of concessions for toll roads. It is typical for such laws to identify the government agency responsible for overseeing the bidding, construction, and operation of the projects and set parameters for each, as well as to authorize a private operator to collect tolls from users of the infrastructure, if that is the financing method envisaged for the particular project. As a corollary the law will sometimes restrict access to users paying the toll and grant the concessionaire the right to prevent access to the road by persons not paying the toll. This has been felt necessary in some countries to prevent abuse by employees of the contracting authorities, as well as in other cases to circumvent abuse made possible by the physical lay out of the road.

Toll road concession laws will also set standards and methods of toll collection, technical specifications for the physical structure and route and will set forth the state's obligations toward the concessionaire with respect to land acquisition and ownership of public assets, a critical point in countries where the general law does not allow private ownership of public roads or highways, which can prove a serious obstacle and deterrent to securing the financing required by preventing the concessionaire to grant security rights over such assets. Other key terms of toll road legislation include the term of the concession (usually around 30 years), required percentage of domestic participation (more likely in less developed countries), and possibly limitations on the transfer of shares to third parties until the project is complete.

The toll road concession law will also usually address the methods of financing, in some cases including State funding as part of the concession; and may also address the question of exclusivity of the concession by stipulating whether the concessionaire will face competition or will have an exclusive right to provide the service.

The U.S. Department of Transportation has prepared model PPP legislation as well as PPP enabling legislation for highway projects :



<http://www.fhwa.dot.gov/ppp/>



[http://www.fhwa.dot.gov/ppp/tools\\_state\\_key\\_elements.htm](http://www.fhwa.dot.gov/ppp/tools_state_key_elements.htm)

*Source : US Department of Transportation – Federal Highway Administration*

Portugal offers an example of such sector specific legislation:

### **PORTUGAL Toll Road Legislation**

Portugal provides an illustrative model for toll road legislation. Realizing the need for a rapid expansion of its infrastructure and faced with limited public funds, the government first allowed private participation in road projects in 1997 with the enactment of Decree-Law Nr. 9/97, of January 10, 1997. ....

.../...

The program allows for both real toll roads, on which travelers pay tolls themselves, and shadow toll roads for which the government reimburses the concessionaire based on traffic volume. The Decree designates a special agency with responsibility for overseeing a two stage procurement process in which initial bidders are narrowed to two finalists, which then negotiate the terms of the concession with the government and submit final best offers.

The concession is then awarded to a special purpose project company organized as a "Sociedade Anonima", which is responsible for arranging the financing, construction, and operation of the toll road. The program is one of the largest privately funded road programs in Europe.

Other examples of toll road legislations can be found at



The UK : New Roads and Street Works Act 1991

[http://www.hmso.gov.uk/acts/acts1991/Ukpga\\_19910022\\_en\\_1.htm](http://www.hmso.gov.uk/acts/acts1991/Ukpga_19910022_en_1.htm)



India: toll collection regulations for national highways, 1997

<http://www.nhai.org/rules1997.htm>



California Toll Road Law



Polish Law on Toll Motorways

## Public procurement

The process followed for tendering and awarding a PPP or a concession contract should be in accordance with criteria understood and recognized by all potential bidders, so as to inspire confidence in the fairness and transparency of the selection process. Indeed, most international financial institutions, such as the World Bank and the IDB, require a transparent, competitive bidding process as a condition for financing a project. Others like the EBRD have a policy objective to encourage public tendering as part of their objectives to facilitate the transition to market economies.

General guidelines for selecting private firms in PPPs are presented in Module 5 -> Procurement.

The position of the World Bank is given in:



Procurement in privately provided infrastructure (PPI) Projects financed by the World Bank, Ribeiro, World Bank, 1998.

Comprehensive guidelines and international standards can be found in:



Legislative Guide on Privately Financed Infrastructure Projects, 2000, and Model Legislative Provisions on Privately Financed Infrastructure Projects. UNCITRAL. 2003

Some countries have general procurement legislation governing any form of contracts in all industries, while others have more specific procurement laws in order to promote the private participation in a particular sector. Still others, like the Philippines' "B.O.T. Law," have laws designed to attract private participation for projects with particular contractual frameworks.

In federal countries where procurement legislation may be adopted both at federal and state levels, it should be made clear to private investors which set of laws will apply to a particular road project.

This section outlines the rationale behind bidding practices. Module 5 -> Procurement describes in detail the bidding process for competitive bidding and unsolicited bids.

### **What are the advantages/disadvantages of a competitive bidding process?**

The best way for a country to attract private sector capital investment in the development of its public infrastructures is to inspire confidence in investors and lenders that the process for awarding tenders in that country is fair and, particularly where foreign investors – unfamiliar with local jurisdiction conditions - are involved, to allay their concerns regarding corruption or unfairness.

A clearly written procurement law provides greater stability and predictability in the bidding process by granting both government officials and bidders clear guidance as to the procedures to be followed and the parameters within which negotiations are to be concluded. The complexity and size of highway PPPs generally have the effect of making the bidding process both time-consuming and costly. As a result, private investors will only bid if they are confident that the process is transparent and fair, in addition to considering whether the proposed project is commercially sound and has the necessary political support.

The procurement laws of most countries allow for a particular contract to be awarded after either direct negotiations with a sole bidder (through an unsolicited bid or otherwise) or through a competitive bidding process. Private parties generally will favor a negotiated award because of the substantial investment of time and money that a competitive procurement process involves. Host governments would generally favor competitive bidding in most circumstances, although some specific considerations should be taken into account with respect to the procurement of PPP projects, as will be explained hereinafter.

Although the use of competitive selection procedures in PPP projects is widely advocated, it should be noted that no international legislative model or standard has yet been specifically devised for PPP projects, while at the same time, domestic laws

on competitive procedures for the procurement of works, goods or services may not be entirely suitable for PPP projects. Indeed experience in PPP has shown the limitations of traditional forms of competitive selection procedures, such as the tendering method.

In view of the particular issues raised by PPP projects, it would be advisable for Governments to consider adapting such procedures for the selection of their concessionaires, in such areas as: (i) range of bidders; (ii) definition of project requirements; (iii) evaluation criteria; (iv) negotiation with bidders.

### *(i) Range of bidders*

The sheer scale of most infrastructure projects makes it unlikely to obtain proposals from a large number of suitably qualified candidates. Open tendering without a pre-selection phase, may actually deter competent candidates who may be reluctant to participate in procurement proceedings for high value projects if they have to compete with unrealistic proposals and proposals submitted by unqualified bidders. Open tendering without pre-selection is therefore usually not advisable for the award of PPP projects.

However experience has shown that a pre-selection could lead to collusion, by limiting the number of bidders to those who satisfy certain qualification criteria and verifying only certain formal requirements, such as proof of technical capability.

Governments should therefore consider carefully on a case by case basis whether a pre-selection phase is required for a particular PPP project, and if it is, ensure that appropriate safeguards are in place to provide the contracting authority with as transparent, fair and efficient a selection process as possible. Such a process should include the publication of the invitation to the pre-selection proceedings, not only in the local gazette, but also in an international publication, or in the Development Business publication of the United Nations Secretariat. Then the pre-selection should be made on the basis of the relevant criteria for the particular project including not only technical qualifications, but also evidence of financial and human resources, managerial capabilities, reliability and experience in operating public infrastructures or providing public services.

Where domestic preferences are desired and not inconsistent with that country's international obligations, then such preference could be given following the UNCITRAL Model Procurement Law guidance which allows the contracting authority to favor local contractors that are capable of approaching internationally competitive standards, but without simply excluding foreign competition.

### *(ii) Definition of project requirements*

In traditional public procurement of construction works for example, the contracting authority assumes the position of the Employer, while the selected contractor plays the role of the performer of the works. Invitations to tender therefore usually contain extensive and detailed specifications and the contracting authority will be responsible to ensure that these are adequate to the type of infrastructure, which will thus be operated efficiently.

In PPP projects, the contracting authority, having established an infrastructure need, may prefer to leave to the private sector partner the responsibility of proposing the best solution for meeting such a need.

The selection process may thus give more emphasis to the output expected from the project (ie the services or goods to be provided) than to the technical details of the works to be done or means to be used to provide those services.

### *(iii) Evaluation criteria*

In traditional public procurement where works, goods or services are purchased with funds available under approved budgetary allocations, the objective of the contracting authority is to obtain the best value for the money it spends. In such a case the selection of the winner among several technically acceptable offers is often made on the global price offered for the construction works.

PPP on the contrary are expected to be self sustainable, with development and operational costs being recovered from the project own revenue. Other factors will therefore need to be considered in addition to the construction and operation costs and the price to be paid by the users. The contracting authority will need to consider the financial and commercial feasibility of the project, the soundness of the financial arrangements proposed by the candidates and the reliability of the technical solution used.

Also the evaluation will aim at giving sufficient weight to the need to ensure a continuous provision of and, as appropriate, universal access to the public service concerned, which given the long duration of infrastructure concessions is likely to be an important factor.

### *(iv) Negotiation with bidders*

In traditional domestic tendering procedures as well as certain international guidelines, negotiations between a contracting authority and a contractor is often prohibited, for fear that it might result in an “auction” in which a proposal made by one candidate is used to apply pressure on another candidate to offer a lower price or an otherwise better proposal. As a result contractors are required to sign standard contracts provided to them during the procurement process. In this respect, article 35 of the UNCITRAL Model procurement law states that “No negotiations shall take place between the procuring entity and a supplier or contractor with respect to a tender submitted by the supplier or contractor”.

However, the selection process in PPP projects does not fit within such parameters. Because of their size, complexity and duration, it is unlikely that a contracting authority and a selected candidate could agree on the terms of a draft project agreement without negotiation and adjustments to adapt those terms to the particular needs of the project. It remains, however, necessary to ensure that these negotiations are carried out in a transparent manner and do not lead to changes to the basis upon which the competition was carried out.

## What are the specific considerations for selecting a private partner in a PPP project?

In some countries' legal tradition, PPP projects involve the delegation by the contracting authority of the right and duty to provide a public service. As a result, a special regime applies which is different, as regards contract award, from the regime that applies generally to the award of public contracts for the procurement of works, goods or services. In such countries, a distinction is made between public contracts where the public authority buys goods, services or works for itself, from contracts where the public authority buys works, goods or services that are to be delivered to the public.

Given the specific nature of the services required, including their complexity and the amount of investment involved, and more importantly the undertaking of public service obligations, the selection process emphasizes the freedom of the contracting authority to choose the operator who best suits its needs, in terms of professional qualifications, financial strength, ability to ensure the continuity of the service, equal treatment of the users and quality of the proposal. In contrast to more structured competitive selection procedures used for other public contracts, which sometimes may appear too rigid, in a PPP selection process preference is given to more flexibility and discretion on the part of the contracting authority. This freedom does not however mean arbitrary choice, as the law in such countries does provide mechanisms to ensure transparency and fairness in the selection process.

In such countries, guidelines issued to contracting authorities advise the use of negotiations whenever possible for the award of PPP projects. The rationale is to free the contracting authority from predetermined requirements and rigid specifications, and give the authority more flexibility for taking advantage of innovative or alternative proposals that may be submitted by the candidates in the selection process, as well as for adjusting its own requirements in the event that more attractive options to meet the infrastructure needs are formulated during the negotiations.

When coupled with appropriate measures to ensure transparency, integrity and fairness, such negotiations have in such countries led to satisfactory results.

However such negotiations may have certain disadvantages in a number of countries which do not have the same tradition. They also require highly skilled human resources, experienced in negotiating complex projects, structured negotiating teams, clear lines of authority and a high level of coordination among all the offices involved. They may not ensure the level of transparency that can be achieved by more structured competitive procedures, and may carry with them a higher risk of abusive or corrupt practice. For these reasons, the use of negotiations may not constitute a viable alternative but may rather be considered a useful option to be restricted to exceptional circumstances.

An example of procurement law for PPPs in force in the Philippines can be found at:



<http://www.chanrobles.com/republicactno9184.html>

## Foreign investment and foreign exchange laws

### Foreign investment

To the extent that a country wishes to attract foreign capital or technology for the development of its highway infrastructure, then careful attention should be paid to that country's foreign investment laws. Foreign investment legislation has two general purposes: to control and to encourage/promote foreign investment within its territory. In countries actively seeking foreign investment because of a shortage of local capital and technology, the legislative framework tends to emphasize the promotion aspect. In countries which are wary of the benefits of private participation by reasons of political philosophy or experience, the framework tends to emphasize control rather than encouragement.

Part of investment protection is the legislation on expropriation. Expropriation is the term given to actions by a government that effectively abrogate the property rights of a private entity. Expropriation can be direct, as in nationalization or condemnation by the government of a roadway, or indirect, such as eliminating a concessionaire's right to collect tolls and thereby nullifying the object of an investment. In either case, the concession contract should include provisions that entitle the Sponsors to compensation should any event of expropriation occur. Often, expropriation is included as an example of default or as a materially adverse governmental action, which then allows the Concessionaire to leave the deal in exchange for fair compensation.

### Foreign exchange

Foreign exchange laws restrict the amount of foreign money that may be brought into or out of a country, thereby limiting the amount of foreign currency. Sponsors may take as profits, to service foreign debt, or to pay for imported services and supplies. Foreign exchange laws are often complex and differ greatly among countries depending on their level of development, convertibility and stability of its currency, and its general attitude toward foreign investment. The recurring balance of payments difficulties of many host countries and their need to conserve foreign exchange to pay for essential goods and services greatly reduce their ability and willingness to grant investors the unrestricted right to make monetary transfers. Most countries, therefore, have exchange-control laws to regulate the conversion and transfers of currency abroad by narrowly defining the investor's rights to make monetary transfers, restricting the types of currencies with which payments can be made, tightly controlling the exchange rate, and restricting the time in which such transfers can be made.

Transportation projects are particularly vulnerable to foreign exchange controls because revenue from the project is almost always paid in the local currency. Therefore restrictions on convertibility may adversely affect repatriation of the revenue or the ability to service foreign debt. (Module 4 -> Contracts -> Contract Provisions -> Currency Conversion, Availability, & Transferability).

Common instruments to deal with this risk are guarantees from the government granting the concession or the central bank that a certain level of revenue will be convertible, or that payments will be made in hard currency. Contract provisions should also anticipate the introduction of foreign exchange controls after the concession is signed, treating new regulations as changes that entitle the Sponsors to adequate compensation.



Law of the Republic of Kazakhstan on currency regulation



<http://www.indiainfoline.com/lega/fera/ch01.html>

## Property laws

Under international standards, countries willing to attract PPP in public infrastructure are advised to ensure that their property laws contain adequate provisions on the ownership of land, as well as movable and intangible property. A private concessionaire should also be able to purchase, sell, transfer and license the use of property, as appropriate. This is particularly important in road/highway projects where considerable amount of land will need to be acquired. Such land will either be a public asset from the outset, or will become so as a result of the project, under specific acquisition procedures (see below). The legal status of such public assets as well as the ability of the public authority to transfer rights of ownership or interests in such assets to a private concessionaire will be one of the essential elements to secure the funding of the project.

Ownership of land should be clearly and unequivocally established through adequate registration and publicity procedure. Concessionaires and lenders will need clear proof that ownership of land will not be subject to dispute, and will not commit funds unless the laws of the country provides adequate means of ascertaining ownership of the land.

The law should also provide effective mechanisms for the enforcement of property and possessory rights granted to the concessionaire, against violation by third parties, such as enforcement of easements and rights of way that the concessionaire may need to provide the service.

In certain countries, the laws may restrict foreign ownership of land or land rights, or, conversely, may mandate that key assets or rights be held by domestic entities. Even in countries that do not restrict foreign participation in project companies, it is unlikely that the project company itself will be organized outside the host country. Oftentimes foreign ownership restrictions are identified in the relevant concession law but they may also appear only in separate laws affecting ownership of securities or land, or in laws pertaining to a specific sector such as roads. Foreign ownership legislation varies widely among countries, with both developed and developing countries having enacted

restrictions on foreign ownership. All such restrictions should be clearly identified beforehand.

Where the Government assumes the responsibility for providing the land required for implementation of a project, that land may be either purchased from its owner, or compulsorily acquired against payment of adequate compensation, under procedures called "compulsory acquisition" or "expropriation". The conditions under which such procedures may be used together with the resulting costs and time constraints should be precisely identified and the associated risks measured and allocated between the public authority and the concessionaire. Where the Government does not assume the responsibility for providing the land required for the project, then the law should clearly state on what legal basis will the concessionaire be allowed to acquire the land required, and where foreign ownership of land is not permitted, on what basis will the concessionaire be allowed to proceed with the construction of the road.

Many countries have such legislation which would most probably apply for the acquisition of land in a PPP road infrastructure project. Governments may wish to review their existing legislation on compulsory acquisition for reasons of public interest with a view to ascertain its effectiveness, for indeed, inadequate provisions in this respect have often proven to be a serious cause of delay and additional project costs.

## Dispute Resolution

The implementation and operation of PPP projects inevitably lead to disputes. Notwithstanding that, investors and lenders will be encouraged to participate in projects in countries where they have the confidence that any disputes arising out of the project contracts will be resolved fairly and efficiently.

### Specific constraints of PPP projects

A project agreement by which the private concessionaire has to design, finance, build and operate a highway infrastructure will require the concessionaire typically to enter into several ancillary agreements with different parties, in order to provide the design, the construction, the financing and the operation of such infrastructure. These agreements will necessarily be interrelated, with cross default provisions between them, so that a breach under one agreement will trigger a breach under another one or more of the other agreements. It is possible and in fact often the case, that each of these agreements will be governed by different sets of laws and will have different dispute resolutions mechanisms.

In order to provide an attractive legal framework in this respect, Governments should therefore ensure that certain basic principles are given effect, as follows: (i) foreign companies should be guaranteed access to the courts under substantially the same conditions as domestic ones; (ii) parties to private contracts should have the right to choose foreign law as the law applicable to their contract; (iii) foreign judgment should be enforceable, and there should be neither unnecessary restrictions to access to non judicial dispute settlement mechanism, nor legal impediments for the creation of facilities for settling disputes amicably outside the judicial system.

Unlike traditional procurement of a highway infrastructure under State budgetary resources, a privately funded infrastructure project will place the concessionaire under extreme time pressure to contain the cost of the funds that he will have borrowed. This will be particularly so for a highway project which involves substantial initial costs.

However the resolution of a dispute will often run in favor of the party who is not constrained by the clock, and will therefore place the concessionaire at a disadvantage and in the difficult situation of having to arbitrate between maintaining a tough contractual position over a period of time as long as necessary but costly, and agreeing to a quicker but less satisfactory compromise.

For this reason it will be important for the concessionaire to have an adequate set of tools available to resolve the wide variety of disputes he may be faced with. Adequacy in this instance will mean proportional, that is, a set of graduated responses to the threats actually caused: technical disputes by technical experts; contractual disputes by contract representatives or experts; major disputes by arbitrators or courts. Adequacy will also mean efficiency, that is, a mechanism that will resolve the dispute effectively and prevent it from escalating further or disrupting the construction works or even harming the business relationship between the two parties.

## The tools for preventing and resolving disputes

### (i) Early warning

If one of the parties feels that some events that have occurred have the potential to cause disputes, these should be brought to the attention of the other party as soon as possible. The first party should submit a quantified claim with supporting evidence within a given time period, with failure to do so preventing that party from pursuing the claim.

In infrastructure projects, such early warning provisions refers to events that might adversely affect the quality of the works, increase their cost, or cause delays to completion. Such clause would be useful throughout the construction phase of a highway project.

### (ii) Partnering

The “partnering” relationships between the various parties to a project are defined in workshops usually organized by the contracting authority and attended by the key parties. An initial workshop would establish a mutual understanding of this concept, define the goals for all the parties and agree on a procedure for resolving critical issues quickly. A “partnering charter” would be signed by all parties signifying their commitment to work jointly towards the success of the project.

This mechanism is meant to create an environment of trust, teamwork and cooperation among all the parties involved in the project. It has been proved useful to avoid disputes and to commit the parties to work to achieve the project goals.

### *(iii) Facilitated negotiation*

At the beginning of the project, the parties appoint a facilitator whose function is to assist them in resolving their dispute without providing his own opinion but rather coaxing them into analyzing thoroughly the merits of their case. This method is useful when numerous parties are involved who would find it difficult to coordinate all the differing opinions without such facilitation.

### *(iv) Conciliation and mediation*

In choosing conciliation, the parties appoint a person or a panel to assist them in an independent and impartial manner to reach an amicable settlement of their dispute. In practice such a method is referred to by various expressions including "mediation". In some countries however the mediation would go further by allowing the mediator to suggest terms for the resolution of the dispute.

This method is usually private, confidential and informal. It may also be quick and inexpensive. The conciliator may assume multiple roles and is generally more active than a facilitator. It is non binding, as the conciliator task is to facilitate settlement by directing the parties' attention to the issues and possible solutions rather than passing judgment. It is particularly useful when there are many parties involved.

### *(v) Non binding expert appraisal*

The parties appoint a neutral third party with the task of providing them with an appraisal on the merits of the dispute and suggested outcome. It gives them an indication of what the possible outcome of a binding procedure would be. It is usually followed by negotiations either direct or facilitated, and is especially useful when parties have become entrenched in their positions and cannot see its own weaknesses or the strengths of the other party's position.

### *(vi) Mini trial*

This is a mock trial with each party project contract team representatives making submissions to a "tribunal" composed of a senior executive of each side and a third neutral person. After the hearing the executives enter into a facilitated negotiation procedure with the assistance of the neutral third party, and try to reach agreement taking advantage of the issues that have been elucidated during the trial. The purpose of this method is to inform senior executives of the issues involved in the dispute and give them an indication of what the outcome of a real trial might be.

### *(vii) Senior executive appraisal*

This method is similar to the mini-trial but is more consensus oriented. Both the mini-trial and the senior executive appraisal tend to be less of a strong reality check than the non binding expert appraisal and therefore less likely to motivate difficult decisions in the absence of commercial pressure to do so.

### *(viii) Review of technical disputes by independent expert*

During the construction phase of a road infrastructure project, the parties may wish to refer certain types of dispute to an independent expert appointed by them. The parties may appoint a design inspector or a supervisor engineer to assess whether the works comply with the contractual specifications or technical standards. The powers of this expert and the circumstances of his intervention should be set forth in advance in the project agreement. His intervention may also be sought as a condition to meeting milestones, or obtaining certain consent from the contracting authority.

Independent experts are widely used in the construction industry, and the procedure and practices developed may be used mutatis mutandis in PPP infrastructure projects, bearing in mind however the different nature of the agreements and contractual relationships between a concession agreement and a construction contract.

### *(ix) Dispute review boards (DRB)*

In large infrastructure projects the parties may wish to appoint a permanent panel of experts specialized in the various technical fields covered by the project, which will be ready to act at a party's request in a way that can be more informal and expeditious than other binding procedures and will play the role of an early dispute resolution mechanism, when it is given the power to render a binding decision, thus preventing differences or misunderstanding between the parties from escalating into formal full-fledged disputes.

By being permanently appointed and regularly informed of the project development, DRB can effectively contribute to dispute prevention and mitigation. However, results of actual dispute resolution by binding decisions have been mixed, with uncertainty in some jurisdictions about the possibility to enforce such a decision, since it does not have the status of an arbitral award, even though the parties may have agreed to be bound by the Board decision. In some cases, such panels are called "dispute adjudication boards" ("DAB") to stress that they have the power to actually resolve the disputes, but that does not however eliminate the inherent limitation of such a system.

### *(x) Non binding arbitration*

This method is sometimes used when the less adversarial methods as mentioned above have failed. It is conducted like a binding arbitration except that it ends with a recommendation only, and contemplates that the parties will proceed directly to litigation if the dispute remains unresolved, because the parties have reservations about the binding nature of arbitration. It works as an incentive to avoid both arbitration and litigation: arbitration because it would seem redundant to go through the same procedure twice, and litigation because of its length and cost.

### *(xi) Arbitration*

Arbitration is being used increasingly for resolving dispute under PPP infrastructure projects whether arising under the main project agreement, the concession, or under the construction contract or the financing agreements. Arbitration in a country other than the host country is often preferred and in many cases required by investors and lenders.

Arbitration is also the preferred method for dispute resolution where multiple parties in multiple jurisdictions make litigation a very expensive option. International commercial arbitration is possible so long as national laws allow it, and those that do permit disputes to be resolved by independent third party arbitrators in a neutral location thereby facilitate foreign investment in a project. In some cases, however, national laws require that disputes be resolved either within the host country or using the national courts. Even if arbitration is allowed, such provisions may not permit the government to submit to arbitration, limiting that option to those contracts to which the government is not a party.

The choice of law governing a contract determines the applicable law with regard to whether arbitration is permitted. Assuming the law of the contract permits arbitration, the contracting parties usually can then select the arbitrators among experts in the project sector, as well as the place and the language of arbitration, the procedure and controlling law for the arbitration. It is not uncommon for the project documents and finance documents to be governed by separate jurisdictions. Reconciling or managing differences in dispute resolution provisions between the projects contracts is thus an important concern when seeking investors and structuring the deal.

With respect to arbitration, there are two main issues that need addressing in the legislative framework of a country wishing to attract PPP in infrastructure. The first one is the issue of sovereign immunity of the host State, and the second one is the issue of effectiveness of the arbitration agreement and enforceability of an arbitration award.

Legislators may wish to review their legislation on sovereign immunity and clarify the cases when contracting authorities may or may not invoke sovereign immunity. Sometimes the law is unclear and even though arbitration is allowed and has been agreed between the parties, it may still be frustrated if the contracting authority is able to invoke sovereign immunity either as a bar to commencement of arbitral proceedings or as a defense against recognition and enforcement of the award. It may also raise immunity from execution against public property. National laws vary greatly on this point which must also be clarified. In some instances contracting authorities have waived their immunity from execution. An express written waiver would in all cases be recommended as it is unclear whether a tacit waiver would be given effect.

The effectiveness of an arbitration agreement also depends on the legal regime of the place of arbitration. If the host country regime is seen as unsatisfactory, for instance, because it imposes unreasonable restrictions on the parties' autonomy, a party might then wish to agree on a place of arbitration outside the host country.

In such a case, the effectiveness of the arbitration agreement would depend on the legislation governing the recognition and enforcement of foreign arbitral awards. An international agreement on this subject was signed in 1958, the New York Convention, deals with the recognition of an arbitration award and states the grounds on which a court may refuse to recognize or enforce an award. Enforcement of foreign arbitration awards is required by the New York Convention, which 122 countries have signed.

The fact that a host country is a party to the New York Convention is likely to be considered as a positive element in assessing the reliability of arbitration as a method for solving disputes.

### *(xii) Judicial proceedings*

In some countries, disputes arising out of agreements related to the provision of public services fall within the exclusive jurisdiction of the judicial or administrative courts. In others, parties have the choice between court and arbitral proceedings.

Where the parties can choose, the contracting authority would in most cases prefer to resort to the courts, because of their familiarity with the law of the country including its public policy, the court procedure and the language of the proceedings.

In contrast, prospective private investors and lenders are likely to consider that arbitration is preferable to judicial proceedings because being subject to the agreement of the parties it is in a position to resolve a dispute more efficiently. They may also be reluctant to submit to the jurisdiction of local courts under rules unfamiliar to them.

In assessing whether to resort to judicial rather than arbitral proceedings, the parties would consider the following factors: their confidence in the independence of the courts; the time frame within which the court is likely to decide; the efficacy of the national judicial system and the availability of adequate judicial relief; the technical skills and knowledge required to resolve the dispute; the confidentiality of the proceedings, and the ability to award appropriate remedies. On the last 3 points, arbitration is said to have a comparative advantage over court proceedings, but on the first point, court magistrates are sometimes considered to have more independence.

A good example of a PPP project dispute resolution system can be found in the Channel Tunnel experience.

#### **The Channel Tunnel dispute resolution scheme**

The tunnel under the Channel between the UK and France is one of the largest ever PPP project in rail and road infrastructure. It provides road vehicles a fixed link by rail between the motorways of England and France, and as such has sometimes been described as a "rolling highway" infrastructure. As it links two countries, its international nature gives its dispute resolution scheme distinct features, which are worth describing.

##### **1. The dispute resolution mechanisms**

There was not one but several dispute settlement mechanisms in the Channel Tunnel project, reflecting the diversity of its contractual framework. This framework was made up of four main agreements, with four different dispute resolution systems.

The project agreement between the contracting authorities, the British and French Governments, and the concessionaire, Eurotunnel, was governed by the principles of international law, and disputes were to be resolved by ad hoc arbitration under public international law, with French law and English law only applicable to govern obligations arising under French or English law.

The construction contract was governed by the principles common to English and French law, and in their absence, by the general principles of international trade law as applied by national and international tribunals. Disputes were first to be referred to a panel of 3 persons acting as independent experts but not as arbitrators who had 90 days to give their decision, which was to be unanimous and was final and binding on the parties unless and until it was referred to arbitration. Arbitration was under ICC rules.

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The loan agreement between the concessionaire and the lenders, a syndicate of more than 200 banks, was subject to English law, and disputes referred to English courts.

The operation agreement, a railway usage contract between the concessionaire and the French and British railways, to allow the passage of trains through the tunnel, was governed by French law and disputes were to be referred to an internal senior executive conciliation procedure to be followed by arbitration under ICC rules.

## 2. The disputes

There were many disagreements between the contracting authorities and the concessionaires, particularly over the design of the infrastructure, and these were mainly resolved through negotiations with the assistance of an independent technical expert. However two main disputes were subject to arbitration.

One about the additional costs imposed to the concessionaires by the contracting authorities during the construction. This was settled by a 10 year extension of the concession in favor of the concessionaire. The second one was about the failure of the contracting authorities to provide adequate safety and security around the French terminal site. The arbitral tribunal found in favor of the concessionaire.

There were 22 references to the panel of experts for disputes between the concessionaire and the contractors. The panel gave 14 decisions, 6 claims were withdrawn and 2 were settled. Out of the 14 decisions, 7 were in favor of the contractors, 6 in favor of the concessionaire, and there was 1 draw. Only 2 of these claims were referred to arbitration. One was won by the concessionaire, and the other one was settled.

There were many disagreements and several major disputes with the main users of the tunnel, the French and English railways. Most were resolved through the internal conciliation procedure, but 2 major disputes, about costs to be shared, were referred to arbitration. One was won by the railways, the other one was won by the concessionaire.

There were no actual disputes between the concessionaires and the lending banks, but countless negotiations, and 4 or 5 major renegotiations of the loan agreements.

In addition to the above, the concessionaire experienced the judicial system of both England and France, either as a claimant seeking redress through judicial review against decisions of the public authorities in one country or the other, or, as a defendant against disgruntled third parties or service providers alleging breach of public procurement rules or unfair competition. In summary, this shows a wide variety of claims that called for as diverse a dispute resolution system as could be imagined.

## 3. The lessons

Are there lessons that can be drawn for other infrastructure projects from the successes and failures of this project?

For a project of this magnitude and complexity whose construction lasted a little over 7 years only, the number of disputes does not seem to have exceeded usual standards, certainly if one considers the number of disputes that have gone all the way to arbitration.

PPP infrastructure projects have at least two characteristics that impact on dispute resolution and are of particular importance for the private sector concessionaire.

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The first one is the specific contractual framework in place which, as described above, is a network of interconnected contractual relationships of 3 or 4 agreements with cross default provisions whereby a dispute under one agreement, say the construction contract, is likely to trigger a dispute under the project agreement, because the additional costs charged by the contractors were actually the consequences of additional requirements imposed by the contracting authorities, which will have a knock-on effect on the loan agreement. The concessionaire cannot therefore handle such disputes separately on their own merits, but must take into account the broader impact on the project as a whole.

The second characteristic is time. Time is of the essence in a PPP infrastructure project. Any additional day on the timetable increases the project costs, which because of the size of the investment can reach an insuperable level of debt for the project company that, contrary to traditional public procurement, has had to borrow money to fund the project. Disputes must therefore be considered in the light of this constraint, and experience has shown that the outcome of disputes is often in favor of the party who has no time constraint and to the detriment of the party who is dependent on the timetable.

What the experience of this project also shows is that a good dispute resolution system is one which, (i) reduces the number of disputes between the parties, (ii) prevent the disputes from escalating once they can no longer be avoided, and (iii) provides a mechanism to resolve them quickly when they have arisen.

#### 4. Minimize disputes

The best dispute settlement system is one where the parties comply with the contract, either voluntarily or because a judge or an arbitrator imposed it on them at the outset.

That result was not achieved in this case because the first binding decision from an arbitral tribunal did not occur until 4 years after the start of the project, and that was too late. During those four years the parties had referred a number of disputes to the panel of experts, whose task was more to bring the parties to compromise and prevent interruption of the works, than to strictly apply the contract. 22 claims over a 7 year period, that gives an average of 3 claims per year, which considering the construction contract alone, would seem a reasonable achievement.

However, considering the fact that the concessionaire was at the same time also progressing an arbitration claim under the project agreement as well as a claim under the operation agreement, that made an overall fairly litigious environment.

In order to minimize the number of disputes, the parties must have a clear appreciation of the scope of their contractual obligations. This is not always the case, particularly when such obligations arise under a foreign legal system. The choice of governing law plays therefore an important role in this respect by narrowing or broadening the parties' margin of appreciation of their contractual obligations. This points towards the choice of one national law rather than an hybrid solution where the parties for political rather than legal reasons, choose to refer to principles common to various national laws, or international trade laws principles which are not applied in the same manner in all countries, and therefore create uncertain obligations. Experience shows that when obligations are uncertain, they are not respected.

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### 5. Prevent escalation

If one considers the number of claims made to the panel of experts versus the number of such claims that were taken to arbitration, then the system can be said to have worked. Also none of the claims escalated into a major conflict which could have caused the cessation of the works and precipitated the end of the project.

To achieve this, the parties need to have adequate tools available, which provide a graduated response proportional to the threat. Even though there are a wide variety of such tools, in practice they often lack and the parties only have ultimate retaliation measures such as stopping the works for the contractor, and stopping the payments for the concessionaire.

Installing a permanent panel of experts was certainly a positive contribution in preventing escalation, but it was costly, and had some side effects such as bringing claims management within the two organizations, much closer to the operations.

### 6. Provide a mechanism for a quick resolution of disputes which have arisen.

Infrastructure construction does lead to numerous technical disputes, with both the public authority which is concerned by its design and its long-term sustainability, and with the contractor which is entrusted with the task of building it to the required specifications or performance requirements.

It is therefore crucial that such disputes are resolved quickly either by an independent technical expert or a panel of experts, whose powers need not necessarily be that of a judge, i.e. whose decisions are binding. However when disputes become contractual, then it is equally important that the parties be allowed to submit them to an arbitrator or a judge whose decisions are binding.

The practice of entrusting the resolution of contractual disputes to an expert or a panel without binding power has shown its limits. By obliging the claimant whose claim has been rejected by the panel or dispute board, to start all over again before the arbitrator, one has created a preliminary stage whose usefulness is doubtful, lost precious time, and encouraged the parties to behave outside the scope of their contractual obligations. The Channel Tunnel experience showed that it was not until 3 or 4 years into the construction that an arbitrator was able to remind the parties of their obligations. Until then the parties had developed their own practice which the arbitrator could not completely ignore.

If, as stated earlier, the best dispute resolution system is one in which the parties comply with their contractual obligations, then it is important that a judge or an arbitrator can intervene to sanction potential breaches from the very beginning.

## Company law

In most PPP Greenfield road infrastructure projects the project promoters will establish the project company as a separate legal entity in the host country.

## Adopting modern company laws

The project company may take various forms in different countries, although in most cases a corporation form is selected. For such a form, it is important for the host country to have adequate company laws with modern provisions on essential matters such as establishment procedures, corporate governance, issuance of shares and their sale or transfer, accounting and financial statements and protection of minority shareholders.

Furthermore the recognition of the investor's ability to establish a separate entity to serve as special purpose vehicle ("SPV") for raising finance and disbursing funds may facilitate the financing of the project.

When structuring the project company particular attention should be paid to laws in the host country which may limit foreign ownership of key aspects of the project. Regulations may limit the percentage of foreign equity that can be held in any domestic company or in the project company being granted a concession.

If it is intended that the project company will offer shares to the public, limited liability to the value of their shares in the company's capital will be necessary for the prospective investors, who will usually only purchase those shares for their investment value and will not be closely involved in the operation of the project company.

The responsibilities of Directors and administrators of the project company should also be addressed including the basis for criminal liability. Modern company laws often contain provisions regulating the conduct of managers so as to prevent conflicts of interest. Such provisions may be particularly relevant where the concessionaire may wish to engage its own shareholders at some stage of the project to perform work or provide services in connection with the operation of the project.

## Choosing the appropriate structure

One of the first steps in any project financing is for the sponsor to determine an appropriate structure for the project company, the so called "special project vehicle" (SPV), or "special project company" ("SPC"). Primary factors to be considered when determining an ownership structure for the SPV will include: the need for a relatively high equity to debt ratio, project management responsibilities, taxation treatment and balance sheet considerations; the transferability of interests in and profits from the project company; and the distribution of liability.

The SPV may take a variety of forms, including a corporation, limited liability company, general partnership, limited partnership, or joint venture arrangement. However, the relevant jurisdiction's company law will need to be examined in order to determine the feasibility of each type of structure for the SPV. Such laws may, for example, set special financial, technical or business requirements for shareholders, mandatory capitalization ratios or required statements of purpose. A Shareholders Agreement (or form of partnership or other agreement as the case may be) will set forth the respective rights and obligations of the owners of the SPV.

### *(i) Corporation*

A single purpose corporate entity is the most common form of SPV. The principal advantage of the corporate form is limited liability of its shareholders. Frequently the sponsor will form a subsidiary corporation in the jurisdiction where the project will be implemented solely to carry out the concession. This insulates the parent from liabilities incurred by the project company in the course of the project. The corporate SPV also allows other equity participants to enter into the project with equal protections.

When forming a corporate SPV, special consideration should be paid to ensuring the entity has sufficient capital and credit rating to support the financial risks associated with the underlying loan obligations of the project. In many cases the SPV will need to arrange some form of credit enhancement to justify the project. This may take the form of a guarantee supplied by the parent/project sponsor to assume the obligations of the subsidiary/project owner. In some jurisdictions parents of a corporate SPV must be vigilant in adhering to corporate formalities to avoid the risk that courts will “pierce the corporate veil” and allow liability to attach to the parent.

The disadvantages of the corporate form are less flexibility in designing or altering the management structure, more difficulty in extracting profits, and potentially higher tax liabilities. In a BOT structure, a parent or subsidiary relationship may create problems when the term of the project ends and the company is transferred to the government. For example, there could be unforeseen tax repercussions or questions as to dividend disbursements to the corporate parent prior to transfer. Second, project sponsors may be unwilling to provide guarantees to cover project obligations in what otherwise would be a limited liability investment. Also, some countries do not allow complete foreign ownership of corporate entities or, in cases where the government demands a role in managing the project company, laws may prohibit the government from owning equity.

### *(ii) General Partnership*

A general partnership structure for a project financing is typically utilized when the project sponsor has inadequate capital, all partners have similar tax positions, or all partners desire equal participation in project management and control. Such an arrangement may be insisted upon by a host government that is strongly concerned about the protection of the public interest.

General partnerships afford the participants no limitation on liability, however, and the decisions of the partnership are equally binding on all members.

In BOT project financing, as distinguished from other types of project finance, these factors may not exist. The sponsor selected by a host government for such projects would most likely possess sufficient equity for the initial start-up. Also, in the event the host government is supposed to be an active participant in the project, state participation in management and control should remain somewhat limited, at least in the initial stages of the project, to provide the private sponsor with freedom to arrange financing and to ensure favorable credit enhancement. Further, host governments may be reluctant to enter project financing organized as general partnerships because of unwillingness to assume associated joint and several liability resulting from any negligent operation of the project.

### *(iii) Limited Partnership*

In a limited partnership each “limited partner” shares in the project profits while enjoying the associated limitation of liability of a limited partner. This structure can facilitate equity contributions by passive project investors, such as contractors and equipment suppliers. Such contributions can supplement project financing and ensure that construction and equipment goals are achieved. Once the project enters the operational stage and begins earning returns, limited partnership interests can be purchased by the project sponsor or host government, or otherwise transferred to protect operational integrity.

Limited partnerships must have at least one general partner, which, as in a general partnership, assumes all of the liabilities and decision making power of the partnership. In this way the dominant partner may control a project, but will be exposed to significant financial risk. In some jurisdictions the general partner may be a corporation, which merges the benefits of corporate limited liability with the organizational benefits of the partnership.

### *(iv) Joint Venture*

A joint venture arrangement is the most flexible form of SPV, however it is more common with oil and gas projects than in road financing. Under a joint venture BOT arrangement, an investor is typically licensed to construct and operate the project facility on land granted by the host government. Thus, host government becomes responsible for providing land-use, construction, and operation rights and the private partner is responsible for coordinating the design, construction and funding of the facility. For the duration of the concession period, the joint venture company will hold the exclusive right to operate the network facility and collect service charges. Subsequently, at the concession’s termination, all rights and assets of the company, including the facility itself, are transferred to the local project partner at little or no cost.

### *(v) Limited Liability Company*

The modern limited liability company is a relatively new but effective company structure that can be utilized in project financing. It combines the limited liability of a corporation with the flow-through tax benefits and the control rights of a partnership. In contrast to the limited partnership arrangements, these companies do not require the existence of a general partner who is exposed to unlimited personal liability.

## **Security and insolvency laws**

Security arrangements are crucial for financing infrastructure projects, in particular where the financing is structured under a “project finance” modality, because the lenders rely upon the project revenues to reimburse the loans, it is important that such revenues and the assets that produce these revenues be protected from other creditors of the concessionaire.

A security package therefore includes both security over physical assets related to the project and security over intangible assets held by the concessionaire. Another form of security often given is an assignment to lenders of proceeds from contracts with

customers of the concessionaire. Those proceeds typically include the tariffs charged to the public for the use of the infrastructure, such as tolls on a toll road.

It should be noted that in some legal systems security given to the lenders that allow them to take over the project is only allowed under specific conditions, namely the agreement of the contracting authority for their creation, and an undertaking that their enforcement will not affect the obligations of the concessionaire as regard the continuity of the service.

Given the long-term nature of PPP projects, the parties may wish to define the assets that are given as security specifically or generally. They may wish such security to cover present and future assets.

A model for the development of modern legislation on security interests is offered in the



Model Law on Secured Transactions, prepared by the European Bank for Reconstruction and Development (EBRD), 2004.

The World Bank has also made available relevant information on creditors' rights and insolvency which can be found on the following website under Principles and Guidelines.



World Bank Global Insolvency Law Database  
<http://web.worldbank.org/external/default/secmain?theSitePK=4817374&pagePK=4710368&contentMDK=21759230&menuPK=5099523&piPK=64860384#sample>

Security arrangements are meant to protect the interests of creditors, in case the debtor becomes insolvent or bankrupt, by giving the creditors a preference in the distribution of the debtor's assets upon sale. Most countries' legislation contain detailed provisions regarding secured claims in particular whether secured creditors may foreclose on the security despite the opening of bankruptcy proceedings, whether secured creditors are given priority for payments made with the proceeds of the security and how claims of secured creditors are ranked.

Likewise in a PPP project, security is granted by the project company over its assets to the benefit of the lenders, should the project company become insolvent. However in the context of PPP projects, some countries have adopted special rules to deal with the insolvency situation of the project company, including rules that enable the contracting authority to take the measures required to ensure the continuity of the project.

Maintaining the continuity of the project would normally prevent the lenders from enforcing their security, but in a PPP project the interest of the lenders is also to maintain the continuity of the service, or pursue the construction until the project can become operational, because under a traditional project finance scheme, the lenders rely on the project revenue to obtain the reimbursement of the loans. The interest of the lenders therefore met the interest of the contracting authority.

The insolvency laws of such countries were therefore adapted to allow the lenders to enforce their security to the extent that such enforcement would not prevent the continuation of the project. This could be achieved by organizing the substitution of the project company by the lenders, in allowing the lenders, under certain conditions and approval by the contracting authority, to take over all the rights and obligations of the project company, that is to "step in" the shoes of the concessionaire until full repayment of the loans, thereby maintaining the continuation of the project.

These so called « step in » rights require the lenders to have entered into agreements directly with the main contractors of the concessionaire for the outset in order to be able to continue the operation of the project. Hence such agreements are called « direct agreements ». Usually lenders will have entered into a direct agreement with the building contractors, with the main users of the infrastructure, as well as with the Contracting Authority which will reserve the right to approve the exercise of such « step in » rights by the lenders, sometimes called « substitution », subject to the lenders satisfying predefined technical and financial conditions.

## Tax laws

PPP projects require a predictable cash flow. It is therefore crucial that all tax potential implications be readily assessable throughout the life of the project, since unanticipated tax changes may reduce the cash flow and have serious adverse consequences. As a result, the tax laws of the host country greatly affect the private sector's desire to participate in a project, since tax laws have a direct impact on the profitability of a project.

Private investors must therefore take great care in understanding the host country's tax system to determine how its tax laws are applied in practice, at the various levels of government, central, provincial and municipal, since what ultimately matters is the cumulative effect of all taxes combined that needs to be taken into consideration. One characteristic of PPP projects in this respect is the possibility that foreign companies participating in the project be subject to double taxation, that is taxation of profits, royalties and interests in their own home country as well as in the host country. Many countries have entered into bilateral agreements to eliminate or reduce the negative effect of double taxation, which is seen by private investors as a positive factor in the decision to invest in such countries.

While tax systems differ around the world, most host countries adjust their tax systems in order to attract private investment for key infrastructure projects such as toll roads.

One of the most common tax law incentives is the "tax holiday," which exempts the enterprise or the investor from local income and other taxation for a specific period of years. The host country may also grant exemptions from taxes on dividends, interest payments, property taxes, and numerous other charges and fees for which the project, its investors, creditors and contractors would otherwise be liable.

A variation of the tax holiday often found is "tax stabilization", which guarantees that the approved enterprise will pay no more than a specified maximum tax rate for a determined period of time. An approved project may often obtain the right to import capital goods, spare parts, or even raw materials for such large infrastructure projects

at reduced tariff rates or without the payment of the high customs duties prevailing in most developing countries.

## Accounting standards

Special accounting rules for infrastructure operators have been introduced in some countries to take account of the particular revenue profile of infrastructure projects. Road projects in particular are characterized by a relatively short investment period with high financial costs and no revenue stream, followed by a longer period with increasing revenue and decreasing financial costs, and under normal circumstances, stable operating costs. To avoid the distortion that traditional accounting rules would imply in such a situation, and the adverse tax consequences, some countries have adopted special accounting rules that allow the concessionaire to defer part of the financial cost accrued during the initial deficit phase to the subsequent financial years, according to financial rules provided in the project agreement.

## Labor laws

The host country's labour laws can be a major area of concern for the private sector when entering into a PPP. Even when hourly wages in many countries are extremely low, labour laws can impose additional costs on the project so as to make the real cost of labour significantly higher than originally calculated. For example, the labour laws of many host countries make it virtually impossible for a PPP to release a worker, so that in times of low demand the project will be unable to reduce its payroll. It may even prove difficult to fire workers who are inefficient or dishonest. Labour laws may also be part of concession, procurement, or toll road legislation which will often require a certain percentage of local labour to be hired for work on any toll road project. Labour legislation may further require the payment of substantial benefits for social security, medical insurance, vacation and housing and clothing allowances. The existence of these labour laws can therefore have an impact on the choice of technology used for the toll road and on the methods of selecting and hiring workers. Finally, host country laws will also typically lay down a framework for industrial relations. In many developing countries, for example, the law may forbid workers to strike, but instead require the parties to go through a form of arbitration or mediation.

## Intellectual and industrial property laws

PPP infrastructure projects frequently involve the use of new or advanced technology, protected under patent or other intellectual or industrial property rights, or innovative solutions that are proprietary information protected under copyright laws.

Investors bringing such technology into the host country will need to be assured that their IP rights will be protected and that they will be able to enforce those rights against infringements.

A legal framework for the protection of IP rights may be provided by adherence to international agreements regarding the protection and registration of intellectual

property. These agreements are numerous. Among the most important ones are the Paris Convention for the Protection of industrial property of 1883, The Patent Cooperation Treaty of 1970, the Madrid Agreement Concerning the International registration of Marks of 1891.

## Environment laws

It is widely accepted that environmental protection is a critical prerequisite to sustainable development, and is also likely to have a direct impact on the implementation of a PPP infrastructure project at various levels. Experience also shows that environmental matters are among the most frequent causes of disputes.

Environmental protection encompasses a wide variety of issues ranging from handling of waste and hazardous substances to relocation of persons displaced by large infrastructure projects, such as highways. Public authorities should ensure they have adequate means to monitor compliance with environmental standards, which standards should be made clear to potential investors.

Environment laws often require prior authorization for a number of activities which may be particularly stringent for some type of infrastructure projects, such as road projects.

It is therefore advisable to include in legislation measures that make obligations arising from environmental laws transparent, including environmental liability, conditions for limitation of such liability and whether such liability is based on negligence or breach, as in some countries, or is a strict liability as in other countries. Conditions under which licenses are to be issued and the circumstances that justify the denial or withdrawal of a license should be clear. Also important are the provisions that guarantee the applicant's access to appeal procedures and judicial review.

Adhering to international treaties relating to the protection of the environment may help to strengthen the applicable regime of environmental protection.

Most international financial institutions, including the World Bank, now require an environmental impact assessment before a project can proceed.

## Competition laws

Laws and regulations regarding competition are an essential element of a country legal framework because they affect all stages of PPP infrastructure projects, from the very decision to engage the private sector, to the selection of the concessionaire, the construction of the infrastructure, starting with the award of the construction contract followed by the award of all the sub contracts, and, upon completion of the project, the operation of the infrastructure, with the competition issues within the same mode, and the exclusivity sometimes granted to the operator against competing non toll roads, as well as the competition issues with other modes.

Competition often plays a critical part in an investor's decision to invest or not in a given country, because it affects the Operator's revenue flows which are essential elements in raising the private finance for the infrastructure.

Competition laws are being used either to introduce competition in a market or to ensure that proper competition is maintained, but also sometimes to protect a project against competition as a means to ensure for its viability for a given period of time.

Countries should therefore ensure their legislation is clear and transparent and that enforcement mechanisms are available in case of breach.

## Tort law

As indicated at the outset, Governments objectives in PPP projects are to transfer risk from the public sector to the private sector, and benefit from the private sector know-how and technology while keeping the government's discretion in the public interest unrestricted as far as possible. Governments will therefore want adequate safeguards and assurances that the project will be operated properly and safely.

Many private operators have taken this seriously and work towards bringing down accidents with personal injury or property damage so that a clean and safe transport infrastructure is seen profitable for both the public and private sector.

However, the construction or operation of highways infrastructure facilities may sometimes result in personal injury or death to employees of the operator, or users of the facility or third parties, or in damages to their property.

The compensation to be paid to the injured parties in such cases raises specific issues in a PPP infrastructure project which are not governed by the law applicable to the project agreement concerning contractual liability, but by applicable legal rules governing extra-contractual liability, or tort law. Such rules are often mandatory to the effect that the project agreement cannot limit the liability of the operator or the contracting authority to compensate third parties, who are not parties to the project agreement. In some legal systems, there are special mandatory rules governing the extra-contractual liability of public authorities, while in others, public authorities might be protected by their sovereign immunity.

It is therefore advisable for the contracting authority and the concessionaire to provide for an internal allocation of risks between them as regards damages to be paid to third parties for personal injury or death or damage to their property, to the extent that this allocation is not governed by mandatory rules. It is also advisable for the parties to provide for insurance against such risks.

Where the parties to the project agreement have agreed that the concessionaire alone should bear any responsibility in that regard, and that the contracting authority should not bear any liability as regards third party claims (save for serious breach or recklessness of the contracting authority), it may be useful to provide that the mere approval of the design or specifications of the facility by the contracting authority, or its acceptance of the construction works, or its use by the public does not entail the assumption by the contracting authority of any liability for damages sustained by users or third parties.

Moreover, since provisions on the allocation of liability may not be enforceable against third parties under the applicable law, it may be advisable to provide that the contracting authority should be protected and indemnified in respect of compensation claims brought

against it by third parties. The project agreement should also provide that the parties should inform each other of any claim in respect of which the contracting authority is entitled to be indemnified, and give reasonable assistance to one another in the defense of such claims.

# Regulatory Framework

While the Concession law or PPP law or in their absence the investment law of a country is generally considered the most authoritative statement of government policy toward private participation, it often seems quite general to the private investor. In most countries, the host government will promulgate regulations or other subordinate legislation to complement the general law.

In addition, governments will also establish procedures and create instruments and institutions, which together constitute what is called a regulatory framework. That framework represents an important instrument to implement the governmental policy for the sector concerned.

Different options have been used in domestic legislations to set up a regulatory framework for PPP infrastructure projects: what does it aim to achieve and how.

There are two main regulatory models that are used worldwide, the independent regulator model which prevail in Anglo-Saxon tradition countries, and the public service concession model, also called the regulatory contract, based on French experience. There is also an hybrid version of the two which has in fact become the most common regulatory governance model in most developing and transition economies that have created new regulatory systems.

As these are discussed in detail in Module 3-> PPP Policy Framework -> Legal and Regulatory, this Section will not address how the regulation is produced, but only underline that the regulatory framework does produce substantive rules, which have to be taken into account by private investors, in addition to the statutory instruments, constitutions, laws and subordinate legislation, which have been described here above.

## Implementation regulation and agencies

Because the rules applicable to infrastructure operation often allow for a degree of discretion, some third party or body is required to interpret and apply them, monitor compliance, impose sanctions and settle disputes arising out of the implementation of the rules.

The matters on which regulatory agencies have to arbitrate range from normative responsibilities (eg rules on the award of concessions and conditions for certification of equipment) to the actual award of concession; the approval of contracts or decisions proposed by the regulated entities (eg a contract on network access conditions for new and existing customers); the definition and monitoring of an obligation to provide certain services; the oversight over public service providers (in particular compliance with license conditions, norms and performance targets); price setting or adjustments; automatic and non automatic cost pass-through mechanisms; other decisions about tariffs levels and structure; investment or connection obligations and reviews; accounting systems; vetting of subsidies, exemptions or other advantages that could distort competition in the sector; quality of service standards; periodic reporting requirements.

In many countries a governmental agency will carry out this task. Such a body is often separate from the regular government ministries and takes the form of an inter-ministerial committee or an independent agency with representatives from various interested ministries. Some countries give this power to their ministry of planning, and a few of the more developed nations authorize specific ministries to screen investments within their particular sectors of activity. Thus the Ministry of Transportation might have the exclusive right to screen a highway or other transport project.

In other countries such matters will be regulated in a detailed concession contract between the public authority and the private sector operator, without there being a separate regulator (hence its name of regulation without a regulator), but under the supervision of administrative courts which have over the years imposed a set of established principles governing the sector.

## Standards

International and local standards complement host country laws and regulations to provide guidelines for several aspects of the construction, operation and maintenance of a project. They are discussed in Module 3 -> Sector Planning and Strategy -> Planning and Policy Making -> Technical and Performance Standards.

A duty to operate in accordance with “good industry standards”, for example in the toll road industry, means to act according to those practices, methods, and techniques that are from time to time accepted for use in the international toll road industry. Such “standards” are commonly used in prudent engineering and operations in order to operate and maintain equipment similar to the toll road project’s facilities lawfully, safely, efficiently and economically in similar circumstances.

While such “standards” are usually industry standards referred to in contractual clauses to identify a party’s obligations under a construction or operation and maintenance agreement, standards can derive from investment treaties, international custom and international conventions that set minimum levels for more humane issues such as workplace conditions, child labor, and environmental protection.

# Framework Assessment

This section will address the following two questions: (i) why is it important to evaluate a country legislative framework - what purpose does it serve, and (ii) how this should be done.

The aim of any evaluation or assessment is to identify one's strengths and weaknesses, and on the basis of the findings of such evaluation, take the actions required to improve the efficiency; in the case of PPPs in highways, the aim is to make the country's legal framework more attractive to private investors.

Multilateral development agencies, such as the International Bank for Reconstruction and Development, have devised comprehensive methods for evaluating regulatory systems.



Handbook for Evaluating Infrastructure Regulatory Systems,  
by A.C. Brown, J.Stern and B. Tenenbaum, 2006).

Other regional IFIs, such as the European Bank for Reconstruction and Development ("EBRD"), have created and implemented a concession laws assessment methodology, with the aim of improving the legal environment in its countries of operation.

The World Bank methodology analyzes two dimensions of any regulatory system: regulatory governance and regulatory substance. The latter examines the content of the regulation, i.e. the laws and institutions contained in the system, whereas the former refers to the processes by which such laws and institutions were arrived at.

The EBRD focuses only on the substance of the regulation, but analyzes both its extensiveness, by conducting an assessment of "the laws on the books", and its effectiveness, providing a subjective evaluation by a third party of how such laws are applied in practice.

For the purpose of this toolkit and in order to assist countries wishing to conduct an evaluation of their legislative framework with a view to identify the reforms needed, reference will be made to the EBRD methodology, i.e. what the law is and whether it is applied.

Although the EBRD conducted this assessment for its own countries of operation (now 29), it can indeed be used as a tool by any country, to measure its own performance and take the legislative or regulatory remedial actions they think fit.

## Evaluation of the extensiveness of a legal framework

EBRD has made an assessment of the legal environment of each of its countries of operation on the basis of answers to a detailed questionnaire, benchmarked against best international practices on private sector participation in public infrastructure projects, in six specific core areas: general policy framework and general concession framework;

definition and scope of the concession law; selection of the concessionaire; project agreement; security and support issues and, settlement of disputes and applicable law.

### General policy framework and general concession framework

The questions in this core area aim to assess the country general policy framework and the country efforts to promote PPP and improve PPP legal framework.

The existence of a specific law or a comprehensive set of laws regulating PPP with easy access to a clear and stable legal environment is evaluated, such laws being general or sector specific (eg, road infrastructure), bearing in mind that what is considered positive is the clarity of the legal regime rather than the mere existence of the law.

The existence of a policy framework and a PPP task force are also considered as positive signs.

### Definition and scope of the concession law

The questions in this core area aim to assess whether the scope of the concession legal framework is clearly defined, *inter alia*, in terms of the public authorities allowed to enter into a PPP agreement, and whether the sector concerned is eligible to PPP.

### Selection of the concessionaire

The questions in this core area aim to evaluate whether the selection process is fair and transparent, whether competitive tender procedures are compulsory and direct negotiations the exceptions; how unsolicited proposals are dealt with, and whether illegal awards may be challenged.

### Project agreement

The questions in this core area aim to assess the flexibility with which the parties may agree on the provisions of the project agreement, and particularly the allocation of risks between them, without unnecessary constraints or compulsory requirements that are likely to affect the project bankability (such as onerous obligations, freedom of tariff restrictions, etc.). It also checks if standard model concession agreements exist, and whether such are compulsory.

### Security and support issues

The questions in this core area aim to assess the availability of security instruments on the assets and cash flow of the concessionaire that may be given to the lending banks as part of the conditions for the funding of the project.

Also relevant is whether the said banks have the right to be substituted to the concessionaires, in their rights and obligations, in case of default by the concessionaire,

so as to be able to complete the project, start operation and generate the cash flow to reimburse the loans.

It also checks whether financial support to the implementation of a concession is available from the Government, in what form and from which authority.

### **Settlement of disputes and applicable law**

The questions in this core area aim to evaluate whether the parties to a PPP agreement are free to agree on the law governing their contractual relationship and choose a procedure for resolving their disputes.

It checks whether recourse to international arbitration and enforcement of arbitral awards are possible and regards the ratification of the international convention as positive in the evaluation of this core area.

The EBRD methodology then provides keys for the assessment of each question and each core area, as well as for an overall assessment of the extensiveness of country written legal framework.

Since 2004 EBRD has conducted at least two evaluation exercises, which showed the progress achieved and areas/countries where issues remained outstanding. It also allowed the Bank to fine tune its methodology and highlighted the limits of the evaluation. It is to address some of these limits that EBRD carried out another exercise with a view to measure how the concession laws were applied in practice, that is, their effectiveness.

### **Evaluation of the effectiveness of a legal framework**

The existence of laws, general or sector specific, however extensive they may be, is not in itself a guarantee of success for PPP projects, or indeed generally, if such laws are not enforced.

It is therefore very important for policy makers and legislators to be able to assess the effectiveness of their legal framework, not only to identify which of their substantive law should be amended, but also to identify which areas of their institutional framework needs improving.

### **The EBRD method of evaluation**

In 2006, EBRD conducted a separate review of the effectiveness of the legislation by measuring how the law is applied in practice, through a series of questions on a case study designed to describe how one's legislative and regulatory would operate in such a situation, The 2006 Legal Indicator Survey on concessions.

The aim of this exercise was to create an instrument that would assess how a particular legal and institutional framework functions in practice.

The case study presents a real life scenario that can be encountered in many countries and is followed by a series of questions relating to how the legal and institutional framework might operate in such a case. It covers four core areas of the framework:

*Presence* – whether concessions have been implemented successfully or whether there is a potential for such;

*Process* – whether there is a fair and transparent selection process measured by the possibility of challenging a concession award effectively;

*Implementation* – whether there is fair and transparent implementation of concessions, measured by how effectively the Contracting authority adheres to the project agreement terms and the efficiency of remedial action in case of non compliance;

*Termination* – whether an investment can be recovered in case of early termination, measured by the capacity to enforce arbitral awards and counter obstruction by the Contracting authority.

The Survey also provides a rating methodology, and highlights the limits inherent in such an exercise, which intentionally seeks the subjective evaluation of a legal practitioner in a given country.

Notwithstanding their limits which are acknowledged, it is believed that the combination of these two studies on extensiveness and effectiveness of a legal framework provides a comprehensive assessment tool of a country PPP legal framework. Both studies are available at the following address:



<http://www.ebrd.com/country/sector/law/concess/assess/index.htm>

### The lessons from an evaluation of effectiveness

As shown in three out of the four core areas of investigation – selection process, concession implementation, and concession termination – the test by which effectiveness is measured is whether enforcement measures are available, that is whether the parties to a project agreement have the ability and willingness to resort to the State court system or to alternative dispute resolution methods to enforce their rights.

The ability to resort to courts supposes the existence of an independent State judiciary. The ability to resort to arbitration requires a waiver by the State of its sovereign immunity. The willingness to resort to State courts or arbitration tribunals implies the confidence in such systems to enforce contract rights.

Despite the prevalent view in business that court adjudication or arbitration can hardly provide an adequate solution to a business dispute, it is nevertheless important that such enforcement methods be available because it is their very existence that may eventually induce the parties to a contract to abide by their obligations.

# Framework Adjustment

At its 72<sup>nd</sup> plenary meeting on December 9<sup>th</sup>, 2003, the General Assembly of the United nations recommended that all States give due consideration to the Model Legislative Provisions and the Legislative Guide on Privately Financed Infrastructure Projects (the "PFI Guide") when revising or adopting legislation related to private participation in the development and operation of public infrastructure.



Legislative Guide on Privately Financed Infrastructure Projects, 2000, and Model Legislative Provisions on Privately Financed Infrastructure Projects. UNCITRAL. 2003

With the exception of those countries like France which, until recently, were relying upon a contractual framework, backed by case law, most of the countries active in PPP infrastructure projects have either adopted a new legal/ statutory framework, when they had none (Russia), or they adapted their existing framework when they were advised that they ought to in order to attract private investors (India).

## Framework adjustment road map

Among the countries which have deployed substantial efforts to adjust their legal framework to attract the participation of the private sector in the development of their public infrastructure and services are the so-called transition economy countries of Eastern and Central Europe and of the former Soviet Union.

Some guidance may be gained from their experience which has now spanned over 17 years and points to two main issues to be addressed in conducting the change. The first one is to find the appropriate instrument to adjust the framework; the second is to implement the various measures beyond the establishment of a legislative framework, such as adequate administrative structures and practices, organizational capability, technical, legal and financial expertise, appropriate human and financial resources and economic stability, all measures without which the mere adoption of a set of laws would serve little purpose.

The choice of the appropriate instrument is dependent upon a number of factors and above all upon the particular circumstances of each country, its history and stage of economic and social development, its political and economic organization, and in this latter respect, its market structures.

This choice is evidently wider for countries starting from scratch with a clean slate than for countries with PPP history or tradition.

As indicated in the PFI Guide, many countries have used legislation to establish the general principles for the organization of infrastructure sectors and the basic policy, institutional and regulatory framework. However, the law may not be the best instrument to set detailed technical and financial requirements.

Many countries have preferred to enact regulations setting forth more detailed rules to implement the general provisions of domestic laws on PPP projects. Regulations are found to be easier to adapt to a change in environment, whether the change results from the transition to market-based rules or from external developments, such as new technologies or changing economic or market conditions.

## The pitfalls of legal framework adjustment

Whatever the instrument used, clarity and predictability are of the essence. In this respect too, the experience of the former Eastern European countries should serve as a lesson and highlight the pitfalls of addressing the first above mentioned issue without sufficiently addressing the second.

In the space of 4 years almost half of these then 28 countries experienced significant changes in their legal framework either through enacting new concession or PPP laws, or by adapting their public procurement legislation. This huge legislative exercise was prompted by the need for countries acceding the European Union to reach the level of harmonization required and comply with the EU principles applying to public procurement and concession laws (transparency, equality of treatment, proportionality and mutual recognition).

Because of time pressure and insufficient attention given to the specificity of PPP, compared to traditional public procurement, and to the need to improve their legal and institutional PPP framework (very few have created specific tools dedicated units or task force to coordinate and promote PPPs), several countries enacted long and complex legislation, which tried to encompass all possible PPP options and eventualities.

The result in several instances is confusion, which could be detrimental to the stability of the legal framework of such countries, and produce an adverse effect on the PPP promotion policy. Indeed, there are already some signs indicating that Governments as well as investors consider that PPPs are generating deals which are too complex, onerous and time consuming.

This shows the difficulty of finding the appropriate instrument for conducting the change. The EU itself has not legislated on concessions for the provision of public services, nor is it minded at the moment to legislate on the subject of PPPs. It has stated, and the European Court confirmed, that concessions and PPPs were however subject to the four above mentioned principles of transparency, equality of treatment, proportionality and mutual recognition. It is therefore sensitive to the need to keep flexibility in the legal framework, such a flexibility being required to cover the wide diversity of PPP projects, to the extent that the principles were complied with.

At the other end of the spectrum, countries which have had a long PPP tradition without much legislation on the subject, such as France and Portugal, have in the last ten years adopted specific laws and statutes governing PPPs, set out an explicit PPP promotion policy and set up the tools and task force recommended by the PFI Guide. At the extreme end of that spectrum, the United Kingdom has maintained its non written legal tradition, and refrained from adopting any specific PPP legislation, with one notable exception for the case of toll roads infrastructure.

To conclude this section, the choice of the appropriate instrument to adjust a country legal framework is difficult because the options are numerous. As part of the adjustment process, it is beneficial for countries to take the time to engage a public debate with all stakeholders, from the public and the private sector.

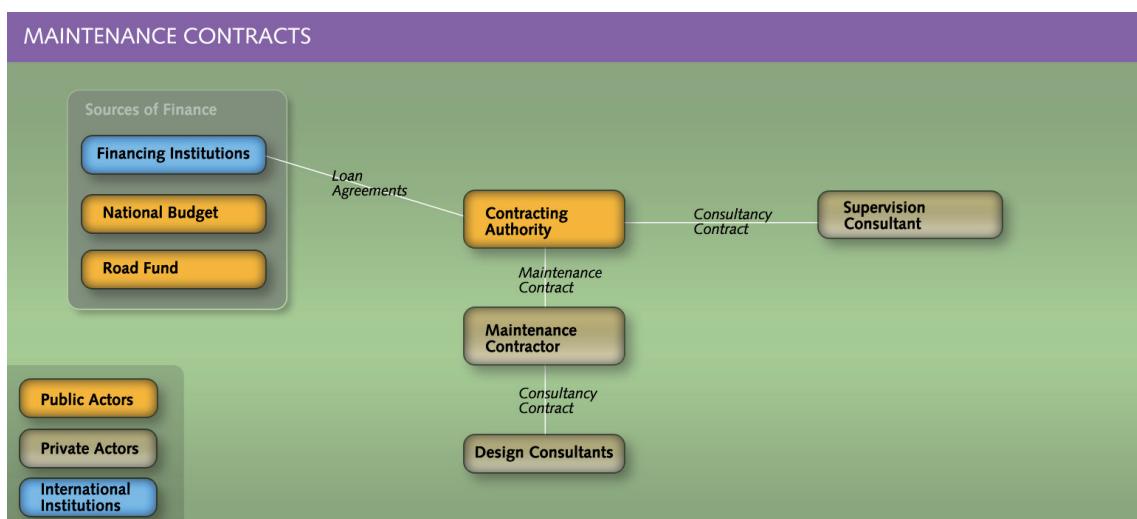
# Contracts

Each PPP is unique and involves public and private partners. International institutions often participate to enhance the project's economic and financial feasibility. The contractual framework of a PPP infrastructure project involves a web of interdependent contractual relationships, organized around one main agreement.

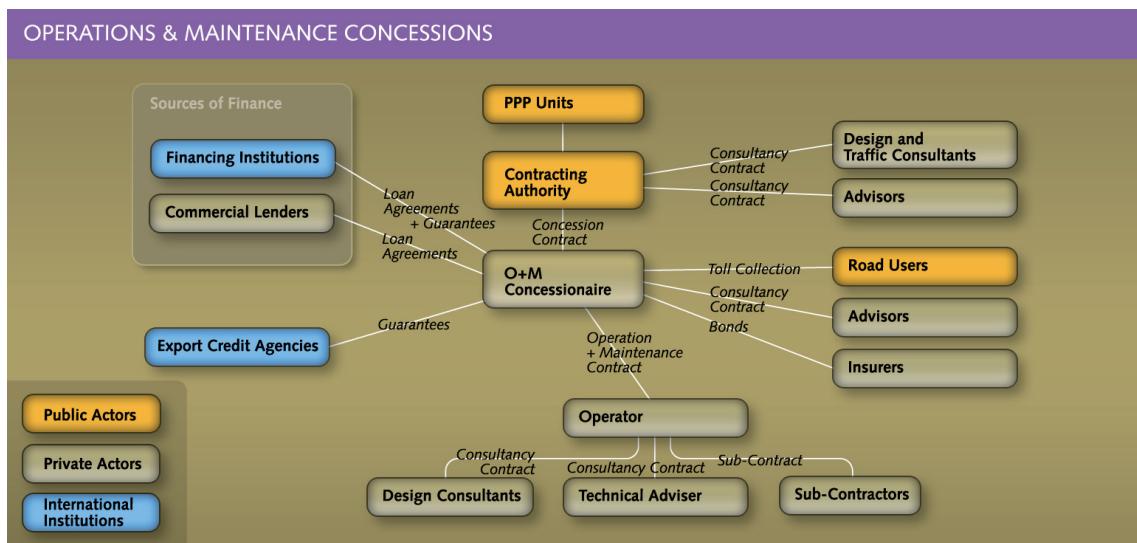
This section assists in contract formation, drafting, implementation and management by considering contract formation (selection of contract type and procurement), selection of contract type, description of the significance of the most relevant contract clauses and other agreements, bonds and guarantees. Contract renegotiation and adaptation reviews the causes leading to renegotiation and the conditions for its success.

The contractual arrangements are described hereafter under the three principal PPP categories (Module 1 Main types of PPP) and as per the organization charts for PPP (Module 1 Actors and roles).

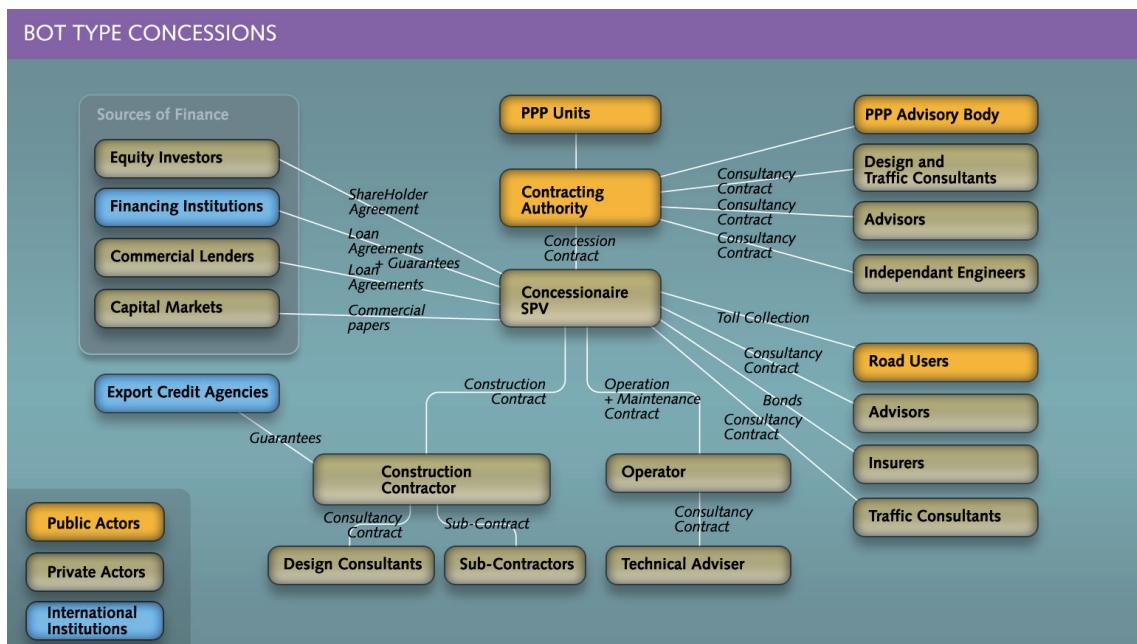
- **Maintenance contracts** are for projects involving a simple structure in which a Contractor signs a contract with a government institution (the Contracting authority). This relates particularly to performance-based maintenance contracts.



- **Operation and maintenance concessions** involve a more sophisticated organizational structure and sometimes require setting up a special purpose company run by the contractors to provide operation and maintenance services. These are also referred to as lease, franchise or affermage (brownfield) concessions.



- **BOT type concessions.** This organization chart represents the typical structure for those PPP projects, notably BOT, DBFO, B00 type (greenfield), in which:
  - construction or major upgrading, operation and maintenance of the road are included in the scope of work
  - private financing is mobilized in the form of project finance and,
  - a special purpose company is set up for risk allocation and management purposes



# Contract formation

The contractual framework of a PPP infrastructure project involves a web of inter-dependent contractual relationships, organized around one main agreement. The choice of this main agreement is made by the public authority according to the type of project envisaged. Then the next step in the implementation of the project is to select the private concessionaire, and negotiate and draft the concession agreement.

## Choosing the appropriate contract

Private sector participation in infrastructure projects may be devised in a variety of different forms ranging from publicly owned and operated infrastructure to fully privatized projects. The appropriateness of a particular variant for a given type of infrastructure is a matter to be considered by the government in view of the national needs for infrastructure development and an assessment of the most efficient ways in which a particular type of infrastructure facility may be developed and operated. In a given sector more than one option may be used.

### Public ownership and public operation

When public ownership and control is desired, direct private financing and infrastructure operation may be achieved by establishing a separate legal entity controlled by the government to own and operate the project. Such entity may be managed as a commercial enterprise and opening its capital to private investment may offer an opportunity for attracting private investment in infrastructure.

Private participation may also be achieved in such a case by the negotiation of "service contracts" whereby the public operator contracts out specific operation and maintenance ("O&M") activities to the private sector. Alternatively the public authority may also entrust O&M activities to a private entity acting on behalf of the contracting authority, under a so called "management contract", with a possibility to link the private operator remuneration to its performance.

### Public ownership and private operation

Alternatively the whole operation of public infrastructure facilities may be transferred to private entities. One option is to give the private entity usually for a certain period, the right to use a given facility, with the obligation to supply the service and to collect the revenue generated by that activity. The facility may already be in existence or may have been built by the said private entity. In some countries this is referred to as public works concessions or public service concessions.

When the private entity is selected to operate a facility that has been built or financed by government, the private operator assumes the obligation to operate and maintain

the infrastructure and is granted the right to charge for the services it provides. In such cases the private operator pays to the contracting authority a portion of the revenue to amortize the construction cost. Such arrangements are referred in some legal systems as “lease” or “affermage”.

### Private ownership and operation

In this situation, the private entity not only operates the facility, but also owns the assets related to it. When the facility is operated pursuant to a governmental license, private ownership of physical assets (eg the network) is often separated from the license to provide the service to the public, in that the license can be withdrawn under certain circumstances. Thus ownership of the facility does not entail an indefinite right to provide the service.

One additional consideration for the choice of the most appropriate contract is the allocation of project risks between the contracting authority and the private entity. This is a crucial point as a wrong allocation could jeopardize the viability of the project.

First it is important to state that this issue is raised where it belongs, that is, in the contract negotiation. Indeed there are so many factors that the parties need to take into account in order to allocate risks effectively, that it would not be advisable to have in place statutory provisions that limit unnecessarily the negotiators' ability to achieve a balanced allocation of project risks.

Practical guidance in this respect often refers to a few general principles. One such principle is that specific risks should normally be allocated to the party best able to assess, control and manage the risk, including its mitigation. However a large number of risks result from events outside the control of the parties or attributable to the acts of third parties and for those risks, other principles need to be considered.

For example, the allocation of commercial risks falls generally on the private sector entity rather than on the contracting authority. However for some capital intensive project with slow cost recovery potential, such as toll road projects, the private sector may be reluctant to carry them out without some form of risk-sharing with the contracting authority, for example through fixed revenue assurances or agreed capacity payments regardless of actual usage.

### Selecting the concessionaire

Having defined the role and task to be assumed by the private sector, and the type of contract that follows, the public authority must then select its partner to implement it. For a long-term relationship, it is as important for the public authority as it is for the private sector entity to find the right partner, and there are several ways to achieve this objective.

## Competitive bidding versus direct negotiations

The issues faced by the contracting authority at the time of selection of the concessionaire have been addressed in Module 4 -> Legislation -> Legislative Framework -> Public Procurement. Moreover, Module 5 -> Procurement presents the modalities of conducting the procurement process.

### The case for unsolicited proposals

Most experience shows that the most advantageous solution for the selection of a concessionaire results from a competitive tendering process.

However specific attention should be given to instances where public authorities are approached directly by private companies who submit proposals for the development of projects for which no selection procedures have been opened. These are called "unsolicited proposals" and may result from the identification of a need that had not been identified by the public authority, or may involve an innovative proposal and offer the potential for a technology transfer to the host country.

From a policy standpoint the contracting authority would have a legitimate interest in stimulating the submission of proposals incorporating the most advanced process, design methodologies or engineering concept, that would clearly enhance the project outputs (eg by reducing construction costs). Such interest might be achieved with a competitive process if the selection procedure could place the emphasis on the expected output of the project without being prescriptive about the manner in which that output is to be achieved; the bidders would then have sufficient flexibility to offer their own proprietary processes or methods.

However if the uniqueness of the proposal or its innovative aspect are such that it would not be possible to implement the project without using a process or a concept for which the proponent possesses exclusive rights, then this will eliminate the scope for a meaningful competition.

The procurement laws of most countries allow single source procurement in such a case, but they also recommend contracting authorities to follow certain procedures to ensure that they have obtained the most advantageous solution for meeting their needs. These procedures involve obtaining elements of comparison for the unsolicited proposal, and then invite other interested parties to submit alternative or comparable proposals, with care being taken not to disclose proprietary information of the initial proponent to potential competitors. Such invitation should be published, in ensuring again to maintain the confidentiality of proprietary information.

If no alternative proposal is received, the contracting authority should be authorized to engage in direct negotiations with the original proponent. If alternative proposals are submitted, the contracting authority should invite all the bidders to negotiations with a view to identifying the most advantageous proposal. In such a case there may be a full-fledged competitive selection procedure subject to any incentives that may be given to the author of the original proposal. The contracting authority should establish a record of the selection proceedings and publish a notice of the award of the project.

Refer to Module 5 -> Procurement -> Unsolicited Proposals for further description for methods and procedures for managing unsolicited bids.

More detailed practical guidance and useful references can be found in the



Unsolicited Infrastructure Proposals - How Some Countries Introduce Competition and Transparency.  
J. Hodges and G. Dellacha. PPIAF Working Paper N°1, 2007

# Contract Types

This Section will explain, for each of the main project contracts or documents, the significance of the most relevant contract clauses.

## Concession Contract

The concession contract entered into by the applicable administrative division or agency or entity of the host country, sometimes called the Grantor or Contracting Authority, and the project company concessionaire establishes the essential definition of the project's direction and provides the license for construction and/or operation and maintenance of the project. The contract should clearly define the scope of work (Module 2 -> Scope) of the concessionaire, what precisely he will be obliged and permitted to do and the length of time for which the concession is granted.

In the past, host governments have attempted to circumvent the legally binding nature of their obligations under concession agreements by invoking the doctrine of "sovereign immunity." International arbitration tribunals and courts have almost universally rejected sovereign immunity defences, however, on international legal grounds where stabilization or anti-nationalization or no material adverse governmental action clauses are included within the concession agreement. Such clauses act as a waiver of sovereign immunity.

Private parties to a concession contract, therefore, will want to protect themselves under international law against unilateral termination of the project or unilateral modification of a concession contract by a host government by including appropriate contract clauses, or by referring to the notion of administrative contracts where the host country's legal system considers a concession agreement as an administrative contract with the specific legal regime of rights and obligations attributed to such contracts.

A concession contract can take many forms, but the following is a list of typical provisions within such a contract:

- Project Completion and Timing
- Scope of Work
- Design
- Land use rights
- Environmental safeguards
- Material Adverse Governmental Action
- Pricing Formula
- Government Support
- Secondary Developments
- Currency Conversion, Availability, & Transferability
- Cross-Subsidization
- Non-Compete clauses
- Local requirements
- Compensation for Breach

### "Boiler Plate" Provisions

- Liability and indemnification
- Dispute Resolution
- Force Majeure
- Assignability/Sub-contracting
- Confidentiality
- Records and information sharing

## Construction Contract

Construction Contracts are simple in theory, but extremely difficult in practice: One actor, the contractor, agrees to construct the facilities of the highway for another actor, the employer, for agreed compensation by an agreed time. The variations of this simple statement and the ability to abuse bargaining position on both sides have led to various standard forms of construction contracts being developed by various participants in the construction world around the globe. The key issues relating to a construction contract for a toll road project include the following.

### *How will the construction framework be structured?*

The basic decision to make is whether to have one contractor responsible for all of the tasks : the design and the construction (a "turnkey" contract) or to have the individual contractors enter into separate contracts with the employer (whether the project company or the government) while having them subject to control by one overall project manager who enters into a project management agreement with the employer. While the turnkey contractor assumes the risk on the performance of the sub-contractors he employs to carry out certain tasks, projects with project managers typically force the employer to prove which individual contractor was responsible for the particular problem and pursue that contractor for damages. The advantage of this option is that the contractor will start the construction on a design that has been agreed by the project company and the host government, which offers some protection against subsequent diverging interpretations of such design or subsequent request for modifications of such design by the host government. However, the disadvantage is that of time, because this option will usually take much longer than a turnkey contract where the same contractor is responsible for both design and construction in one agreement. A third option is to have all the contracting companies form a construction consortium which enters into the construction contract with the employer with joint and several liability on the part of all its members. Variations and blends of all these structures are also possible.

### *Will there be a fixed price for the construction work?*

The price for the construction work is normally fixed to some degree, but what happens when there are cost overruns? A fixed price contract is the most efficient form of contract for the host government, but one which shifts all risk for cost overruns to the contractor. In order to more appropriately allocate risk, provision will be made in such contracts for additional payments to the contractor under certain circumstances, for example, changes in scope mandated by the other party, or necessary after an event of force

majeure payments may be geared to completion of milestones in the construction, but will almost always include an up front mobilization payment.

Other forms of contracts used for some aspects of construction on speculative or risky projects (e.g., wiring of a nuclear power plant) include unit price or cost plus contracts. These relieve the contractor of considerable risk resulting from cost overruns, and in the case of a cost plus contract, virtually assure the contractor of a fixed rate of return. These types of contracts are generally not favored for road construction, but elements of such contracts may be incorporated in a lump sum contract for a better allocation of risk.

### *Is there a fixed time frame for completion and how is completion determined?*

Construction contracts often include a substantial completion date. An independent engineer may be involved to certify when substantial completion has been achieved. There may be a premium for prompt completion, or a penalty for delays, imposed by the contract.

- Project completion and timing
- Scope of Work
- Cost overruns
- Independent Engineer
- Environmental safeguards
- Land use rights
- Local requirements
- Quality Assurance
- Material Adverse Governmental Action
- Compensation for Breach

### “Boiler Plate” Provisions

- Liability and Indemnification
- Dispute Resolution
- Force Majeure
- Assignability/Sub-contracting
- Confidentiality
- Records and Information sharing

## Operation and Maintenance Contract

There are several ways in which the operation and maintenance (“O&M”) of a road project can be structured. When the scope of work of the project is limited to operation and/or maintenance, this task is entrusted to a contractor through a unique, typically 3-to-8-years contract. Operation and maintenance of toll roads are usually subject to the setting up of a Special Purpose Vehicle (SPV) made to isolate resources and expenses of the project. In this case:

- the SPV can conduct the O&M of the project itself
- the SPV can enter into an operation and maintenance agreement with an affiliated third party, e.g., one of its shareholders or affiliates

- the SPV can enter into an operation and maintenance agreement with an arm's length third party; or
- the SPV can share the operating and maintenance role with a third party

The maintenance function can be separated from the operation function so that, for example, the maintenance role is performed by the construction contractor with the project company either retaining the operating role or contracting it out to a third party. The greater the number of parties performing the operating and maintenance function, the greater the risk of disputes about liability when something goes wrong.

There are advantages and disadvantages with each approach listed above (1)-(4). If an SPV intends to conduct the operation and maintenance role itself, it will need to have appropriate staff with appropriate experience and qualifications and oftentimes access to a wider pool of technical expertise through consultant agreements. If the SPV enters into an O&M contract with an affiliated third party, the O&M agreement tends to be less rigorous since the operator is incentivized to perform well since such performance will enhance the value of the shareholdings. An O&M contract entered into with an arms'-length third party would naturally be stricter and include provisions most importantly concerning the level of the third party's operating and maintenance obligations and the standards he/she must adhere to, and those concerning the operator's remuneration.

- Pricing Formula
- Project Completion and Timing
- Quality Assurance
- Currency Conversion, Availability, & Transferability
- Land use rights
- Local requirements
- Environmental safeguards
- Material Adverse Governmental Action

#### “Boiler Plate” Provisions

- Liability and Indemnification
- Dispute Resolution
- Force Majeure
- Assignability/Sub-contracting
- Confidentiality
- Records and Information sharing

## Management and Maintenance Contract

When a road agency entrusts a private firm with maintenance and operation of a road or part of a network, the contract can take three main forms:

In **quantity-based maintenance contracts**, works are normally defined by the Road Agency, either directly or with the assistance of a consulting firm (consultancy contract). The contractor is paid on the basis of unit prices for different work items. Contractual provisions are usually similar to those of construction contracts. Standards, bidding documents and forms of contracts have been developed by several international institutions such as the European Union or the World Bank (Standard Bidding Documents

for Works - SBDW). While this modality may be an improvement compared to force-account maintenance practices, the main problem of such an arrangement lies in the fact that the contractor has the wrong incentive, which is to carry out the maximum amount of works, in order to maximize its turnover and profits. It has often been observed that even if much work is carried out and much money is spent, the overall service quality for the Road User is below expected standards.

**Performance-based maintenance contracts** address the issue of inadequate incentives by fixing a monthly lump sum fee per km to be paid to the Contractor. It is important to understand that the contractors are not paid directly for physical works (which they will certainly have to carry out), but for the service of ensuring certain service quality criteria on the roads under contract. The remuneration paid to the contractor will implicitly cover all physical and non-physical services provided by it, except for emergency works. In order to be entitled to the monthly payment, the contractor must ensure that the roads under contract comply with the service quality levels which have been specified in the contract.

It is possible that during some months the contractor will have to carry out a rather large amount of physical works in order to comply with the required service levels, and very little work during other months. Yet his monthly payment remains the same as long as the required service levels are complied with.

One fundamental feature of the performance-based contract is that the contractor is entirely free to decide and carry out all actions he believes are necessary in order to comply with the service quality levels stated in the contract.

The service quality levels are defined from a Road User's perspective and may include factors such as average travel speeds, riding comfort, safety features, etc. If the service quality is not achieved in any given month, the payment for that month may be reduced or even suspended (Performance requirements in Operation & Maintenance contracts).

Under the performance-based contract, the contractor has a strong financial incentive to be efficient: In order to maximize profits, it must reduce his activity to the smallest possible volume of intelligently designed interventions, which nevertheless ensure that a pre-defined outcome (service level) is achieved and maintained over time.

This type of contract makes it necessary for the contractor to have a good management capacity. Here, "management" means the capability to define and optimize the physical interventions which are needed in the short, medium and long-term, in order to guarantee that the roads remain above the agreed service quality levels. In other words, the contractor is free and must be able to define by himself: (i) what to do, (ii) where to do it, (iii) how to do it, and (iv) when to do it. The role of the Road Administration or the Employer is limited to verifying whether the agreed service levels have been complied with.

### *Management contracts*

The scope of work entrusted to the private firm is sometimes more closely related to the organization of road maintenance operations than to the actual works. Usually, the function of the private firm is to respond to day-to-day routine maintenance requirements

by contracting private companies, on behalf of the public entity, to perform the works. In this case, the private firm is not necessarily a works contractor, but may be a higher-level engineering firm, which would subcontract all physical works to local works contractors.

### *Emergency works*

Some non-programmed emergency works may become necessary. They are meant to remedy unexpected and unforeseeable damage which occurs as a result of “force majeure” events, and which affect the normal use of the road network and the safety and security of the users. For emergency works, the contract limits the responsibility of the contractor, and a separate remuneration based on unit prices may apply, for which a certain percentage of the contract amount is normally set aside.

Following is a list of some typical provisions within such a contract:

- Scope of work
- Performance requirements
- Project Completion and Timing
- Quality Assurance
- Local requirements
- Environmental safeguards
- Material Adverse Governmental Action

### “Boiler Plate” Provisions

- Liability and Indemnification
- Dispute Resolution
- Force Majeure
- Assignability/Sub-contracting
- Confidentiality
- Records and Information sharing

## Consultancy (service) Contracts

Consultants are involved in several aspects of the PPP and at various stages of the development. In PPP projects, Consultancy contracts do not necessarily differ in structure or in content from those usually drafted for traditional projects and often based on standard service contracts provided by International Financing Institutions (IFI), FIDIC, or other agencies.

Consultancy contracts typically include boiler plate provisions such as:

- Liability and Indemnification
- Dispute Resolution
- Force Majeure
- Assignability/Sub-contracting
- Confidentiality
- Records and Information sharing

# Contract Provisions

## Project Completion and Timing

A date for the completion of the project construction is typically established in the project agreement. Milestones are often agreed upon, setting forth important stages of progress in construction and the consequences of failure to meet each milestone. In case of a delay in completion of construction, the project company may be obligated to pay liquidated damages, which is a pre-agreed upon amount to be paid by a party in breach of a contractual obligation. This amount is usually stated either as an amount per day or as a flat amount. The contractor usually will be required to pay liquidated damages to the project company in case of completion delays for which the contractor is responsible. The liquidated damages payable by the contractor may not be sufficient to compensate the project company for the consequences of the delay. An extended delay in construction completion generally gives rise to a right to terminate the project by the host government.

The project company will want to include as many negotiated excuses as possible in the project agreement to excuse delay in construction completion, including force majeure and governmental delay. The host government will try to limit the negotiated excuses and provide for stiff liquidated damages provisions in the construction contract in order to facilitate timely completion of the construction. . One typical subject of contention between the project company and the host government in this respect is the requirement for third parties to be given access to the project site or the road, eg to perform some construction monitoring function on behalf of the lenders, but whose effective access to the site is not within the control of the project company, but is subject to the approval of the Host Country's authorities. In the interest of both parties, the Project agreement should therefore contain clear provisions to cover the consequences of either party's actions or inactions.

The risk whether or not completion will be achieved is known as "completion risk", and is typically not borne by commercial project lenders, who will rely on the project sponsors to absorb it. This risk can be absorbed in a variety of structures. In the simplest form, project sponsors would guarantee repayment of the loan until completion is achieved. This, however, is uncommon in infrastructure project financings where it is more likely that project lenders will rely on some form of turnkey fixed price construction contract. Such a contract would give the project lenders recourse to the parties responsible for construction of the project if completion is not achieved on time.

## Construction Completion

The terms of the agreement must specify clear conditions for the construction completion, including a mechanism to agree variations to the construction contract, as well as an independent authority (usually an Independent Engineer, but it can also be an accounting company's construction branch) to certify the construction completion.

When as a result of a request by the contracting authority to the project company, or as initiated by the project company, the design or scope of the project is modified, the contractor will typically be allowed to request a change in the terms and conditions of the project construction and an extension of the time agreed for the completion of the project in the event of a "change order", or circumstance outside its control. The contractor is usually required to exercise best efforts to mitigate delays and additional costs associated with the requested changes. The additional costs from such changes may lead to higher revenue requirements for the project and therefore higher charges or tolls.

### Project Completion and Occupancy

Some minimum requirements for the Independent Engineer or other monitoring authority to be included in the construction completion clause are:

- Participation in preliminary inspections of work prior to final inspections.
- Participation in the preparation of project charts and monitoring progress towards its completion.
- Timely provision of operations and maintenance manuals, equipment warranties, releases of liens and other final contract requirements.
- Monitoring and administration of final releases of contract retainer after acceptance of contract work.
- Coordination of project occupancy.
- Organization of post-project evaluation.

Also, the terms of the agreement must take into consideration all the local construction standards, safety-related ordinances and laws, both on a local and national level. In some instances, different municipalities where the roads are located would have somewhat different regulations and requirements. It is some companies' practice to list in the Construction Agreement the various laws and ordinances that the construction must comply with, in order to prevent post facto actions by the government that would result in burdening the construction company with new requirements after a price was set.

Most importantly, the public party must be required in the contract clause to enable the monitoring teams access to the project site, and failure to do so should be construed as materially adverse governmental action.

### Scope of Work

The scope of a project should be clearly defined, including the obligations of the project company or other contracting entity. Since the scope of a project is crucial to lenders for deciding whether the project is financeable, it should be negotiated carefully during the pre-development phase procedures and documentation.

All rights and obligations of each party, e.g., host government, project sponsors and/or, project company, need to be clearly identified because the project company will then enter into a construction contract or an operations and maintenance contract with a

construction contractor, or an operations and maintenance contractor as the case may be, for the purpose of carrying out its obligations to the host government.

Parties should avoid include any undertakings in the scope of work clauses which are not essential to the project. Of course, the actual scope and responsibilities of any project will depend on the circumstances of each individual project.

## Design

In a road construction project the design will often be provided to the project company by the contracting authority as an outline with the task to develop a detailed design.

A number of issues arise out of this process which may have important financial consequences for the project.

The first one is the fact that the contracting authority may wish to transfer to the project company any liability for defective design that might arise out of information and data that may have been provided to the project company with the outline design. The project company which will most likely be the concessionaire operating the road will need to be satisfied with the design provided by the contracting authority and the risks involved with it.

Another important issue associated with the design of a road concession arises from the fact that the infrastructure will in principle revert to the government at the end of the concession period and therefore the government will want to ensure that it is designed precisely to its needs. This often leads the contracting authority to modify the design during the project phase (this may arise for example out of the public consultation phase, or the desire to satisfy public opinion requests).

Such a modification will have obvious consequences in terms of time and costs of the project which must be anticipated. In some legal systems the contracting authority will have the right to impose such modification, even if it is not spelled out in the contract, upon certain conditions, namely that it assumes the financial consequences of the change. In other legal systems it will have to be negotiated and the additional costs agreed before being implemented, with the risk of having to enter the dispute settlement process in case of disagreement between the parties (Refer to the section Contract renegotiation and adaptation).

Such a process of managing design changes during the contract life is all the more important for the project company that it will doubtless have agreed with the construction contractor a variation clause whereby any design change will need a variation or change order from the project company prior to being implemented, and will therefore cause additional costs. If the project company does not therefore want to assume such costs resulting from the host government requests, careful drafting of both the concession and the construction contracts will be required.

## Financial requirements

Whenever the project financing is to come from a private concessionaire, it may be appropriate to provide in the project agreement that, prior to commencing construction, the project company will be required to show to the contracting authority suitable evidence that it has raised funds or secured binding commitments from reliable sources for the provision of finance sufficient for the carrying out of the works and that safeguards exist under the financial arrangements to prevent work continuing, once it is clear that the level of such commitments is insufficient for the completion of the works.

## Substitution

A standard feature of PPP projects, including in the road sector, is now for host governments and project sponsors to agree to give the project lenders the right to be substituted to the concessionaire in case of default. This so called "step in" right is part of the overall security package which the lenders could feel comfortable with to alleviate the sometimes incomplete nature of national security and insolvency legal systems. Refer to the Security and Insolvency Laws, in the Legislative Framework section above for more detail.

Conditions and consequences of the exercising of this right by the lenders should be carefully drafted, but parties should also bear in mind that such a right is of a contractual nature and therefore its validity may or may not be recognized by the national law of the country concerned, which, if it were not ascertained, could render one essential feature of the project security package null and void.

## Data, representations and warranties

In a road project, the host government will usually provide the project sponsors with relevant information of technical, commercial or financial nature that may have been prepared by or for the government for the preparation of the project. As indicated in the Design, such information will have been provided to all bidders in the bidding process together with an outline design of the infrastructure to be built.

The host government will consider that it is the successful bidder's responsibility to verify such information in developing the detailed design. It will therefore seek an exclusion from all liability in this respect. It may not be easy for each bidder to verify such information, and each bidder will therefore have to assess its own risk and try to protect against it.

Furthermore, the host government may also wish to clarify that, should the project sponsors wish to raise finance whether by debt or equity, they should make expressly and unequivocally clear that the government makes or has made no representation or guarantee of any kind as to the viability of the project or accuracy of any estimate, or projection or information of whatever kind in respect of the project.

## Land use rights

### Acquisition and land delivery

The host government, as long as it has the applicable land rights, typically provides the project company with the rights to use the project site, including rights of way and vacant enjoyment, but may retain title to the land. The arrangements for access rights between the host government and the project company with respect to the project site typically are set forth either in the project agreement or in a separate lease agreement or land purchase agreement. The host government also usually will have the obligation to provide for rights of way or otherwise adequate access to and from the project site.

The question of whether or not title to the land remains with the host government or passes to the concessionaire is one which has legal, financial as well as political implications.

In countries where the law allows for public land to be transferred to a private concessionaire (refer to the section on Property Laws, under Legislative Framework), the host government should evaluate whether it is cost efficient to pass the land costs on to the concessionaire, particularly in view of the tax, stamp duty and asset depreciation impact. If private land is involved, which for a road project is likely to be the case, the host government will want to designate a project site that makes sense for the project, but does not result in development that is disruptive to the lives of its people. Also the expropriation of private land will have to be in return for compensation, which may constitute part of the costs to be borne by the project company.

The project company will want to acquire all necessary interests in or access to land on time at a pre-determined cost, as well as concomitant rights for the development, construction and operation of the project. The issue of planning permission and other permits and consents must be either resolved beforehand with a planning permission granted, or adequately dealt with by undertakings from the host government that such permissions and consents shall be granted. Because of the risk of delay and its resulting cost which neither the project company nor its lenders are prepared to bear, the lenders will need to be closely informed well before the closing of the loans as this will be a decisive factor in their agreeing to fund the project.

The acquired land must be in a condition conducive to the development of the project, or clear of all structures and other potential impediments and accessible from other relevant locations. The question of who will provide the on and off ramps and their location will also need addressing.

### Archaeological and other findings

The consequences of the discovery of artifacts of cultural or historical significance should be carefully addressed by answering the following questions prior to drafting the contractual language:

- What does the local law require in case of archaeological discoveries?
- Are any indigenous populations'/protected populations' rights involved?

- What would be the most efficient procedure in such cases?
- What are the short- and long-term consequences for the project?
- Who bears the risk of delay and cost overruns resulting from archaeological findings?

For example, in a project in the Middle East, a special clause was contractually required of the government by the project lenders to absorb the risk of any project delay caused by archaeological discovery. The agreement extended the construction period to accommodate any archaeological excavation and survey and required the government/grantor to bear the cost of any “change order” which would relocate portions of the project. Such measures are not always necessary if the government finds alternative methods of guaranteeing progress of the project.

The same issues should be raised and the same process followed in the event of the discovery of other findings during construction, such as hazardous substances.

## Environmental safeguards

The identification and minimization of environmental risk are key components now in infrastructure development. Environmental due diligence in respect of such projects and the legal regime within which they are being constructed are crucial if the project company is to make a proper assessment of the risks, as is an appreciation of the environmental requirements of public agencies which will be involved with the project.

The project company is generally required to comply with all relevant environmental laws, rules and regulations, including the relevant laws of the host country and the guidelines of any participating multilateral institutions, e.g., the World Bank Environmental Guidelines. Compliance with environmental guidelines and requirements may sometimes be the most difficult aspect of any project’s implementation. The project company wants to achieve environmental compliance, but at the lowest possible cost to itself.

Environmental protection issues will often come at the forefront of the public debate that will take place during the public consultation phase. For long road projects, such issues are likely and projects have sometimes had to absorb considerable time delays, or possibly even be cancelled completely.

The main interests of the host government are to protect the environment of the country, as required pursuant to local law and regulation, and to satisfy the environmental concerns of any participating multilateral institutions, whose environmental standards often are more rigorous than local law and regulations.

## Material Adverse Governmental Action

The definition of materially adverse government action includes any event or instrumentality under the control of the government that would adversely impact the economic balance of the project and thus interfere with the private parties’ obligations under the various agreements. Examples of materially adverse government actions are:

- changes in relevant laws or regulations directed at and detrimental to the project (e.g., adverse changes in environmental and tax laws and regulations);
- enhancing or establishing competing projects and
- interruptions of construction or operation.

Certain exceptions may relate to national security, the national interest or public safety. The host government usually is requested to agree that, in case of a “materially adverse action,” the host government will have to compensate the project company, directly or indirectly, and the lenders for the added cost to and losses of the project company and the lenders resulting there from, or the project company may have the right to terminate the project agreement with appropriate compensation paid.

The host government must preserve its political freedom in case of national security, national interest or public safety, but also has a strong interest in assuring the lenders and investors that it supports the project and will not act detrimentally to the economic welfare of the project. The host government will therefore want to retain the right to interrupt the construction or to step in to take over operations of the road, under certain well defined circumstances. The conditions, duration and consequences of the exercising of this right by the host government should be clearly spelled out in the project agreement.

The main interest of the project company is to receive an explicit undertaking from the host government to avoid any actions materially harmful to the project or at least to obtain a legal basis for receiving compensation for any actions that are materially harmful to the economic welfare of the project.

## Pricing Formula

The financeability of any project depends ultimately upon the certainty and creditworthiness of its source of funds. For motorways or bridge projects, the source of funds may be public financing (taxes) or project revenue, e.g., tolls to be collected from motorists (or a combination of both). If tolls are an element of or the sole source of funding, the price to be received by the project company for such tolls is one of the most important terms to be negotiated.

Choosing the right toll level is an equation with three parameters : what the user is prepared to pay, if anything ; what cost the government is prepared to assume, if any and what the concessionaire is prepared to accept for its investment to remain profitable.

The host government must keep the price for the services provided by the project company within politically acceptable parameters, given the high profile that most infrastructure projects have, the relatively large number of persons affected and the extent to which most infrastructure services/products are perceived as basic to the live of people. At the same time, the host government has an interest in making sure that the prices it is willing to pay (or have charged) are not so low as to discourage infrastructure investment by the private sector.

The project company needs to receive payment for its services sufficient to cover all operating expenses, payment of debt obligations and an adequate return on equity.

In order to satisfy the project's lenders, the revenue structure needs to provide with relative certainty that the project will receive revenue sufficient to cover all fixed costs of the project, including, most importantly, the debt service obligations of the project company. In motorway projects, the host government may be requested to provide a standby operating support facility to ensure that the project company has enough resources to satisfy its debt service obligations if actual traffic levels fall below certain predicted traffic levels, and toll from users are not sufficient to attract a private investor. This is because lenders typically are not willing to bear the risk of a reduced demand for a project's services/product and will generally require the greatest possible degree of certainty regarding project revenues.

If such a standby support facility is not deemed sufficient by the project company or the lenders to guarantee sufficient revenues, then other mechanisms have been devised such as shadow tolls or annuity payments, which are extensively discussed in Module 2 under the Revenues section (Module 2 -> Revenues), as well as in Module 5, under the Financial Analysis section (Module 5 -> Financial Analysis).

The revenue source for the project company is typically adjusted for certain changes in project variable costs, inflation, foreign exchange rates and certain other relevant, negotiated factors. The inflation and foreign exchange adjustments are keyed primarily to the debt service and capital requirements of the project company and, therefore, are generally prorated according to the relative proportions of the international and domestic components in the total project financing.

A revenue source may be enhanced by the existence of Secondary Developments, i.e., ancillary developments along the road that may be useful for the users such as service stations and recreational areas, which could provide additional revenue for the concessionaire. Refer to the Secondary developments section.

Where revenue forecasts for toll road projects in highly densed areas have been particularly favorable, contracting authorities have sometimes been able to negotiate a sharing of the revenues with the concessionaire, where revenues have exceeded a pre-determined level.

## Government and other support

Governments can support a project financially and non-financially, in the form of a "comfort letter," legally binding contractual commitments and legislation relating to the project. A government can support a project's economics by sharing ownership of the company responsible for the project, offering capital grants, subordinated loans, grants during operation of the project, and transfers of assets to the project company. Non-financial support is usually linked to the bankability of the project and the requirements of lenders that government will behave in a particular way and recognize the security rights of lenders in the event of a serious project default. This type of support is usually in the form of a government undertaking separate from the main concession agreement, and may also translate in a government support agreement between the government and the lenders. All main forms of Government support are detailed in Module 3 ->PPP Policy Framework -> Financial Framework -> Incentives and Guarantees.

In addition to government support, financial instruments are also available from international financial institutions and donor agencies such as USAID/DCA, the IFC, the ADB, OPIC, EXIM banks and other bilateral and multilateral donors to assist a country development programme. This is referred to in the Financial Analysis section of Module 5 under Government support, and Credit enhancement (Module 5 -> Financial Analysis)

## Secondary developments

The project company may be provided rights to explore project-related opportunities such as the development of land adjacent to the project site in order to enhance project revenue, particularly in cases where projected revenue may otherwise be insufficient to provide the bankability of a project. For example, in a motorway project, the project company may be granted the right to develop gas stations, rest stops and restaurant and lodging facilities on land adjacent to the motorway. The revenue from secondary developments, however, generally comprises only a minor fraction of the total project revenue required to make the project bankable.

For certain infrastructure projects, the main interest of the host government is to support the bankability of the project by providing additional sources of project revenue. The host government typically would use secondary developments as one of several ways in which certain types of projects may be supported. The host government may be able to negotiate a reduction in other support obligations it has to undertake in exchange for the granting of secondary development rights. The host government may retain an interest in, or reversionary rights to, secondary developments.

The main interest of the project company or construction or Operation and Maintenance Contractor in any given infrastructure project is to earn as much profit as possible from the project but also to support the bankability of the project. To facilitate finding third parties to undertake the secondary developments, the project company or contractor often will request to separate the secondary developments from the term of the project agreement (or concession), in effect giving the third-party owners of the secondary developments rights in perpetuity.

## Currency Conversion, Availability, & Transferability

Since most infrastructure financing is of a transnational nature, exposure to different currencies (and their availability and convertibility) by some project participants, in particular the project lenders and its equity investors, is a risk present in almost every transaction. Currency conversion and availability risks arise primarily because of a difference between the currency in which project revenue is received (local revenue) and the currency in which the project is financed (foreign debt currency and expense currency). In particular, a foreign exchange shortage in the host country may lead to the project company being unable to convert local currency into the foreign currency in which the project debt service obligations are to be made or in which the equity holders have to be paid.

In general, most host governments will have a fundamental interest in preserving and prioritizing the expenditure of their foreign exchange reserves, whereas the main interest

of the project company will be to have sufficient foreign currency available at any given time in order to be able to make the required hard currency payments when such payments become due and payable. Ideally, the project company would prefer the project revenue sources to make payments in the applicable foreign currency. Since the project revenue sources often tend to be within the local/national market in which the project is located and since their access to foreign currencies, thus, is similarly restricted, they prefer to, and in almost all circumstances will, pay in the respective local currency.

For those reasons, the host government will be expected to provide a sovereign guaranty of foreign currency availability and convertibility or to give the project company some other source of priority access to foreign exchange. In doing so, the host government generally will not commit itself to providing any more foreign exchange than is absolutely necessary (or which the host government is able to provide - based upon its own limited resources). Thus, where available at reasonable cost, political risk insurance covering foreign currency availability and convertibility (so-called foreign exchange risk insurance) and/or commercial currency swaps or similar hedging transactions are generally preferred by host governments for purposes of mitigating the risk of foreign currency unavailability.

Foreign exchange risk insurance may be available from bilateral and multilateral export credit agencies. For example, one source for obtaining political risk insurance against currency conversion risks is the Multilateral Investment Guaranty Agency (MIGA), a member of the World Bank Group ([www.miga.org](http://www.miga.org)). The coverage MIGA offers for such risks would insure against excessive delays in acquiring foreign exchange caused by host government action or failure to act, by adverse changes in exchange control laws or regulations, and by a general deterioration in conditions governing the conversion and transfer of local currency.

## Cross-Subsidization

In the past, host governments have sometimes entrusted public-private partnerships to develop complete networks of required infrastructure, thereby allowing them to pool a multitude of single infrastructure projects in one system (e.g., in France and Japan with respect to toll roads and bridges). From a financial perspective, the pooling system provides an important added value to the network of projects because it allows revenue to be drawn from a profitable infrastructure project to compensate (or cross-subsidize) for the lack of sufficient revenue from another project.

Since all projects in the network are intertwined and require the operability of each and every project in order to offer customers the full benefit of the network, pooling and cross-subsidization are legitimate, powerful tools for host governments to realize economically viable projects (e.g., providing enhanced road access to more remote regions of the country in order to further the market access and overall economic development of the local industries) that might not be sufficiently bankable as stand-alone projects.

One way of implementing cross-subsidization of the pooled projects from the very outset is to standardize the tolls charged for all projects involved (or, at least, for similar projects in the network, e.g., bridges or road sections). Such benchmark toll rates would not be sufficient to operate the non or less competitive projects of the network and,

correspondingly, would not allow for a sufficient return to finance such projects on a stand-alone basis. The harmonized toll rate, however, is tailored in order to create a higher-than-needed revenue base in the competitive projects. Accordingly, a steady stream of 'surpluses' from these projects can be used to subsidize and finance the less competitive parts of the network, while, at the same time, making it more affordable to use, and, thus, creating a higher incentive to use these parts of the network. As an additional and important side-effect, cross-subsidization of network projects by way of toll harmonization (often also named tariff averaging) might also result in an overall tariff system that is regarded as fair, more consistent and more transparent by network customers.

Module 2 -> Scope -> Packaging Projects provides further description of issues related to cross-subsidization.

## Non compete or exclusivity clauses

The bankability of any project depends ultimately upon the certainty and creditworthiness of its revenue sources. For example, for motorway or bridge projects, the revenue source is the tolls to be collected from the motorists. In order to satisfy the project's lenders, the overall revenue structure needs to provide with relative certainty that the project will receive revenue sufficient to cover the fixed costs of the project, including, most importantly, the debt service obligations of the project company. Lenders customarily will not be willing to bear the risk of a reduced demand for a project's services or products and will generally require certainty regarding project revenue.

Thus, in infrastructure projects, the host government frequently will be asked to agree upon a non-competition clause in the concession agreement. Otherwise, in a toll road project, the host government would be free, at any time, to build and operate a public road running parallel to the project motorway, that because it is free of charge to users, would be able to induce away most of the traffic. Thus, the main revenues of the project would be substantially decreased, making it impossible for the project to succeed.

The effect of the non-competition clause is, therefore, to protect the monopoly or quasi-monopoly given by the host government to the project company in order to supply the required infrastructure service. It prohibits the host government from encouraging or being involved in the construction of competing infrastructures for the duration of the concession period.

However it may well be that the country's legislation contains provisions requiring an alternative toll-free route to be provided if a toll road is to be created between certain locations. In such a case, that country government will have to decide whether to maintain that requirement to the risk of not being able to finance the project or to amend its law to make it possible. A compromise solution might be to only grant the project temporary exclusivity that is limited to the duration required to reimburse the loan, instead of the whole duration of the concession.

## Local requirements

The project company must apply for, obtain and maintain in full force and effect, all governmental permits necessary for ownership, development, construction, start-up, operation and financing of a project. Certain rights may be granted in the project agreement itself. If any permit is not timely obtained, the project may be prohibited from proceeding, constituting a political risk which project sponsors and lenders will only accept if the reason for the failure to obtain the permit is a default of the project company. The types and amount of permits for a project vary depending on the sector, site, technology, local process and other variables. The project company and private contractors will want to be assured that it will obtain all necessary permits, authorizations or consents on a non-discriminatory, timely and fair basis and that they be respected by the host government authorities and third parties. The project company may attempt to negotiate an agreement that any failure to obtain, delay in obtaining or the revocation of any necessary permits, authorizations or consents, unless caused by a default of the project company, be considered an event of default of the host government or materially adverse governmental action.

## Compensation for Breach

The project or concession agreement typically will contain specific remedies or rights of recovery for breach of contractual obligations by the parties, e.g., a delay in construction completion or default in the provision of services during the project's operational phase. Agreed upon remedies or rights of recovery (including compensation) will sometimes be the exclusive remedy (other than termination) for breach of certain obligations, and in such a case an exclusive remedy clause will be stipulated in the project agreement.

The main interest of the host government in any agreed upon remedy is to keep the project operational and to obtain fair and equitable compensation for the relevant breach of contract in an expeditious manner. Liquidated damages are a common form of compensation in case of a breach of contract. They comprise an amount that the parties stipulate ahead of time with respect to how much the breaching party (who is in breach of its obligations) must pay in order to compensate the other party for such breach. Typically, the amount to be paid by the party in breach is assessed on a per-diem basis. In other cases damages are assessed per occurrence or as a flat amount. The appeal of a liquidated damages remedy for the host government is that it creates a clear incentive for the project company to perform and dispenses with the need to prove damages in any dispute thereby accelerating the dispute resolution process and compensation to the host government.

The project company has a similar interest in obtaining fair and equitable compensation for a breach by the host government in an expeditious manner. The protection of the project's cash flow is of paramount importance to the project company as well as the lenders. The appeal of assessing liquidated damages for a breach by the host government is the relative certainty of the amount of compensation the project company can expect to receive. Liquidated damages also impose a ceiling on the liability of the breaching party. A liquidated damages remedy should not be so excessive so as to constitute a

penalty, for in such a case, the law of certain jurisdictions would deem them void, and in other jurisdictions, the Courts would be entitled to reduce their amount.

## Cost overruns

Minimizing the risk of cost overruns is a principal concern of the construction contract and a key to a road project's success. The causes of cost overruns are well known: increases in the price of labor and materials, engineering flaws, delayed schedules and unexpected ground conditions can quickly eclipse a project budget. Without adequate funding cushions, cost overruns may be compounded by increased debt service payments.

Several mechanisms are employed to mitigate these risks. As a rule, design and construction contracts are awarded on a turnkey basis - requiring the contractor to build the facilities in a certain time for a fixed price - thereby allocating most of the cost and completion risk. Additional incentives for efficient work include bonus payments for early completion and an award of savings achieved over the expected contract price. Downside risk is offset by requirements that the contractor put up a performance bond to offset cost overruns, retainer of payment under the contract to establish a reserve against future cost increases, and provision for liquidated and stipulated damages in the event of completion delays or quality shortfalls. Other ways to reduce the risk of cost overruns include hiring experienced contractors, using proven technology, entering into long-term supply contracts, and hedging against currency fluctuations. Price increases are generally allowed for changes or delays caused by the project company.

## Independent Engineer

With the consent of both the host government and private parties, an independent engineer is often appointed to serve as an independent arbiter for technical questions or disagreements. The costs of the independent engineer are to be paid as set forth in the agreements, and sometimes are fully borne by the project company. Both the host government and the private parties have an interest in retaining a qualified and experienced, impartial independent engineer. If there are disagreements with the independent engineer, an effective dispute resolution mechanism should be in place to resolve such disputes.

Lenders will seek to avoid situations where they have reduced control over their obligations to make advances. Therefore each lender will want to have the right to reject the engineer's evaluation. Several issues must be clearly resolved by the mechanism for challenging an engineer's report in order for the lenders and borrowers to be bound by it. For instance, (i) What margin of the private parties' disagreement with the engineer is sufficient for the engineer's report to be rejected? (ii) How many lenders or private parties have to disagree with the engineer before the report is dismissed? (iii) Will it be possible to dismiss the named engineer?

## Quality Assurance

Quality assurance is a critical factor in all stages in the construction and operation of a toll road. General technical specifications for project construction are typically set forth in the project agreement, usually with appropriate performance warranties and liquidated damages for substandard performance. Not only must each phase of development meet strict technical requirements, but the transition between different elements - such as toll booths and interchanges - must be seamless. The contract documents set forth necessary standards for each element of the project. However, it is also important to incorporate oversight bodies into the contractual structure to manage quality among the various contractors and ensure that technical standards are met. Independent engineers help to ensure quality by reviewing all technical plans associated with the project. Often, an independent construction manager will help to oversee the various phases of construction and report to the project company, which bears ultimate responsibility for the overall quality of the road. Contractors and the project company must also coordinate with governmental regulators to ensure that the project complies with state-wide standards. Ideally, a quality assurance plan will account for all these interfaces and coordinate prior reviews and ongoing inspections among overseeing bodies to ensure that all project criteria are satisfactorily met.

## Performance requirements in operation & maintenance contracts

Road condition, as well as the quality of operation and services provided to the road user, can be expressed through indicators for service quality levels. These are used under performance-based contracts to define and measure the desired performance of the concessionaire. The service level indicators are thus the minimum accepted threshold for the quality characteristics of the road network for which the concessionaire is responsible. The contract may stipulate that service quality levels increase over time, from the existing levels at the beginning of the contract to the desired levels to be reached gradually over time. This will implicitly allow the contractor to distribute improvement works over a long time period.

In some cases, performance levels can also be used as incentives to adjust the level of the fee paid by the government to the concessionaire, such as in the case where the concessionaire revenue is in the form of an annuity payment. This option is discussed in more detail in Module 3 Policy and Planning, under the Payment and Revenues section (Module 3 -> Policy and Planning).

Performance indicators and methods for measurements are detailed in Module 2 -> Scope -> Performance indicators for maintenance works

## Handover at end of Concession

The most common provisions to ensure that the concessionaire ensures proper maintenance of the infrastructure until handover to the Public Authority at the end of the concession period is by way of undertakings and warranties enacted during the concession period. These undertakings and warranties provide for the maintenance of the infrastructure in

accordance with the agreed maintenance plan and are backed up by financial guarantees or a maintenance bond, which may be called upon by the Public Authority in case of default by the concessionaire. The extent and duration of such guarantees may vary depending upon the circumstances of each case, but can start to apply as early as five years before the end of the concession period.

Handback requirements (service quality performance, residual life span) are described in Module 5 => Stage 5 Contract Management => Handback of Facilities at Contract End

While there is reference material of such contract provisions to address this issue, both in standard concession agreements and current concession contracts, there are few, if any, examples of highway infrastructure concessions which have actually been handed over to the Public Authority at the end of the concession period.

Whilst there are several examples of road/highway infrastructure being either taken over by the Public Authority (State Route 91 in California), or abandoned by the Concessionaire (Mexico), these were at the initiative of the Public Authority during the concession period and did not thus result from the contractual transfer of the infrastructure at the end of the concession period.

Moreover, in France, and despite a long history of toll highway operation by private concessionaires, there is no precedent for handing over of a road/highway infrastructure to the Public Authority (state-level) at the end of the concession period, since all of the concessions have actually been extended in return for the Concessionaire assuming new obligations. Whilst some road concessions may have been returned to local authorities, no details are available.

However, bridge concessions in France have concluded, but under specific circumstances. The Saint Nazaire bridge concession did conclude but was in reality taken over voluntarily by the Public Authority.

The concession of the Tancarville bridge was extended in return for the concessionaire assuming the construction of the Normandy bridge. This procedure, which has been widely used in France with existing highway concessions, is known as « adossement ». However, in the case of the Tancarville bridge, serious defaults and maintenance failures were discovered by the Public Authority, to the extent that the concessionaire (la Chambre de Commerce) asked the Public Authority for financial support.

However for concessions in local transport services and parking lots, there have been many cases of concession handover, where financial guarantees, of the type described above, were enacted to protect the interest of the Public Authority by ensuring adequate maintenance until the end of the concession period, and such mechanisms seem to have worked satisfactorily.

The scale of the issue varies in accordance with the extent of the concession assets which are to revert to the Public Authority, either automatically or by transfer, and the degree by which they have been taken into account for financial cash-flows of the project.

In some cases (refer UNIDO agreement) all the concession assets are transferred back to the Public Authority, whereas in other cases only those assets which are necessary

for the operation of the infrastructure are transferred back. In such systems the law distinguishes between the « biens de retour » which revert automatically to the Public Authority, and the « biens de reprise » which the Public Authority may choose to purchase or not at the end of the concession. The issue of maintaining the concession assets in good working order only arises with the former, and the level of maintenance required to satisfy the good working order test is to be found in the Concession Contract Maintenance Schedule or Plan.

The UNIDO standard concession agreement sets out, in more detail, a mechanism similar to that of the Channel Tunnel concession contract.



Sample UNIDO contract provisions for handover, Article 14 to 17.

#### **Extract from Eurotunnel Concession Agreement, 1986**

##### **Clause 39 : Consequences of the Concession Period Terminating**

- 39.1 Upon expiry or termination of the Concession Period for whatever reason, this Agreement (other than Clauses 30, 32, 33 and Chapters V and VI) shall cease to have effect, subject to all rights and obligations as between the Principals and the Concessionaires accrued prior to such cessation.
- 39.2 On the expiry or termination of the Concession Period for whatever reason and without prejudice to any rights of the Concessionaires to compensation

In France all immovable property which is within the domaine public will revert to the French State. In the United Kingdom the term of the leases granted by the British Minister referred to in Annex II shall end; and

The interest of the Concessionaires in all movable property and intellectual property rights necessary for the construction or operation of the Fixed Link shall become the joint property of the two Principals, without payment and clear of any security interest except for any security interest created in accordance with Clause 31.2

- 39.3 The Concessionaires shall ensure that all property referred to in Clause 39.2 shall be in good working order and in a good state of repair. The Principals may at any time during the last 5 years of the Concession Period require the Concessionaires to provide them with appropriate financial security for this obligation.

.../...

.../...

- 39.4 Upon the expiry or termination of the Concession Period except pursuant to Clauses 3.2 or 3.6 or in circumstances where the compensation is payable to the Concessionaires pursuant to Clause 38, the Concessionaires shall, if the relevant Principal so requests:
- Where the construction of the Fixed Link has not been satisfactorily completed, ensure that all land comprised within the area of the Fixed Link above the low water mark is either put into a condition in which it can be used for the purpose for which it was being used before any of the Works were commenced on it or is put into a condition in which it can be used for any other purpose which the relevant Principal considers appropriate, provided that this provision shall not be taken to require the land to be restored to its level before the commencement of the works.
  - And in any other case, all works and structures above the low water mark are made safe.

The relevant Principal may lay down the periods within which and the conditions subject to which these works shall be carried out.

- 39.5 If the Concessionaires fail to carry out their obligations under this Clause, the Principal concerned may carry out the relevant works and recover the costs from the Concessionaires.
- 39.6 For the avoidance of doubt, upon the expiry of the Concession Period for whatever reason, the Principals shall not be obliged to complete the construction of or to operate the Fixed Link.

# Boiler Plate Provisions

The Infrastructure and Law website of the World Bank presents a number of check-lists and annotated concession agreements and BOTs.



**Infrastructure and Law website** (UserID and password required; refer “Create account” for free access)  
<http://web.worldbank.org/external/default/secmain?theSitePK=4817374&pagePK=4710368&contentMDK=21759230&menuPK=5099523&piPK=64860384#sample>

In the following sub-sections, some explanation are provided for certain boiler plate provisions.

## Liability and indemnification

Although most road project financing is done on a limited recourse basis, significant liabilities remain among the contractors and the project company that must be allocated among them. The principal contractual liabilities are for unforeseen costs that arise during construction of the road and damage caused to users or the environment once the road is opened. To the extent possible, the parties responsible for fulfilling a contract are usually required to take out insurance to cover damages caused within the scope of the contract. Beyond that, the construction contractor will typically indemnify the project company against damages that occur during construction as a result of the contractor's negligence or omissions under the contract. However, the construction contractor's liability is often capped at a certain percentage of the contract price. Once the road is operating, environmental harms and injury to road users becomes a significant concern. Thus the project company will often seek indemnity from the entities that operate and maintain the road for harm caused by deficient or negligent performance under the Operation and Maintenance contracts. This liability too is typically capped at a percentage of the Operation and Maintenance contract fee.

In cases where the state retains ownership of the road during operation, such as in a Build-Transfer-Operate contract, its protection from tort liability may serve to protect the project company and the contractors from excessive tort damages. Cost overruns and revenue shortfalls are usually dealt with in the contracts through provisions concerning performance, pricing and damages rather than liability and indemnification clauses.

## Insurance

The project sponsors will procure all insurance coverage required by applicable law. In addition, the terms of the service agreement and the requirements of lenders often result in the need to obtain a broader portfolio of insurance policies and coverage. Finally, project sponsors may seek additional insurance coverage, such as political risk insurance, to protect their investment.

Before construction completion, the project company is typically required to obtain insurance relating to construction risks, (e.g., contractor's all-risks insurance, third party liability insurance, employer's liability insurance and completion delay insurance).

After construction completion, the project company typically is required to obtain insurance relating to operational risks, e.g., property and casualty insurance, third party liability insurance, business interruption insurance, employer's liability insurance.

The interests of the host government and the project company coincide: they as well as lenders desire to ensure that the project company will have sufficient financial resources, in case of material damage or harm to the project's construction or operations, to satisfy the project company's debt and other obligations.

## Dispute resolution

By anticipating the eventuality that a dispute may arise, the parties to the project agreement as well as to the ancillary agreements entered into for the purpose of carrying out the project can ensure that disputes are settled in a fair and efficient manner. Given the web of interrelated contractual relationships involved in an infrastructure project, it may be useful to have some uniformity in the various project agreements on dispute resolution. This choice should however be made on the basis of the specific circumstances of each project.

Refer also to the Dispute resolution section in the Legislative Framework above and to Module 5 -> Amendments to Contracts and Dispute Resolution for description of constraints, tools and methods related to dispute resolution.

The least expensive way to resolve disputes is through direct negotiation. Conciliation and mediation, which amount to negotiation with a neutral third party to oversee and facilitate the discussions, are also cost-efficient. In conciliation the third party tries to bring together the parties to help them reconcile their difference whereas mediation goes further by allowing the mediator to suggest terms for the resolution of the dispute. If such efforts fail to resolve the dispute, there are two common methods for dispute resolution, each with distinct advantages and disadvantages.

Parties may choose either to defer to local ("host country") courts or, contractually agree to abide by the outcome of arbitration.

Host country courts should have a better understanding of local law and are therefore better placed to decide difficult points of law in complex litigation, when local law is the law governing the contract. Litigation in local courts, however, is generally disfavored in transactions involving parties from different jurisdictions. Arbitration is generally preferred to litigation in such cases because it provides for a neutral forum for the resolution of disputes. Moreover, arbitration is perceived to be less expensive and more efficient than litigation because the parties can to some extent choose arbitrators among experts in the area concerned by the dispute. Availability of international arbitration under applicable law is therefore a significant factor in encouraging participation by foreign private investors and lenders in a country's infrastructure development.

Agreements preferably will provide for arbitration under the auspices of an internationally recognized body of arbitral rules, such as the International Center for the Settlement of Investment Disputes, the International Court of Arbitration of the International Chamber of Commerce, or the United Nations Commission on International trade law

(UNCITRAL) arbitration rules for ad hoc arbitration. Some countries do not recognize third-party arbitration. The parties to the agreements and the lenders should check that any arbitration award will be enforceable (as a national court judgment) in the project's host country, as well as in the country where the award is rendered. Arbitration awards are generally enforceable in countries that are parties to the New York Convention on Recognition and Enforcement of Arbitral Awards. Also, private parties and lenders should require an effective waiver of sovereign immunity from the governmental party, if any, along with a supporting legal opinion from an independent local counsel confirming the efficacy of such a waiver.

Often, in developing countries which do not have judgment "reciprocity" with a given foreign country, foreign judgments will not be convertible by registration. Thus in certain countries such as Qatar, Oman, Colombia, Venezuela and Vietnam, for example, foreign judgments may not be directly enforced through the local courts without a rehearing on the merits, thereby defeating the purpose of selecting the venue of litigation in a foreign country through a contractual provision.

An effective dispute resolution clause reaches beyond the agreement and promotes the speedy and efficient resolution of disputes to maximize the chances for the success and bankability of the project. The availability of an international dispute resolution mechanism, coupled with an effective enforcement option, will encourage foreign investment and private participation within the host country.

MAIN INSTRUMENTS AND INSTITUTIONS RELATED TO INTERNATIONAL ARBITRATION			
Instruments	Procedural rules	Enforcements rules	Institutional support
International Centre for Settlement of investment Disputes Convention and Center (a)	✓	✓	✓
Panama Convention and Inter-America Commercial Arbitration Commissions (b)	✓	✓	✓
International Chamber of Commerce rules and International Court of Arbitration (c)	✓		✓
New York Convention (d) United Nations Commission on International Trade Law Arbitration rules (for ad-hoc arbitrations)	✓		
Domestic law based on United Nations Commission on international Trade Law model law on international commercial arbitration	✓	✓	

*Source: Irwin & Klein, 1998*

## Force Majeure

Force Majeure ("FM") literally means "greater force". A Force Majeure clause is meant to excuse a party from liability if some unforeseen event beyond the control of that party prevents it from performing its obligations under the contract. Typically, force majeure clauses cover natural disasters or other "Acts of God", such as war or civil disturbances, or the failure of third parties -- such as suppliers and subcontractors -- to perform their

obligations to the contracting party. It is important to remember that force majeure clauses are intended to excuse a party only if the failure to perform could not be avoided by the exercise of due care by that party.

When negotiating a force majeure clause, one should ensure that it applies equally to all parties to the agreement. Also, it is helpful if the clause sets forth some cases of F.M. that will excuse performance under the contract, such as wars, natural disasters, and other major events that are clearly outside a party's control. Inclusion of examples will help to make clear the parties' intent that such clauses are not intended to apply to excuse failures to perform for reasons within the control of the parties. Typical Force Majeure events include:

- (i) natural disasters (earthquakes, hurricanes, floods);
- (ii) wars, riots or other major upheavals;
- (iii) performance failures of parties outside the control of the contracting party.

Such national calamities as earthquakes, cyclones, hurricanes, and floods often result in damage of infrastructure facilities. Huge additional investment is required to restore the damaged infrastructure and to restore the services to normal. Likewise when supplies cannot be delivered to the project site because of some strikes or other events outside the control of the parties, which cause additional delays and costs. The questions that arise are then to determine who is going to make up for the difference in cost and how will such cost be recovered?

This leads the parties to negotiate what falls within the definition of Force majeure and what does not, as well as the consequences of such an event when one does occur.

For example, disruptions in performance caused by one or more of the following may not necessarily be excused by a Force Majeure clause, depending on what the parties may have agreed:

- server failures,
- software glitches,
- disputes with land owners,
- government labor disputes.

In most cases, Force majeure clauses should include:

- A definition of the scales/events that would qualify as "Force Majeure", under natural disasters, which could include cyclones, earthquakes, floods etc.
- The authority to be responsible for identifying and assessing the damage.
- The procedure for assessment of additional investment requirements, demand projections, cost recovery calculations, etc. by the regulated entities
- The measures required to bring the system back in operation and minimize the recovery period
- The procedures for notification and suspension
- The roles and responsibilities/risk allocation.

The consequences of a force majeure event should be addressed in the risk allocation matrix (Module 2 - Risk) and be carefully negotiated.

Most importantly, if the failure to perform is due to a governmental intervention, then the agreement should address this intervention in the section dedicated to materially adverse governmental action, which should be separate from the Force Majeure clause. In order to preserve the coherence of risk allocation, different project documents should have “back-to-back”, uniform Force Majeure clauses.

## Assignability / Subcontracting

Subcontracting is a common element in PPPs, in particular when the project involves a very broad scope of work or requires very specific skills that can only be performed by specialized firms. However, since trust in one's partners and in their ability to perform work in a timely fashion is a high priority of such complex deals, there are often restrictions on bringing third parties into the project.

Generally the concession contract will call for the contracting authority to approve the project company's selection of contractors for design, construction, operation and maintenance of the road. Likewise, the project company will reserve the right to approve any subcontractor to the companies it selects to carry out the project.

The contractors will typically remain responsible for all performance obligations under its original contracts. The project company will also reserve rights to assume the contract between the contractor and subcontractor if problems arise during the deal. Assignments are generally permitted only with the permission of the beneficiary of the contract.

## Confidentiality

Toll roads inherently involve a significant amount of proprietary technology and documentation for their design and operation. Therefore it is important to include confidentiality provisions in the project documents to protect the intellectual property rights of the respective parties.

The design, construction, and operation contracts in particular typically include provisions that the contractors will retain their intellectual property rights but will agree to license or lease such rights to the project company or other parties as is needed by the project - often free of charge. Parties will also frequently agree to keep all plans, records, or other commercially sensitive information confidential for the life of the project, with standard exceptions for disclosures required by governmental authorities or for the performance of other project documents.

## Records and information sharing

Extensive documentation is a feature of any project finance deal and it is essential that information be managed efficiently. Each of the key project documents usually contains clauses on the maintenance of records and information sharing among the relevant parties to each project component.

Provision of adequate information is often a condition precedent to a downstream contractor's work, whereas insufficient or improper plans may excuse performance.

Standard contractual terms are that the contractor or concessionaire must retain all its records throughout and for a fixed period of time after the project and that such records are to be made available for review by the grantor or the project company. Notices are typically required to be given of key milestones, approvals, or the introduction of new participants to the project, including consultants, subcontractors, or assignees.

# Sample Boiler Plate Clauses

The Infrastructure and Law website of the World Bank presents a number of check-lists and annotated concession agreements and BOTs.



**Infrastructure and Law website** (UserID and password required; refer “Create account” for free access)  
<http://web.worldbank.org/external/default/secmain?theSitePK=4817374&pagePK=4710368&contentMDK=21759230&menuPK=5099523&piPK=64860384#sample>

**Sample clauses are provided hereafter for boiler plate provisions described in the previous section.**

## Sample Contractual Clauses on Liability and Indemnification

### Option 1: Concession Contract:

#### *Liability and Indemnity*

The concessionaire shall indemnify, defend and hold harmless the contracting authority from and against, all liabilities, damages, losses, expenses and claims of any nature whatsoever for personal injury and for damage to or loss of any property arising out of or in any way connected with the indemnifying party's performance of this Agreement except to the extent that such injury, damage or loss is attributable to a negligent or reckless act or omission of the party seeking to be indemnified.

#### *Environmental Damage*

The concessionaire shall be liable for, and shall defend, indemnify and hold the contracting authority harmless from and against, all liabilities, damages, losses, expenses and claims caused by environmental contamination from the construction, operation and maintenance of the Project, except when such losses, expenses or claims are solely attributable to the negligent or reckless act or omission of the contracting authority [or to the very existence of the Motorway itself].

#### *Joint Responsibility*

In the event that any loss or damage referred to in Clause x or y is caused only in part by the negligent or intentional act or omission of the contracting authority and in part by the act or omission of the concessionaire, each party shall be liable to the other only in proportion to its relative degree of fault.

### *Liability for information provided by the contracting authority*

The contracting authority makes no warranty in respect of and shall not be held liable for the accuracy of any information, drawings, designs or other documents of whatever nature relating to the Project provided by the contracting authority.

### *Survival*

The obligations under Clauses x, y, and z above shall survive termination of this Agreement.

## **Option 2: O&M Contract:**

### *Operator's Indemnity*

Save to the extent that the Operator is entitled to an indemnity from the DBFO Co under Clause X (the DBFO Co's Indemnities) and subject to Clause Y, the Operator shall indemnify and keep indemnified the DBFO Co from and against any Claims or Losses of any person (including, without limitation, the Secretary of State) if and to the extent that such Claims or Losses arise out of, or in the course of or in connection with a breach of this Agreement or other negligence, omission or default by the Operator, its contractors or subcontractors of any tier or agents or its or their employees (save where and to the extent that the Operator is relieved of liability in respect of any such breach, negligence, omission or default by the terms of this Agreement) including but not limited to any breach of the warranties contained in Clause Z or any other act, neglect or omission of the Operator, its contractors or sub-contractors of any tier or agents or its or their employees except and to the extent that action by the DBFO Co in respect of such Claims or Losses is prohibited by the proviso to Clause XX.

## **Option 3: Design Build Contract:**

### *1. Limitation of operator's liability*

The aggregate liability of Operator to Developer arising from or in connection with this Contract shall in no circumstances whatsoever exceed an amount equal to six months of the Operation Fee due to Operator under Section 2 of Appendix 5.

### *2 Operator's indemnity*

2.1. Subject to Sections X and Y hereof, Operator shall indemnify and hold harmless Developer and its officers for all damages, costs, claims, suits, liabilities, expenses or actions suffered or incurred by Developer as a consequence of third party claims to the extend caused by any negligent act or default or omission or Operator, its employees, contractors and/or Subcontractors in the performance of its obligation under this Contract.

2.2. Subject to Sections X and Y hereof, and without prejudice to the generality of Section

2.3. Hereof, Operator shall indemnify and hold Developer harmless from any fines, penalties and hold Developer harmless from any fines, penalties and similar charges which may be attributed to or imposed on or asserted against Developer by reason of the failure of Operator to comply fully with all Governmental Approvals, save to the extent such failure was caused by an act or omission of Developer (or its agents, employees or contractors).

### *3. Developer's indemnity*

Developer shall indemnify and hold harmless Operator and its officers for all damages, costs, claims, suits, liabilities, expenses or actions ("Claims") suffered or incurred by Operator as a consequence of the performance of the Services to the extent:

- ⓐ Such Claims arise as a result of the negligence or default or omission of Developer, its employees, agents and/or contractors (other than Operator); or
- ⓑ Such Claims arise in connection with error or defaults in the design and/or the construction of the Toll Road.

## **Option 4: O&M Agreement:**

### *Operator's Indemnity*

The Operator shall indemnify and hold harmless the Company and its officers for all damages, costs, claims, suits, liabilities expenses or actions suffered or incurred by the Company as a consequence of third party claims caused by negligence or default or omission by the Operator in the performance of its obligations under this Agreement.

## **Sample Contractual Clauses on Dispute Resolution**

### **Option 1**

#### *SECTION n.1 Governing Law*

The rights and obligations of the parties under or pursuant to the Operational subsidy Agreement shall be governed by and construed in accordance with the laws of the [Host Country].

#### *SECTION n.2 Arbitration*

The parties hereto will use their best efforts to settle amicably all disputes arising out of or in connection with the [Project Agreements] or the interpretation thereof. Any dispute which cannot be settled amicably within thirty (30) days after receipt by one party of the other party's request to do so may be submitted by either party to arbitration. Each dispute submitted by the parties to arbitration shall be heard by an arbitration panel composed of three (3) arbitrators. Each party shall appoint one arbitrator, and these two will appoint the third arbitrator who shall chair the arbitration

panel. The third arbitrator shall be able to speak English and shall have a knowledge of [host government] law and financial transactions. Arbitration proceedings shall be conducted in [Geographic Location] and in accordance with the rules of procedure for arbitration of the United Nations Commission on International Trade Law (UNCITRAL) as in force at the date of the commencement of the arbitration. Arbitration shall be conducted in the English language. Any award provided by the arbitral tribunal shall be final and binding unless otherwise decided by the arbitral tribunal.

In the event that the two arbitrators appointed by the parties cannot reach agreement on the appointment of the third arbitrator, the President of the International Court of Arbitration of the ICC shall be asked to appoint an appropriate person to act as the third arbitrator. The decision of the President of the International Court of Arbitration in respect of such appointment shall be binding on the parties. If, and only to the extent that, [Host Country] law fails to address an issue arising under the [Project Agreements], the parties shall authorize the arbitrators to apply relevant international practices.

#### *SECTION n.3 Multiparty Dispute Resolution*

The Parties shall agree to join any dispute resolution proceeding under this Agreement with any other dispute resolution pending in respect of any other Project Contract relating to substantially the same matter.

#### *SECTION n.4 Performance During Dispute Resolution*

Pending the submission of a dispute, controversy or claim to the Arbitration Panel and thereafter until the final decision of the Arbitration Panel, the Parties shall continue to perform all of their obligations under this Agreement, without prejudice to a final adjustment in accordance with such decision.

#### *SECTION n.5 Waiver of Sovereign Immunity*

Each Party hereto unconditionally and irrevocably:

- agrees that the execution, delivery and performance by it of this Agreement and all other agreements, contracts, documents and writings relating to this Agreement constitute private and commercial acts and not public or governmental acts;
- agrees that should any proceedings be brought against it or its assets, other than the assets protected by the diplomatic and consular privileges under the Foreign Sovereign Immunities Act or any analogous legislation ("Exempted Assets") in any jurisdiction, in relation to this Agreement or any transaction contemplated by this Agreement, no immunity, sovereign or otherwise, from such proceedings, executions, attachment or other legal process shall be claimed by or on behalf of itself or with respect to any of its assets (other than the Exempted Assets);
- consents generally in respect of the enforcement of any judgment against it in any proceedings in any jurisdiction to the giving of any relief or the issue of any process in connection with such proceedings including without limitation

the making, enforcement or execution against or in respect of any property irrespective of its use or intended use subject to Sub clause (b) above.

## Option 2

### *n. Dispute Resolution*

#### *n.1 Amicable settlement*

If any dispute arises in connection with this Agreement, either party may give notice to the other party of the same, whereupon the parties shall meet promptly and in good faith attempt to reach an amicable settlement.

#### *n.2 Panel of Experts*

**n.2.1** The Panel of Experts shall be comprised of [either one or three suitably technically qualified members. The members can either be named in the contract, or a procedure for their appointment and replacement should be specified.]

**n.2.2** In the event that the parties do not resolve a dispute, controversy or claim in accordance with Clause 24.1 within [twenty (20)] days of notice of the dispute being given, then either party may refer the dispute to the Panel of Experts.

**n.2.3** The party who initially issued the notice of intention to refer the matter to the Panel of Experts shall within ten (10) days of such notice submit to the Panel of Experts and to the other party the following written documents:

- a** a description of the dispute;
- b** a statement of that party's position;
- c** copies of relevant documentary evidence in support.

**n.2.4** Within ten (10) days of receipt of the above documents, the other party shall submit:

- a** a description of the dispute;
- b** a statement of that party's position;
- c** copies of relevant documentary evidence in support.

**n.2.5** The Panel of Experts may call for such further documentary evidence and/or interview such persons as they deem necessary in order to reach their decision.

**n.2.6** The Panel of Experts shall reach a majority decision and give notice to the parties of their decision within twenty (20) days of receipt of the documents provided under Clause 24.2.4. The decision of the Panel of Experts shall be binding unless one party issues a notice of intention to refer the matter to arbitration in accordance with Clause [ ].

**n.2.7** The costs of the engaging the Panel of Experts shall be borne equally by the Parties, and each Party shall bear its own costs of preparing the materials for and making presentations to the Panel of Experts.

### *n.3 Arbitration*

All disputes arising in connection with this Agreement, which are not settled in accordance with Clauses 24.1 or 24.2, shall be finally settled under the Rules of [Conciliation and Arbitration of the International Chamber of Commerce] by three arbitrators appointed in accordance with the said Rules. The language of the arbitration proceedings shall be [English] and the place of the arbitration shall be [Geographic Location]. The applicable law shall be the law of [Country].

### *n.4 Waiver of Sovereign Immunity*

To the extent that the Grantor may in any jurisdiction claim for itself or its assets or revenues immunity from suit, execution, attachment or other legal process, the Grantor hereby agrees not to claim and hereby irrevocably waives such immunity to the full extent permitted by the laws of such jurisdiction.

### *n.5 Survival*

The dispute resolution provisions contained in this Clause 22 shall survive termination of this Agreement.

## Option 3

### *Section n.1 Amicable Settlement*

In the event that any dispute, controversy or claim arises among the Party in connection with this Agreement or the interpretation of any of its provisions or upon the occurrence of an Event of Default, each Party shall appoint one senior representative who is not involved in the day-to-day operations relating to the Project and is readily available in the vicinity of [Geographic Location] to serve on a Consultation Panel (the "Consultation Panel") and such Consultation Panel shall meet promptly upon the request of any member thereto or of any Party, in an effort to resolve such dispute, controversy or claim. All such disputes shall be amicably settled through mutual consultation and negotiation between the representatives on the Consultation Panel. The decision of the Consultation Panel shall be binding upon the Parties. All reasonable costs incurred by the members of the Consultation Panel in connection with the Project, including travel expense to and from [geographic location], shall be borne by the Concessionaire and shall form part of the Total Cost of the Project. The Parties hereto agree to use their respective best efforts to resolve all disputes arising hereunder through the Consultation Panel.

### *Section n.2 Mediation by Panel of Experts*

- a In the event that the Parties are unable to resolve a dispute, controversy or claim in accordance with Section 23.1 or upon the occurrence of an Event of Default, then any Party may refer the dispute, controversy or claim to a Panel of Experts. Within 15 days of the issue of a notice of intention to refer the dispute to a Panel of Experts, the concessionaire and [Government Entity] shall either agree on the appointment of one Person to act as expert or, failing agreement, appoint one expert each and such experts shall, within seven days of their appointment,

designate a third Person to act as expert in order to organize a Panel of Experts. The Consultation Panel may unanimously appoint a permanent Panel of Experts if so requested by the Parties.

- b** The Party who initially issued the notice of intention to refer the matter to the Panel of Experts shall submit to the Panel of Experts and to the other Party the following written documents: (i) a description of dispute; (ii) a statement of that Party position; and (iii) copies of relevant documentary evidence in support of such position.
- c** Within 10 days of receipt of the above documents, the other Party shall submit: (i) a description of the dispute; (ii) a statement of that Party's position; and (iii) copies of relevant documentary evidence of such position.
- d** The Panel of Experts may call for such further documentary evidence and/or interview such Persons as they deem necessary in order to reach their decision.
- e** The Panel of Experts shall reach a majority decision and give notice to the Parties of their decision within 20 days of receipt of the documents provided by the Parties pursuant to subsections (b) and (c) above. The decision of the Panel of Experts shall be binding unless a Party issues a notice of intention to refer the matter to arbitration in accordance with Section 23.3.
- f** The costs of engaging the Panel of Experts shall be borne equally by the Parties, and each Party shall bear its own costs of preparing the materials for and making presentations to the Panel of Experts. In the event that the Parties are unable to resolve a dispute, controversy or claim pursuant to this Section 23.2 within 45 days of the date when such dispute, controversy or claim first arise, then the provisions of Section 23.3 shall apply to such dispute, controversy or claim.

#### *Section n.3 Arbitration Panel*

- a** In the event that the Parties are unable to resolve any dispute, controversy, or claim in accordance with Sections 23.1 or 23.2, such dispute, controversy or claim shall be finally settled by a panel of arbitrators (the "Arbitration Panel") in accordance with the [AAA, UNCITRAL or ICSID]. The Arbitration Panel shall consist of three parties. The Concessionaire and [Government Party] shall appoint one arbitrator each and such arbitrators shall, within seven days of their appointment, designate a third Person to act as an arbitrator in order to organize an Arbitration Panel. The arbitral proceedings shall take place in [geographic location] and shall be conducted in the English language. The award of the arbitrators shall be a reasoned one giving reasons for each claim allowed or disallowed.
- b** Any award by the Arbitration Panel shall be final and binding on the Parties.

#### *Section n.4 Multiparty Dispute Resolution*

The Parties shall agree to join any dispute resolution proceeding under this Agreement with any other dispute resolution pending in respect of any other Project Contract relating to substantially the same matter.

### *Section n.5 Performance During Dispute Resolution*

Pending the submission of a dispute, controversy or claim to the Consultation Panel, the Panel of Experts and/or the Arbitration Panel and thereafter until the final decision of the Consultation Panel, the Panel of Experts and/or the Arbitration Panel, the Parties shall continue to perform all of their obligations under this Agreement, without prejudice to a final adjustment in accordance with such decision.

### *Section n.6 Survival*

The provisions relating to indemnification contained in Section 18.2, confidentiality contained in Section 22.2 and the dispute resolution provisions contained in this Article 23 shall survive the termination of this Agreement.

## **Sample Contractual Clauses on Force Majeure**

### **Option 1: Concession Contract:**

#### *Force Majeure Events*

Force Majeure shall mean any event or circumstances, other than Materially Adverse State Action, which is beyond the control of the party seeking to rely on such Force Majeure, including natural disasters, war, hostilities, embargo, fire, national strikes, which could not reasonably have been foreseen by that party at the date of this Agreement, the consequences of which could not reasonably have been avoided by that party, and which prevents that party from carrying out any of its obligations under this Agreement.

For the avoidance of doubt, the [Concessionaire] shall not have the right to rely on, as Force Majeure, any strike which is limited to the employees of the Company or its subcontractors, or any delay or default of the Company's sub-contractors in the performance of their obligations.

### **Option 2: O&M Contract**

#### *Force Majeure and Supervening Events*

The Parties shall be relieved from liability under this Agreement to the extent that by reason of Force Majeure or Supervening Events they are not able to perform their obligation under this Agreement provided that in the case of Force Majeure, the Operator shall only be relieved from liability to the extent that the DBFO Co is relieved from liability under the DBFO Contract and provided further that the Operator has taken such action in relation to the, Services as the DBFO Co is required to take under the DBFO Contract and in particular, but without limitation, to enable the DBFO to comply with its obligations under clause x of the DBFO Contract. The period for performance of any obligation so affected shall, subject to compliance with the remaining provisions of this Clause Y, be extended by the period for which such performance was prevented.

### Option 3: Design Build Contract of a Toll Road

#### *Definition of force majeure event*

“Force Majeure Event” means any event which is defined as a force Majeure Event in the Franchise Agreement [The term “Force Majeure” shall mean any circumstance or act beyond the reasonable control of either party to this Agreement including, without limitation, an intervening act of God or public enemy, fire, flood, tidal wave, earthquake, epidemic, quarantine restriction, strike, labor dispute, freight embargo or judicial or administrative restraint, all or any of which causes material interruption, damage, or destruction and delays the performance of any obligation created by this Agreement beyond its scheduled time. or which materially interferes with the operation of the Project or any Facility or portion thereof.] and which:

- ❶ Causes material physical damage to the toll Road (or any material part thereof), including the Fixed Operating Agreement and Operation and Maintenance Facilities or their essential functions, before or after completion of construction; or
- ❷ Materially interrupts the full and regular operation of all or any material portion of the toll road, which includes a closure or suspension under Section X in excess of six months.

### Sample Contractual Clauses on Assignability / Subcontracting

#### Option 1: Concession:

##### *Assignment by the Grantor*

The Grantor shall not assign or transfer all or any part of its rights or obligations under the Agreement without the prior written consent of the Company, it being understood that the Grantor is free to carry out its obligations under this Agreement through the Ministry.

##### *Assignment by the [Company]*

The Company shall not without the prior written consent of the Grantor, transfer all or any of its obligations under this Agreement. Nevertheless, for the purpose of arranging or rearranging the financing for the Project, the Company shall have the right to assign to the Lenders its rights and interests under or pursuant to this Agreement or any other project Document and to create a security interest for the benefit of the Lenders in such rights and interests. Save as aforesaid, the Company shall not create or allow to be created any other security interest, lien, or encumbrance in respect of its rights and interests without the prior written consent of the Grantor.

## Option 2: O&M Contract

### *-Assignment, Sub-contracting*

This Agreement shall be binding on and shall inure to the benefit of the DBFO Co and the Operator and their respective successors and permitted assigns.

The Operator shall not assign, novate, transfer or create or allow to subsist any Encumbrance, trust or interest in this Agreement, any part hereof or any benefit or interest herein without the prior written consent of the DBFO Co.

The Operator may not sub-contract the whole of the Services. Parts of the Services may be sub-contracted by the Operator in accordance with clause X of the DBFO Contract and with the prior written consent of the DBFO Co such consent not to be unreasonably withheld or delayed. In the event that the Operator wishes to sub-contract any material part of the Services (including but entirely without limitation, the maintenance of the equipment provided pursuant to the Measuring Equipment Contract), the DBFO Co may as a condition to its consent require to see a draft of the proposed sub-contract and/or a copy of the executed sub-contract other than, in either such case, the confidential financial terms thereof. The Operator shall not terminate the engagement of any sub-contractor appointed to perform any material part of the Services as aforesaid without the prior written consent of the DBFO Co which consent will not be unreasonably withheld or delayed provided any consent required from the Secretary of State pursuant to the DBFO Contract or from the Funders pursuant to the Funding Agreements has been obtained. In the case of the sub-contract with [construction company], the DBFO Co shall not be entitled to withhold its consent where any such consent as aforesaid from the Secretary of State or the Funders has been obtained. The DBFO Co may also require that the Operator and any such sub-contractor execute and deliver to the DBFO Co not later than 7 days after execution of the relevant sub-contract, a direct agreement in the form set out in Schedule X. Without prejudice to the generality of the foregoing, the Operator undertakes that it will, prior to or on the date of this Agreement execute and procure the execution by the following companies and deliver to the DBFO Co direct agreements in favor of the DBFO Co in the form set out in Schedule X:

## Option 3: Operation and Maintenance contract on tollroad):

### *Assignment by Developer*

Subject to Operator's written consent, not to be unreasonably withheld, Developer may at any time assign this contract or any rights under or interest in this contract, to a third party.

At assignment, Developer shall be released of any further obligation and liability hereunder and all references to Developer shall be automatically be deemed to refer to such third party.

### *Assignment by Operator*

[Operator A] and [Operator B] shall assign this contract to the Operation Company to be created by [Operator A] and [Operator B]. Assignment shall be substantially consistent with the Assignment and Representation Form, attached as Appendix X to this Contract. At assignment, except as otherwise provided in this contract, [Operator A] and [Operator B] shall be released of any further obligations and liability, and any reference to Operator shall be automatically be deemed to refer to the Operation Company.

Assignment of this Contract to the Operation Company shall be subject to approval by Developer of the terms of the Technical Assistance Agreements (TAAs) to be executed between [ Operator A ] and the Operation company on one hand, and between [Operator B]and the operation Company on the other hand. The terms of the TAAs shall give satisfaction to Developer that the support provided by the respective shareholders of the Operation Company are sufficient and adequate to allow the Operation Company to perform the obligations of the Operator under this Contract.

### **Option 4: Design Build Contract of a Toll Road:**

#### *Subcontracts*

- ① Each instrument evidencing any agreement of contractor with any Subcontractor shall provide that, pursuant to terms in form and substance satisfactory to Developer: (a) the rights of Contractor under such instrument are assigned to Developer and its successors and assigns contingent only upon written request from Developer or its successor or assign following default to by Contractor or termination or expiration this Contract; and (b) all warranties (express and implied) or such Subcontractor shall inure to the benefit of Developer and/or Caltrans and their respective successors and assigns.
- ② Notwithstanding any Subcontract with any Subcontractor, Contractor shall be fully responsible for all of the Work. Neither Developer nor Caltrans shall be bound by any Subcontract, and no Subcontract shall include a provision purporting to bind them.
- ③ Contractor shall include in each Subcontract terms and conditions sufficient to ensure compliance by the Subcontractor with all applicable requirements of the Contract Documents.”
- ④ Contractor shall provide Developer with a list of its Subcontractors from time to time upon requires, shall allow Developer access to, and provide copies of all Subcontracts and records regarding Subcontracts (unparsed, where not Cost Reimbursable or Cost us to Developer, as may be requested).
- ⑤ The Design subcontract shall not be modified to terminated without Developers' prior written consent.

### Option 5: From O&M Agreement:

#### *Assignment*

The Operator may not assign, transfer or otherwise part with possession of any interest in this Agreement without the prior written consent of the Company.

### Sample Contractual Clauses on Confidentiality:

#### Option 1: Concession Contract:

##### *Confidentiality Obligation:*

Each of the parties, their employees, contractors, consultants and agents, shall hold in confidence all documents and other information whether technical or commercial supplied to it or on behalf of the other party relating to the financing, design, construction, insurance, operation, maintenance and management of the Motorway in the course of this Agreement, and shall not publish or otherwise disclose or use the same for its own purposes otherwise than as may be required by the law of [host country] or to perform its obligations under this Agreement. This Clause X shall not apply to information:

- ① already in the public domain otherwise than by breach of this Agreement;
- ② already in the possession of the receiving party before it was received from the other party in the course of this Agreement and which was not obtained under any obligation of confidentiality; or
- ③ obtained from a third party who is free to divulge the same and which was not obtained under any obligation of confidentiality.
- ④ Survival of Obligations:

The parties obligations under this Clause X shall survive termination of this Agreement.

#### Option 2: O&M Contract

##### *Confidentiality*

Each Party agrees, for itself and its respective directors, officers, employees, servants and agents, to keep confidential and not to disclose to any person (save as hereinafter provided) any of the terms of this Agreement or the DBFO Contract or any confidential or proprietary information (including documents, computer records, specifications, formulae, evaluations, methods, processes, technical descriptions, reports, and other data, records, drawings and information whether or not included in the Design Data or Traffic Data) (together the "Confidential Information") provided to or arising or acquired by it pursuant to the terms or performance of this Agreement (including without limitation any such documents or information supplied in the course of proceedings under the Disputes Resolution Procedure). The Operator shall keep confidential and not disclose to

any person (save as hereinafter provided) any of the terms of the DBFO Contract or the Facilities Agreement.

### Option 3: O&M Agreement:

#### *Confidentiality:*

Both parties shall keep in confidence all drawings, records, data, books, reports, documents and information, whether technical or commercial, supplied to it by or on behalf of the other party relating to the operation or maintenance of the Tollroad and shall not disclose the same in any manner otherwise than for:

- ⓐ the purpose of seeking financial assistance for the company; or
- ⓑ for the construction of the Toll road or the maintenance and operation of the Toll road;
- ⓒ for the purpose of performing its obligations hereunder; or
- ⓓ as it may necessarily be required to disclose pursuant to the Law or orders or appropriate regulatory Authorities.

### Option 4: O&M Agreement:

#### *1. Intellectual property confidentiality:*

**1.1.** All technical documentation, drawings, procedures, systems, licenses, etc. acquired or registered by Operator (other than those it acquires from or through Developer) or developed by or on behalf of Operator in relation to the Services are and shall remain the exclusive property of Operator.

**1.2.** Operator hereby grants to Developer a royalty-free and irrevocable right to use any of such items referred to in Section 10.1.1, for all purposes relating to the construction, operation, maintenance, improvement, and enhancement of the Toll Road and the FOE during the term of such registration and/or useful life.

#### *2. Confidentiality information*

Subject to this Section 10, Developer and its employees shall not at any time disclose to any person or otherwise make use of any commercially sensitive or confidential information, documents, or records of Operator, including:

- ⓐ The O&M Manuals; and
- ⓑ Any software or procedures for the operation of the Toll Road, or the FOE, developed or procured by Operator; except for such information as Developer is bound to disclose by Governmental Rule or in accordance with this Contract.

## Sample Contractual Clauses on Records and Information

### Option 1: Design Build Contract of a Toll Road

#### *Maintenance of, access to, and audit of records*

Contractor shall maintain at its Project Manager's office a complete set of books and records prepared or employed by Contractor in its management, scheduling, cost accounting and otherwise with respect to the Toll Road. Contractor shall grant to Developer and/or the Financing Entities such audit rights and allow Developer such access to and the right to selectively copy such books and records as Developer and/or the Financing Entities may request in connection with the issuance of Change Orders, the resolutions of Disputes and such other matters as Developer and/or the Financing Entities reasonably deem necessary for purposes of verifying compliance with this Contract and applicable law.

- ① Where the payment method for any Work is on a Cost Plus basis, such examination and audit rights shall include all books, records, documents and other evidence and accounting principles and practices sufficient to reflect properly all direct and indirect costs of whatever nature claimed to have been incurred and anticipated to be incurred for the performance of such Work. If audit indicates Contractor has been over credited under a previous progress report or progress payment that over credit will be credited against current progress reports or payments.
- ② For cost and pricing data submitted in connection with pricing Change Orders, unless such pricing is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the public, or prices set by law or regulation, Developer and its representatives have the right to examine all books, records, documents and other data of Contractor related to the negotiation of or performance of Work under such Change Orders for the purpose of evaluating the accuracy, completeness and currency of the cost of pricing data submitted. The right of examination shall extend to all documents deemed necessary by such Persons to permit adequate evaluation of the cost or pricing data submitted, along with the computations and projections used therein.

### Option 2: Concession Contract:

#### *Records*

- ① Required Records
  - 1.1 The DBFO Co shall maintain and update those records relating to the Project set out in Part I of Schedule X.
  - 1.2 The Secretary of State shall be entitled at his own cost within 180 days after the Commencement Date to deliver up to the DBFO Co the existing records of the Secretary of State in respect of the Project Facilities (or copies thereof). In such event, the DBFO Co shall retain such records in safe storage at its own cost and such records shall thereafter be treated for all purposes as though they were records referred to in Clause 23.1.1.

**②** Retention of Records

**2.1** All records referred to in Clause 23.1 shall be retained for no less than the period specified in respect of such records in Part 1 of Schedule 14 or, if no such period is specified, a period of 7 years after the end of the Contract Year to which such records relate.

**2.2.** Where the period for the retention of any records (as set out against the relevant class of records in Part 1 of Schedule 14) has expired, then the DBFO co. shall notify the Secretary of State as to what it intends to do with such records. If it intends to dispose of them or subsequently decides to dispose of them, the DBFO co. shall notify the Secretary of State, and if the Secretary of State shall within 40 days of such notice elect to receive those records or any part of them the DBFO Co, at its own cost, shall deliver up such records to the Secretary of State in the manner and at such location as the Secretary of State shall reasonably specify

# Agreements, bonds and guarantees

## SPV Formation

The Special Project Vehicle (SPV) may take a variety of forms, including a corporation, limited liability company, general partnership, limited partnership, or joint venture arrangement. However, the relevant jurisdiction's company law will need to be examined in order to determine the feasibility of each type of structure for the SPV. Such laws may, for example, set special financial, technical or business requirements for shareholders, mandatory capitalization ratios or required statements of purpose. A Shareholders Agreement (or form of partnership or other agreement as the case may be) will set forth the respective rights and obligations of the owners of the SPV.

## Shareholders Agreement

The shareholders agreement sets forth the rights and responsibilities of each entity in the project company that has been granted the concession to design, build, finance, or operate the toll road. The issues to consider when drafting the shareholders agreement are little different from those of any business organization: One must first decide whether the entity will be a corporation or partnership (or, in some jurisdictions, a limited liability company, which has characteristics of both) and then determine the relative rights and responsibilities each shareholder will have with respect to capital contributions, transfers, conflicts of interest, and restrictions on competition. In many cases the parties to the shareholders agreement will be constrained by the concession contract or the lenders to a project with respect to each of these issues.

In most cases that concessionaire is a special purpose vehicle ("SPV") or a joint venture among the companies that will be responsible for carrying out the concession. Thus there exists an inherent conflict of interest between the shareholders as project company owners and their separate interests as owners of the contractors and operators of the road. To mitigate this conflict, the shareholders agreement often contains provisions designed to limit shareholders' power to vote on contracts in which they would be involved, to keep contractors involved until a project is completed, and to ensure that the credit worthiness of the financial backers is maintained.

The following key terms are often utilized in project finance shareholders agreements:

**Conflict of interest clauses** may require super majorities for decisions that would clearly benefit one or more shareholders such that the interested parties' votes alone could not determine the outcome of that particular vote.

**Pre-emption rights** are often used to ensure that the original participants remain involved until key milestones in development are achieved. A standard pre-emption provision would state that a shareholder wishing to transfer its shares to a third party before a certain milestone has been achieved must first offer its shares to the remaining shareholders at a fair market price.

**Non competition clauses** seek to ensure that the shareholders remain committed to the project and may require that shareholders not participate in any competing ventures or otherwise undermine the purposes of the project. However, such provisions must take into account the relevant jurisdiction's competition laws.

**Capital contribution provisions** also help to ensure that participants remain fully committed to a project and to ensure the Sponsor remains financially viable - an important concern of both the government granting the concession and the outside lenders. While contingent capital contributions are common, whereby a shareholder is not required to commit its equity subscription until it is needed, often times shareholders will be required by the lenders to obtain a letter of credit or payment guarantee as a condition of becoming a shareholder. Shareholders agreements may also provide for additional loan commitments beyond the equity subscription amounts. Some shareholders - usually local entities in developing countries that lack financial capital - may be allowed to contribute its capital in kind, such as by donating land or services to the project. However, special attention must be paid to ensuring a fair valuation of such contributions.

**Governance provisions** set forth the relative powers of different shareholders and, as mentioned in the Conflict of Interest section above, often segregate issues that must be decided unanimously, by super majority, or a simple majority vote according to their importance to the project. Sometimes the shareholders agreement will assign to certain parties primary responsibility for decisions on subject matters in which it has particular expertise.

**Deadlock provisions** are also important for setting forth the procedure for resolving disputes when unanimity is required and the shareholders cannot agree. They may include obligations to reach a consensus among the board or among the heads of the participating shareholders and, failing that, by outside arbitration.

## Loan Agreements

Many PPP projects in the road sector require funds to be provided from several sources. Most large PPPs that include project financing will have a mixture of debt and equity with different classes of share capital and several layers of debt. A large toll road may require loans not only from commercial banks but also from one or more multilateral or export credit agencies, whose loan maturities will likely be longer than those from commercial banks. In addition, some of the lenders may be subordinated to others, some may be secured while others not (such as banks providing only working capital), and therefore lenders will want to ensure their position among other lenders is clear throughout the project through an intercreditor agreement. Intercreditor agreements address issues such as whether all of the levels of lenders have to agree before any of them can accelerate their loans or take enforcement action against the project.

## Lenders Rights

Refer to the Insolvency and security Laws section under the Legislative Framework.

**The Infrastructure and Law website** of the World Bank presents useful information under Lender Issues.



Infrastructure and Law website (UserID and password required; refer “Create account” for free access)  
<http://web.worldbank.org/external/default/secmain?theSitePK=4817374&pagePK=4710368&contentMDK=21759230&menuPK=5099523&piPK=64860384#sample>

The World Bank has coordinated efforts to produce standards regarding insolvency and creditors rights. This information can be found on the World Bank Global Insolvency Law Database under Principles and Guidelines.



<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/LAWANDJUSTICE/GILD/0,,pagePK:181022~theSitePK:215006,00.html>

The two main concerns for the project lenders in any given project finance transaction are to (i) ensure that they will take effective security over most, if not all, assets of the project (including the shares of the project company, the project revenue contracts through the assignment of receivables, the rights of the project company in connection with the project agreements and the tangible and intangible personal property of the project company), and (ii) to be able to take control of the project as soon as possible in case the project encounters financial difficulties (sometimes called “step-in rights”).

**Right to security interest in project assets.** Generally, the project company will be prohibited from transferring or assigning any of the project’s assets, agreements or rights and obligations to third parties without the prior consent of the host government. At the same time, however, it is essential for the project company to have the power to give lenders a security interest in the assets, agreements and rights and obligations of the project for purposes of and in exchange for receiving adequate project financing.

The host government and project company, therefore, must permit the lenders all the security interests which may be necessary for purposes of financing the project (i.e., in order to achieve the “bankability” of the project). In addition, the host government must ensure that its legal framework is conducive to the effective creation and enforcement of security interests in connection with debt obligations, without which a project financing structure will not be possible.

**Substitution or Step-in rights.** The host government typically is requested to (i) grant lenders the right to “step into” the project company’s rights and obligations in case of a project company default under the project agreements and (ii) to acknowledge the right of lenders to “step in” for the project company in case of a default under the financing agreements. The lenders, pursuant to these “step-in rights”, generally have an opportunity to cure any default under the project agreements and may substitute an entity of their choice for the project company (subject to meeting certain criteria related to the performance capability of such third party in further developing, operating or managing the project).

## Guarantees

Guarantees are generally provided to lenders, to be used for financing infrastructure, where the demand for funding is large and involves the private sector, political and sovereign risks are significant, and long-maturity financing is critical to a project viability, as it is the case with roads, where the completion period is long and the cost recovery period extends from 5 to 15 years.

By covering risks that the market is not able to bear or assess adequately, guarantees may reduce financing costs, attract additional sources of financing and extend maturities. The guarantees are most valuable where activities traditionally undertaken and financed by the government are being shifted to the private sector, but where the government and its agencies remain involved.

Guarantees provided by the Government to make the project more attractive to private actors are described in Module 3 -> PPP Policy Framework -> Financial Framework.

When the guarantees are provided by an international financial institution such as the World Bank, the participation of the guarantor can facilitate transactions. An institution like the World Bank may provide either a partial risk guarantee or a partial credit guarantee.

A partial risk guarantee ensures payment in the case of debt service default arising from non-performance of sovereign contractual obligations or certain political force majeure events. This type of guarantee is appropriate for private projects, especially for "limited-recourse financing", as in build-operate-transfer, build-own-operate and similar concession projects. Transfer risks may also arise for investors and lenders because of constraints in the availability of foreign exchange, such as procedural delays on the part of the government or adverse changes in exchange control laws or regulations, and the partial risk guarantee will cover these as well.

A partial credit guarantee typically extends maturities beyond what private creditors could otherwise provide, for example by guaranteeing late-dated repayments or providing incentives for lenders to roll over short-term loans. They are typically used for public projects involving sovereign borrowing. The need for such guarantees arises if short-term financing (for the construction period, for example) is available, but the prospects of rolling over such financing are uncertain. The goal is to stretch credit term beyond what the lenders might otherwise agree to.

## Counter-guarantee

The World Bank will require a counter-guarantee from the project's host country government in accordance with the Bank's Articles of Agreement. The counter-guarantee of the government to the World Bank is provided through an indemnity agreement, whereby the government indemnifies the World Bank for any payments made by the World Bank under its guarantee.

The government's counter-guarantee usually counts against the yearly spending budget and in most countries requires a legislative act.

In the context of construction completion, generally related to the Construction Agreement, both the Contracting authority and the lenders will require a construction completion guarantee, which will usually take the form of a written commitment backed by some consideration and issued by the construction company prior to closing. This guarantee is aimed at shifting the completion risk away from the Concession Grantor and the lenders and towards the construction company, which in turn will favor the entire project.

## Bonds

Performance, bid, warranty and payment bonds are credit enhancement mechanisms used to support a contractor's financial obligations under a contract. Under this structure a third party, usually a bank, will issue the bond guaranteeing payment to a beneficiary if the bonded party fails to perform the contract. Construction contractors are usually obligated to put up a performance bond based on a percentage of the contract price.

They may also be required to put up a bid bond to support their obligations prior to the award of a contract. Warranty bonds support the obligations of a contractor to perform ongoing maintenance operations. Payment bonds are issued to a project company to ensure a contractor meets its payment obligations under a contract, such as to pay liquidated damages upon delays in completion.

In each case, failure to perform the conditions of a contract will trigger the surety that issued the bond to fulfill the contractual obligations up to the amount of the bond. The project lenders will also generally be assigned rights to the bond as part of the collateral for a project loan.

# Contract renegotiation and adaptation

PPP contracts are more likely than others to be subject to adaptation or renegotiation for a number of reasons and which arise from the nature of the contract, quality of the parties and long duration of the project. This section, which provides the legal considerations of renegotiation, should be read in conjunction with Module 5 -> Amendments to Contracts and Dispute Resolution which presents methods and procedures.

## Causes for renegotiation

A recent report conducted by the World Bank (2004) indicates that 41 percent of infrastructure concessions in Latin America were renegotiated, particularly in the transportation sector, and that such renegotiations occurred within 2 years of the contract award. The report stresses the fact that such a high incidence of contract renegotiation exceeds expected and reasonable levels and raises concern about the validity of the concession model. The report adds that this can undermine all the benefits of the competitive bidding process, which turns into a bilateral negotiation between the winning operator and the government. At that stage the operator has significant leverage because the government is often unable to reject renegotiation and is usually unwilling to claim failure, and let the operator abandon the concession, for fear of political backlash and additional transaction costs.

Analyzing the causes of this process, the report states that if bidders believe that renegotiation is feasible and likely, their strategic behavior and their bids will be affected and the process will not be likely to select the most efficient operator as intended. The appropriate answer from governments is not to concede to opportunistic requests for renegotiation and let operators abandon the concession as a price worth paying, since such an approach can in fact help governments by establishing a reputation of not being easy with renegotiation requests and thus discouraging future aggressive bids.

The report then quotes that, between 1990-2001, only 48 private infrastructure projects were cancelled out of a total of 2,485 projects granted worldwide, but of these 19 were in toll roads, which had the highest incidence of cancellation by sector.

The report considers this renegotiation issue as the biggest problem with concessions and highlights solutions to ensure that renegotiation should occur only when justified by contingencies or major unexpected events built into the initial contract.



Granting and Renegotiating Infrastructure Concessions - Doing it Right. J. Luis Guasch.  
WBI Development Studies, 2004

## Recommendations for improvement

The objective is to improve the design of concessions to secure long-term sector efficiency and foster compliance with the contract conditions by both the government and the operator. To establish such an environment, concession contracts should include: (i)

provisions required to design contracts that focus on securing long-term sector efficiency and discourage opportunistic bidding and renegotiations, and (ii) provisions required to implement regulations that impede opportunistic renegotiations and force contract compliance.

### Contract provisions aimed at securing long-term sector efficiency

- **a** Concession contracts should be awarded competitively and designed to avoid ambiguity in the treatment of assets, the evaluation of investments, the outcome indicators, the procedures and guidelines to adjust tariffs, the criteria for early termination and the procedures for disputes resolution.
- **b** Concession contracts should contain clauses committing governments to a policy of no renegotiation except in the case of well defined triggers. They should stipulate the process for and level of adjustment: the first tariff review should not be entertained for at least five years unless contract contingencies are triggered.
- **c** Concession contracts should provide for significant compensation to operators in the event of unilateral changes to the contract by the government, including penalties.
- **d** Consideration should be given to making operator pay a significant fee for any renegotiation request. Such fee would only be reimbursed if the renegotiation is decided in the operator's favor.
- **e** Detailed analysis of seemingly aggressive bids should be required before a concession is awarded. Operator should be required to post performance bonds of significant value.

### Contract provisions aimed at securing good implementation and force compliance

- **a** Quickly organized concession programs should be avoided.
- **b** Infrastructure concessions should be awarded through competitive bidding rather than direct or bilateral negotiations, and only after qualifications of bidders have been screened.
- **c** An appropriate regulatory framework and agency should be in place prior to the award of the concession, with sufficient autonomy and implementation capacity to ensure high quality enforcement and deter political opportunism. Performance objectives should be used instead of investment obligations.
- **d** Proper regulatory accounting of all assets and liabilities should also be in place to avoid any ambiguity about the regulatory treatment and allocation of costs, investments, asset base, revenues, transactions with related parties, management fees, and operational and financial variables.

Although the above recommendations are aimed at restoring confidence in "the concession model", it should be stressed that there is not one concession model worldwide, but a wide number of variations depending on the countries or legal systems concerned of a concept which remains loosely defined.

Renegotiation of concessions remains a major issue in countries such as in Latin America, where a concession is considered, legally at least, more as a commercial contract between parties of equal strength and which is destined to evolve through negotiation between the parties. Only in such countries does renegotiation constitute such an issue and a threat.

There are other countries or legal systems where the issue is rather that of adaptation of the concession to changes of circumstances rather than renegotiation.

## Adaptation or renegotiation

In some countries or legal systems which have a long tradition of concessions in public infrastructures, a concession contract is not a standard commercial contract between parties of equal strength, but rather a hybrid instrument combining features of a contract and of a regulation. In such countries, it is called an administrative contract, is governed by specific laws, and enforced by dedicated administrative courts. Renegotiation is not an issue because the public authority does not need to negotiate as it can impose its requirements under certain conditions to its private concessionaire, who has no option but to perform.

The first and main reason has to do with the fact that the parties are not on a level playing field. One party is a public authority which represents the public interest, and has therefore certain rights that allows it to impose unilateral modifications to the contract, without the consent of the private party. There is therefore a certain imbalance between the parties which must however be made good when the financial equilibrium of the contract has been affected by the unilateral actions of the public authority, to the detriment of the private concessionaire. The consequence of such an extraordinary right is an automatic compensation of the concessionaire, so that the financial equilibrium of the contract is restored.

In addition, the nature of the contract, which concerns the provision of a service to the public, serves to reinforce its specificity by the requirement to adapt to the need of such public service.

Finally, being in most instances a long-term contract, the risk of having to adapt to changed circumstances is even higher.

The effect of such a system is that the public authority knows it will be able to impose the contract changes that may be required in the public interest without having to "renegotiate" them and run the risk of opposition and failure inherent in the processes of contract review and extraordinary reviews that form part of "private law concession contracts", while the private concessionaire is confident that whatever changes and unilateral modifications are imposed on him, the financial equilibrium of the contract will be maintained and his profit with it.

This produces a climate of mutual confidence that allows long-term partnership to develop for the benefit of private concessionaires and of public infrastructures. France is one example of such a system.

## Circumstances leading to contract adaptation

There are two broad categories of circumstances that may lead to an adaptation of the contract. The first category is changes in conditions, either legislative and regulatory changes, or changes in economic conditions.

Of the legislative and regulatory changes only those specifically related to PPP projects or one particular project would lead to adaptation, as opposed to other general legislative changes which would be considered as normal business risks.

Of the changes in economic conditions only those that must have been beyond the control of the concessionaire and of such nature that the concessionaire could not reasonably be expected to have taken into account at the time that the project agreement was negotiated, would lead to adaptation. For example a toll road operator holding an exclusive concession might not be expected to assume the risk of traffic shortfall caused by the subsequent opening of an alternative toll free road by an entity other than the contracting authority. However he would normally be expected to take into account reasonable labor cost increases over the life of the project, thus the fact that wages turned out to be higher than expected would not be sufficient to justify an adaptation of the contract.

The second category of changes result from modifications required by the contracting authority, such as revised construction design specifications or additional operational requirements. In both instances the concessionaire would be under the obligation to perform as required subject to adequate compensation for the additional financial burden resulting from the changes.

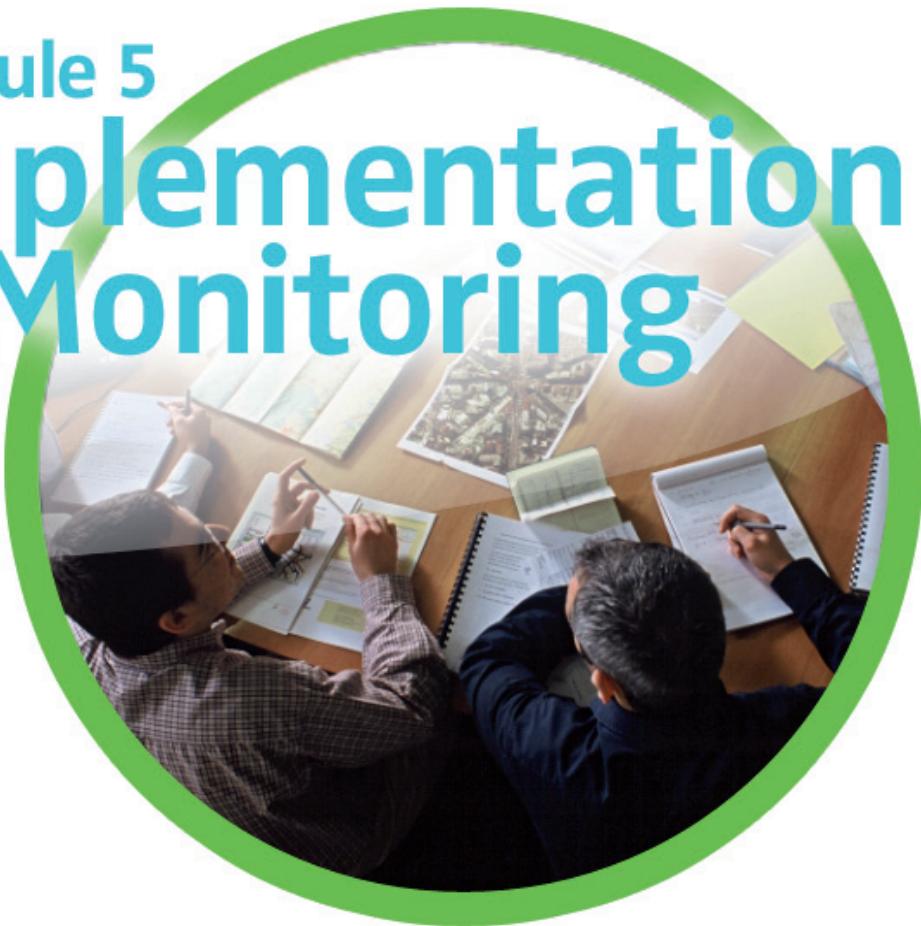
## Condition for successful project completion and concession implementation

Rather than a strict application of contractual provisions, experience shows that the success of PPP contracts lies with the mutual trust that the parties have in one another, together with their will to act as partners in carrying out a project for their mutual benefit.

In countries like the United Kingdom, where PPP contracts are private law contracts, as described above, studies carried out after 10 years of experience of successes and failures of the PPP program (Private Finance Initiative) advocate moving from a strict policy of contract enforcement towards a more partenerial approach, in which public authorities and private concessionaires are encouraged to work closer together to share a common project, which, after all, should be the aim of a true partnership.

## Module 5

# Implementation & Monitoring



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# Module 5: Implementation and Monitoring

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## Checklist for Module 5 - Implementation and Monitoring

### Toolkit Sections

Toolkit Section	Key Tasks	Comments
<b>STAGE 1 - PPP Project Selection</b>		
• Selecting PPP Projects	<ul style="list-style-type: none"> <li>○ Identification</li> <li>○ Prioritization and</li> <li>○ Selection</li> </ul>	<p>Undertake procedures to go from long list of highway projects to selected PPP projects.</p> <p>Prepare screening criteria and screen projects from long list prepared as part of sector planning in Module 3.</p> <p>Prepare Multi Criteria analysis and criteria and prioritize projects.</p> <p>Select sufficient good projects to start undertaking FS studies on those PPP projects with the most potential.</p>
<b>STAGE 2 - Project Preparation</b>		
○ Value for Money (VfM) and the PSC	<ul style="list-style-type: none"> <li>○ Consider criteria for assessing Value for Money</li> <li>○ Undertake an initial comparison of projects procured under PPP and traditional public sector procurement</li> </ul>	<p>VfM/PSC can be started at this point (but is very subjective at this point as data is still limited)</p> <p>VfM/PSC can also be/should be undertaken at several later stages.</p>
<b>A pipeline of high potential PPP projects or at least a few highway projects that have potential for PPP and are likely to provide value for money</b>		
• Due Diligence and Feasibility Studies	<ul style="list-style-type: none"> <li>○ FS Contents</li> <li>○ Technical Evaluation</li> <li>○ Socio-economic Evaluation/</li> <li>○ Social and Environmental Studies</li> </ul>	<ul style="list-style-type: none"> <li>• Importance of a good TOR for project preparation</li> <li>• See relevant Toolkit sections on Advisors</li> <li>• Preliminary design vital to show broad alignment/corridor and estimated capital cost</li> <li>• Wide ranging social cost benefit analyses</li> </ul>

Toolkit Section	Key Tasks	Comments
o Financial Analysis	<p>Financial studies to show;</p> <ul style="list-style-type: none"> <li>(i) Project financial performance of project through use of financial model</li> <li>(ii) If Government Support needed (Direct or Contingent)</li> <li>(iii) Bankability Including possibility of guarantees</li> <li>(iv) VfM and PSC has been completed, now that data is available. If PSC is negative, assess and consider putting project back into public procurement.</li> <li>(v) The quantitative risk analyses including cost of contingent support</li> <li>(vi) The Business Plan including PPP modality (Modules 2/4 and Stage 3)</li> </ul>	<ul style="list-style-type: none"> <li>• Full financial analyses needed</li> <li>• Government support includes viability gap funding/ annuity/shadow tolls etc. If amount of support related to guaranteees generally called contingent support if dependent on future unknown situation.</li> </ul>
o Risk Management	<p>Risks must be fully identified, allocated and mitigated (with scenarios if appropriate)</p>	<ul style="list-style-type: none"> <li>• Risk management to include identification, allocation and mitigation of risk</li> </ul>
o Legal Basis	<p>Ensure project is consistent with the legal framework or measures in hand to make consistent</p> <p>Due diligence/FS study stage usually includes preparation of the draft concession contract.</p> <p>Ensure concession contract follows good practice and is consistent with the FS</p>	<p>See legal framework and project basis (Modules 2 and 4)</p> <p>UNCITRAL, PPIAF and Module 4 Toolkit all provide strong guidance on good practice for concession design and principles.</p> <p>Concession detail (still draft) from the FS.</p>

Toolkit Section	Key Tasks	Comments	
○ Consultation	Undertake consultation; <ol style="list-style-type: none"> <li>1. Public</li> <li>2. Other Government agencies; PPP units/MOF/State Planning etc</li> <li>3. Market Sounding with Private Sector</li> </ol>	See appropriate Toolkit Sections on types and approach to consultation	
○ Contract Management	Prepare a draft/outline management plan including which partner (public/private) will be responsible and further which division(s) of the contracting body will be responsible for the public sector	Advance planning needed especially, <ol style="list-style-type: none"> <li>1. Where management and monitoring will impose significant annual costs on one or both partners, and</li> <li>2. If the PPP management and monitoring 'division' will be different from the PPP Project planning and procurement 'division'.</li> </ol>	
<b>Key Output - Stage 2</b>		<b>Well prepared and generally acceptable (to market and public/government) FS study which covers all issues and provides a sound basis to go to tender.</b>	
<b>STAGE 3 - Tendering and Procurement</b> <ul style="list-style-type: none"> <li>• <u>Procurement</u> <ul style="list-style-type: none"> <li>○ Overall Principles</li> </ul> </li> </ul>		Ensure project preparation is completed and that there is an attractive project to be tendered that is likely to be bankable and risks acceptable to both parties Prepare a realistic procurement plan (with guidelines i.e. principles and a schedule). Finalize the draft concession documents.	Procurement under PPP is different than conventional public procurement; PPP procurement is to sign a contract that a body will deliver services. (Conventional procurement is for the delivery of the infrastructure directly). See Toolkit and references for procurement good practice

Toolkit Section	Key Tasks	Comments
<ul style="list-style-type: none"> <li>○ Unsolicited Proposals</li> </ul>	<p>If unsolicited proposals are allowed under the PPP Policy Framework, limit number in any year (max 1 suggested) Ensure proposed project meets national need, is special i.e. includes innovation and technology and is OUTSIDE the list of PPP projects prepared under stage 1.</p> <p>Ensure approvals are given on scope and objectives of the project at outset and that proposal company/consortium are of high experience and would pass a prequalification test and is likely to be able to raise finance</p>	<p>Generally discouraged as difficult to control and undermine solicited proposals and conducive to corrupt and very inefficient practices.</p>
<ul style="list-style-type: none"> <li>○ Bidding Issues:</li> <li>○ Competitive bidding</li> </ul>	<p>Competitive bidding is ensured by preparing an attractive project and ensuring bidding procedures follow best practice.</p>	<p>Importance of competition to get the best deal for government and consumers e.g. lowest tariff, least subsidy maximum capacity.</p>
<ul style="list-style-type: none"> <li>○ Concessions: Main steps in competitive bidding</li> </ul>	<p>Decide whether one stage or two stage bidding is appropriate (advisors can be asked to provide advantages etc in FS</p> <p>Recheck and implement procurement guidelines and schedule for prequalification/tendering.</p>	<p>For major and/or complex PPP projects, two stage bidding is considered the more appropriate.</p>
<ul style="list-style-type: none"> <li>○ Performance-based contracts: Main steps in competitive bidding</li> </ul>	<p>Similar to concessions but normally one stage unless project characteristics suggest otherwise (e.g. major capital expenditure for large project maintenance required)</p>	<p>PBC introduce PPPs into highway maintenance and there are various types of PBC.</p>
<b>Key Output - Stage 3</b>	<p><b>Procurement up to contract award has resulted in competitive bidding, and the best result for all parties is now likely and will be finalized in Stage 4</b></p>	

Toolkit Section	Key Tasks	Comments
<b>STAGE 4 - Contract Award</b> <ul style="list-style-type: none"> <li>• Contract Award           <ul style="list-style-type: none"> <li>◦ Negotiations with the Private Sector</li> <li>◦ Financial Closure</li> <li>◦ Risk Structure</li> </ul> </li> </ul>	<p>Ensure areas of negotiation fully researched, limited and understood by government team.</p> <p>Contract advisors to support negotiations on technical issues (e.g. engineering, legal and financial modelling).</p> <p>Provide adequate but not too lengthy period for closure</p> <p>Government team to understand risk structure/risk allocated to each party and why risk has been allocated as per the proposed concession agreement.</p> <p>If significant changes to concession agreement recalculate VfM and PSC</p> <p>Check/finalize contract management procedures and responsibility/cost allocation between public private partners clear</p>	<p>Under PPP contracts, normal to have some negotiations but tightly defined especially under one stage bidding. Two stage bidding, often preferred for large and/or complex projects more easily allows the likely clarifications needed by the bidders</p> <p>Time must be allowed after contract signing for financial closure i.e. draw down of funding. Financial 'closure' needs to be well defined or this stage can be very extended</p> <p>In order not to change risks that would jeopardize the project and so eliminate the VfM.</p> <p><b>Key Output - Stage 4</b></p> <p><b>The final stage of Procurement has now resulted in the best result for all parties, contract is signed and financial closure facilitated</b></p>

Toolkit Section	Key Tasks	Comments
<b>STAGE 5 - Contract Management</b> <ul style="list-style-type: none"> <li>• Contract Management           <ul style="list-style-type: none"> <li>◦ Defining Contract Management</li> <li>◦ Contract Management Plan including Monitoring and Planning for Hand-back of facilities at contract end</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Check contract management principles are defined</li> <li>Check contract management plan finalized</li> <li>Arrange institutional arrangements</li> <li>Re-Check that the contract includes proper arrangements for handback or retendering at the end of the concession period.</li> </ul>	<p>Important stage often forgotten until very late on the implementation process. Needs consideration from stage 2 but especially stage 3 onwards. Planning for Stage 5 must be completed by Stage 4 latest</p> <p>Project could also be retendered (rather than handed back) and this would probably be preferred from technical and efficiency considerations unless circumstances at the time suggest otherwise.</p>

**Key Output - Stage 5** *Sound and effective management and monitoring process defined that allocates responsibility and costs to all relevant parties*

## Other Key Issues

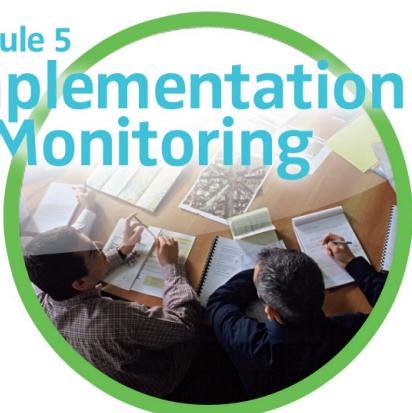
Key Tasks	Subsequent Changes to Contracts	Comments
<ul style="list-style-type: none"> <li>• Amendments to Contracts and Dispute Resolution           <ul style="list-style-type: none"> <li>○ Renegotiation and Amendments</li> </ul> </li> </ul>	<p>Ensure contract defines what is allowed and how benefits/costs are shared/not shared.</p> <p>Review all requests for renegotiation/refinancing and amendments (significant changes will need advisors)</p>	<p>Almost every contract will have amendments and renegotiations over the long periods of a PPP concession.</p> <p>However, the scope of some such amendments are substantially outside normal 'fine tuning'. Many have been found to be due to deliberate low bids, although some are due to genuine 'force majeure'. Consequently the financial analysis undertaken by the government will provide a financial model for its subsequent use and should give a good guide to whether bids are realistic. Note that refinancing also requires amendment and the contract should ensure benefits are shared</p>
<ul style="list-style-type: none"> <li>○ Dispute Resolution</li> </ul>	<p>Follow the agreed dispute resolution procedures.</p>	<p>Like renegotiations, most disputes are small and easily resolvable especially through an effective contract management plan and related procedures (developed in STAGE 5 above). However, occasionally major disputes arise. Mutually acceptable and effective dispute resolution mechanisms are therefore absolutely necessary to give comfort to the private sector that any major issues can be resolved speedily.</p>

**Key Output - Contract Changes** *Successful amendments and disputes resolved speedily and fairly*

Key Tasks	Use of Advisors	Comments
<ul style="list-style-type: none"> <li>• Advisors and Organization</li> </ul>	<ul style="list-style-type: none"> <li>◦ The cost of advisors</li> <li>◦ Managing advisors</li> <li>◦ Types of Advisory Skills Required</li> <li>◦ PPIAF/WB Toolkit on the use of Advisors</li> <li>◦ Organization</li> </ul>	<p>Familiarize with Toolkit references on use of advisors</p> <p>Prepare a procurement procedure for advisors; Different types of advisors and for different implementation stages.</p> <p>Maintain lists of appropriate technical, financial, legal advisors that are experienced and have performed effectively.</p> <p>Ensure TAs support training, not just procurement, of domestic consultants.</p> <p>All countries need capacity support to PPP development, planning and project implementation. The larger the program obviously more advisors/consultants are needed.</p> <p>Initially many of the consultants will be international experts provided under technical assistance.</p> <p>Management and funding of advisors is critical and governments should prepare long lists of experienced consultants that have performed well. Concurrently, governments need to support capacity building to generate domestic consultants.</p> <p>Effective advisory services depend on at least three key factors;</p> <ol style="list-style-type: none"> <li>1. Appropriate TORs</li> <li>2. Effective management by the Client</li> <li>3. Adequate funding</li> </ol> <p><b>Key Output - Advisors</b> <i>Advisors successfully procured and they produce the required output on time and to budget.</i></p>

Key Tasks	Comments
<ul style="list-style-type: none"> <li>• Dialogue Process           <ul style="list-style-type: none"> <li>◦ Public Consultation</li> <li>◦ Market Soundning</li> <li>◦ Shaping the Business Scheme and Requirements</li> <li>◦ Discussion Aide Memoire</li> </ul> </li> </ul>	<p><b>Comprehensive and Effective Consultation</b></p> <p>Plan consultation process; With which parties and at which stages.</p> <p>Formalize consultation and build in both reporting of what consultation has been undertaken, what was feedback and how introduced or not into PPP project framework and/or project implementation.</p> <p>Set up market sounding schedule.</p> <p>Design procedures.</p> <p>Meet private sector</p> <p>Public consultation is important and covers;</p> <ol style="list-style-type: none"> <li>1. General public related to policy issues</li> <li>2. Relevant government agencies</li> <li>3. Project affected people</li> <li>4. Private Sector- PPP developers, investors, institutional sources of finance, contractors and others,</li> </ol> <p>All consultation is important and should take place at least once in the project cycle.</p> <p>For PPP project implementation (as opposed to all highway projects which need consultation) market sounding is especially important</p> <p>Time should be allowed for consultation with both the private and public sector and should take place <u>several times</u> over the implementation stages in Module 5 described above</p>
<b>Key Output - Consultation</b>	<p><b>Public generally, and also the relevant and affected parties are properly consulted, their views obtained and feedback to project frameworks and project implementation effectively incorporated</b></p>

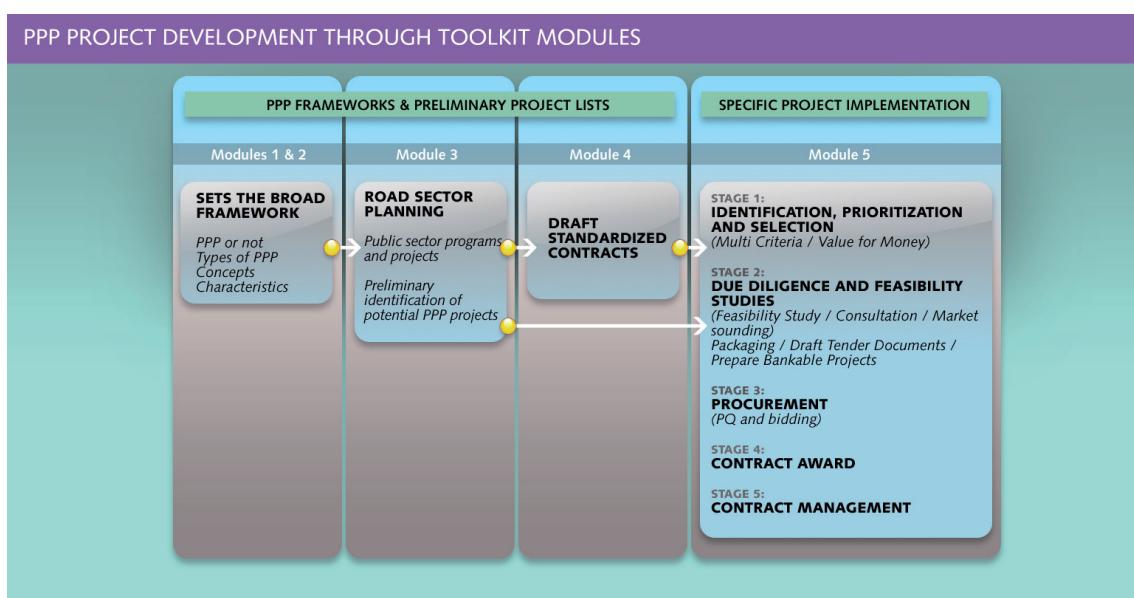
## Module 5 Implementation & Monitoring



### Stages in PPP development from project identification to contract management

**Module 5: Implementation and Monitoring** provides a comprehensive approach to implementing a highway PPP at the project level through a description of the key stages for development of PPP projects from project identification, preparation, tendering and contract monitoring and renegotiation.

At an implementation level, Module 5 can be considered as the central part of the Toolkit by advising and guiding public sector users on the whole process for a given PPP project and by referring when necessary to other Modules, which provide for the required strategy, policy framework and legal and regulatory environment for PPP development.



Module 5 describes the five key stages in the process from selection of projects, through contract award and until the transfer back of the facilities to the public authority. The stages allow for each PPP project to be individually tailored to its particular characteristics and environment, essential for successful implementation.

- **Stage 1:** Identification, Prioritization and Selection of the PPP Project.
- **Stage 2:** Due Diligence and Feasibility Studies. This process includes activities and studies to ensure the selected project is well designed and can be successfully tendered and implemented.
- **Stage 3:** Procurement. This stage includes prequalification of bidders and the bidding and bid evaluation process and includes a section on Unsolicited Bids.
- **Stage 4:** Contract Award. This stage gives advice on dealing with the preferred bidder(s).
- **Stage 5:** Contract Management. This deals with the construction and/or operation periods of a project including transfer back if relevant.

Refer to "The PPP Cycle" for description and reference documents of project stages.

Additional sections are included on Amendments to Contracts, including Renegotiation, and Dispute Resolution, Use of Advisors and Dialogue Process.

In particular, the importance of the role of the Transaction Advisor is highlighted in order to obtain sound advice, geared to the users' particular needs and requirements, essential when developing and implementing PPP project contracts with long durations. Advisors can help avoid costly political and financial mistakes related to PPP projects.



Concessions for Infrastructure: A Guide to their Design and Award.  
Michel Kerf with R. David Gray, Timothy Irwin, Céline Levesque, Robert R. Taylor, Michael Klein;  
WB/IADB 1998 PPIAF Advisory Toolkit 2001.

Finally before looking at project implementation, we should remind ourselves what is transport development about. Overall, the goal is safe, clean, and affordable transport that contributes to economic development. Agencies, and especially the World Bank, are thus moving from a strategy based on transport modes to a business approach driven by results, inside and outside the transport sector. As with other infrastructure sectors, transport is aimed at unlocking growth and development potential, and project implementation should keep this in mind.



Safe, Clean, and Affordable, Transport for Development.  
The World Bank Group's Transport Business Strategy for 2008-2012

# Stage 1: Identification, Prioritization and Selection

## The PPP cycle

The following shows an indicative route through the implementation or project cycle. As discussed in Module 3, a long list of public sector projects is prepared to fulfill national/local infrastructure needs through a Needs Analysis usually within a National Plan, Sector program or other public sector identification process. This is the starting point for Module 5.

### Stage 1:

Projects are identified, ranked and prioritized. The best projects will have the highest potential for PPP based on e.g. strong economic and social need, good financial viability with no or minor fiscal subsidy needed, risks are manageable and few major negative environmental and social impacts etc.

The most appropriate projects are selected for detailed FS type study.

### Stage 2:

Contracting Authority carries out FS type study and successfully completes.

Optional: Line Ministry and PPP Cell(s) reviews adequacy of study.

Based on (i) if no fiscal support/subsidy needed, Contracting Authority tenders the project.

Or (ii) if fiscal support needed, Central PPP Cell/MOF/RMU assesses request, and socio-economic justification and fiscal support and suggests any modification (amount, type of subsidy etc.).

MOF/RMU assesses project according to fiscal space and project risk criteria, agrees on support and passes a project that meets its criteria back to the Contracting authority for implementation.

### Stage 3:

Project is tendered.

PPP Cell(s) and MOF/RMU review to assess tenders that might impact on previous project approvals e.g. risk allocation changed etc.

#### Stage 4:

Private party is procured with or without negotiation.

Assuming no significant changes at time of procurement/negotiation (Stages 3/4), project proceeds to contract signing.

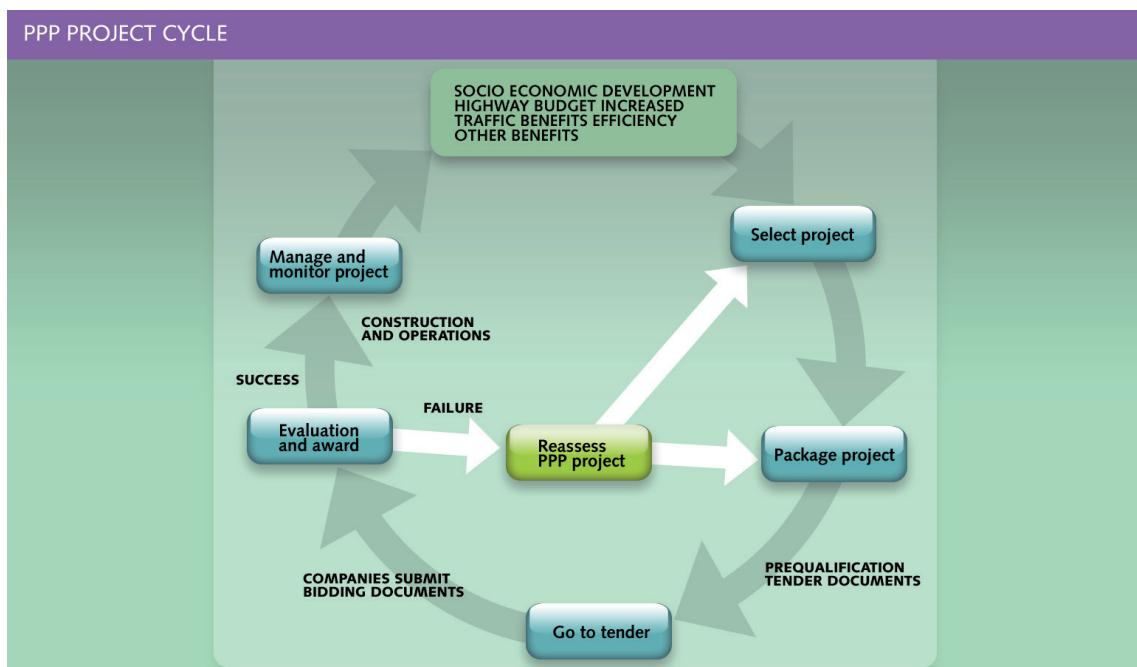
Financial Close; Financing both equity and debt is available and committed.

#### Stage 5:

Contract management (Stage 5a) starts its first phase (between contract signing and construction start up).

Contract management (Stage 5b) for construction and operation stages.

The following figure shows the normal PPP cycle. This shows the main path of a project assuming no or few problems. However, there will likely be loops and feedbacks assuming various types of issues that may arise within the PPP cycle. The figure includes a loopback in the case of initial tender failure. Usually, tender failure results from weak project preparation or unacceptable concession terms or both. Very occasionally there is tender failure because the project is just not appropriate for PPP and should be returned to the Public Procurement program.



General references that apply to the overall PPP project cycle and each of the five stages are listed below.



Developing Best Practices For Promoting Private Sector Investment In Infrastructure Roads;  
Asian Development Bank; ISBN No. 971-561-280-6



PPP/PFI Guidance, Department for Transport, 2009



Value for Money Assessment Guidance ; UK Treasury, PFI; 2006



Public Private Partnership ; UK Expertise for International Markets;  
International Financial Services, London, 2003



First International Conference; Perspectives for Ukraine on Implementation of Public Private Partnerships  
PPP – The EIB Experience; Tilman Seibert; Kyiv, 2006



Improving the PFI tendering process  
Report By The Comptroller And Auditor General | HC 149 Session 2006-2007 | 2007



Getting Value for Money from Procurement - How Auditors can Help; UK National Audit Office, 2001



Standardisation of PFI Contracts; Version 4, UK Treasury; 2007



Guidelines for Successful Public-Private Partnerships; European Union, 2003

# Selecting PPP Projects

This stage comprises a decision making process that starts with a list of the priority Public Sector development projects in the Highway sector and ends with a list of potential highway PPP projects. These projects will have been prioritized through the planning processes within Government.

This stage can be applied by the responsible agencies and at all levels of government i.e. central, provincial, municipal and local. It assumes, and starts with, a public sector development program consisting of a list of highway projects that may be tentatively proposed for a range of implementation modalities under both public, private and IFI (or combinations thereof) funding options.

The stage is completed with agreement by the concerned authority that one or more priority highway projects is/are highly suitable for implementation under a PPP modality and therefore are passed to the next stage for feasibility type studies which provide the appropriate levels of due diligence required by Government authorities.

This stage includes ensuring proposed PPP projects pass an initial value for money test and are appropriate for funding under the PPP modality.

This stage also shows the usefulness of value-for-money (VfM) tests and how VfM can be simplified for use in developing economies, including examples illustrating alternative calculations.



Various Guidelines from the Government of India including: Scheme For Support To Public Private Partnerships In Infrastructure. Ministry Of Finance Department Of Economic Affairs (Infrastructure Section) July, 2005



Various Guidelines from the Government of Pakistan including: Project Preparation/Feasibility Guidelines for PPP Projects August 2007MOF/IPDF

Also:



[www.unece.org/trans](http://www.unece.org/trans)

## Identification of Potential PPP Projects

In Module 3, the organization and sector planning considerations were described. A number of preliminary criteria for PPP projects were introduced at the public sector highway investment program stage. This is also to ensure appropriate and relevant data are collected initially that can be used at this stage.

Consequently, a needs analysis should have already been completed earlier (as part of the national planning process). In Stage 1 of this Module, the public project needs analysis is re-confirmed related to highway projects, some of which will likely have potential for PPP.

The needs analysis will include:

- Ensuring all public projects have a strong technical and economic rationale
- Ensuring all potential PPP projects are included in the Government development program
- Ensuring all projects have support from the relevant stakeholders.

PPP project identification will be undertaken by the contracting authority, either the highway authority if there is one, or the line ministry concerned. Project identification should include input from stakeholders as follows:

- ① **Contracting Agencies:** The contracting agencies will annually screen all projects to identify those they recommend implementing on a PPP basis.
- ② **Line Ministries:** Line ministries may in some special circumstances add other projects, subject to them being of national priority. However, these additional projects would be subject to subsequent treatment like any other projects.
- ③ **Provincial, Municipal and Local Governments:** The opportunity should be given to all levels of government to submit additional projects, assuming these are not already included in the programs of line ministries or their own programs especially where projects may be within two or more local areas.
- ④ **Input from Stakeholders including users, the general public, NGOs and the private sector:** Public consultation is discussed in the Section below.
- ⑤ **Multi and Bi-lateral Agencies:** They will be consulted including on projects which may attract or require their funding.

## Prioritization

The list of sub-sector projects should first be subject to a multi criteria analysis. An initial prioritized list of PPP projects would be produced by (or in some cases submitted to) the appropriate Contracting Authority ‘team’, probably 3 or 4 representatives of its different divisions and possibly with a representative from the line ministry and/or ministry of planning or finance and/or Central PPP Cell.

This will provide an initial prioritized list but naturally one would expect flexibility in application. It may be useful to divide the list into three; high, medium and lower priority according to the criteria applied. Projects in each sub section could be considered of roughly equal priority rather than in rigid numerical order. Naturally, projects with good PPP attributes such as manageable and transferable risks, probably financially viable and ‘most ready’ would be the highest priority.

## Decision Making and PPP Selection

The following list prepared within a Transport Paper-TP1, by World Bank in 2004 provides a useful checklist of factors to be considered at various stages in the PPP process including consideration of Value for Money (VfM).

FACTORS TO BE CONSIDERED IN PROJECT SELECTION AND PRIORITIZATION FOR PPP	
<b>1. Initial Preliminary Screening: Project Objectives</b>	
Project meets overall tests of economic value	
Government has clearly set out aims for deploying private sector skills and capital	
Initially proposed risk allocation realistically reflects ability to bear risk	
Access and affordability of services to the poor maintained or increased	
Project meets, or will meet, IFI environmental and other safeguards	
<b>2. Subsequent Screening: Practicality</b>	
Adequate enabling legal and compliance environment	
Government willing to cede appropriate commercial controls to private sector to achieve project objectives	
Credibility of full/partial cost recovery proposals through user fees/budget contributions	
Strong administrative capacity by promoting ministries	
Government willingness to fund and recruit experienced advisors	
Record of successful PPP's in the country in other sectors	
Record of similar and successful PPP's in the sector in other countries	
Expectation of continuing commitment through changes of government	
Record of fair and transparent procurement	
Existence of or credible plans for regulatory arrangements which will be adequate to protect the parties in their delivery of proposed objectives (see 2.5)	
Strong early private sector interest including likelihood of financing at acceptable risk premiums	
<b>3. Final Detailed Screening: Value for Money</b>	
Likely net benefit compared to public sector approach	
Proposals are financially sustainable taking account of sensitivity to assumptions (and possibility of renegotiation where sensitivity to aggressive market or cost assumptions is high)	
Impact on government capital expenditure and long-term operating expenditure is realistic and sustainable, allowing for contingent liabilities.	

*Source: Public and Private Sector Roles in the Supply of Transport Infrastructure Services (Paul Amos) Workshop on Public-Private Partnerships in Highways, Sponsored by TUDTR and IEF Riga April 3, 2004.*

The table helps the PPP process in a number of ways.

Firstly, it defines a check list of the important factors in PPP project selection.

Secondly, it shows three levels and moves from broader objectives, to an intermediate 'practical' level and finally a more quantified level when data is available.

Thirdly, it implies/shows that Value for Money is a goal to be sought throughout the PPP process.

Stage 1 of this Module therefore introduces VfM but it should be remembered that VfM can be assessed at several stages in the PPP cycle as more information becomes available. Stage 1 includes broad VfM criteria under project objectives within the following Multi-Criteria Analysis which aids decision makers in selecting and prioritizing PPP projects.

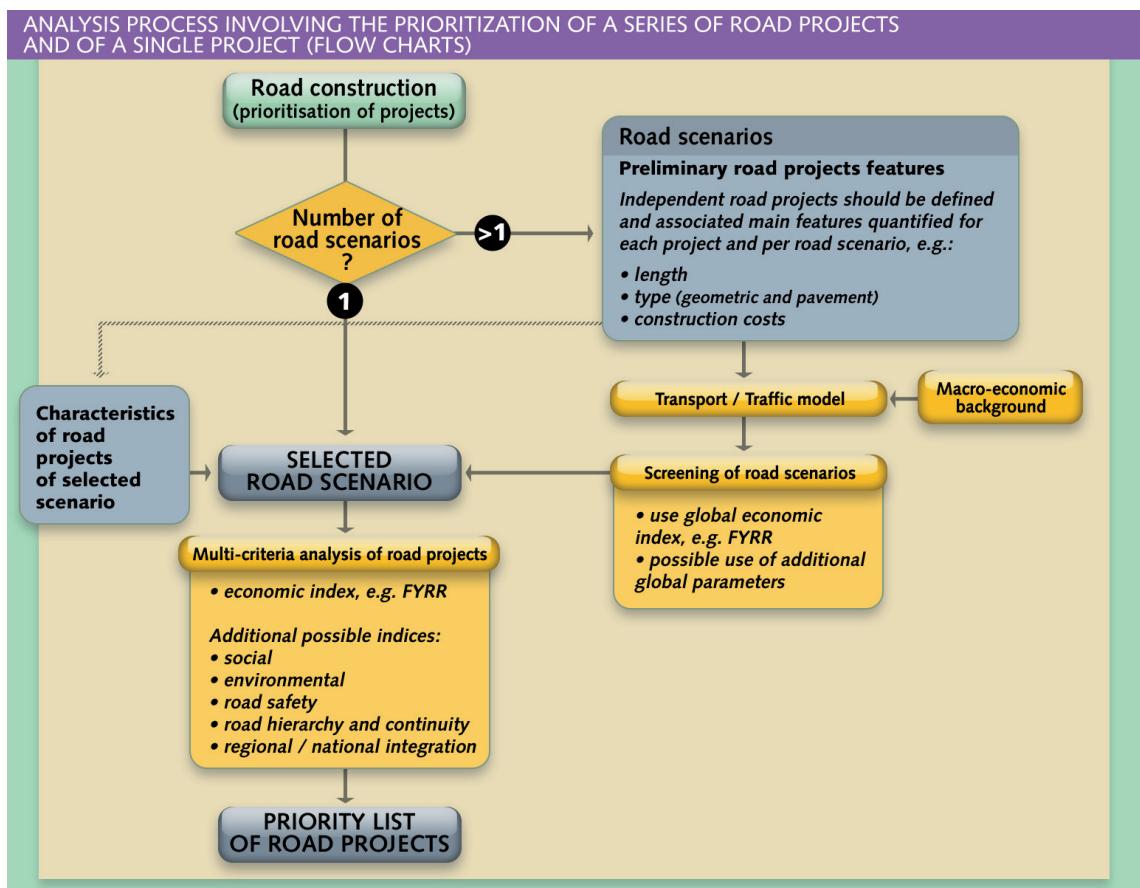
## Multi-Criteria Analysis in the PPP Context

Multi criteria analysis is a project screening and ranking procedure. It is a procedure that is used worldwide in many contexts and not only for PPP. In the PPP project cycle it can be used at a number of decision points and by different parts of the PPP decision making system within government.

Through a relatively simple procedure, criteria are established to evaluate each potential PPP project.

These criteria require a mix of objective and subjective data. Through the scoring of criteria and then the summing of scores, projects can be ranked. This process is only able to broadly compare and rank projects and does not provide an absolute result. This is provided in the pre and full feasibility stages.

The government or authority usually has the problem of many projects in its public sector program, limited funding (and for detailed studies) and limited institutional capacity, and therefore there is the need to prioritize projects which multi criteria analysis addresses.



## Multi-criteria analysis (MCA)

The main advantage of MCA method is to enable to rank projects on the basis of a multitude of criteria, which may or may not be expressed in monetary terms and that would otherwise not have a common denominator to enable a straight comparison between them on a similar scale. Although the economic indicator (resulting from a cost-benefit analysis) should still have a prominent role in the analysis, it is not the only parameter determining the ranking of the various road projects.

The most common technique involves the calculation of individual scores by criterion, the application of weight coefficients to each criterion and the summing up of the various components to a single score by road project. The method may also be presented in matrix format.

$$S_j = \sum_{i=1}^n W_i C_{ij}$$

where:

Sj = total score for project «j»

Cij = score of criterion «i» for project «j»

Wi = weight of criterion «j»

Criterion i	Project j		1	2	3	...	j
	1	2					
1	W <sub>1</sub> C <sub>11</sub>	W <sub>1</sub> C <sub>12</sub>	W <sub>1</sub> C <sub>13</sub>	...	W <sub>1</sub> C <sub>1j</sub>		
2	W <sub>2</sub> C <sub>21</sub>	W <sub>2</sub> C <sub>22</sub>	W <sub>2</sub> C <sub>23</sub>	...	W <sub>2</sub> C <sub>2j</sub>		
3	W <sub>3</sub> C <sub>31</sub>	W <sub>3</sub> C <sub>32</sub>	W <sub>3</sub> C <sub>33</sub>	...	W <sub>3</sub> C <sub>3j</sub>		
4	W <sub>4</sub> C <sub>41</sub>	W <sub>4</sub> C <sub>42</sub>	W <sub>4</sub> C <sub>43</sub>	...	W <sub>4</sub> C <sub>4j</sub>		
5	W <sub>5</sub> C <sub>51</sub>	W <sub>5</sub> C <sub>52</sub>	W <sub>5</sub> C <sub>53</sub>	...	W <sub>5</sub> C <sub>5j</sub>		
...	...	...	...	...	...	...	
...	...	...	...	...	...	...	
n	W <sub>n</sub> C <sub>n1</sub>	W <sub>n</sub> C <sub>n2</sub>	W <sub>n</sub> C <sub>n3</sub>	...	W <sub>n</sub> C <sub>nj</sub>		
Project score S <sub>j</sub>	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	...	S <sub>j</sub>		

Details on multi-criteria analysis methods may be found in the appropriate technical literature.

## -Criteria for PPP Project Selection

The proposed list of projects for screening must be provided with accompanying information and data. At the time investment programs are developed some information must already be available (e.g. economic, traffic and cost data) and can be used for very preliminary screening.

The information required and available will be a mix of hard and soft data.

Criteria should also conform to the national development plan goals, often prepared by the national Planning Ministry. For example, some national development plans emphasize:

- Accelerating investment and exports
- Increasing human capital investment (to support training and new job opportunities)
- Protecting the environment and improving the management of natural resources
- Promoting the private sector to meet the demands for more infrastructure.

These objectives can be incorporated in a list of criteria which reflect these national objectives and ultimately indicate the likelihood of each project succeeding as a private sector investment under PPP.

When a Ministry applies its own multi criteria analysis, it is likely it would use the same set of criteria for each set of projects.

The objectives included here in the Toolkit are relevant to highway contracting agencies.

In the following example, 12 criteria are shown. This is probably about the maximum and is shown for completeness. Some are not mutually exclusive. Possibly a minimum number would be about 6 key criteria which are shown underlined.

For each project, a minimum of data is required for each criterion. However, the weights used may be different to those used by the other ministries and the Highway Agency/contracting authority. In practice, each level of government/line ministry/authority may decide to include other criteria and drop some of the above.

The suggested criteria comprise, among others:

- ① Likely Financial Viability and Fiscal Support: (E.g. use of an objective simple financial model in the Toolkit or subjectively e.g. high traffic inter urban toll road etc.)
- ② Readiness and Risk: Overall Summary Risk Assessment and 'Readiness'.
- ③ Socio Economic Benefits: Social and economic benefits (EIRR if available from studies, or brief description of social and economic rationale and benefits). Includes employment, and poverty alleviation.
- ④ Regional Development:/Contribution to GDP and Regional Impact (Projects in low GRDP/capita regions) plus expressed local need/support.
- ⑤ Sector Network Role Importance in Sector Plan: Role in sector strategy.
- ⑥ National Integration and Security: Whether project assists national integration and security.
- ⑦ Land Acquisition: Extent of Land Acquired (if not known, assume none).
- ⑧ Environment/Resettlement: Environmental and resettlement issues (by area or numbers affected/brief subjective assessment).
- ⑨ Impact on Export Earnings: Export Earnings Focused project (including related to visible exports e.g. whether international port and airport and to invisible exports e.g. a trade promotion center or tourism development area).
- ⑩ Safety: Specific safety objectives e.g. high accident road improvement.
- ⑪ Project Type/Cost: Project Description (relatively brief, including approximate project cost) and whether a 'new build' project.
- ⑫ Demand: Trends, Volume and the demand/capacity ratio (% per annum, volume, if possible for the past 5-10 years and demand capacity ratio).

Note: Value for Money could be a criterion although at an early stage the above criteria already reflect likely value for money.

The team, having agreed on the criteria, undertakes the prioritization process which requires that all projects are passed through the multi criteria analysis. The following

tables show the twelve suggested criteria (above), guidelines for scoring each criterion and an indicative application of the methodology.



[http://www.unescap.org/drpad/vc/orientation/M5\\_10.htm](http://www.unescap.org/drpad/vc/orientation/M5_10.htm)

It should be noted that the number of criteria is quite large but that at each level of application not all will be used. That is, national criteria for project selection among a list of proposed power, transport, water and other infrastructure would be different and have different weightings from the sub-sector ranking of a list of highways projects for example.

While the multi criteria analysis has been proved to be an extremely useful tool, and is robust it should be applied consistently at each level. It should also be noted that some criteria double count, to some extent, but at this level this is not considered a defect. Again, some criteria may not be internally consistent. However, not all criteria need be evaluated and weighting of criteria helps prioritize key policy considerations.

Criteria can either be unweighted or weighted.

Weighting can be determined subjectively or by a more systematic and mathematical process such as AHP (Analytical Hierarchy Process). While AHP can be used, it is considered more important that the government authority actively participates in the process of prioritization, which the somewhat complex AHP system may deter.

If some criteria are considered to be more important than others, they should be weighted accordingly. The overall weighting must be the average. The example table in the template indicates that a weighting of less than 10 means that a criterion is valued less than the average, a weight of 10 is at the average and a weight of more than 10 is valued at above the average. This is, of course, subjective.

## The Multi Criteria Process

In order to minimize individual bias, this process is done by a team and the results averaged. Likewise, weightings should be prepared by individuals in the team and averaged. The process consists of;

- Select the criteria (at first unweighted).
- Subjectively assess the score for each criterion in words e.g. high, low, medium etc. with the maximum score for each criterion being 10 and a score must be attached to each criterion. This is done for each criterion and summed to give a total score for each project which can then be compared and ranked.
- If thought necessary, some criteria can be weighted to reflect greater importance and for PPP projects, financial viability and risk should be weighted more highly than others. The original scores still stand but are now weighted and the projects re-ranked (weighting may or may not change the rankings substantially).

- Consider alternative scenarios such as a regional emphasis or a social/poverty emphasis or maximizing economic growth.
- The next task is to complete the information required.
- Scores are then summed to obtain a total score per project, per scenario and unweighted and weighted.
- Projects are then ranked by weighted and unweighted.
- As indicated above, to avoid too much presumption of exactness, ranked projects can be divided into 3 main groups i.e. high, medium and low potential and all projects within a group treated the same until more data is available.

Although the system has flexibility, the rules of application should be decided in advance and it should not be continuously reapplied until a pre-desired or 'politically right' prioritization / ranking of projects emerges.



Evaluating Socio Economic Development, Sourcebook: Methods & Techniques Multicriteria Analysis  
[www.evalsed.info](http://www.evalsed.info)

The criteria and weightings could be developed for different stages and different institutions in the PPP process and criteria and weightings could be different depending on the remit of the authority involved e.g. Planning Ministry, Ministry of Finance, and Line Ministry/Highway Authority or PPP cell.



Prospects And Approaches To Public Private Partnership In Transport Infrastructure  
B.B. Deoja, R.P. Adhikari, And B.R.Pande. Economic Policy Network, Policy Paper 7.  
2005. Annex 7 and 8. (Shows example of simple but real worked example)

## Worked Example of Multi-Criteria Analysis

The main section of the Toolkit showed the methodology and suggested criteria. The following shows a worked example and templates.

The PPP 'team', having agreed on the criteria, undertakes the prioritization process which requires that all projects are passed through a multi criteria analysis.

The following table shows the twelve suggested criteria (above) and guidelines for scoring each criterion. The subsequent table (Example of Weighting of Criteria) shows an indicative application of the methodology.



[http://www.unescap.org/drapad/vc/orientation/M5\\_10.htm](http://www.unescap.org/drapad/vc/orientation/M5_10.htm)

SUGGESTED GUIDELINES FOR COMPLETION OF THE MULTI CRITERIA MATRIX				
	Criteria/Assessment Max. Score = 10, Min.= 0.	Higher Score Score: 10 to 8	Moderate Score Score: 7 to 4	Lower Score Score: 3 to 0
1	Financial Feasibility / Fiscal Support	Likely Viable: >20%; and No fiscal support	Likely Viable: >20%; and No fiscal support	Not viable <14%; High fiscal support
2	Readiness and Risk	Few major issues/risks and Project 'Ready'	Identified risks but largely can be mitigated and can be made 'Ready'	Many risks, few can be mitigated sufficiently and project not ready
3	Economically Feasible Socio Economic Benefits (including employment and poverty alleviation)	EIRR>15%; Major Macro Impact	12%-15% EIRR; Moderate Macro Impact	EIRR<12%; Minor Macro Impact
4	Regional development / National Integration Contribution to GDP	Impact on Low GRDP provinces and/or High Poverty alleviation focus	Impact on Low-Medium GRDP provinces and/or medium poverty alleviation focus	Impact on High GRDP provinces and/or Low Poverty alleviation focus
5	Sector Network Role Importance in Sector Plan	Forms integral part and already included	Part of Sector Plan	Ad hoc project- but not in conflict with sector plan
6	National Security/National Integration	Strengthens National security/integration	Medium Impact	Low Impact
7	Land Acquisition	All/Most Land Acquired (Say over 80%)	Some land Acquired (25%-80%)	None or little land acquired (<25%)
8	a. Likely Environmental Impacts b. Involuntary Resettlement	Few Issues; a. Low impact b. Few affected	Some Issues; a. Mid impact b. Mid affected	Many Issues; a. Severe impact b. Many affected
9	Impact on Export Earnings	Major overseas trade and/or tourism impact:	Limited o'seas trade or tourism impact	Little o'seas Trade or tourism impact
10	Safety	High Safety Focus	Moderate Safety Focus	Low Safety Focus
11	Project Cost	>USD 100m.	USD 100m-USD 50m	<USD 50m
12	Demand Growth % / Traffic Volume or the Demand / Capacity Ratio	a. >15% pa b. >20,000 vpd c. >1.2	a. 15%-5% pa b. 10-20,000 vpd. c. 1.2-0.8	a. <5% pa b. <10,000 vpd c. <0.8

*Source: Consultants*

Criteria can be unweighted or weighted. Unweighted criteria are initially assumed to have the same importance. If some criteria are considered to be more important than others, they should be weighted accordingly.

#### EXAMPLE OF WEIGHTING OF CRITERIA

CRITERIA	WEIGHTING* Average Per Criterion=10.0)
Financial Feasibility/Fiscal Support	15
Readiness and Risk	15
Socio Economic Benefits (including employment and poverty alleviation)	10
Regional development / National Integration Contribution to GDP	10
Sector Network Role Importance in Sector Plan	12
National Security	0
Land Acquisition	11
Environment/Resettlement	11
Impact on Export Earnings	10
Safety	11
Project Type/Cost	5
Demand / Capacity/Demand	10
Average Weighting (Total Divided by 12)	10

\* Note: The overall weighting must be 10 or the average. The above table indicates that a weighting of less than 10 means that a criterion is valued less than the average, a weight of 10 is at the average and a weight of more than 10 is valued at above the average. This is subjective.

In order to minimize individual bias, this process is done by a team and the results averaged.



Evaluating Socio Economic Development, Sourcebook 2: Methods & Techniques Multicriteria Analysis  
[www.evalsed.info](http://www.evalsed.info)

The following table shows two projects. Project #1 achieves an unweighted score of 80 compared to project#2 which achieves 72. However, by weighting key criteria (that is criteria for a successful PPP project) such as financial viability, demand etc. the weighted scores are 77.1 and 82.6. This results in a reversal of ranking.

WORKED TEMPLATE EXAMPLE OF A MULTI CRITERIA ANALYSIS									
NO.	CRITERIA	PROJECT # 1				PROJECT # 2			
		1	2	3	4	1	2	3	4
1	Financial Feasibility/Fiscal Support	Mid	5	15	7.5	High	9	15	13.5
2	Readiness and Risk	Mid-High	7	15	10.5	Mid-High	8	15	12.0

3	Socio Economic Benefits (including employment and poverty alleviation)	High	9	10	9.0	High	9	10	9.0
4	Regional development / National Integration Contribution to GDP	Mid-High	7	10	7.0	Mid-High	7	10	7.0
5	Sector Network Role Importance in Sector Plan	High	8	12	9.6	Mid-High	8	12	9.6
6	National Security	High	9	0	0.0	Low	0	0	0.0
7	Land Acquisition	Med	5	11	5.5	Mid	5	11	5.5
8	Environment/Resettlement	Med	5	11	5.5	Mid	5	11	5.5
9	Impact on Export Earnings	Med	5	10	5.0	Mid	5	10	5.0
10	Safety	Mid	5	11	5.5	Mid	5	11	5.5
11	Project Type/Cost	Mid	6	5	3.0	Low	2	5	1.0
12	Demand / Capacity/Demand	High	9	10	9.0	High	9	10	9.0
<b>Total Score (Out of 100)</b>			<b>80</b>	<b>10</b>	<b>77.1</b>		<b>72</b>	<b>10</b>	<b>82.6</b>

*Source: Draft Operational Guidelines Manual 2006, Coordinating Ministry of Economic Affairs, Indonesia, Private Provision of Infrastructure Technical Assistance.*

## Value for Money and the PSC

Value for money (VfM) has two basic meanings within the PPP development process;

**Firstly**, that there is an **absolute** benefit to a country of implementing projects through a PPP modality. This Toolkit provides guidance to ensure that PPP projects in general, if implemented through established procedures will provide general value for money.

The fundamental objective of PPPs is to maximize efficiency and generate investment that is value for money. PPP procurement has the potential to offer better value for money through:

- Allocation of risk to the party that can manage it best;
- Performance based payments;
- Capturing private sector innovation, commercial and management expertise by involving the private sector more centrally in the provision of assets and services;
- Use of long-term contracts whereby bidders focus on the whole life cycle cost of projects and not just on the upfront capital costs. This can lead to more innovative designs with lower life-cycle costs and higher maintenance and operational standards; and
- Better project delivery than the public sector; much reduced time and cost overruns
- Increasing the tax revenue base of the country.

The PPP approach, in addition to leveraging additional funding for the highway investment program, also secures significant risk transfer to the private sector and brings private sector expertise to bear on the design, construction and operation of the facility.

General VfM is secured, at this level, through considering the appropriate PPP procedures in this Toolkit. The obligations within PPP contracts which the Contracting Authority has entered into as part of the PPP roads program should be devised with the objective of ensuring value for money to the public sector.

**The Second meaning:** is that a project, undertaken through PPP, delivers a net benefit relative to a public procurement procedure for the same specific project i.e. the country receives a better deal through PPP than public procurement for any proposed project.

This is analyzed through a procedure for comparing public and PPP projects through use of the 'Public Sector Comparator' (PSC). This second, relative procedure is the subject of this section of the Toolkit.

It should be noted that a PPP project of any reasonable size will have a macro-economic impact. However, when comparing public and PPP projects the relative difference in macro economic terms is likely to be small, except possibly for extremely large projects in small low-income countries, where particular care, in terms of macro-economic impact, is needed under both PPP and public procurement.

The VfM in relative terms, considered through the use of the PSC, is a micro economic financial tool that compares the project costs and revenues of the same project implemented under two different development scenarios i.e. public or PPP procurement.

However, while it is generally accepted that a VfM process is required to choose between conventional public procurement and a PPP modality for funding, the level and extent of the analytical process is still debated. In general, the developed economies have used a far more sophisticated procedure to test and ensure value for money. However, there still remains some debate over both its theoretical basis and practicability of application and especially;

- Whether the use of the sophisticated procedure (PSC) in developing economies is justified if, through lack of finance, the project will not be implemented;
- Whether its use, in fact, in both developed and developing economies can also be justified on the grounds of assumptions and data needs as it always involves comparing two hypothetical.

The key-determining factor in deciding whether to develop any specific project as a PPP is value for money, whether in general or in comparison to public procurement. Each project is evaluated on its own merits under both scenarios and if it does not offer VFM, it will not be undertaken on a PPP basis. Most experienced PPP organizations indicate that the VfM check will be undertaken at a number of stages in the PPP implementation process. It is important to note that Value for Money analysis is performed on a financial, and not an economic, basis.

However, especially in a developing economy, a practical consideration is that the later the evaluation within the project cycle, the less likely the project will be dropped after a considerable procurement process and considerable human and financial costs have been expended.

For example, if the government does not have the resources to implement the project through the public budget, the implications of the analysis could well be ignored although the VfM analysis could still likely suggest concession conditions helpful to the both partners before contract signing.

A range of PSC issues and recommendations are provided by Leighland and Shugart in the following PPIAF Gridlines reference.



Is the Public Sector Comparator right for developing countries? J Leighland and C Shugart.  
PPIAF Gridlines 2006

If the government has the resources to fund the project and the conclusions are overwhelmingly not to use PPP, then the project could well be taken out of the PPP program. However, in many countries there are likely to be many toll/high grade expressway projects ranging from the financially viable to the completely unviable. There may also be substantial amounts of public sector funds (national budget and soft/hard loans) potentially available. The use of VfM and a simplified PSC may help to decide on the type of procurement and even if PPP is not suitable for initial development in some or many cases, PPP may be proposed in some form including for the subsequent operation and maintenance.

The financial terms of PPP contracts should be scrutinized by the contracting authority/highway authority's financial advisers. This includes undertaking sensitivity analysis and an assessment of equity returns to the PPP company at traffic volumes in excess of both the PPP company's forecasts and contracting authority forecasts.

In broad terms, the assessments of the financial adviser should conclude that the contracts entered into represent value for money for the public sector and any revenue sharing arrangement included in the contracts is such that the PPP company will not earn excess profits from these schemes. Should such excess profits appear later, the contract may allow such profits to be limited to the users' benefit, or shared with the government or in any other way beneficial to the public.

In developed economies, ministries of finance have tried to apply other tests (such as risk assessments) as to whether a project (or service) should be developed via PPP. However, clearly, value for money is a primary concern in PPP projects. In situations where there is a clear possibility to fund a project either by public procurement or through the private sector, VfM/PSC analysis provides a sound basis for choosing one or the other through development modality.

## What is the PSC?

This concept is used in the UK and some other countries but it has had mixed success and initially was not easy to apply. The basic concept is that when a PPP project is proposed it is compared in financial terms with the cost of the public procurement of the same project. Other tests include whether the project has high risks, might fail and become an unintended contingent liability for government.

In most developing countries, where there is a huge financing gap, the choice is between implementing a project with the private sector or not funding it at all. The lack of public finance is therefore often the reason to justify PPP. In such a case, the European Investment Bank (EIB) comments that where public finance constraints are real and severe, the only public alternative would be to postpone investments or even cancel them, with consequent major economic loss from doing nothing/doing little e.g. port or road congestion costs continue to escalate.

EIB therefore recommends that the PPP option should be clearly favored provided that it has a real impact on public finance (substantial transfer of risks to the private sector) and that it yields a satisfactory economic rate of return.



Public-private Partnerships for Transport Infrastructure Projects, Patrick Boeuf.  
European Investment Bank, 2003

One practical difficulty is that whole life financial costs are difficult to accurately quantify under public procurement where historically the public sector has severely under resourced highway maintenance. Further, the financial outcome of decisions possibilities (options) not selected are difficult, if not impossible, to determine so that VfM decisions are unlikely ever to be verified even over time.

The VfM is, to an extent, verified and captured through the general VfM process because the Toolkit identifies the variables involved in measuring VfM which can at least help ensure that they can be achieved through a PPP project. However, without VfM and the PSC, the Toolkit does not provide a means to assess whether a project should be implemented through PPP or public procurement. This is the purpose of this section.

In the initial/early stages of project evaluation, a partly qualitative approach to VfM analysis can be considered. This was referred to in the table “*Factors to be considered in Project Selection and Prioritization for PPP*” above. This involves the Government asking key questions on the suitability of a project for PPP and to which qualitative answers can be provided if hard data is not available.

This process can be used both at an early stage of the PPP process and later with the PSC evaluated during and after the FS study process when more hard data will be available. Sometimes, for reasons of time, budget and institutionally, the PSC process is undertaken only once.

### Criteria for VfM

Projects which demonstrate value for money under PPP generally show potential under the following criteria for VfM:

- There is a major capital investment program, requiring effective management of risks associated with construction and delivery;
- The private sector has the expertise to deliver and there is good reason to think it will offer VfM;
- The structure of the service is appropriate, allowing the public sector to define its needs as service outputs that can be adequately contracted for in a way that ensures effective, equitable, and accountable delivery of public services into the long-term, and where risk allocation sharing between public and private sectors can be clearly made and enforced;
- The nature of the assets and services identified as part of the PPP scheme are capable of being costed on a whole-of-life, long-term basis;
- The value of the project is sufficiently large to ensure that procurement costs are not disproportionate;
- The technology and other aspects of the sector are stable, and not susceptible to fast-paced change;
- Planning horizons are long-term, with assets intended to be used over long periods into the future; and
- There are robust incentives on the private sector to perform.

*Source: List modified but based on PFI, UK Government, 2005*

It should be noted that whether a project is funded from domestic or foreign sources is not considered within VfM or the PSC, although the risks attached to each type of funding must be considered within the risk matrix.

For a project to make progress in the PPP cycle there must be positive answers to most of these questions and are thus undertaken in the best possible VfM way. Using the Toolkit will help ensure VfM.

This more pragmatic approach is suggested in the early stages of PPP in developing economies. It takes into account that while the PSC is acknowledged as important for example in the UK and Australia, its actual use in other countries has had very mixed success.

It has also been acknowledged that in order to test the PSC's ex ante accuracy, experience over a significant period is necessary which is not available in most countries. As a country gains substantial experience in the application of these guidelines, it is suggested that the case for a detailed PSC be reviewed.

Further, the report by CEPA below recommends that undue emphasis should not be placed on the PSC because it is only one factor in the PPP decision making process.



Value for Money Assessment Guidance. UK Treasury, 2006



Public Private Partnerships in Scotland, Evaluation of Performance, 2005, CEPA.

## Quantification of the PSC

A Public Sector Comparator (PSC) is used by a government to make decisions about VfM in PPP projects. It involves testing whether private investment proposal offer value for money against each other and in comparison with the most efficient form of public procurement. PSC provides a benchmark for estimating value for money between alternative bids and between hypothetical public procurement.

Risk is at the heart of all PPP projects. PPP projects are all about the treatment of risk and uncertain costs. Hence, the importance of the identification, allocation and mitigation of risks within the PPP process. Allocation of too much risk to the private sector will almost certainly result in downstream financial problems, just as allocating insufficient risk is not obtaining all the advantages of PPP.

It is not always easy to understand that if too many risks are transferred to the private sector, value for money will decline since the premium demanded by the private sector in compensation will outweigh the benefits of PPP.

Too much or too little risk allocation will not ensure maximum VfM. This is the link to VfM. If there is too little risk transference, and therefore too few benefits, why use the private sector when their higher financing costs are not likely to be outweighed by other benefits. If there is too much risk transference, the private sector will demand higher returns i.e. excessive premium which will result in lower or even negative VfM i.e. if negative, it should probably be done as a public procurement project.

Risk is about uncertainty which includes potential for gain and exposure to loss. Risk has a cost but its uncertainty makes it difficult to identify and estimate this cost, either easily or exactly. Public Sector Procurement tends not to include the potential cost of risk, e.g. time and cost overruns but the private sector generally includes risks in cost estimates and, more importantly, takes the maximum action to reduce and/or avoid such risks.



Public-Private Partnerships: Affordability, Value for Money and the PPP Process

Frédéric MARTY CNRS – GREDEG – University of Nice Sophia-Antipolis OFCE

Innovation and Competition Department /OECD - Working Party of Senior Budget Officials



Value for Money and the Public Private Partnership Procurement Process October 2007 Irish Government

The UK Treasury provides detailed spreadsheets which allow a quantitative assessment of the level of Value for Money generated by a PPP project. This guidance requires quite detailed inputs.

COMPARISON OF VFM FOR HIGHWAY PROJECTS IN THE UK			
Project	Public sector (NPV)	DBFO (NPV)	Difference
M1-A1	372	288	84
A1(M)	222	192	30
A419/A417	137	140	(3)
A69	66	78	(12)
M40	329	228	101
A19	211	171	40
A50/A564	91	83	8
A30/A35	161	180	(19)
Total	1589	1360	229 (-15%)

*Source: Financing Roads in Great Britain Peter Mackie and Nigel Smith Institute for Transport Studies University of Leeds*

Partnerships Victoria Technical Note also provides a comprehensive report on how to prepare a VfM and PSC.



Public Sector Comparator-Technical Note; Guidance Material. Partnerships Victoria 2001

The advice in this Note is detailed and covers definitions, use, the main components in the preparation of a PSC, risk, taxation, a detailed numerical example and discounted cash flow methodology and PSC related statistical techniques.

The above Note also shows that the public sector procurement cost will be made up of;

- The costs of risks retained by the government
- The 'Raw' or basic costs and revenues of the project (All direct and indirect capital and operating costs and revenues)
- Adjustments for treating all public and private bids on the same basis e.g. tax
- The cost of transferable risks

In the above WB reference, H Kerali proposes a consistent process to Partnerships Victoria but at a more summary level which may be useful to prepare an analysis of the PSC, with the following data being required:

## 1. Risks and sensitivity

Risk matrix and Sensitivity analysis: A risk matrix is constructed through;

- Identification of risks involved in the project;
- Assessment of the impact of these risks;
- Assessment of the likelihood of such risks arising; and
- The calculation of the financial impact and ranges of possible outcomes;
- Sensitivity analysis is also undertaken which assesses the impact of changes in key variables on the financial outcome;
- Risk, sensitivity and probabilities allow estimates to be made of the impacts and likelihoods of individual risks. Monte Carlo simulation (Module 2 -> Risk) is most often used for this; The result provides the "most likely outcome" of a PPP modality.

## 2. Project Costs and revenues

**Capital costs:** These should reflect the full resource costs of the project, including opportunity cost of public assets used in the project, and adjusted for risks.

**Operating costs:** The whole life cost of maintaining the asset to the same standard as required from the Private operator.

**Projected revenues:** Included only if bidders will be allowed to set tolls.

**Discounted cash flow:** Selection of the Discount Rate is the most important issue and should represent the real opportunity cost of capital, adjusted for inflation (& subsidies, if any), for public projects.

**Government issued bonds can be used as a guide.** But note that the discount rate is not the interest rate of private finance!

### 3. Other Adjustments

Loans from the IFIs are generally subsidized and need to be adjusted to reflect commercial ratings. As noted in Partnerships Victoria other adjustments may be needed to ensure 'like with like' is the basis of the comparisons.

#### *Example of PSC for Proposed Motorway Project*

In the below-referenced presentation, H Kerali provides an example of a PSC for a motorway project. This is described below.



Public Sector Comparator for Highway PPP Projects Henry Kerali Lead Transport Specialist,  
World Bank 2006

**Project characteristics:** Motorway project involves the design, construction, operation and maintenance of a high quality motorway.

Private sector bidders are expected to:

- undertake the detailed design and construction of the Motorway to the requirements of the Client
- procure finance for the associated capital costs; and
- operate and maintain the Motorway to the requirements of the Client over a concession period of 30 years

**Cost estimates (see table):**

- Initial estimated construction costs by the Client = EUR 388 million
- Estimate of the Client's overhead costs = EUR 49 million
- Total capital cost to the Client = EUR 437 million
- Estimated construction period = 3,5 years
- Past history of road construction: Cost over-runs range from -11.5% to +138%, average =+44% (adjusted for inflation over construction period)
- Construction duration ranged from -27% to +230%, average= +84% of original estimate (cost is included in over-runs)
- Expected value of the cost overrun is EUR 172 million (44%),
- Risk adjusted total estimated capital cost = EUR 609 million
- O&M cost estimates
- No previous experience of public O&M costs to the specified standard
- Estimated annual costs for public O&M to the same standard ranged from EUR 1.37 to 2.27 million, with an average of EUR 1.45 million
- Economic and social costs of road closure for periodic maintenance assumed between 4% to 6% of total project benefits
- Government payments
- Capital cost contribution to the project = EUR 110 million

- Availability payments by the Client to Concessioners comprises fixed and indexed components in both local currency and EUR , with allowance for lane closures during periodic maintenance
- Weighted availability combines both local and foreign payments assuming long-term currency inflation
- Total availability payments = EUR 427 million over 30 years

SUMMARY OF PSC RESULTS FOR PROPOSED MOTORWAY PROJECT			
NPV (EUR millions, discounted)	Public	Bid-1	Bid-2
Capital Costs	530.1	427.2	484.3
Economic & Social costs of delay	50.5		
Development costs		12.5	13.6
Administration & Inspection	6.1	30.4	26.4
Insurance	14.8	15.3	15.6
Operating Costs	30.8	49.6	44.7
Periodic Maintenance/Rehabilitation	34.2	27.6	32.1
VAT	3.2	3.0	3.1
Corporate Tax		20.5	21.3
Cost of Finance		61.2	63.4
Total	669.7	647.3	704.5
Value-For-Money		+22.4	-34.8

The results show in general terms that the PPP modality is Value for Money under Bid 1 i.e. there would be a saving of EUR 22.4M over the public procurement cost.

Experience of the European Investment Bank and the Public Sector Comparator (PSC) and Value for Money (VfM).

In ten EIB projects evaluated, in only two countries had there been a formalized PSC process, although a third had used an ad hoc system. The Bank did not normally review the PSC, although the assumed cost and benefit figures were often used for the Economic Return (EIRR) calculation. However Bank economists said that they would encourage the Promoter to make use of a PSC in its own review of alternatives.

The Bank did not normally consider whether a particular PPP structure offered VfM compared to other possible structures. The exception to this was a motorway project, in which EIB carried out a VfM exercise which showed that, in economic terms, the chosen structure was not the best option.

It is also notable that a PSC was not used for one country's motorway program, and a subsequent review by the national audit office pointed out that the program had not even been preceded by an assessment of VfM.

## Application of the PSC

The UK was one of the first to introduce quantification of the PSC and it has had some substantial benefits but not always in the areas it was designed for. For example, it made

the argument stronger in some cases for the PPP program and also reinforced assessment of the operational parameters of a particular PPP project, thus avoiding political pressure to implement projects in less than effective ways.

However, in recent years there has been growing criticism of the PSC in the UK and has been seen as another cost burden rather than adding anything substantive. Reference, Roe and Craig, below argue that it should be scrapped because, in their view, in a PSC analysis;

- Data cannot be accurately obtained
- Costs are not always adjusted for some major risks
- There is no consensus on the discount rate
- Data and assumptions can be manipulated
- High PSC preparation costs and time consuming
- Futile second guessing by government and consultants as to what will happen in hypothetical future situations
- Impracticability of cancelling projects by the time bid data is available
- If public resources not available, PSC of little use

Consequently, this has led to two situations;

- In developed countries like the UK, there is still a move to softening the use of the PSC with simpler procedures such as standard spreadsheets that can be used in-house by departments.
- In the developing world, the original logic behind the PSC remains valid, but needs to be applied in a more practical way. It is suggested that governments and PPP advisors need to ensure that;
  - project preparation is undertaken soundly and especially the risk management aspects,
  - that the optimism bias and political pressure is countered and
  - that possibly only a selected number of examples are subject to quantification of the PSC.

However, the main concerns of whether the project offers value for money and what are the key advantages and disadvantages of a particular project under PPP still need to be analyzed.

It is possible that a PPP project is of such a magnitude in a small/medium country that it will have major macro economic impacts, not least absorb most of the supply of capital, raising interest rates and hindering smaller projects. Analysis of such risks will be the role of the Ministry of Finance/Risk Management Units/Central PPP units.

If it is decided that the macro impact is too great, the project could be deferred, phased, downsized or transferred back to the public sector program or a combination of these measures. While this is possible for energy, dam and similar, for highway projects this may be a relatively uncommon occurrence but for which, if it does occur, the project planners will need to consider the macro economic implications at an early stage.

As discussed above, using the PSC in any meaningful way according to its original objectives is probably not very feasible. However, PSC can be used as an aspect of

general project appraisal and used to ensure or reinforce better project design and to support negotiations.

Following best practice, as described in the Toolkit and applied to each country flexibly, VfM should ensure that, at the very least, proposed PPP projects have an absolute net benefit for the country concerned.



Is the Public Sector Comparator right for developing countries? J Leighland and Chris Shugart, PPIAF Gridlines. 2006



Review of Partnerships Victoria Provided Infrastructure. Fitzgerald, Peter. Final Report to the Treasurer, State Government of Victoria, Australia. 2004.



Public Sector Comparator. Supplementary Technical Note. Department of the Treasury and Finance, State Government of Victoria, Partnerships Victoria. 2003.



Reforming the Private Finance Initiative. Roe, Philippa, and Alistair Craig. London: Centre for Policy Studies. 2004.



Public Private Partnerships-Guidance Material: Framework. Queensland Government 2002



Public-private Partnerships in the Road Sector; Caroline Visser International Road Federation 2008.

# Stage 2: Due Diligence and Feasibility Studies

Stage 2 is the detailed extension of Stage 1 and defines the work necessary to prepare studies. It provides an elucidation of the necessary procedures required. Stage 2 should be undertaken by the relevant contracting authority, possibly in consultation with the line ministry if appropriate.

Stage 2 provides the basis for the Public Sector to;

- Understand fully the characteristics of each project
- Prepare the detailed Business Case for each project
- Prepare the tender documentation
- Procure the private partner
- Negotiate from a position of strength following tender submission
- Assist its inputs to operational project monitoring

Due diligence in the context of PPP in Stage 2 is the term used for the wider performance of an investigation with a proper standard of care. It covers the care with which the whole Stage 2 process, including the FS, is conducted. Of course, the whole PPP process should be conducted with 'due diligence' but is most often associated with Stage 2.

A 'full' feasibility study (FS) is the basis for understanding the project and assesses a number of important aspects in any proposed project. It assesses the technical feasibility of a proposed project; whether it satisfies a need, and provides sustainable social and economic benefits to the country, as well as its financial viability (Projects that are financially feasible with some, limited government support may also be considered if necessary).

The feasibility study provides the basis for the tender documents, understanding tenders, a basis for the contract, negotiations and subsequent contract monitoring.

Stage 2 has key components all of which are important and must be carried out rigorously.

These components comprise:

- A technical basis of the PPP project including preliminary/basic design and project cost. The design must be sufficient to cost the project to within ±20%.
- Demand and traffic analysis including scenarios
- A Social Cost Benefit Analysis (SCBA) which measures the social and economic value of the project to the nation as a whole. This includes;
  - The economic rationale and benefits/costs of the project to the country.
  - An EIS or EIA depending on the project but must meet national environmental regulations and international best practice. This includes a full assessment of impacts and mitigations costs.

- Social impact studies including resettlement, indigenous people, gender and poverty analysis. This should also include all mitigation costs.
- A Financial Analysis. This is vital and presents the business case for the project and indicates to Government the financial characteristics of a project. It must show whether (or how) the project will be attractive to the private sector and whether any fiscal support is necessary and/or warranted. This will include an analysis of the funding options for the PPP project.
- A risk assessment including a preliminary allocation of risks .
- A study of PPP modalities which indicates the best option(s) for the structuring of the Public Private Partnership.
- Consolidation of all of the above technical components into an overall 'Business Case' for the project.

Increasingly, the cost benefit analysis (as well as the design) includes consideration of safety and the benefit of accident reduction through safer roads and better traffic management. Many safety impacts and improvements are now quantified as benefits. It should be noted that over 1.2 million people are killed and 50 million injured every year with 85% of road crashes happening in developing countries eating away 1% to 3% of their GDP. Road accident fatalities in both India and China were around the 100,000 level per year and the number killed in the USA each year is over 40,000.

The preparation of draft tender documents is also commonly included within the advisers/consultants remit when an FS is prepared, because it is very important that the draft contract exactly reflects the objectives and characteristics of the project.

# Feasibility Study (FS) Contents

There do not seem to be any standard definitions of a 'pre' feasibility or 'full' feasibility study worldwide. Such studies can therefore be subject to different interpretations depending on circumstances and the type of project. A feasibility study for public procurement would naturally have a different focus and requirements than a PPP feasibility study.

Therefore, the Toolkit considers and recommends what is actually needed to be prepared in the context of PPP projects i.e. it considers the objectives. It is possible that some parts of a full study could be analyzed in lesser detail or that for complex projects a pre study is undertaken first to study options and scope the project. A preliminary study might also be quicker with fewer stages.

For most highway projects, there will always at some point be the need for a FS and therefore, in most cases a pre feasibility study could just add time and costs to the study process.

However, in some instances, major bridge or tunnel alternatives and other complex urban highway projects, would justify an initial or pre FS. The key objectives of both types of feasibility study are to:

- Ensure risks are identified, allocated and mitigated effectively;
- Provide Government with sufficient information for proceeding or bidding;
- Provide the bases of negotiations; and
- Minimize the transaction costs of PPP projects and avoid unnecessary delays

For a PPP feasibility study, the requirement is to produce analysis and information to:

- Establish the technical characteristics of the project, demand, project capacity/size, preliminary design of proposed facilities with their related capital and annual project costs;
- Establish the social, environmental, economic and financial characteristics of each project (including its attractiveness to the private sector and GOI), based on the projected project, its cost, demand and impacts;
- Determine the extent of government support (if required), PPP modalities and project risks;
- Prepare the Business case for the project that encompasses all of the above information and which when presented together, provides a convincing and solid case to both public and private sectors as a basis for procurement of the private partner.
- Include a draft contract for the project based on the characteristics of the project. This draft will then be finalized by the government before bidding.
- Prepare a RFP that has sufficient data to allow the tenders to prepare competitive technical and financial bids and which informs them at the time of bidding, how such bids will be subsequently evaluated; and
- Provide data that allows the Government to negotiate and sign a PPP contract with confidence.

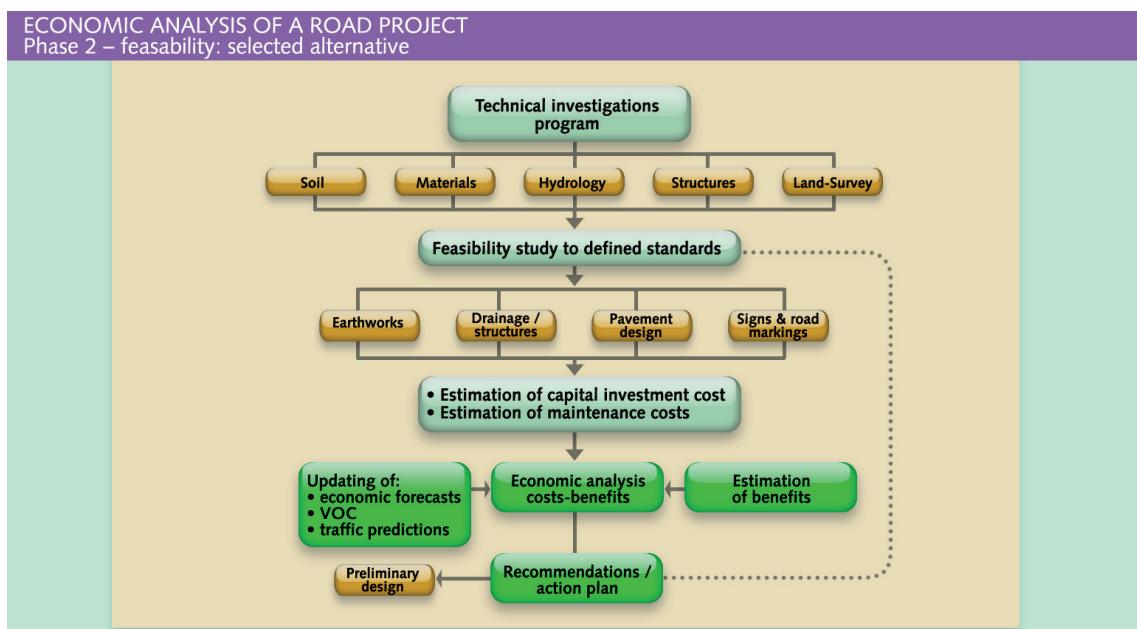
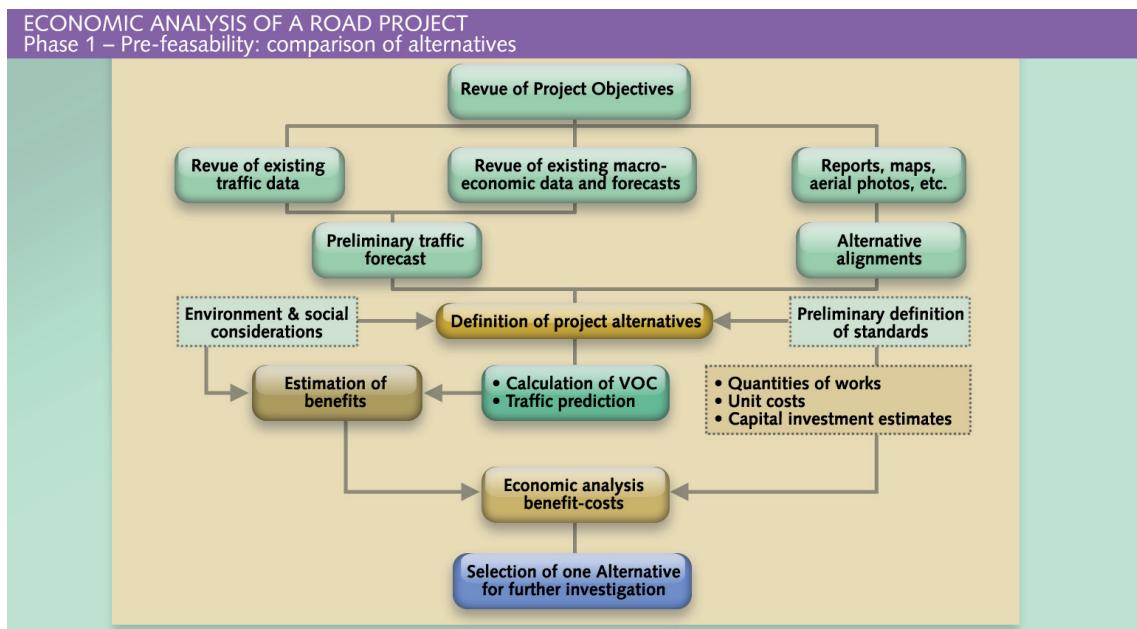
It is therefore considered that in practice, 'full' feasibility studies should always normally be prepared in Stage 2 for all PPP projects selected for implementation. For complex or projects for which some preliminary reports and/or data already exists, a less than full study may be appropriate initially but the needed end result that should be achieved will be a full PPP feasibility study. It is advisable that the sector PPP units produce draft outline TORs for both types of feasibility studies to help PPP contracting agencies, along with guidelines as to which to choose. The normally required contents of a feasibility study for a PPP project is described under the headings below.

## Technical Evaluation

- Demand Forecasts, including specific demand surveys if required. These should be made for the short, medium and long terms (10, 15, 20+ years) and should provide scenarios and sensitivity.
- Preliminary Design, including sufficient technical ground surveys to prepare a capital cost estimate to within  $\pm 20\%$ .
- The technical needs of a study are described but each project will require different technical assessments. The prescribed capital cost accuracy is the main criterion to be followed.

## Socio-Economic Cost-Benefit Analysis (SCBA)

- Project rationale, benefits and quantitative assessments according to WB/ADB Guidelines.
- Must include environmental impacts statement that defines all major impacts, proposed mitigation and the broad estimate of mitigation costs (for input to the economic project cost).
- Social Impacts; Must identify all social impacts and resettlement, proposed mitigation and their related costs (for input to the economic project cost).



### Relevant references:



Economic Evaluation Methods for Road Projects in PIARC Member Countries. PIARC. 1999.



Handbook on Economic Analysis of Investment Operations, World Bank, 1998.



Guidelines for the Economic Analysis of Projects, Asian Development Bank, 1997.



Handbook for Integrating Risk Analysis in the Economic Analysis of Projects,  
Asian Development Bank, 2002.

## Financial Analysis

This will contain a financial model, but not necessarily too sophisticated. Financial scenarios must be tested including:

- Levels of Tariffs: existing, cost recovery levels, other tariff objectives, etc
- Tariff escalation rates or formulae
- Debt/equity options
- Debt service options (interest/tenor, grace and principal repayment period, etc)

The financial model must:

- Output at minimum, FIRR, FNPV, Payback and Debt service cover ratios
- Identify the needs, if any, of fiscal support/subsidy
- Assess the different types e.g. contingent (initial and periodic) and non contingent (guarantees)
- Identify the costs and timing of any fiscal support/subsidy

## Risk Assessment and Allocation

Risks must be identified and assessed. An initial allocation of risks must be made (and/or scenarios) and risk mitigation proposed.

## The PPP Business Case

- All relevant information developed during Stage Two should be drawn together into a PPP Business Case, the purpose of which is to provide all the technical, financial, risk, and other project information into a form which will provide the basis for decisions by government to proceed or not to the next stage for each specific project. Assuming if positive, it provides the basis for a bankable project i.e. a project that sources of finance would be interested to consider.
- The PPP Business Case will:
- define the project and service requirement i.e. what the concessionaire is expected to provide;
- specify the value for money and the PSC if required;
- specify the PPP delivery options and the PPP Model;
- outline risk sharing arrangements with the various Project Delivery Options;
- provide information on the key issues considered and solutions proposed;
- analyze the various Project Delivery Options identified; and
- identify the preferred Project Delivery Option for meeting the service requirement;
- provide all the relevant information that will allow the government to decide on pursuing this project as a PPP project, and as a basis for proceeding to tender.

Assuming approval of the FS, with incorporation of comments, concerns, additional requirements etc. of government/the highway authority, the next stage is to prepare the draft and final tender documents and proceed to procurement of/tender for the private sector partner(s).

# Technical Evaluation

## Demand Forecasts

Module 3 describes in greater detail the traffic forecasting process. Some further useful information is provided at the implementation stage. Forecasts and scenarios must be developed within a demand analysis that is consistent with the scope of the project (and tariff levels) and fully identifies the sources of demand including the area(s) and population to be served by the project.

Forecasting is partly technical (science) and partly experience and intuition (an art) and can only give a useful indication of future demand. Forecasting over a 20 year period or more is difficult: there will almost certainly be unforeseen internal and external shocks to the economy as well as technological and social change.

Traffic predictions are usually based on regression analysis i.e. linking past demand growth (the dependent variable) to factors such as GDP growth, population etc. (independent variables). This enables the projections of demand into the future, based on future projections of GDP, population etc. which are more generally available and stable.

The mathematical model mostly used to represent the correlation between traffic and a macro-economic parameter is as follows:

$$T = k_i X_i^e$$

where, T is the traffic related indicator (dependent variable) e.g. vehicle-kilometers, consumption of fuel, registration of vehicles etc., X is for instance the GDP (independent variable) and K and e are coefficient to be determined to fit the true time series figures. This mathematical model implies that "e" is a constant representing the elasticity of traffic in relation to the macro-economic parameter, e.g. GDP, GDP/capita. That is,

$$e = \frac{\frac{\Delta T}{T}}{\frac{\Delta X}{X}}$$

Trend based projections can also be useful where past data is available over reasonably long periods (e.g. 10-15 years), where the data is not too erratic and preferably if the project under consideration can either be related to those roads along which historical/trend based traffic figures are analyzed or national data or both.

Traffic forecasts are commonly the primary basis of the economic and financial analysis and are thus highly important. However, they are required as part of the technical evaluation irrespective of the economic/ financial analysis, as traffic volumes, particularly those of heavy vehicles, are paramount to the pavement design of roads, which in turn impacts on the cost of the road facilities.

In order to distribute traffic demand between existing road(s) and a proposed toll road, it can be useful to employ a traffic assignment model which incorporates a transport network (primarily roads but may also include other modes) in a wider area of influence of the project. A traffic model is useful to simulate and test various configurations of the road network, different toll policies via generalized cost functions as well as the influence of congestion resulting from the use of adapted speed-flow curves.

In the absence of a traffic network model (which may well be too expensive and time consuming except for major individual projects), a more restricted method could be used to estimate the traffic assignment along a proposed toll facility, in relation to the alternative road/s for traffic with common origin and destination. To this end, one may use for example the “rule of Abraham” method which is commonly employed to compute the traffic split between competing routes. More details are given below.

#### Example of traffic demand assignment for a proposed toll road

The traffic demand on a proposed toll road focuses on the prediction of traffic split between the existing road/s and the proposed new toll facility. Preferably a traffic model should be employed to this end, as it offers the possibility to include a large area of influence comprising alternative routes and modes of transport. However, in various cases it is useful to carry out a simpler analysis, using for instance one of the methods outlined below.

#### *Rule of Abraham method*

Traffic splits between two alternative routes according to the following rule:

$$T_1/T_2 = (C_2/C_1)^k$$

Where,

$T_1$ : traffic on route 1 (after reassignment)

$T_2$ : traffic on route 2 (after reassignment)

$C_1$ : generalized cost along route 1

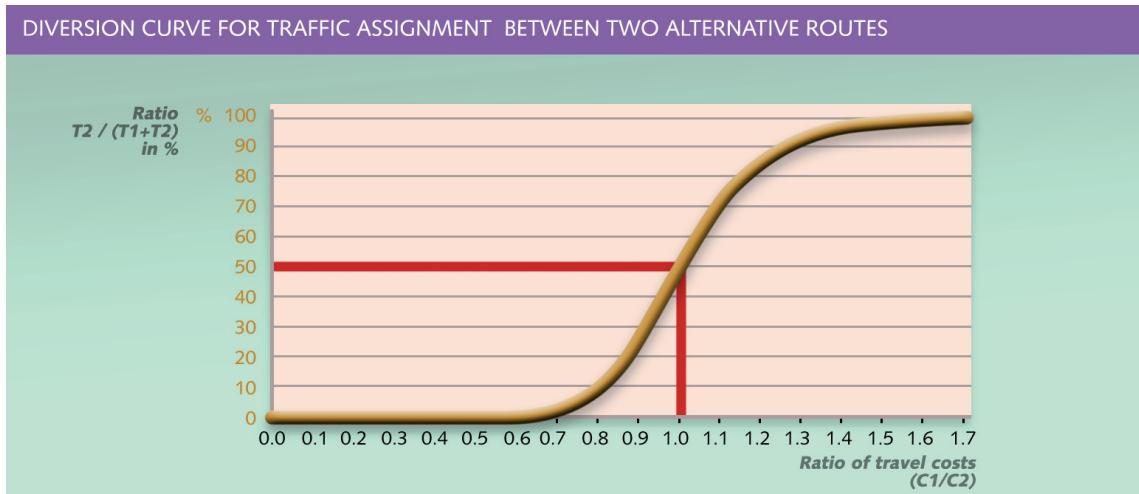
$C_2$ : generalized cost along route 2

k: exponent

The above formula can also be written as:

$$T_2 / (T_1 + T_2) = 1 / [1 + C_1/C_2]^{-k}$$

In France it is common to use an exponent k = 10. The graph below illustrates the rule for k=10. One may notice that in the case where the generalized cost is similar along both alternatives, the traffic is expected to split equally between the two competing routes.



Theoretically the above formula could be extended to n routes having the same route choices:

$$T_i / \sum T_i = C_i^{-k} / \sum C_i^{-k}$$

Where  $C_i$  is the generalized costs on the competing routes, or by way of calculating the percentage of traffic on route  $i$  in relation to all competing routes:

$$P_i(\%) = \frac{C_i^{-\alpha}}{\sum_{j=1}^n C_j^{-\alpha}} \cdot 100 = \frac{100}{\sum_{j=1}^n \left( \frac{C_i}{C_j} \right)^{\alpha}}$$

Where  $P_i$  is the % on route  $i$ ,  $C_i$  the generalized cost on route  $i$  and  $C_j$  the total of generalized cost along all competing routes and  $\alpha$  the equivalent exponent to  $k$  as explained above.

Abraham's rule assumes that the perceived advantages of one route in relation to another are distributed according to a "normal" (Gauss) distribution.

If the average generalized costs along two competing routes are  $C_1$  and  $C_2$  and that along route 2 the traffic is subjected to a toll  $t$ , then the formula takes the form of:

$$T_2 / (T_1 + T_2) = 1 / \{ 1 + [(C_2 + t) / C_1]^k \}$$

### Diversion curves

A method used in California (USA) estimates the proportion of traffic using a route (for instance a freeway toll road), according to the following formula:

$$P(\%) = 50 + \frac{50 \cdot (d + 0.5 \cdot t)}{\sqrt{(d - 0.5 \cdot t)^2 + 4.5}}$$

Where,

- P (%): percentage of traffic assign to route
- d: distance saving using the selected route (in miles)
- t: time saving using the selected route (in minutes)

However, it should be noted that a traffic assignment based on the absolute values of saving in distance and time has its drawbacks. For example, it cannot be conceivable that that a saving of, say, 2 min in relation to a total trip length of 10 minutes has the same affect as on a trip length of 1 hour.

Forecasts must reflect both optimism and realism. The experience of previous but similar projects should be incorporated where possible and occasionally experience elsewhere in the world may be relevant. In 2002 an ex post study of 32 toll roads around the world, compared traffic projections against actual first year traffic.

Studies commissioned by Development Banks/IFI (presumably a mix of different agencies as they were not named) sponsored forecasts whose projections averaged only 82% of actual, while studies commissioned by others, including project sponsors, averaged only 66% of actual.

The study noted that if there was a small difference between actual traffic and projected traffic in the first year, actual traffic quickly caught up with, and often overtook the forecast. Where there was a large initial difference, traffic was slow to catch up and often never did. The study concluded that forecasting errors were not random and there was systematic optimism bias, with IFI commissioned forecasts being relatively more accurate than those being commissioned by sponsors. This may be due to sponsors who may have imparted too much optimism to their consultants, and/or spent less on their traffic studies or who may have considered renegotiation a good possibility after contract signing.



Credit Implications of Traffic Risk in Start up Toll Facilities, Standard and Poor's, 2002.

Given the necessity and importance of forecasting but its inherent weaknesses, scenarios should be developed to provide (i) low, (ii) high and (iii) most likely/best guess levels of demand. Initial scenario development at a more strategic level (GDP, Regional Development etc.) can be useful in assessing the impact on design, timing and cost.

It can also be useful to assess the broad impact on the EIRR and NPV. More detailed sensitivity and risk analysis can be undertaken related to this selected specific scenario, rather than all strategic scenarios. This is undertaken by varying individual parameters such as demand, capital cost and is described in section 3 which follows below.

Demand forecasts must also include the design capacity i.e. demand forecasts used in the project analysis must not exceed the proposed design capacity and, for all projects, the projected demand must be consistent with the proposed tariff or tariff scenarios.

Tariffs must also at the same time reflect Willingness to Pay (WTP) and Ability to Pay (ATP). Willingness to pay reflects the amount an individual or company is willing to pay to acquire some good or service. Ability to pay reflects payment based on capacity to pay. Survey techniques include Stated Preference (response to hypothetical survey questions) and Revealed Preference (Drawing conclusions from surveys of actual behavior). There should therefore be both WTP and ATP analysis.

The former can be a relatively simple exercise where there are limited numbers of users. For toll roads and public passenger transport, ability to pay is also an important consideration and may require more extensive surveys than other sectors. The potential problem for PPP projects is where ATP is below the cost recovery level and subsidy/support must be considered if the project is to be implemented.

## Engineering/Technical Aspects

The study must also include technical description and plan of the project that identifies all relevant engineering and non-engineering components. This will conclude with a preliminary design, including technical specifications/location and preliminary layout plans/alignment etc. This would include capacity and performance standards. It would contain the proposed standard of project outputs and facilities and outputs, etc. which would provide the basis of the minimum technical requirements to be provided within the RFP.

While full geotechnical, hydrological, structural, drainage and other technical studies are not required at this stage, sufficient technical and survey work must be undertaken to be able to cost the project (including alternatives) to within say  $\pm 20\%$ . The preliminary cost estimate must also be accompanied by an implementation program reflecting the timing and interrelationships of all of the major components of the project.

The technical specification must conform to the least cost solution to meet the projected demand (phased if necessary) and other objectives.

## Technology

The study should also consider any benefits that may be gained from the use of new technology, including e-commerce, improved management systems and higher levels of skills. It should also identify any possible technological threats.

# Socio-economic Evaluation

A socio-economic evaluation is required that estimates the benefits and costs of the project in national terms and including both quantified and non-quantified impacts. The basis is shown in Module 3 -> Sector Planning and Strategy -> Planning Policy and Making -> Socio Economic Evaluation.

## Project Rationale

The identification, quantification and valuation of costs and benefits are central to preparing a SCBA. The main objective is to determine whether a project is economically viable i.e. an effective and timely use of public money and resources.

An important part of evaluating a project includes the need to address problems and constraints (such as congestion in ports or on roads) and considering possible alternative solutions.

Project planning ensures that a project is not over-designed e.g. not building a 6 lane highway when a 4 lane highway would be adequate for a given first phase of say 10 years.

## Bases of Costs and Benefits

Before analyzing the costs and benefits of a project, it is important to state the recommended standard approach. This comprises defining the:

### *Without and With Project*

The definition of the “without” and “with” project are crucial in the SCBA and are sometimes called ‘do nothing or do minimum’ and ‘do something’ respectively. These describe the benefits and costs if the road is built, compared to not building it.

### *Shadow Pricing and Resource Costs*

SCBA uses costs and benefits. Benefits may either be included as exogenous monetized values or may result from the difference between the costs associated with the “without” versus the “with” project scenarios. Costs and benefits are both ‘shadow priced’ to eliminate price distortions especially taxes and subsidies. By shadow pricing, SCBA analysis uses ‘resource’ costs and thereby measures the cost savings to the country, as resources are considered scarce commodities.

Excluding tax from project costs is a straightforward process. However, shadow price standard conversion factors (SCF) which convert financial prices to economic prices, require a breakdown of costs and benefits and the appropriate application of these factors. Standard Conversion Factors (SCF) such as 70% for unskilled labor are often available from the multilateral agencies for use in economic evaluation. This means for

example, that the economic or real resource cost of unskilled labor is only 70% of a regulated minimum wage where there is surplus labor.

As a guideline, in some countries, the removal of taxes and use of conversion factors often results in the total economic cost of an infrastructure project averaging 85% of its (domestic) financial cost and varying mostly between 70% and 90% depending on the costs structure/type of project. The general formula is as follows:

$$\text{Economic Investment Cost} = K \times \text{Financial Investment Cost}$$

Where  $K$  is the factor used by convention.

(Note however that if the economic cost is calculated in more detail then the formula becomes; Economic Investment Cost = SCF  $\times$  (Financial Investment Cost - tax+subsidy)).

The financial cost being the market value of the various components and  $K$  is the conversion coefficient from financial to economic costs (aforementioned to vary between 70% and 90%). In some instances the  $K$  value could be given by Government officials to be used for road projects in a country or region, as a matter of policy. In such case, the  $K$  value is considered as an overall conversion factor to be applied to the total financial investment cost.

An example for calculating shadow prices of road capital investments is included next.

#### Example of calculation method of economic investment costs

The economic cost is the market (financial) cost adjusted by a coefficient that takes into consideration transfer charges and other distortion of the price, such as, foreign exchange, local labor cost, taxes and subsidies.

##### Description of parameters

EIC: Economic Investment Cost

FIC: Financial Investment Cost

K: conversion coefficient from financial to economic costs, where

$$\text{EIC} = K \times \text{FIC}$$

SFEX: Shadow Foreign Exchange Rate, to reflect the scarcity of foreign currency

FEX: part of foreign exchange (% of capital investment costs)

SWR: Shadow Wage Rate, taken as a percentage of the real cost of local labor

LLC: Local Labor component (% of capital investment)

OLC: Other non-labor Local component, excluding taxes/ subsidies (% of capital investment)

TC: Tax component (% of capital investment)

Therefore,

$$\text{FIC} (\%) = \text{FEX} (\%) + \text{LLC} (\%) + \text{OLC} (\%) + \text{TC} (\%) = 100\%$$

$$K = \text{FEX} \times \text{SFEX} + \text{LLC} \times \text{SWR} + \text{OLC}$$

and

$$\text{EIC} = K \times \text{FIC} = [\text{FEX} \times \text{SFEX} + \text{LLC} \times \text{SWR} + \text{OLC}] \times \text{FIC}$$

### *EIRR, NPV and Discount Rates*

The EIRR is calculated through an iterative mathematical procedure (e.g. provided either within economic analysis software or simply using an Excel spread sheet) that automatically discounts the net benefits of a project over the life of the project. For infrastructure, this is normally 20 to 30 years. Discounting means the projected net benefit in any year is subject to a (compounded) discount factor, and thus the further into the future, the discount factor becomes smaller and so does the net benefit.

Consequently, net benefits after 20 or 25 years can become irrelevant, especially with high discount rates [although it is possible that with modest discount rates and very high and sustained high forecast traffic growth rates over a project concession period, that later years are more ‘relevant’ in a discounted analysis, a simple example shows that extreme cases may add only a small increment to the EIRR and, in any case, it would not be good practice to forecast high growth rates over a long period into the future]. The discounting process brings all monetized values to a common year, usually the base year. In other words, all future values are discounted to “present worth” values:

$$PW = FW \times (1 + i)^{-n}$$

Where,

PW: present worth cost

FW: future worth cost

i: discount rate

n: number of years

It is important to mention that a discount rate is used irrespective of inflation (which is excluded from an economic analysis), since the time has an inherent value associated with it. To put it differently, a person would prefer to have one dollar today than one dollar in the future. To accept a value in the future, a person would wish to be compensated by an increase,

i.e. instead of receiving one dollar today a person is likely to accept  $1 \text{ USD} \times (1+i)^n$  in a future year n, where i equals the discount rate (in this case equivalent to an interest rate).

The relations between EIRR, NPV and discount rate are explained in Module 3.

The EIRR and NPV are important for several reasons. Values of these indicators provide firstly the socio-economic justification (or not) of a proposed project and its priority ranking. Secondly the NPV defines the upper limit of any requested financial support i.e. the government should not support a project beyond its worth to the country.

The EIRR is independent of the discount rate used (unlike the NPV). By definition the EIRR is the discount rate at which the NPV is nil, i.e. discounted costs equal discounted benefits.

The NPV provides a measure of the net worth of a proposed project and uses the appropriate discount rate. The discount rate can be derived or that used by IFIs or all projects in the same country must use the same discount rate so that the estimated NPVs of all projects are directly comparable.

As described in Module 3, NPV and IRR can be also be used to suggest optimal timing of projects through the use of First Year Rate of Return which discounts the first year net benefits relative to the project cost.

### *The Bases for Prices*

Economic analysis uses constant base year prices which are called 'real' values i.e. a dollar today will generally buy the same amount of goods next year (because inflation is ignored). Physical contingency (normally 10 percent) must be included in costs as this takes into account unforeseen events such as difficult ground conditions. However, as the costs and benefits are in real values no inflation/price contingency is included.

The base year is usually assumed to be the year in which the analysis is undertaken and in particular the year when the project cost estimates are made. These should always be the latest costs (original estimates or updated) available.

### **Other Parameters**

Other parameters may be used in an economic analysis. Some can be standard (and possibly only updated to the base year) while others may need to be specifically calculated for the proposed project. Parameters include the values of time saved (working time, non working time), vehicle operating cost savings, value of (reduced) accidents, passenger and cargo savings, and other costs and benefits specific to the proposed project e.g. health and education benefits.

### **Costs and Benefits**

Costs will include initial project development costs and annual operating and maintenance costs and will include environmental dis-benefits, severance and other negative impacts and all mitigation costs as appropriate.

By convention, capital costs are all (or almost all) incremental i.e. in the without project scenario there will be no capital expenditure. The without project scenario should also include substantial future maintenance and/or rehabilitation costs as these will certainly be needed but whether they will actually be expended under the usual budget limitations is debatable. Annual operating costs may or may not be incremental depending on type of project and are calculated (as incremental costs) based on whether it is worth analyzing small differences in (with and without) costs for little or no impact on the EIRR.

Over the life of a project, some investment components will need replacing (will be fully depreciated) and roads will need heavier maintenance, periodically. Annual costs therefore should be supplemented in the appropriate years, both for the without and with project scenarios, by such periodic costs.

## Some Examples of Cost Savings/Benefits

An increasingly congested road will increase costs and time for road users including possible diversion to longer alternative routes. A proposed road project to overcome these problems will generate vehicle operating resource cost savings, time savings, savings in the cost of the transport of freight and other benefits including accident cost savings and possibly environmental benefits (and/or costs).

TYPES OF BENEFITS FOR TOLL ROADS IN A CONVENTIONAL COST BENEFIT ANALYSIS	
Time savings	
Vehicle Operating cost savings	
Fuel cost savings	
Reduced accidents	
Consumer surplus	
Safety	

There may be many other types of benefits (and costs) that might arise from a project which may be identified from more detailed studies.

The purpose of citing examples of cost savings and benefits is to emphasize four aspects of evaluation:

- The importance of determining the rationale of the proposed project design and operation to deal with the problems that are planned to be overcome. That is, what will be (i) the result of not undertaking the project and (ii) the result of implementing it.
- The need to quantify the incremental benefits/cost savings resulting from the project.
- The need to quantify as far as possible costs and benefits that are 'external' to the project e.g. pollution nuisance from a new project and other environmental and social aspects. These have traditionally not been included in economic analysis, due to difficulty of measurement, but are increasingly being so, e.g. the cost of loss of flora and fauna, as well as health and education benefits. If these externalities are costed and included in the CBA, then they have been "internalized".
- The need to at least identify and describe other costs and benefits that cannot be quantified or that are not included in the quantified analysis but to which attention should be drawn.

In an economic analysis, benefits from savings in resource costs (such as savings in vehicle operating costs and time savings) are not directly related to the proposed tariff that does not directly measure such savings. However, the tariff charged will reflect in part such resource savings. That is if a toll road improvement saves each user USD 10 per trip in fuel, vehicle costs, time and other benefits, the financial tariff will be set to capture a percentage of that USD 10.

While a project usually adds capacity and so incremental demand is considered, existing users will also benefit from lower costs/prices. This is because of economies of scale and

increased productivity. The difference between the market price and what the existing and other consumers would be willing to pay for project output is called consumer surplus (i.e. the market price is lower compared to the price some consumers would be willing to pay).

An increase in consumer surplus represents an increase in economic welfare.

It should also be noted that conventional cost benefit analysis employs a range of assumptions about the micro and macro economic framework that are convenient simplifications of reality which may or may not apply in any specific country or project.

## EIRR and NPV

The primary indices of economic viability or project worth are the EIRR and NPV respectively. These indicators are determined through the following sequence:

Estimating the incremental costs (capital, annual, periodic, replacement) for each year of construction and operation for the entire analysis period.

Estimating the difference between incremental costs and benefits for each project year thus generating a net benefit for each project year. The net benefits are negative during the construction years when there are only development costs but should become positive in subsequent operating years.

Calculating the EIRR and NPV by the application of Excel functions to the stream of net benefits over the project life. As mentioned above, in most cases after the initial construction period (negative cash-flow) benefits could be expected for the remaining analysis period and those benefits increase over time as traffic increases up to the capacity of the highway. However, if during the analysis period the cash-flow alternates between positive and negative values, the calculation of a unique EIRR cannot be ensured (more than one EIRR value is possible) but this is an unusual scenario but can be overcome through specialist analysis.

Other Benefits: Each project will also likely have particular benefits in addition or instead of the above.

## Risk and Sensitivity

In economic analysis, after the EIRR and NPV are calculated, two other stages are normally undertaken.

### Sensitivity Analysis

Sensitivity analysis is generally a simple approach to assessing uncertainty in the evaluation of infrastructure projects. It assesses the impact on the EIRR of changing key project variables. These variables can be changed singly or in combination. That is if traffic demand is 10% lower or project costs are 10% higher, or both of these changes in variables together, sensitivity analysis indicates whether the project is still viable or

not. Simply, if the EIRR is 20%, an increase in capital cost of 10% might reduce the EIRR to 18% or if the EIRR is 12% an increase in capital costs of 10% might make the project unviable.

An extension of sensitivity analysis is now more commonly used and involves estimating 'Switching Values'. Instead of applying a fixed change in sensitivity (e.g. 10%), various percentages are tested. The changes in the value of key parameters or combination of values (such as changes in project costs and revenues) are thus calculated in order to bring the EIRR to its minimum acceptable level, or the NPV to zero. The switching value could indicate, for example, that capital costs would have to decrease by 25% to bring the EIRR to the minimum rate of 12%. Basically, it provides a better view of the robustness of the project related to potential changes in key project parameters.

### Risk Analysis

This is a related but different approach to risk management. Risk analysis takes sensitivity analysis a stage further. For large projects, it assesses the probability (attached to the key factors identified in the sensitivity analysis) that the EIRR will fall to the cut-off rate, or the NPV becomes zero. This is a somewhat time consuming and technically complex process but is required for large projects. Proprietary software is, however, available for risk analysis. In general, quantitative risk analysis are recommended to be undertaken for major, complex projects, due to the time and cost involved.

Risk and sensitivity analysis are used flexibly in conjunction with scenario modeling. For example, demand is usually dependant on economic growth; therefore, demand is often projected, based on high, mid and low national/regional economic growth scenarios. On the other hand, project costs are normally only subject to sensitivity and risk analysis.

While it is possible to analyze every single combination of scenario and sensitivity test, it is usually sufficient to analyze only a selective number of options.

While economic and financial evaluation both use IRR and NPV mechanisms to measure viability, financial analysis measures the financial internal rate of return (FIRR)/ the return on equity (ROE), payback and debt service cover ratios (DSCR). Financial analysis also uses the weighted average opportunity cost of equity as the financial discount rate which for the private sector may range for example between 15% and 20% in Indonesia.

These three indicators are important and together provide sufficient information on profitability, sustainability and financial risk to the (equity) investors and GOI at this stage.

Economic and financial analysis are regarded as different sides of the same coin or analysis of the same situation from different viewpoints.

## Social and Environmental Studies

Social and environmental studies must be undertaken as an integral part of the SCBA. These studies are technically required in their own right and are interlinked with the SCBA through analyzing and estimating:

- Social and environmental mitigation and the costs thereof,
- Quantifiable social and environmental benefits,
- Non quantifiable social and environmental benefits.

Highway projects almost always have significant environmental impacts. Safety and health standards can also affect the planning of projects. Both Government PPP agencies and investors will need to know which type of social and environmental impact studies are needed, the type of permits and licenses required and the impacts and mitigation measures needed. The cost of mitigation measures must also be estimated at this stage.

The laws and regulations specifying the procedures and assessments and that are needed for each specific project must be clarified at an early stage. This is because the regulations may affect the construction and operation of facilities. They may affect the need to preserve the natural environment and may affect the liability for past and future environmental damage as well as the need to resolve other issues.

Therefore, within the Feasibility Study (FS) there will be the need to consider and answer these questions. The first consideration is what level of study is required bearing in mind two key aspects:

- What studies are legally required, and
- What additional studies are required, if any, to provide both government and bidders with sufficient information to prepare appropriate tender documents and ensure risk minimizing bids, respectively.

It should be emphasized that there must also be adequate public consultation on the social and environmental assessments undertaken.

Environmental issues are often governed by laws and regulations. These may stipulate that the proponent of a project may be required either,

- to submit a proposal which includes:
- the environmental impact analysis (EIA),
- mitigation plan
- monitoring plan

If a full EIA is not required, it is still necessary to produce:

- the environmental management program, and
- an environmental monitoring program.

However, if an EIA is required, an environmental impact scoping report is often required initially. If this is approved, the proponent then conducts and submits the more detailed requirements on the basis of the environmental impact scope.

Final approval depends on the EIA being satisfactory and that there are no major adverse environmental impacts which can not be mitigated. The whole process can last between six to eighteen months or more depending on complexity.

A full EIA is expensive, time consuming and is sometimes deferred at this stage. However, both for legal/regulatory reasons and to prepare the project adequately, most projects will require a full and proper study. The time needed to prepare an EIA and to obtain the necessary environmental approvals should be fully considered within the project preparation stage as they are usually time consuming.

ADB classifies projects into 3 types which may provide a useful guide to environmental studies that are needed in the FS and is consistent with the above procedure, as follows:

**Category A:** Projects with potential for significant adverse environmental impacts. A full environmental impact assessment (EIA) is required to address significant impacts.

**Category B:** Projects judged to have some adverse environmental impacts, but of lesser degree and/or significance than those for category A projects. An initial environmental examination (IEE) is required to determine whether or not significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE can be regarded as the final environmental assessment report.

**Category C:** Projects unlikely to have adverse environmental impacts. No EIA or IEE is required.

## Financial Analysis

For PPP projects, financial analysis forms a key element of the due diligence to be undertaken. Both the private sector and contracting authority need to know the project's projected financial performance and for the public sector this is provided by the Stage 2 financial analysis. The analysis will also indicate whether the project needs fiscal support and/or guarantees from Government.

Clearly, the assumptions used by the public and private parties may not/will not be the same. This would account for the differences in the results from financial analysis. Very likely these differences will be a basis for negotiation at a later stage.

Two commercial issues are relevant to this section, and comprise tariffs and fiscal support. These are discussed below.

Financial analysis uses costs and revenues and is focused on assessing the project from an investment viewpoint, usually from the point of view of the private sector or a corporation (Sometimes referred to as a Special Purpose Vehicle or Company (SPV or SPC)), specially created for the execution of the project.

The financial analysis is based on the standard methodology used by the private sector, and by the public sector for private sector oriented projects, in the analysis of project feasibility. The financial analysis uses debt service, the commercial weighted cost of capital, the return on equity and is expressed in current terms (i.e. with inflation/escalation). It therefore differs from the standard financial analysis used by donor agencies and public sector.

It should be assumed, at least initially, that PPP projects will either not need any financial support from the government, or if needed, such support will be targeted and minimized.

Based on its assumptions, the financial analysis is able to show:

- If the project is financially viable (or bankable may be a better word, since a bankable project will always be financially viable, but a financially viable project may or may not be bankable) and sets out the financial performance, including direct financial risk, of the project over its life. It should be noted that all risks have a financial dimension. Direct here is used in the sense of sensitivity of the project's financial performance to the variables used in the model e.g. toll rates, demand, costs, debt service etc.;
- What would be needed to make the project viable (bankable or acceptable to the private sector) if it turns out to be only marginally viable; and
- The clear identification, approximate costing and timing of any proposed project support measures, and through which financial instruments this support may be provided, minimized and scheduled.

## Financial Model Inputs

In order to assess a project in financial terms, it is necessary to develop a financial model. This is provided in the Toolkit (Module 6 -> Financial Models). By necessity, this is usually more complicated than the economic analysis in that in particular (i) revenue streams and (ii) debt servicing need to be detailed and projected based on a number of scenarios and assumptions. However, economic analysis of large multi faceted development projects can be equally complex.

The following are the key factors needed to be input to a financial model:

- Financial Project Costs (construction, land, engineering, surveys etc.) and by the year incurred
- Demand (traffic by type)
- First Year Tariffs (by type) and Tariff Escalation Formula(s)
- Annual Operating and Maintenance Costs (base year estimate plus an inflation related increase or can be related pro rata to the inflation related revenue)
- Types of Equity
- Debt to Equity Ratio (usually varies between 80:20 and 60:40, commonly 70:30)
- Debt service arrangements and costs (types of debt and interest rates, grace and repayment periods)
- Weighted average (opportunity) cost of capital
- Tax rates (national corporate rates)
- Depreciation basis allowed (national regulations)

The financial model structure, and these types of inputs, will be largely similar for all PPP projects. Road projects have much simpler traffic groups than say airports or ports where there are many more revenue streams.

Costs can be calculated by building up direct, indirect and overhead costs based on historic data or more usually as a percentage of project costs or as a percent of revenue. It should be noted that historic/actual data is paradoxically usually quite unreliable and the percentage (rule of thumb) basis at least as good and much easier to generate at this stage.

All projects suffer from forecasting difficulties and this should be borne in mind at both the modeling stage and risk assessment stage where inaccuracies in demand forecasts may substantially outweigh uncertainties in other model inputs/assumptions.

Project costs will be initially in base year values (i.e. when the analysis is undertaken) but price contingency will be added for each construction year and revenue and costs inflated by an appropriate index.

The Request for Proposals (RFP) should include the proposed index, or the proposed tariff escalation rates, which will be allowed under the contract. Tariff escalation should be a criterion in bidder procurement allowing bidders to compete on initial as well as future tariffs.

## Financial Model Outputs

The model then outputs the Profit and Loss statement and the Cash Flow statement providing estimates of the key data for each project year. (Other supplementary accounting outputs are usually needed later, such as balance sheets).

These statements show:

- The overall **project cash flow**.
- The **cash flow available** to the equity participants (investors).
- **Profitability/Viability:** The Financial Internal Rate of Return/Return on Equity (project FIRR/or ROE). This is based on the same mathematical process as the EIRR but instead uses financial costs and revenues over the project life. Further, it does not use incremental costs and benefits but actual costs and actual revenues.
- **Cost recovery;** the number of years to pay back the equity investment (the norm is 5-7 years for commercial projects but infrastructure projects may only generate payback over 10-15 years or more).
- **Debt Service Cover Ratio** (the projected cash flow must, at a minimum, be adequate to finance the projected debt service. (The usual requirement is that the net cash flow each year must be at least 1.2 times (depends on the risk profile) the debt payment due in that year)
- **The estimated FNPV.** (It may be useful to distinguish the NPV from the SCBA and financial analysis by using ENPV and FNPV).
- **Quantitative risk analysis** are also increasingly standard model outputs.
- Together, these make up most of the quantitative basis of bankability, although other aspects can also be important such as non-quantified risk.

## Financial Model Assessments

Models can be used to assess the:

- Length of contract needed to generate an acceptable return on equity.
- The financial impact of different types of debt and equity and thus the optimum debt equity ratio.
- Losses in early years (if applicable) that need to be met by the PPP concessionaire (and/or by fiscal support/guarantees).
- Fiscal support that may be needed (and as input to the projection of the cost of guarantees)
- The financial impact and the subsequent optimum timing of the 'claw back' of subsidies (fiscal support).
- Corporate Tax revenue to government (when profits are made).
- Impact of changing key variables such as tariff, projects costs etc.
- Government returns if an equity participant (and if on different terms to the private sector e.g. secondary equity).

Hence key parameters are input to the model which then produces the financial estimates from which decisions on the PPP project can be made.

Generally, if a project is financially viable, it is usually economically viable. However, an economically viable project may or may not be financially viable as the revenue may not be adequate (Traffic or Tariff or both). For example, road projects generate high economic benefits but tariffs are set to be 'socially/politically' responsive.

## Tariff Escalation

Tariffs and tariff escalation are normally determined to ensure a proper rate of return based on an efficient operation. However, a subsidy may be specifically allowed by the regulations and procedures with such funding being paid by the Government to the PPP concessionaire based on a lower toll rate related to estimates of the users' Ability to Pay concept.

The concept of an agreed financial return incorporates several important subordinate principles;

- The need for full cost recovery (capital, operating and financing costs) if at all possible i.e. the user pays.
- The application of non-uniform tariffs (tariffs determined by project not sector).
- The proposed tariff escalation also to be project based and written into the concession agreement.
- The tariff and/or subsidy, if necessary, should be determined through competitive bidding to ensure the best deal for the user/the lowest liability for Government.

What constitutes a proper or acceptable rate of return on equity (ROE) is not specified but might be around 18%-20% or more but would vary on a case by case and country by country basis. The macro economic situation including inflation and returns available in other sectors (opportunity costs) should also be included in the assessment of a fair return.

Risks and target profit levels are directly related in that generally the lower the risk, the lower is the private sector's target return on a project. Therefore, in assessing a 'fair' return to the private sector, it is critical that Government must understand this risk/profit relationship in general and also specifically related to the subject project.

The more the risks of a project can be allocated to the best party able to bear and mitigate them, the lower the private sector's demands for a specific return will be (More accurately, the lower the private sector's demand for risk premiums, over and above a risk-free return will be) and the cheaper the cost of the services provided under the project will be.

The role of government is to negotiate a contract that neither provides for (i) more or (ii) less than around the approximate hurdle rate of return for the specific project in question. The former would mean too high a cost would be borne by the users and the latter means the project will probably not be implemented.

Therefore, Government should be clear that in trying to avoid what may be regarded as 'excessive' returns, it is not itself taking on unreasonable and/or excessive contingent liabilities and risks, nor negating legitimate commercial interest in the project.

Government must therefore be sufficiently flexible and agree to higher returns if project or other relevant circumstances demand.

This balance should be appreciated, by Government, as being a difficult and somewhat delicate issue on which adequate consideration (including consultation) should be included within the pre-or full FS study.

## Financial Analysis and Concession Agreements

The Concession Agreement is a detailed contract between the parties that describes the project in technical and financial terms including risk management. Many projects suffer from vague contracts but a contract that may run for up to 30 years or more has to anticipate all types of eventualities, at least, in broad terms to cover all wider, general and potential problems.

The financial analysis allows the Government to draft the financial aspects of the concession agreement with confidence for inclusion in the RFP. The pre- or full feasibility study contains the SCBA, the above financial analysis as well as other information which provides the key bases for negotiation on an equal playing field (which implies that all parties will have all of the appropriate information and no party will be disadvantaged by insufficient information at the time of negotiations) with the preferred bidder.

The financial analysis and model can also be used later to model the tenders received to assess the financial bids of tenderers for accuracy and realism.

One example is indicative of the difficult issues that often arise in dealing with the outputs of a financial analysis. Based on a 25-year concession, the Return on Equity (ROE) is about 18%. If this was assumed to be without major risks, that should be sufficient to get the private sector interested although they would prefer a return of the order of at least 20 %.

However, the model could show that other financial indicators are weak with a payback of 10 years and the debt service cover ratio (DSCR) does not become acceptable until between years 5 and 6 of operation. As the DSCR indicates, the cash flow is weak in the early years and the first three years show a negative cash flow.

A PPP project based on the above assumptions would be termed risky (or not bankable) in financial terms by the private sector even though Government might consider the FIRR/ROE was adequate. The sensitivity and risk analysis would show that should construction costs rise beyond that expected or if demand was lower than forecast, the financial returns would be less than 18%. In these circumstances, the key to financing infrastructure will be credit enhancement.

## Credit Enhancement

The term "credit enhancement" is defined as taking those measures to improve the risk and return profile of a project (which is economically viable) to attract financing so that it will proceed to 'financial closure'.

The term “credit enhancement” may cover a variety of meanings. In principle, anything that improves a project’s “bankability”, may be considered credit enhancement. In broad terms, this may include (i) a sound, credible, transparent cooperation program and (ii) project identification and structuring which understands and addresses the concerns of the private sector.

It may include the following three types of measures;

- **Typical project finance techniques.** These include measures (such as escrow accounts, mezzanine financing, and securitization) which seek to minimize the typical types of risk found in any cooperation project. They include the measures agreed to by the sponsors and developers (the equity participants) and the debt participants, and usually do not directly involve the host government. It is important, however, for the contracting authority and other agencies of government that are involved, to be aware of and conversant with these techniques as a part of their oversight and due diligence responsibilities in procuring and monitoring the desired infrastructure services.
- **Government support.** This includes a range of policies and measures (such as off-take agreements, revenue guarantees, tax holidays) that the government can provide to reduce the levels of risk, and improve the finances of the project, or both, as perceived and analyzed by the PPP concessionaire, and especially the lenders.
- **IFI (and Donor) support.** This includes a range of instruments that IFIs and donor agencies, such as USAID/DCA, the IFC, the ADB, OPIC, EXIM banks and other bilateral and multilateral donors can provide to assist a country to develop its cooperation program and bring projects to financial closure and implementation. These typically come into force when the overall country risk is perceived to be high (thus making purely commercial financing difficult) even though individual projects may have sound financial and economic dynamics and deserve to be implemented as cooperation projects.

Therefore if a project has characteristics which indicate weak or marginal financial feasibility and/or higher than acceptable risks, the following steps would be considered by the private sector, each with different implications for the Government, such as;

- **Project Costs:** review/reduce costs, rephase/defer some costs
- **Tariff:** increase proposed tariff and/or agree higher or more rapid escalation rates
- **Funding/ debt service improvements** including seeking to reduce interest rates or increase loan tenor (repayment period) terms (possibly in conjunction with item 2 following)
- Seek to **reduce annual costs**
- Consider if donor support might enhance bankability partly through iii above and consider providing some kind of fiscal support

Guidelines on government guarantees are presented in the following section.

A typical layout of a financial model and financial template for a PPP highway project are shown in the Module 6 -> Financial Models.

## Evaluating Government Financial Support

Government financial support is discussed in detail in Module 3-Financial Framework.

The challenge at this stage is that once it is established that a project needs support, to evaluate and value the different types of support. Assuming that all the types of support achieve the objective required, the aim is to select that support which ensures value for money and is in line with the Government's fiscal framework.

The types of support and the methods to determine costs of each type are shown in table below.

INSTRUMENTS OF FINANCIAL SUPPORT AND THEIR VALUATION		
Instrument	Valuation	Comment
1. Output Based Subsidies	Value of the Explicit Subsidy Discounted over the Period	Easy to estimate in early years but progressively more difficult over time. For short-term use standard forecasting techniques. For longer term use PV of expected expenditure. While there are difficulties, problems in estimating relatively small.
2. In Kind Grants	Opportunity Cost or 'At Cost'	Generally the 'easiest' to calculate. For example, land costs based on market value although other costs may be somewhat more difficult to value.
3. Tax Breaks	Opportunity Cost or Net Loss in Tax Revenue	Given that tax is included in the financial model, it would be possible to model with and without the tax breaks, the difference then providing the value of the tax break.
4. Capital Contributions	Opportunity cost of capital	Capital contributions are classified as a subsidy or commercially focused support depending on the cost of the support.
4.1 Debt	Return elsewhere compared to the return of this project	(Value of loan contribution) = (Amount of Loan) minus (Present Value of interest and principal discounted at an agreed discount rate (possibly commercial rates)).
4.2 Equity	Return elsewhere compared to the return of this project	As with debt, but with a risk premium. The risk premium and its derivation were described in the WB report.

5. Guaranteed Risks (Not under government Control)	PV of expected payouts	Payments should be capped. Based on what is expected to be paid out 'on average'. Can also estimate payments Government is likely to make and calculate PV based on the methodology described in Section 3.8.
6. Guaranteed Risks (Under government Control)	Same as 5. in principle	Because of difficulties with such guarantees such as the failure to raise tariffs as contracted, WB advises against such valuation.

*Source: Public Money for Private Infrastructure Deciding When to Offer Guarantees, Output- Based Subsidies, and Other Fiscal Support Timothy Irwin. World Bank Working Paper No. 1*

### Financial Rationale for the Provision of Government Fiscal Support

The evaluation of Government financial support should be considered from several viewpoints. The starting point for support assessment by Government should initially be based on the objectives of the subsidy. The Government should link the objectives with the financial performance of the project including its riskiness without any support.

If support is needed, the Government should base its support on the need to;

- Attract the private sector to participate, and on fair and equitable terms
- Minimize its risks
- Minimize its financial obligations
- Maximize certainty in providing support
- Reduce risks to the private sector in order to reduce the cost of private sector borrowing and/or to reduce the risk premium on equity
- Recoup any financial support in later years

### Estimating the Expected Cost of Fiscal Support for a PPP Project

This section describes a method for estimating the expected cost to or payout by the government if it were to commit to a particular type of fiscal support.

The proposed method is appropriate for all types of fiscal support including:

- Capital grant;
- Minimum revenue or demand guarantee, including government-backed off-take or power purchase agreement;
- Full debt service guarantee;
- Revenue rights to other infrastructure facilities;
- Tax honeymoon or holiday; and
- Operating subsidy.

The method is intended primarily for the contracting agencies, as they are the best party to take an informed view on the commercial aspects of a PPP project.

At this stage, any need for fiscal support for a PPP project needs justification by the contracting authority. An assessment of the likely cost of the various types of fiscal support that are considered appropriate would be required by;

- The PPP cell, node or PPP unit in the relevant line ministry;
- The PPP center; and
- The PPP cell, node or Risk Management Unit (RMU), at a Ministry of Finance.

The assessment would assist the line ministry to decide if it would submit the evaluated project to the central agencies. The PPP center, in turn, would then decide on the basis of the due diligence conducted by the contracting authority whether to negotiate with the RMU for fiscal support for the PPP project in question.

However, the RMU would make its own assessment of fiscal support, using possibly a similar, but more sophisticated, method. Its decision would also certainly take into consideration the government's fiscal policy and balance sheet (both present and future). The final arbiter on providing government financial support for a PPP project is usually a MOF.

### **The Method of Valuing the Future Cost of Fiscal Support**

The method is based on a probabilistic model, specifically the expected utility model. It calculates the expected cost of a particular type of fiscal contingent support in present day (present value) terms. In order to simplify the analysis, it is assumed that the opportunity cost of a monetary unit for all forms of fiscal support is the same.

This approach results in the estimated Present Value (PV) of the support options. Through estimating the future (year 1 to 'n' of the project) costs of each method of support, each type can be brought back to PVs by using the appropriate discount rate and compared.

An Excel model can be developed to apply this model. Its application requires the contracting authority to;

define the forecast volume of demand for each year (this is calculated as part of the financial analysis);

- define the period of fiscal support;
- define the outcome scenario for each year (demand is, say 50%, 75%, 85% and 100% of forecast);
- calculate the value of each outcome i.e. the amount of fiscal support; and
- define the probability for the occurrence of each outcome in the scenario.

Thus, for each year there would be a number of outcomes with a probability assigned to each outcome.

The results can be integrated into the Toolkit financial model.

Table below shows a template example of the valuation of fiscal support.

FISCAL SUPPORT VALUATION TEMPLATE								
General Assumptions						Cost of Support (PV millions)		
			Unit			Both Risks	Demand Risk	Price Risk
Project Cost		500	USD million		Model Result	123	95	28
Length of Concession		30	years					
Projected initial demand		90	units					
Demand Increase per year		0,05						
Projected initial Price	1	per unit						
Price Increase per year		7.5%						
Discount Factor		0,12						
Period of Support		10	years					
RESULT SUMMARY								
Year			1	2	3	4	5	6
Projected Revenue	USD	(a)	90	102	115	129	146	165
Expected Value of Support per year	USD	(b)	34	30	26	18	12	14
(a) - (b)			56	71	89	111	134	151
Total Expected Value of Fiscal Support	USD	(10 Years)	199	-	-	-	-	-
PV of Fiscal Support (Both Scenarios)	USD		123	-	-	-	-	-

RISK#1: DEMAND SCENARIO								
	Year	1	2	3	4	5	6	
Base Case	0	0	0	0.05	0.2	0.5	0.6	
Shortfall 1	0.1	0	0.05	0.1	0.5	0.45	0.35	
Shortfall 2	0.2	0.05	0.1	0.6	0.2	0.05	0.05	
Shortfall 3	0.3	0.1	0.7	0.2	0.1	0	0	
Shortfall 4	0.4	0.8	0.15	0.05	0	0	0	
Shortfall 5	0.5	0.05	0	0	0	0	0	
	Sum	1.5	1	1	1	1	1	

RISK#1: PRICE SCENARIO								
	Year	1	2	3	4	5	6	
Base Case	0	1	0.9	0.8	0.7	0.6	0.5	
Shortfall 1	0.05	0	0.1	0.15	0.2	0.25	0.3	
Shortfall 2	0.1	0	0	0.05	0.1	0.1	0.15	
Shortfall 3	0.15	0	0	0	0	0.05	0.05	
Shortfall 4	0.2	0	0	0	0	0	0	
Shortfall 5	0.25	0	0	0	0	0	0	
	Sum	0.75	1	1	1	1	1	

**Notes:**

- (1) Actual Model Years is 10 but simplified for presentation.
- (2) Probabilities are entered manually by user.
- (3) See section 3.8 for explanation on how to use
- (4) Source: Draft PPP Operational Guidelines Manual, Indonesia, 2006

### Criteria for Fiscal Support to PPP Projects

A number of criteria are suggested to help assess whether fiscal support should be provided to PPP projects. These include;

- The support complies with the national laws.
- The proposed project has been selected as a priority within the national planning process.
- The company requesting support has been selected/procured under a fair, transparent and competitive process with no conflicts of interest.
- The level of support meets fiscal criteria of the MOF.
- Other methods of support, policies or other measures would not yield equivalent or greater socio-economic benefits.
- The project is consistent with sector strategy.

The above criteria are a useful checklist but all of these criteria must be met.

## Procurement and Negotiating Strategy and Fiscal Support

Based upon its above assessment, Government must determine its procurement and negotiating strategy with regard to fiscal support.

The feasibility study will have already indicated to Government whether support is necessary and approximately how much will be needed.

It is a vitally important principle that subsequent to the study, the government will decide for that project whether any support will be forthcoming and the preferred type or types.

It is therefore necessary that discussions will take place with the center and MOF at an early stage in the project cycle to ensure coordination and that projects have not proceeded to study stage that have little hope of support.

The RFP can either indicate a maximum level of support or indicate no figure at all, and one of the bid criterion must be the minimization of support (or no support) requested by bidders.

## Fall back Strategy

Given that the actual agreed support will depend on negotiation with the private sector, the Government must have a maximum level of support that it will not go beyond. The government must therefore determine the fall back negotiation position i.e. the point at which it considers the type/costs and/or risks of support are not justified.

## Summary of Policy Guidelines on Government Support

The Government requires more and better infrastructure while maintaining fiscal prudence. However, if the project is risky and/or cannot generate sufficient revenue (demand is less than projected and/or users do not pay enough) the government through taxpayers must make up the difference.

Government needs to know whether it should contribute any support and, if so, how much support should it provide and its timing.

It is clear that each project will have different characteristics and therefore support will vary.

The guidelines for support are therefore as follows:

- Assess if support is necessary through the results of the feasibility study
- Determine the objectives of the support
- Ensure the support meets the criteria for fiscal support set down by the MOF (as described above)
- Assess how to target/focus support and its timing
- Assess how to minimize support and risks
- Assess the costs and risks of the different types of support

- Assess the best support strategy from the Government's viewpoint
- Decide on the maximum support that would be justified for the project
- Agree on the Government's appropriate initial support strategy before proceeding to tender
- Confirm and/or refine the Government's support strategy in the light of project tenders
- Negotiate on the basis of the above information which can be refined during the PPP project cycle.

## PPP Modalities

Types and characteristics of PPP are presented in several sections of the Toolkit: refer “Types of PPP” in Key Issues. This section provides some consideration of which modality, or which PPP modalities, should be selected for consideration at this stage in the PPP project cycle for a specific PPP project.

There are in fact many more potential types of cooperation between public organizations and private enterprises than often listed. However, in practical terms, there are only a few PPP types or modalities related to the need to encourage major private sector investment. These include Build Operate Transfer (BOT), Build Transfer (BT), Build Own Operate Transfer (BOOT) and Build Own Operate (BOO). These are for new roads. The Rehabilitate Own Operate Transfer (ROOT) modality is also appropriate and popular where an existing major road can be upgraded into a toll road.

In UK under the PFI, these modalities are similar but have somewhat different names, such as **DBFO (Design Build Finance Operate)**<sup>1</sup>.

PPP modalities vary mainly in (i) risk transfer to the private sector, (ii) the investment by each party and (iii) the control and ownership of assets (including whether during the concession period or ultimately at transfer). The modalities listed in Module 2 generally provide an increasing investment and risk by the private sector and, relatedly decreasing control and ownership by the Government.

There is a fine but significant distinction between Build Operate Transfer (BOT) and Build Own Operate Transfer (BOOT) that is often not made. BOT projects are usually those financed and operated by a government institution; those financed by the private sector are called **BOOT**<sup>2</sup>. Clearly, under the generic BOT, it is possible to extend PPP further through a service or operation and maintenance (O&M) contract awarded to a private company.

In BOO, the private company retains ownership of the facility in **perpetuity**<sup>3</sup>.

ROOT is a variant of BOOT and refers to a rehabilitation of an **existing facility**<sup>4</sup> and likewise R00 is a variant of BOO.

1 A variant of BOOT.

2 BOT generally is both a generic description and a specific modality. Most often when BOT is referred to, it normally means the former ie in reality the specific BOOT type.

3 The company could subsequently sell off the facility to another investor. This could be an infrastructure fund, for example, allowing the original investor an exit.

4 There are many examples of ROOT in the toll road sector in China. An example is the Hangzhou toll road.

## Selecting a PPP Modality

The contracting agency is required to propose initially a realistic modality in the interest of all parties. The choice of modality depends on many considerations (see Table). The relative importance of private investment as an objective is a major consideration.

Private investment would only materialize if a project is commercially viable. Fiscal support can be used to turn a non-viable project into a viable one. Without some form of government financial support, the private sector would not be interested. However, if the project is essentially a weak one, then the cost of fiscal support may be too high for the government to bear. Under this circumstance, then the attempt to use a BOOT or BOO modality would be highly inappropriate and unlikely to succeed. This is why project preparation is important and includes VfM and estimation of the PSC as described in Stage 1.

CHARACTERISTICS OF PPP MODALITY TYPES					
PPP Modality Type	Main Features	Risk Transfers	Access to private finance	Ownership	Comment
<b>1. Service Contract</b>	<ul style="list-style-type: none"> <li>Certain services are out-sourced to a private company.</li> <li>Private company provides agreed services to the GOV</li> <li>GOV retains general control and supervision.</li> </ul>	<ul style="list-style-type: none"> <li>Service contracts provide a relatively low-risk option for expanding the role of the private sector.</li> <li>No equity risk borne by the private company.</li> </ul>	<ul style="list-style-type: none"> <li>Limited infusion of private capital i.e. working capital.</li> </ul>	<ul style="list-style-type: none"> <li>Government*</li> </ul>	<ul style="list-style-type: none"> <li>This type of PPP has limited benefits.</li> <li>Service contracts can be a competitive form of operational type PPPs, and require a well-developed service industry.</li> <li>Not suitable for initial Toll Road development / investment.</li> </ul>
<b>2. Operation and maintenance contract (O&amp;M)</b>	<ul style="list-style-type: none"> <li>Management and operation of a public infrastructure is out-sourced to a private company.</li> <li>Similar to a service contract but the scope of services is wider with greater control passed to the private company.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to the service contract with additional risk of keeping the facility up to certain technical standards.</li> <li>No equity risk borne by the private company.</li> </ul>	<ul style="list-style-type: none"> <li>Limited infusion of private capital i.e. working capital.</li> </ul>	<ul style="list-style-type: none"> <li>Government</li> </ul>	<ul style="list-style-type: none"> <li>Suitable for projects with a significant operating content.</li> <li>O&amp;M could be applied to a BOT, BOOT, BOO, ROOT and ROO project.</li> <li>A method to import private sector efficiencies and technical know-how.</li> <li>Not suitable for initial Toll Road development / investment.</li> </ul>
<b>3. Build Transfer/ or Annuity Type</b>	<ul style="list-style-type: none"> <li>Private company finances the infrastructure.</li> <li>Private company builds the infrastructure.</li> <li>Upon completion of construction, the infrastructure is transferred to the government.</li> <li>Government pays the private company on an agreed schedule the total cost, plus a reasonable markup.</li> </ul>	<ul style="list-style-type: none"> <li>Private company only assumes construction risks.</li> <li>No equity risk is borne by the private company.</li> </ul>	<ul style="list-style-type: none"> <li>Much greater infusion of private capital i.e. for construction.</li> </ul>	<ul style="list-style-type: none"> <li>Government</li> </ul>	<ul style="list-style-type: none"> <li>Suited to capital projects where the government can retain operating responsibility.</li> <li>The government might end up paying more, as it is in effect borrowing from the private sector.</li> <li>Can be suitable for toll roads but limited benefits</li> <li>Can be suitable for high risk and/or low financial return projects</li> </ul>

<b>4. Build Operate Transfer (BOT)</b>	<ul style="list-style-type: none"> <li>• Government finances the facility.</li> <li>• Private company builds the facility.</li> <li>• Private company operates the facility on a concession.</li> <li>• At the end of the O&amp;M concession the facility is transferred to the government.</li> </ul>	<ul style="list-style-type: none"> <li>• Government bears the equity risk.</li> <li>• Private company bears the risks associated with the construction.</li> </ul>	<ul style="list-style-type: none"> <li>• Limited access to private finance.</li> </ul>	<ul style="list-style-type: none"> <li>• Government</li> </ul>	<ul style="list-style-type: none"> <li>• Suited to projects that involve a significant investment and operating content.</li> <li>• Suitable for toll roads.</li> <li>• Does not overcome shortage of State funding for infrastructure</li> </ul>
<b>5. Build Operate Transfer (BOOT)</b>	<ul style="list-style-type: none"> <li>• Private company finances the facility.</li> <li>• Private company builds the facility.</li> <li>• Private company operates the facility on a concession.</li> <li>• At the end of the concession the facility is transferred to the government.</li> <li>• Also known as DBFO in UK: Develop- Build-Finance-Operate.</li> </ul>	<ul style="list-style-type: none"> <li>• Private company assumes equity and other commercial risks.</li> <li>• Private company assumes construction risk.</li> </ul>	<ul style="list-style-type: none"> <li>• Significant infusion of capital for construction and working capital for operation and maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>• Private company until transfer</li> </ul>	<ul style="list-style-type: none"> <li>• Especially suitable if government has a large infrastructure financing gap.</li> <li>• Suited to projects that involve a significant investment/operating content.</li> <li>• Good solution for most projects.</li> </ul>
<b>6. Rehabilitate Own Operate Transfer (ROOT) Rehabilitate Own Operate (ROT)</b>	<ul style="list-style-type: none"> <li>• Same as a BOOT/BOT.</li> <li>• But for the rehabilitation of an existing facility rather than the construction of a new one.</li> </ul>	As in BOOT	As in BOOT	<ul style="list-style-type: none"> <li>• Private company until transfer</li> </ul>	<ul style="list-style-type: none"> <li>• Suitable for capacity expansion/road upgrading but essentially BOOT</li> <li>• Suited to projects that involve a significant investment/operating content.</li> <li>• Market risk is lower because there is a demand history.</li> </ul>
<b>7. Build own operate (BOO) and Rehabilitate Own Operate (ROO) (Effectively regulated Divestiture)</b>	<ul style="list-style-type: none"> <li>• Similar to a BOOT, except that the facility is not transferred to the government.</li> <li>• Operation and maintenance typically outsourced to another private company.</li> <li>• But for the rehabilitation of an existing facility rather than the construction of a new one</li> </ul>	As in BOOT	As in BOOT	<ul style="list-style-type: none"> <li>• Private company</li> </ul>	<ul style="list-style-type: none"> <li>• Suited to projects that involve a significant investment/operating content.</li> <li>• Market risk may be lower if there is a demand history.</li> <li>• The step before privatization and can be a good solution for toll roads.</li> </ul>
<b>8. Privatization</b>	<ul style="list-style-type: none"> <li>• Initial public offer (IPO), wholly or partly of a state-owned company (SOE).</li> <li>• Partial divestiture means government still owns a percentage of the SOE.</li> <li>• Total divestiture means the SOE has been completely privatized i.e. the company is now 100% owned by the private sector.</li> </ul>	<ul style="list-style-type: none"> <li>• The private company is responsible for all aspects hence risks in infrastructure provision.</li> </ul>	<ul style="list-style-type: none"> <li>• Private company funds future developments of the business.</li> </ul>	<ul style="list-style-type: none"> <li>• Private company</li> </ul>	<ul style="list-style-type: none"> <li>• Need to establish a strong regulatory body to prevent abuse of monopoly power.</li> <li>• Suitable if government wants to import private sector efficiencies into the SOE.</li> <li>• Privatization can be politically controversial.</li> </ul>

## Commonly Used Modalities

The purpose of this section is to describe in more detail and to inform the user of the underlying complexities involved in structuring a successful BOOT project. The structure requires that each stakeholder, and there are many (see figure below).

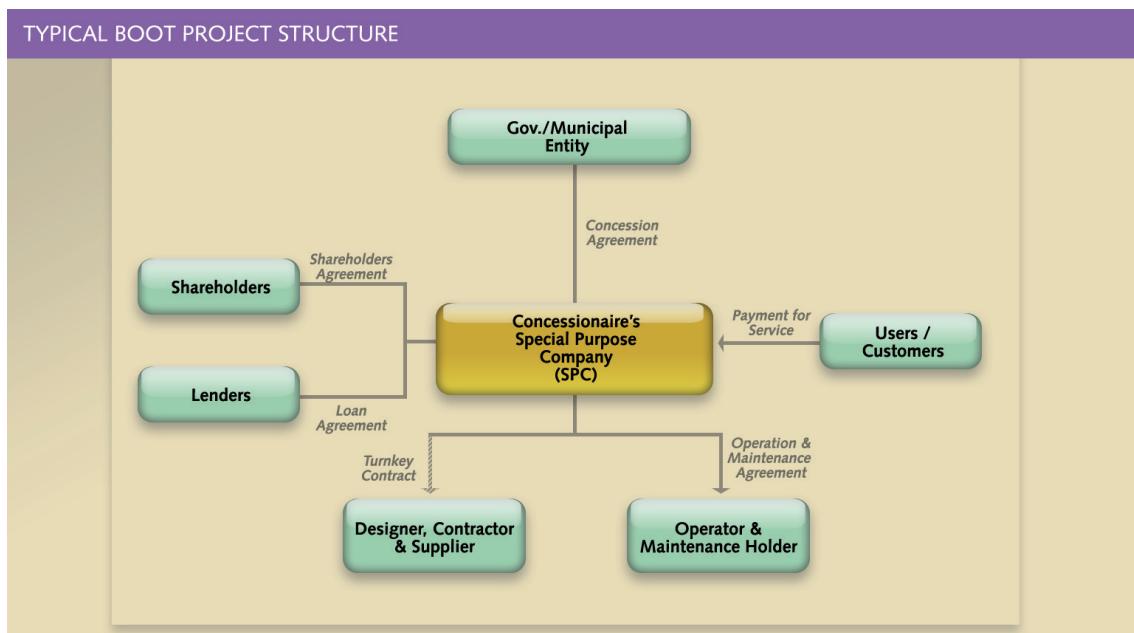
The BOOT modality is very common for new, greenfield projects. A BOOT project is one for which a government grants a concession for a pre-determined period of time to a **private consortium**<sup>5</sup> to finance, build, operate, maintain and manage the project. The consortium recoups its investment costs and makes a profit through a user charge or toll. At the end of the **concession period**<sup>6</sup>, the project is transferred to the government in a condition defined in the concession contract.

A key characteristic of BOOT is private financing. In BOOT, major risks are borne by the private company. Firstly, it provides all the financing, through an **equity contribution**<sup>7</sup> and debt, which it raises from the capital markets. Secondly, it bears the risk that the revenue yield may be less than what it needed to yield the requisite rate of **return on equity (ROE)**<sup>8</sup>.

Revenue yield depends on projected demand (or usage) and the initial toll rates and their subsequent adjustments. If government intervenes to change the toll rates or **financial terms**<sup>9</sup> as agreed in the concession contract, then there is a strong possibility that the project would not achieve the expected ROE -unless the government provides some form of compensation.

A BOOT project structure is very complex, involving many stakeholders who are contractually bound, as shown in the following figure:

- 5 Sometimes called the concessionaire. The consortium subsequently forms a special purpose company (SPC) or vehicle (SPV) to implement the project.
- 6 The length of the concession period varies from project to project and from sector to sector. The concession period for a toll road ranges from 25 to 30 years or more.
- 7 Equity ranges typically between 25% to 30% of total financing.
- 8 The requisite ROE varies over time and from sector to sector. It is essentially the “market” rate.
- 9 This could happen for political reasons. If this happens, then the government should make appropriate restitution, otherwise investor confidence will suffer.



## Other Aspects of BOOT Modality

In a BOOT project, the principal is usually the contracting agency assigned by the government or local government to procure the PPP concessionaire.

The concessionaire is usually a consortium and takes the responsibility of developing (designing, financing and constructing), maintaining and operating the infrastructure on behalf of the principal. It is expected to contribute equity finance to the project. The concessionaire is the owner during the concession period and realizes profits on the initial investment from toll revenue.

**Debt financing<sup>10</sup>** is obtained from the capital markets supplied by the private sector and the investors include both shareholders and lenders. The lenders support the concessionaire during negotiations with the principal, and may insist on some form of fiscal or other support from government to render the project bankable.

The concessionaire commissions a contractor, through a turnkey **EPC<sup>11</sup>** contract, to construct the facility. In some cases, the contractor is part of the consortium and expects to be awarded the EPC contract for its participation as an investor. Ultimately, the contractor is responsible for the construction of the project and for hiring subcontractors, suppliers and consultants.

<sup>10</sup> **Debt finance** could come from a multilateral or bilateral agency, commercial banks (sometimes in the form of a syndicated loan), and institutions such as pension funds and insurance companies.

<sup>11</sup> **EPC** stands for engineering, procurement and construction.

The operator is the concessionaire or it could sub-contract operation and maintenance to another private company. This company could also be a member of the consortium i.e. a shareholder of the SPC<sup>12</sup>.

## Performance-Based Contract (PBC) and Road Network Maintenance

In recent years the World Bank has been promoting a model contract management system/modality i.e. "Performance-Based Maintenance and Management of Road Networks. This system differs from the traditional format of unit prices and quantity-based contracts. The performance-based contract (PBC) requires a contractor to manage and maintain a road network to agreed performance standards. The contract extends over several or many years and is a partnership between client and contractor. It allows the contractor greater flexibility on how to meet the client's requirements for maintaining road networks to specified levels of service. In return, the client can benefit from a more predictable financial outlay for maintenance of its road networks.

The World Bank experiments in PBC in Latin America have been successful. Over the period 1997-1999 approximately 40% of the national paved road network, some 14,400km, was maintained by PBC. The network was divided into different sub-networks, one for each "CREMA" (Contracts for Rehabilitation and Maintenance) - a typical contract consisting of initial rehabilitation works and maintenance of the sub-network according to contractual performance requirements. Road conditions have improved considerably.-

Experience from the use of PBCs in Australia, the United States and New Zealand, has shown considerable cost reductions in road maintenance. In Africa the use of PBC is at an early stage, although trials in Chad have shown promising results.

The Centre for Enterprise Development (CDE) has an ongoing programme to develop small and medium-sized contractors in road maintenance, focusing on PBC, in Burkina Faso, Cameroun, Madagascar and Tanzania.



CDE: <http://www.cde.org.za>

<sup>12</sup> On the M1-M15 toll motorway in Hungary, Transroute, the former French toll road operator, was awarded the O&M contract.

# Risk Management

This part provides guidance on the treatment of risks on a PPP project, and;

- Identifies the major risks common to many PPP projects across all sectors;
- Allocates the identified risks between the stakeholders according to international best practice; and
- Indicates how some of the risks are mitigated once the risk allocation has been determined.

## Risk Identification

There are many potential risks that may be generally encountered in a PPP project requiring a considerable degree of risk transfer to the private sector. The choice of a PPP modality clearly dictates what risks are applicable. For example, a PPP project involving a service or operation and maintenance contract has little or no market risk attached to the venture. On other PPP projects, such as a BOOT or BOO, this market risk is very significant. Hence, the importance of how this particular risk is allocated, as explained below.

Of the many risks that might be identified, the more “important” risks are those related to;

- Land availability and acquisition (if the former is not available at the point of tender);
- The repatriation of profits;
- The construction and operation of the infrastructure;
- Traffic, revenue, costs and commercial viability of the infrastructure; and
- The regulatory environment (especially tariff adjustments). Inflation and therefore costs of operation may change substantially more than assumed and Governments often resist full implementation of such changes even when included in the concession agreement;
- Exchange rate risks;
- Interest rate increases.

A major risk relates to obtaining the right of way. This affects many toll road projects. It is also important for road access to the project e.g. access road to the project site and road alignment. Although this risk is implicit in the risk on land availability it is worthwhile to stress this particular aspect, simply because acquiring the right of way is more difficult than acquiring a single parcel of land for other projects. For example, the right of way for a toll road usually involves dealing with many landowners, requiring considerable time and effort to negotiate.

Many countries group risks, such as political, demand and performance risks, and all of which should be addressed in some way in the concession agreement.

## Risk Allocation

According to international best practice, a risk should be borne by the party (private or government) best able to manage it at least cost. This implies that the optimum risk allocation is not the same as maximum risks transfer to the private sector. Any departure from this principle tends to defeat the purpose of PPP, since maximizing risks transfer to the private investor, when it is not the best agent to manage the risks, only tends to increase the cost of a PPP project. The private sector would attach a cost premium, if it were forced to bear a risk that it is not familiar with.

Thus, a proper risk allocation should generate incentives to and penalties on the private sector to supply cost-effective and better infrastructure and service delivery. The risk allocation shown in the matrix largely follows the basic principle stated, and hence its application is more likely to lead to the kind of benefits associated with PPP. Examples include construction and operation risks. These are usually borne by the private sector, since it is the best party to manage them.

The above principle should be the general rule. However, this may not be the case with respect to the market risk. There is an increasing tendency nowadays for the private sector to share this risk with the government at the insistence, for bankability reasons, of the commercial lenders, even though the best party to manage could be the private sector. An example of this is a toll road project in which the lenders may insist on the provision of a minimum revenue guarantee by the government.

Sharing the market risk often implies that the government has to assume some form of contingent liability. This kind of fiscal support has been addressed earlier and a method of estimating the likely financial consequences has been proposed.

Clearly, the exact degree of sharing of the market risk can be a negotiation item, and whether the government is willing to share such a risk in the first place depends on the priority of the infrastructure in question and on the likely cost of the fiscal support to the government.

However, it is recommended that the contracting authority, in exchange for providing a contingent fiscal support i.e. a minimum revenue guarantee, also negotiates for some form of fiscal claw-back and/or the ability to share benefits from renegotiation or excess profits. Such a provision allows the government to benefit from the upside of the project. The claw-back, for example, would occur during the project's later years when it is making a profit.

In many countries, the risk associated with land availability acquisition is absent, simply because the project land is already available at the point of tender. Countries that do not adhere to this practice tend to attract less foreign direct investment. The private sector is less willing to bear the uncertainty related to when it would obtain the land for the project, and indeed, the final cost of the land.

A final point on risk allocation relates to the regulatory risk. It is the government's responsibility to ensure that the terms and conditions in the PPP agreement are adhered to. Any departure to what has been agreed, especially with respect to tariff adjustments, should be compensated to maintain investor confidence. If the government disallows tariff increases (to what has been agreed), it is construed as a regulatory default.

## Risk Mitigation

Mitigation here refers to any measures taken by the bearer of the risk. Where the risks are being borne by the private sector, risk mitigation is of little direct concern to the government. The main concern is for the government to ensure that the private sector takes appropriate and least-cost mitigation measures in order to sustain the project. For example, inadequate insurance against certain risks might lead to a PPP project being aborted and the benefits from it not being realized.

Some risks cannot be mitigated, either by shifting to another party or by insurance.

For illustration purposes, mitigation of certain risks borne by the private sector is discussed. The construction risk should be borne by the private sector. This is often shifted by the private investor to another private party in the form of a fixed price, turnkey EPC contract.

Operation and maintenance risks should also be borne by the private investor. Again, it could be shifted to another private entity by outsourcing through an operation and maintenance contract. For example, on some toll roads, operation and maintenance, including toll collection, are sub-contracted to a third party.

Risks associated with debt servicing should be assumed by the private investor and are usually mitigated through interest and currency swaps.

Force majeure risks are categorized as acts of God i.e. natural disasters and sovereign or political risks i.e. terrorism, nationalization or acts of war. The former is difficult to mitigate and is uninsurable, and are borne usually by the government. The latter should be borne by the government, but sometimes the private sector bears the risks by taking out some form of insurance with, for example, MIGA or OPIC.

In the case of land availability at the point of tender, as stated previously, it is the responsibility of the government. It can not be mitigated by the government –either it is available or not available. However, in the case when land is not readily available, the private sector can and will mitigate against the risk by insisting on a cap to land acquisition cost and the time frame within which land would be acquired and made available. It is likely to insist on some form of compensation in the event of a default on land cost and availability.

## Practicalities of Risk and Contingent Liabilities

Contingent liabilities are financial obligations triggered by an uncertain event or risk i.e. an event that may or may not occur. A traffic guarantee for example will only be triggered if traffic is less than a specified amount.

Contingent liabilities can be explicit or implicit. Explicit contingent liabilities are usually guarantees of various sorts but dependent on an event which may or may not occur. Implicit contingent liabilities are those related to bank defaults, currency outflows, defaults of sub national governments, environmental and disaster reliefs etc.

Contingent liabilities are of increasing concern because as more PPP projects are implemented, such liabilities are associated with hidden risks. Such hidden risks can become exposed and nasty shocks emerge, especially in financial crises.

Financial crises can lead to increase in the cost of capital, lower demand, lower returns and increases in uncertainty. Pressure for higher tariffs and mismatch between returns and risks can leave the government with contingent liabilities.

There are a number of dimensions to contingent liabilities which are described below.

### How to minimize risk

The first objective of government should be to minimize such liabilities. Many contingent liabilities arise or are more substantial than they should be from poor project preparation. Good project preparation is discussed above but includes;

- Sound project rationale and proper project sizing
- Good SCBA, including traffic forecasts and costing, social impacts and land acquisition
- Sound financial support and guarantee procedures and application
- Contracting/Retaining experienced advisors who will, among many other tasks, identify, allocate and quantify all fiscal risks as part of governments' due diligence for all PPP projects
- Adequate availability of appropriate financing
- Avoiding political interference
- Adequate consultation and openness
- Transparent and competitive processes
- Effective draft model contracts

### How to quantify contingent liabilities

By their very nature contingent liabilities are unknown. However, methods based on probability analysis can provide an estimate of the timing and future cost of guarantees. This was described above.

### How to control and manage contingent liabilities

Usually the government has an authority to control and manage contingent liabilities, usually part of a Ministry of Finance. It should be well resourced and have senior staff with substantial experience in risk management techniques including those related to PPP contracts.

The tasks of this authority/department/ministry are to identify and manage all fiscal risks associated with PPP projects including;

- Plan and manage all off budget and off balance sheet activities
- Develop appropriate accounting guidelines for fiscal risk

- Provide input to PPP policy on fiscal risk and on budget and off balance sheet activities
- Balance fiscal risk and infrastructure development
- Develop risk management practices to limit fiscal risk to acceptable levels
- Monitoring the levels of contingent liabilities (at all levels of government) and those of events that may impact triggering of contingent liabilities
- Contribute directly or indirectly into new financing structures
- Avoid crowding out of private financing
- Be fully involved in renegotiations
- Coordinate with other PPP organizations, cells, sources of finance and others to;
  - Encourage projects that are self financing and/or projects that have less volatile financing needs and characteristics
  - Help prioritize the less profitable projects that need subsidies and guarantees that might develop into actual liabilities
  - Obtain and provide information relevant to the project cycle
  - Assist with ongoing development and improvement to PPP procedures
- Prevention/mitigation of moral hazard at all levels of government and by private sector
- Assist in the development of laws and regulations to carry out these tasks.

### Other tools

There are other tools that may minimize or mitigate risks and contingent liabilities;

- Multilateral agencies: IMF/WB/ADB for example can contribute to stability by enforcing fiscal disclosure.
- Audit institutions and finance ministries can publish information and support the authority in 3 above.
- Countries that are risk averse, lower capacity to manage risk and lower borrowing capacity should not be encouraged to develop contingent support programs.
- Countries also have contingent liabilities related to non PPP investment or organizations e.g. State Owned Enterprises, national airlines for example. All contingent liabilities could be considered in an integrated manner.

### Clear guidelines for contingent liabilities

Clear Guidelines for PPPs including contingent liabilities can help to avoid and mitigate risk and the following issued by Government of Bihar are quite instructive:

“Appropriate and robust legal, policy and regulatory frameworks with suitable institutional capacity building will be provided. These will include, inter alia:

- Clear legal basis and appropriate procedures for PPP transactions.
- Transparent policy and regulatory frameworks for PPP projects that would minimize avoidable transaction costs and delays in project implementation while ensuring protection of consumer interests. These frameworks need to also provide

for constructive contract management, e.g. the resolution of differences between parties over the life of the contract.

- Transparent contracts for PPP projects, based on these frameworks which will allocate risk between the private and public partners.
- Institutional mechanisms to facilitate the identification, development, processing and management of PPP projects.
- Mechanisms incorporating independent, accountable and transparent appraisal and selection processes that ensure value for public money in PPP projects.
- Expedited approval processes that follow a constructive developmental approach, while ensuring adequate provisions for due diligence, consistency with processes in other sectors and incorporating best practices on accountability and transparency, and
- Measurement, disclosure and provision for contingent liabilities that may arise as a part of the PPP transaction”.

### Fiscal Risk Matrix

The following table shows a fiscal risk matrix which may assist in defining types of risks.

POSSIBLE SOURCES OF FISCAL RISK FOR CENTRAL GOVERNMENTS		
	Direct Liabilities	Contingent Liabilities
Explicit Liabilities	Government liability created by a law or contract; E.g. Sovereign debt, budget expenditures	State guarantees on service purchase contracts (demand risk) <ul style="list-style-type: none"> <li>• State guarantees issued to private investors and service providers</li> <li>• State guarantees on debt and other obligations of sub-national governments</li> </ul>
Implicit Liabilities	A "political" obligation of government that reflects public and interest group pressures e.g.; pensions, social security and health not covered by law, recurrent investment costs	Non-contractual claims arising from private investment, for instance in infrastructure <ul style="list-style-type: none"> <li>• Claims by sub-national governments to assist in covering their own debt, guarantees, arrears (PPPs at sub-national level) e.g. environmental recover, disaster relief</li> </ul>

*Source: Contingent Liabilities: A Threat To Stability. WB PREM Notes 1998 and modified by M Mrsnik, IMF-Hungarian Ministry of Finance, 2007*



The Fiscal Implications of Infrastructure Development. R Cohen and M Percoco.  
IADB Workshop Washington. Feb 2004



PPP in Highways. Jose Luis Irogoyen. WB Transport Forum 2006.



Contingent Liabilities: A Threat To Stability. World Bank PREM Notes No 9 November 1998.

## Mitigation of Risks in Highway PPPs

Risks can be mitigated through a number of measures.

The workshop paper by Ellis Juan looks at mitigating risks in highway PPPs through the financing dimension. This is a useful complementary approach to mitigating risk and supports Modules 2 and 3 where it states that all risk can be related to financial outcomes.

Fluctuations in cash flows are considered as a proxy for risk i.e. if demand is not as high as projected, interest rates rise, annual costs are higher than projected the results will manifest themselves in the cash flow.

The key driver then is cash flow predictability which brings in the need for risk mitigation products to minimize cash flow downward influences.

One suggested measure already being provided and/or discussed are the availability of longer tenor loans to match more helpfully PPP contract duration through infrastructure financing facilities e.g. IPPF in Pakistan and the IICLF in India.



Tools to Mitigate Risks in Highway PPPs Ellis Juan, Sector Manager, World Bank

TYPES OF RISKS AND IMPACTS							
<<<<<<Non-sovereign Risks					Sovereign Risks>>>>>		
Risks	Comple-tion Risk	Perfor-mance Risk	Environ-mental Risk	Demand Risk	Political Risk	Regula-tory Risk (inc. Land Acquisi-tion Risk)	Macro-economi-c Risk
<b>Cash Flow Effect</b>	Cost over-runs and delays.	Revenue generation and operational costs increase	Hidden liabilities	Revenue generation	Expropriation, transfer, convertibility		
<b>Cease of revenue generation</b>	Revenue generation. Tariff Adjustment; Right of Way, Termination payment	Revenue generation. Devaluation / inflation impact of cash flows					
<b>Impact</b>	High	Low	Low	High	Low	High	High

Risk Mitigation Instrument	EPC Contract and performance bonds	Performance based contracts	Environmental Assessment	Traffic Minimum Revenue Guarantees / VPN Concession Partial Credit Guarantees	Political Risk Insurance	Concession Contract Partial Risk Guarantees –See Module 2 on WB and ADB Guarantees	Local currency financing
Provider	Private	Private	Private	Private/ Public	Private / Public	Public	N.D.

*Source: Juan Ellis (reference above table)*

Juan Ellis suggests a ‘rolling guarantee’. A rolling guarantee is; “A partial credit enhancement product providing a guarantee of a specified number of interest and/or principal payments, on a rolling forward basis — i.e. the guarantee rolls forward to the next installment date automatically (if no claim has taken place) or upon payment by the issuer of a previous claim — so that the guarantee covers a rising share of remaining debt service.

For a toll road project where investors perceive a potential risk associated with a variation in the debt service coverage due to slow traffic, delays on tariff adjustments or both at some point within the overall bond tenor, or are uneasy about a period of heavy investments (i.e., rehabilitation), the rolling guarantee will smooth out the repayment profile and reduce investor concerns about potential timing/cash flow issues”.

Other suggested mitigation activities include securitization, partial credit guarantees and Monoline insurers.

Financial markets improvements and a comparison of available World Bank risk mitigation instruments are also discussed.

More details on guarantees, including partial guarantees, are available in the J Ellis paper and on the World Bank and ADB web sites.

# Stage 3: Procurement

Stage 3 provides the guidelines for bidding and procurement based on international best practice as described by UNCITRAL and PPIAF.

Procurement under PPP means procurement of the (highest ranked) bidder under a transparent, fair and accountable procurement system. Procurement entails;

- Prequalification of bidders (RFQ)
- Bidding, including Request for Proposals (RFP), and;
- Subsequent negotiations and award of contract.

The tender process should be adapted to the nature and complexity of the project. This section of the Toolkit provides a detailed description of the various steps to be followed for the following two main categories of projects.

- **Concession projects**, which typically involve large investments, extensive scope of work entrusted to the private sector and private finance
- **Maintenance contracts**, for which the proposed selection process can more easily be adapted from the usual procurement rules for civil works

For both types of PPP the following is described under Main Steps;

- Principles of procurement
- The selection process
- Information required to be given to bidders
- Evaluation Criteria

The process of procurement however should be transparent, open, and fair.

- Transparency means that (a) the rules are made available to all participants and will be followed as stated in the bidding documents. Transparency means that clear and acceptable guidelines for bidding are distributed to all participants and that those guidelines are consistently followed.
- Openness means free and open competition. The first step to maximize free and open competition is through information provision, which instils confidence in the process, encourages more contractors to compete for PPP projects, and results in overall lower prices to the benefit of the public.
- Fairness means all participants are treated fairly and consistently at all times, which will further encourage capable, responsible contractors to compete for PPP projects.

Those responsible for procurement in government need to build up a reputation for these attributes.

The Toolkit indicates that if the tender process is not a success initially e.g. there is an insufficient number of bidders for a project, it should not just be re-tendered but re-evaluated and restructured as necessary. If Stage 2 is undertaken properly, the likelihood

of unsuccessful bidding will be minimized, as most unsuccessful tenders are due to poor project preparation or poorly drafted concession agreements or both.

World Bank guidelines in public procurement provide support to borrowers for sound public procurement policies and practices.



<http://go.worldbank.org/8HE37SPEJ0>

Concessions for Infrastructure: A Guide to their Design and Award. Michel Kerf with R. David Gray, Timothy Irwin, Céline Levesque, Robert R. Taylor, Michael Klein; WB/IADB 1998 PPIAF Advisory Toolkit 2001



ADB Developing Best Practices for Promoting Private Sector Investment in Infrastructure – Roads 2001



Highways Agency Procurement Strategy. November 2001



Public-Private Partnerships – Options to ensure effective competition. Charlie McCREEVY European Commissioner for Internal Market and Services - PPP Global Summit – The 6<sup>th</sup> Annual Government-Industry Forum on Public Private-Partnership — Copenhagen, 17 November 2005



Responsible PPP Procurement for British Columbia (PDF)



Contracts for Public-Private Partnership (PPP) Options World Bank procurement policies & procedures for different PPP options: Commonly used methods for award of PPP contracts, 2008



India's PPP Program: World Bank Support  
PPP Nodal Officers' Round Table 2008 November 26-27, Cochin



Attracting Investors to African Public-Private Partnerships, Chapters 7 to 9  
A Project Preparation Guide, 2009

# Overall Principles for Procurement

Public and Private Partners embarking on a PPP choose to develop a long relationship; they want it to last and to be as fruitful and peaceful as possible. For each party, the choice of the adequate partner is of paramount importance.

## Why bid?

During the selection and award process, the public entity launching the PPP will make efforts to attract the best potential partners. On their side, private firms are eager to find the adequate project in the adequate environment, promoted by public parties with whom they will be willing to enter into partnership.

Except in very rare and specific cases, experience has shown the greater efficiency of competitive bidding over direct negotiation. Therefore current thinking supported by IFI conditions is that competitive bidding is the best way to initiate the close relationship required to develop successful PPPs.

Further, where subsidy is concerned, regulations in many countries including Korea, India, Pakistan, Indonesia, as examples, insist that if any subsidy is involved the project must be competitively bid. This is for two reasons; transparency and to ensure the subsidy is the minimum possible.

Competitive bidding will therefore almost certainly be chosen, and certain important principles should be kept in mind throughout the entire process.

## What are the benefits?

One may be tempted to believe that the issues at stake are so complex and so sensitive that an adequate partner cannot be selected on the basis of a written proposal.

Many governments have had bitter experiences with firms selected through a bidding process. Some firms are just good at making proposals and manage to make up for their deficiencies or lack of experience in the bids. Others are so desperate to enter the market that they commit themselves with promises they will never be able to deliver. Could it be preferable to directly establish a partnership with reliable firms, well-established in the business, who have demonstrated their ability to deliver the required services efficiently and have sufficient experience to operate in the conditions existing in the country? Experience also shows this is rarely the case!

## Competition: securing efficiency gains and avoiding corruption

Mechanisms for more efficiency shows that competition (either *in* the market or *for* the market) is the main tool for the public sector to stimulate the private sector and collect a fair share of the efficiency gains generated by the project.

Competition *in* the market is not easily introduced in PPPs. Such projects are regulated by long-term contracts and once the agreement is signed, the private party enjoys a quasi-monopolistic situation. When the private operator is being paid by the Government, prices are usually pre-determined by the contract and only fluctuate to a very limited extent. When the operator gets its revenue from road users (mainly toll roads), the competition it faces is limited to possible alternative free roads that the user could use if not satisfied by the service offered for the price he pays.

The selection process provides an opportunity to bring in fair competition *for* the market and optimize the quality of the services to be delivered over the cost of the project for the community.

Competition is also very important to avoid future debates about whether the fact that the concessionaire makes significant profits is unfair or wrong. It also protects politicians and awarding authorities from being attacked in respect of corruption.

### Competition as a rule, direct negotiation as an exception

A comparison of both systems is shown in the table below.

COMPARISON OF COMPETITION AND DIRECT NEGOTIATION	
COMPETITION	DIRECT NEGOTIATION
<b>Advantages of competitive bidding</b>	<b>Perceived advantages of direct negotiation</b>
Stimulates private firms in the search for innovative solutions that would give them a competitive advantage	More space for technical innovation left to private party
Transparency assured if process conducted properly	Private entity feels it has a better chance of success and is ready to invest at preparation stage
Process controlled by the public party	Private sector driven
Favored by IFIs and often imposed by local regulations	Overall duration of the process is theoretically shorter (but increasing public pressure for more transparency reduces the scope for discretionary negotiations); Ultimately, it often takes longer.
More private firms involved through publication = more chances to get the best ones	First firm to make proposal is not necessarily the best one
<b>Perceived drawbacks of competitive bidding</b> <b>e.g. Cheapest should be the best, but in some circumstances may not be</b>	<b>Drawbacks of direct negotiations</b>
Evaluation of innovative proposals is difficult	Risk of capture of efficiency gains by the private firm
Longer process (when a prequalification stage is included)	When Government is inexperienced, risk of unequal negotiation and longer time overall due to uncertainty

Appears more expensive if the Government conducts no or little preliminary studies. The latter are however necessary if the government wants to be at that same "level" during negotiations.	Appears cheaper initially but consideration of making a mistake that will last for 30 years or more
Transparency should be assured	Risk of accusation of corruption by the community and the media
Can discourage private firms by excessive bid preparation cost	

A competitive selection through either competitive bidding should be the rule, leaving direct negotiations for very exceptional circumstances such as:

When the public sector cannot keep pace with the preliminary preparation work for urgent projects: unsolicited proposals by private parties can then be taken into account and may lead to competitive bidding with some kind of advantage for the initial candidates.

When the project needs very little public participation or when unsolicited proposals submitted by private companies are genuinely innovative: direct negotiations with the candidates will then tend to maximize the public's interest. In such cases, policy makers in charge of the selection process can use various mechanisms to mitigate the potentially negative impact of unsolicited proposals:

- Order a detailed review of the project and contractual documents by experienced advisers
- Introduce competition at a later stage, allowing new-comers to make proposals on the basis of the studies performed by the initial private firm. For the sake of fairness, some advantage should then be granted to this initial firm to compensate for the cost incurred during project identification. Alternatively, the initial firm would be compensated for the cost incurred during the initial studies.

# Unsolicited Proposals

Often, private firms can and want to take the initiative. They identify a project with good potential economic and financial returns and conduct a ‘feasibility’ study. Based on the results of their investigations, they submit an informal proposal to the Government to start the process. Subsequently, Government invites bids through a competitive process that gives some sort of preference to the firm that identified the project.

Experience suggests that the preparatory studies performed by an unsolicited bidder prior to signing the contract are nearly always weak in two areas;

- Incomplete technical and inaccurate cost base of the project
- Inadequate exposure of the risks associated with the project, the outcomes of which may end up being borne by the Government

Policy makers also need to carefully assess the project impact on sector policy and the overall performance on the road system. Even when the selection of the firm is done through a competitive bidding giving some preference to the “originating” firm, governments face the risk that this stated preference may deter competition and in the end reduce incentives for increased efficiency and economy.

The main incentives for a Government to embark on direct negotiations are usually based on the following rather weak reasons:

- A good relationship with the firm and the fear of entrusting the work to another less qualified firm in case of a competitive bidding procedure; However, in the highway sector there are usually many reputable and well run companies.
- The time and costs associated with the competitive process; Experience has shown that often such projects in the early stages go faster but such projects are ‘difficult’ and take longer overall.
- The lack of financial resources for conducting the preliminary studies required to launch the bidding process. Many governments are setting up revolving funds for project preparation and funding is generally always available from multilaterals/bilaterals for appropriate projects that will follow transparent and competitive tender processes.

In general, unsolicited bids are not encouraged by most countries and distract professional staff from priority projects and clearly facilitate corruption.

A detailed description of current thinking and process if unsolicited bidding is allowed follows.

## Why are there unsolicited proposals?

For private companies, there is a substantial financial attraction in knowing that they will win a bid and thus recoup their bid preparation costs which can be substantial. That is one major reason why there are unsolicited proposals and especially related to already identified government projects.

Private companies also frequently have innovative ideas to solve known problems for which no credible technical or financial solution seems to exist, and/or for which their company has specific technical capability.

The most frequent cases occur in underground projects. Progress in this field has been remarkable as regards the use of huge tunnel-boring machines, but also in the finding of original construction solutions. Tunnel solutions are possibly suited to solving urban congestion problems or for major crossings of sounds or mountain chains for example.

## Problems with Unsolicited Proposals

When the public authorities receive unsolicited proposals, they are confronted with a number of difficult problems;

- Administrative: Valuable time and human resources must be spent to establish if the proposal is credible. Staff have to defer work on priority PPP projects; Staff also have to avoid any possibility of corrupt practices which may also lengthen the process.
- Legal: From a legal point of view, the laws governing competition generally prohibit the public authorities from awarding works without holding a competitive tender. For EU countries, European guidelines relating to competition are very strict and the Commission is very careful to see that they are applied. In such cases, what should be the procedure to avoid losing the benefit of an idea which may bring considerable improvements to traffic conditions while still observing these rules?
- From a technical point of view the main problems to be examined by the public authorities are generally the following:
  - they should first make sure that the problem which the proposal aims to solve is a real problem and that the proposed solution conforms to policy. A frequent problem is that of respecting the major choices as regards balance between modes of transport (private cars on the one hand and public transport on the other).
  - they should obtain an expert appraisal of the solution to make sure it is viable. The proposed solutions are in fact often very technically advanced ("state-of-the-art") and only highly specialized experts are capable of guaranteeing their reliability. They should especially guarantee that the solution satisfies all conditions relating to safety, which are very stringent as regards underground solutions (fire) or major crossings (ship collisions, behavior in very high winds, etc.)
  - they should make sure that the new road fits well into the fabric of existing roads.
  - lastly, they should organize public debates and meetings necessary to make sure that the project will not raise opposition at a later stage likely to cause it to be abandoned when considerable expense has already been incurred in design work.

## An Updated view on Unsolicited Proposals

When the original toolkit was prepared in 2001 the thinking and experience at that time suggested that although unsolicited proposals could be problematical, there was a proper place for them within the PPP process. To some extent that view still prevails, i.e. there is a place for unsolicited proposals.

However, experience has shown that unsolicited proposals and projects tend to cause difficulties, either real or perceived, because they are associated with lack of competition and lack of transparency. Both these factors have implications for, if not result in, corrupt practices. Corrupt practices generally lead to higher cost solutions for government and often a slower implementation time, not faster.

Unsolicited projects have rarely been successful in the sense that the objective was achieved or that the objective was achieved without financial and political pain to the government. Generally, project preparation and understanding of an unsolicited project on the government side has been weak leading to projects being started and then usually much weaker financial position being revealed, with substantial hidden costs imposed on governments.

Given the limited capacity of governments to process more than a few projects at any one time, unsolicited projects also consume a disproportionate amount of government human resources which should be devoted to both public and/or PPP projects.

The current view therefore is that there is a place for genuine and innovative proposals but these are the exceptional case and that the private sector must put up strong independent analyzed cases for unsolicited proposals at an early stage before governments are sucked in to supporting projects that are financially weak, high risk, will take up significant human resources of the government and will likely take a longer than normal time to implement because of these difficulties.

The Jakarta monorail is one example of a 'difficult' unsolicited project. This went ahead as a type of unsolicited project but soon ran into substantial financial difficulties and eventually needed government guarantees (and thus probable subsequent subsidy) to continue, which was neither foreseen in the government budget nor could be substantiated except by the economic/political 'crisis' caused by the project to government.

On the other hand, the I 495 Beltway development in Virginia, USA was an unsolicited project that has provided needed investment with innovation. However, Virginia Department of Transportation is familiar with PPPs and has developed good guidance for both solicited and unsolicited PPP projects.



Public-Private Transportation Act of 1995. The Commonwealth of Virginia.

The Capital Beltway (I-495) is part of the USA's Interstate Highway system and the busiest corridor in the National Capital Region and is probably the second most congested roadway in the USA. This major transportation road has reached capacity and was in need of significant preservation and upgrade. Recently, Virginia partnered with

Fluor-Transurban, Inc. under an unsolicited bid to increase capacity including through new High Occupancy Toll (HOT) Lanes. Under this partnership agreement, Virginia will retain ownership of the 14 miles of new lanes while Fluor-Transurban will design, build, maintain, operate, and finance the project over a 75-year concession period.



The Capital Beltway And Public-Private Partnerships; Prepared for: The National Council for Public-Private Partnerships. By: Matthew T. Brown, Timothy P. Cronin, Saurabh Lall, Joseph R. Lataille, Margaret Sacks, December 2007

Under various criteria of the NCPPP, this report states that the tender for the unsolicited bid has been a success.

This project will provide a 14-mile, free-flowing network for buses, carpoolers and sluggers on the Capital Beltway. Two new HOT lanes will be added in each direction on the I-495 beltway.

Vehicles carrying three or more people, motorcycles, buses and emergency vehicles will use the HOT lanes free of charge. Vehicles carrying one to two people can either travel on the general purpose lanes for free or pay a toll to ride the HOT lanes.

This project is made possible through a public-private partnership between VDOT and Fluor-Transurban.



VirginiaHOTLanes.com has more detailed information on the project and construction.

The following box shows some key details.

FACT SHEET Date: July 2008 on Interstate 493 Virginia USA

Funding, Key Business Terms and Procurement

Project benefits

New travel choices, including first-time transit lanes and dedicated high occupancy vehicle (HOV) lanes

First capacity enhancement in the Beltway in a generation

Congestion relief

Improved safety and performance

Replacement of aging infrastructure

Project funding

By partnering with the private sector, the Commonwealth can advance improvements more quickly than traditional methods. With vast, competing transportation needs, the Commonwealth does not have sufficient funding to improve the Beltway. This one project would consume more than a year of all construction funding available statewide.

.../...

.../...

#### Key business terms

The Commonwealth negotiated a fair agreement with Fluor-Transurban under the Public Private Transportation Act that benefits Virginia while providing the private partners an opportunity to earn a reasonable rate of return on their investment. Key business terms of the 80-year agreement include:

VDOT retains ownership and oversight rights to ensure project is constructed, operated and maintained in accordance with agreed-upon standards

VDOT has right to terminate contract if terms and standards are not met

The Commonwealth is not prevented from building any other transportation capacity, but the private partner will have the first right to fund and build additional toll lanes on the Beltway if congestion warrants

If the HOT lanes are a financial success, the Commonwealth will share in that success through revenue sharing – enabling the Commonwealth to earn up to 30 percent of earned annual gross revenue after agreed upon benchmarks

All design and construction will be completed under a fixed price contract - traditional public sector construction risks have been shifted to the private sector, with the exception of pre-existing hazardous materials and right-of-way costs

75-year operating term, 5-year construction term

Vehicles with three or more passengers and transit must ride free

Project will use variably priced tolls to keep lanes free flowing, with tolls based on levels of congestion

To ensure HOV-3 will be free and that there is no disincentive for carpool and transit use on the HOT lanes, the Commonwealth will make partial payments to the Concessionaire in the unlikely event that HOV use exceeds mutually agreed upon numbers

Once complete, HOT lanes must be operated to maintain free-flow traffic conditions in accordance with federal requirements

Commonwealth will have the right to suspend tolling during emergencies or to manage traffic congestion – under certain circumstances, the Commonwealth will reimburse the private partners for lost toll revenues

At the end of the term, the HOT lanes must be handed back to the Commonwealth at an agreed-upon level of quality

The private sector is solely responsible for project debt - the Commonwealth is not responsible for any debt repayment for the life of the project.

## Bidding Systems for dealing with Unsolicited Proposals

If unsolicited proposals are accepted, the most common systems governments use to manage them are:

- **Bonus system:** Bonus points (usually a maximum of 10%) are awarded in the tender to the original proponent. Used in Chile, Korea and Indonesia.
- **Swiss Challenge:** A third party can bid on a project during a designated period but the original proponent can counter match any superior offer. Used for example in the Philippines and Taiwan.

- **Best and Final Offer System:** This is a variation or hybrid of the first two systems, the key element being multiple bidding rounds. Used in S Africa, Argentina and Costa Rica.

These systems are well documented with examples in the WB/PPIAF report noted below.

It should be noted that if the bonus or advantage given is excessive (and 20% say might be considered excessive) the advantage given to the original proponent may be too high and the competitive aspect either blunted or even eliminated.

In all cases the projects must be tendered competitively.

## Policy and Related Choices

If governments decide to allow unsolicited proposals in their PPP policy framework, they must make decisions on a number of issues;

- General presumption against unsolicited tenders except in very special circumstances
- System to be used
- Reimbursement of project development costs
- Establishing time constraints
- Appropriate Incentives
- Inter-ministerial coordination procedures
- Effective sector planning

## Summary

The governments' proposed approach to unsolicited proposals should be described in the national/local PPP policy framework.

At a minimum, all unsolicited proposals should be subject to a thorough transparent and competitive process in which all challengers have a fair chance of winning.

All the main systems have been demonstrated to be effective but are effective only to the extent that the country's PPP system is effective.

In general, the current thinking is that it is probably both neither desirable nor possible to stop all unsolicited proposals. However, the disadvantages are very considerable. Therefore, the policy on unsolicited proposals should be clear, should discourage in general and only allow those few that have genuine merit to be analyzed by government through a robust and effective system.



Unsolicited Infrastructure Proposals: How some countries introduce Competition and Transparency.  
Hodges and Dellacha. Working Paper No. 1. WB/PPIAF. 2007.

# Bidding Issues

## Define the Scope of Works

In particular for a BOT type of concession contract, an initial question is to decide who, at each stage, should be in charge of designing the road: the public authorities? the operator? or both? Depending on the stage the project has reached, the consequences of the answer to this question is of the utmost importance for sharing the risks and responsibilities between the partners of the project.

The most frequent case of public-private partnership (PPP) for the construction of a new road is that of motorway concessions with real or shadow tolling. The investment is considerable, the return on investment is very long and the risks are very great. It is essential to pay considerable attention to finding the right advisors for the feasibility studies and then subsequently the private partner who must be both technically and financially competent and especially risk management aware.

It must also be taken into account that one of the main advantages of PPP is that of being able to derive maximum profit from the concessionaire's capacity to innovate, as well as its knowledge gained through practical project experience. For this purpose, sufficient freedom must be left to the concessionaire to precisely determine the project at the tender and design stage. Experience has shown that allowing the concessionaire considerable initiative within the key objectives set down by government may lead to considerable reductions in project costs.

## Other considerations

Being obliged to associate the public in the project design phase often lengthens the time required for the studies necessary for determining the alignment. Leaving these studies entirely up to the private operator would mean considerably lengthening the time between awarding the contract and the start of the works (10 years or more!) and considerably aggravating the pre-construction risks. This should encourage the public authorities to carry their alignment investigations out in sufficient detail before inviting tenders.

Other arguments come in support of this. The decision of the public authorities to undertake the operation in the form of a PPP can only be taken on the basis of serious economic and financial studies. Such studies suppose having available a reasonably accurate evaluation of the financial, social and environmental cost of land acquisition.

It can thus be seen that the problem of the level of precision to be aimed at during the preliminary studies prior to the tender is very complex. It is even one of the central problems in concession projects which gives rise to much debate internationally, of which contractors are very much aware. A balance must be found between the solution where the public authorities simply determine the points of origin and destination, leaving the operator to carry out all studies and meetings with the public and that where,

on the contrary, the public authorities determine precisely all the characteristics of the project.

In any case, it is essential, except when specific problems arise (archaeology, dangerous materials, deep mine shafts, etc.), to leave all technical risks to the private operator, except in cases of force majeure, as otherwise, the public authorities will seriously run the risk of seeing the concession become bogged down in inextricable dispute procedures. For this reason, it should be specified in the tender regulations and in the contract, that in all cases, and even if the public authorities have got very far in determining the alignment, it is up to the operator to carry out all the necessary complementary investigations to identify and measure the extent of the standard construction risks, the standards and required outputs and descriptions submitted by the administration only being given for information purposes.

This right balance in sharing the studies between the road authorities and the operator very much depends on the characteristics of the operation and the local, technical, political and sociological conditions. In inter-city areas with no particular difficulties, a recommended approach is to have determined, by the end of the preliminary studies prior to bidding, not necessarily a precise alignment, but at least a corridor in which the alignment will be situated, and to have made sure that it will raise no opposition from the public or environmentalists. It will then be up to the concessionaire to carry out the necessary studies to precisely determine the optimum alignment within this corridor along with the project characteristics. However, a full FS would provide close to the final alignment, subject to the winning bidder proposal.

The width of this corridor may vary according to the density of the constraints and the sensitivity of the environment in each zone. To give the concessionaire maximum choice, he may even be left to decide between several corridors, once it has been made sure that they are all acceptable to the public and on condition that the national laws authorize such a solution (which supposes in particular that several alternatives may be declared simultaneously to be in the public interest).

In urban zones, two cases must be distinguished:

If the only solution is a surface alignment, this alignment will need to be determined precisely right from the preliminary study stage on account of the multiple problems to be dealt with, and in any case, examined in detail before launching the operation (re-housing, relocation of utilities, restoring roads, dealing with public transport networks, noise protection measures, reducing cut-off effects, insertion into the landscape, conditions for performing the works, etc.). The corridor is thus reduced to the alignment itself.

In the case of an underground solution, these difficulties mostly disappear and as much freedom as possible should be allowed regarding the alignment and even the general design of the structure.

The same applies for major bridges or major underpasses in inter-urban zones. It is essential to leave as much freedom as possible to the operator both as regards layout and technical solution. Such structures are in fact always special cases which require being analyzed on a case-by-case basis by the public authorities and their consultants.

Lastly, it should be underlined that the level of project preparation studies obviously depends on the wishes of the government, the characteristics of the project and on the procedure chosen for bidding.

In any case, the operator should be fully informed in the tender documents of the constraints to be respected and the administrative procedures to be followed for those studies placed under its responsibility. The winning bidder should also benefit from the support of the public authorities, particularly for carrying out public information campaigns and meetings.

## Define Expected Performance

### Choice of definitions

PPP-type contracts give rise schematically to three types of requirements corresponding to the different project stages:

- quality requirements for the construction, reconstruction and rehabilitation phases;
- performance requirements throughout the maintenance and operation phase;
- hand-back requirements which concern returning the conceded facility to the conceding authority on expiry of the concession contract.

These requirements are not independent. There should be continuity and coherency between the quality requirements for the works and performance requirements (e.g. the level of evenness required during construction or rehabilitation should be at least equal to that required regarding the performance of the road pavement in service).

It should also be underlined that, as far as possible, as regards the initial quality or performance, the requirements regarding results should be given priority compared to the requirements concerning the means and method of execution. With these reservations, we will only deal here with the last two requirement categories, which are specific to PPP.

### The design of the contract should stimulate the operator to perform well

The fact that it is to the operator's advantage to perform well is a powerful aid to respecting quality requirements (at the construction stage) and performance requirements at the operation and maintenance stage. Contracts that follow this objective can lead to major savings in supervision work. Their wording may be more concise: it is unnecessary to go into detail concerning requirements which, if they are not respected by the operator, will prove very costly. It is essential to take this principle into account right from the PPP design stage.

## Type of contracts encouraging better performances

It is essential, when organizing the project and the contract, to make sure that the operator has a real interest in better quality works and better performance.

The following examples illustrate this principle:

- When the public authorities wish to entrust road construction, rehabilitation and maintenance to the private sector, they would be strongly advised to include them in the same contract and entrust them to the same contractor. Thus, any defect in the quality of the works will result in extra costs for the operator which constitutes a powerful encouragement for it to perform the works well.
- With sufficiently lengthy maintenance contracts (5 years, for example) work defects which are not immediately visible will become so. Of course, the optimum period to be considered should also take account of other elements: the advantage of experimenting with shorter contracts during the launching phase of a PPP policy; the worry of not being bound for too great a period to the same operator, etc.
- The quality of service on the rest and service areas is one of the parameters of motorways attractiveness. For toll motorways, it is desirable that the concessionaires of service areas (service stations, shops, restaurants, hotels, etc.) be sub-contractors of the conceding authority, which will thus have a direct interest in the good quality of the services provided and be able to regulate and control it directly.
- Being given a choice of toll payment means (cash, credit cards, electronic tolling, etc.) is well perceived by users. The operator will be encouraged to increase this variety and to develop new techniques if it collects tolls itself. This will not be the case if the sums collected are handed back to the conceding authority. In the first case, it will also very naturally be encouraged to actively fight against fraud at the toll barrier, which is a permanent source of worry to toll managers as in this field, drivers' imagination is boundless!
- The possibility of extending the contract if performance is achieved also encourages the private sector to perform works and services well.

# Competitive bidding

The bidding process has one overriding objective: the selection, award and signing of a contract with the bidder having submitted the proposal that best meets the objectives of government and/or the best deal for users.

To an inexperienced observer, this stage may appear to be the simplest part of a PPP process. Yet, experience shows that this is where governments usually err, either as a result of inadequate earlier stages such as poor project preparation or poor bidding processes or both. Wherever the mistake(s), the result would be failed bidding procedures, selection processes that are denounced (rightly or wrongly) as fraudulent, or contracts which are disadvantageous to the government. Months of hard work, and years of implementation/operation, could be wasted through a single mistake or a few small mistakes during the procurement stage.

Due to the large size of many PPP highway contracts, the massive investments involved and the numerous stakeholders directly or indirectly involved government officials will often be under pressure. This pressure will come from politicians, the media, NGOs or contractors who feel that a particular potential bidder should be given preference. The best way to counter this pressure is to ensure that the bidding process is clear, fair and carefully thought out.

During both the design of the procurement process and the actual selection, the Government shall keep certain key bidding principles in mind:

## Ensuring Competition and Transparency

Ensuring competition and transparency is crucial to avoid the process being challenged by the press, the public, legal authorities or some of the competitors.

Competition is a catalyst that stimulates PPP private actors in delivering efficiency gains. But it only works if it is conducted fairly. Corruption, graft or any asymmetric treatment of the competitors will not only result in additional cost for the community but could also lead to the selection of the wrong private firm who will be unable to generate the expected benefits.

Governments, in general, lay great emphasis on transparency in the procurement process. Any lack of transparency or even a perception of a lack of transparency may derail the process. This may result in public protest, investigations by Congress, graft bodies or law suits.

It is therefore vital to emphasize the need for transparency, even to the point of exaggeration, so that the transaction is not only transparent but is also perceived as being transparent.

## Discretion and subjectivity

A natural result of the desire for transparency is the reduction of discretion and subjectivity, particularly in the pre-qualification and bid evaluation processes. Each time a civil servant is given discretionary power, the temptation to abuse this power to favor a particular bidder also exists.

## Public information dissemination

While public participation and information should take place throughout the project development, this communication effort is of particular importance during the few months prior to the start of the bidding process. This will help build up public support and limit future excessive inquiries and investigations.

## Attracting the best potential bidder

### Attract bidders

Potential bidders will not necessarily rush to compete. Provision shall be made to ensure that private industry feels secure enough to risk entering the selection process.

PPPs are innovative in their essence. Competent firms with an optimum capacity to handle the project and deliver the expected benefits are not always numerous, not even on the international market place. To attract the best potential bidders, the Government should firstly ensure that the country environment fulfils their basic requirements. At the procurement stage, some further parameters will be essential to attract competent firms:

#### *True commitment by the public party to carry out the project*

Bidding for a PPP highway project is a very costly venture. In a fair number of countries, ambitious projects have been launched and then stopped in the middle of the selection process resulting in very large losses for the private firms involved. Most of those countries now face tremendous problems in attracting the private sector to participate in their next generation of PPPs. Potential bidders will only be willing to invest this money if they can be reasonably certain that the government is truly committed to the project.

#### *Fair competition between bidders*

Once a potential bidder is convinced that the government is serious in pushing through a bid for a toll road, the next question it asks is whether the process will be fair or not. If a bidder is not given a fair chance in a particular bid, it will look for another project to bid for.

In this regard, bidders will first consider the reputation of the country and of the government officials who will oversee the process, particularly those responsible for bid

evaluation. Secondly, they will examine the evaluation procedure itself to determine whether it is biased and likely to favor any particular bidder.

#### *Set Clear rules of the game and Stick to Them*

Most of the bidding process is conducted through documents. Dialog and opportunities for clarification are rare, at least in the early stages of the process. Any misunderstanding by the bidders of the rules and procedures for selection will discourage them from participating. Particular attention should be paid to the comprehensiveness, clarity and compatibility of project documentation issued by the Government.

Naturally, if the private sector knows that the government will stick rigidly to the rules, so will they, if they are not to waste time and money.

#### *Minimized cost of bid preparation*

The cost of preparing a bid for a PPP highway project, and particularly for a toll road concession, can be very significant. Historically, bid preparation costs have often been ridiculously high, reflected in the cost for the community either directly (preparation cost included in the bid price) or indirectly (private firms desperate to recover this cost during project implementation).

Before embarking on the selection process, private firms make an evaluation of the bidding cost. They now benefit both from sophisticated tools (databases, cost evaluation software) and from their experience and will compare the expected preparation cost to their potential profit, keeping always in mind that the cost is certain and immediate while the profit is only hypothetical and will be spread over a distant and lengthy period. Bidders will be particularly discouraged if they feel that most requirements are purely bureaucratic constraints and will not help in the selection process.

#### *Marketing the project*

Generally, the project needs to be marketed or sold to potential bidders. Often, bidders will consist of consortia of various actors from the project country or from abroad. Depending on the scope of work and the type of financing scheme, they could involve contractors, consultants, road operators, investors or lenders.

Particularly in the case of large toll road concession projects, there are often a relatively limited number of bidders. It is then important to market the project, primarily through the dissemination of a preliminary information memorandum (preferably for free and typically posted on a web site) to key private sector companies, particularly infrastructure-related firms and banks, either directly or through embassies.

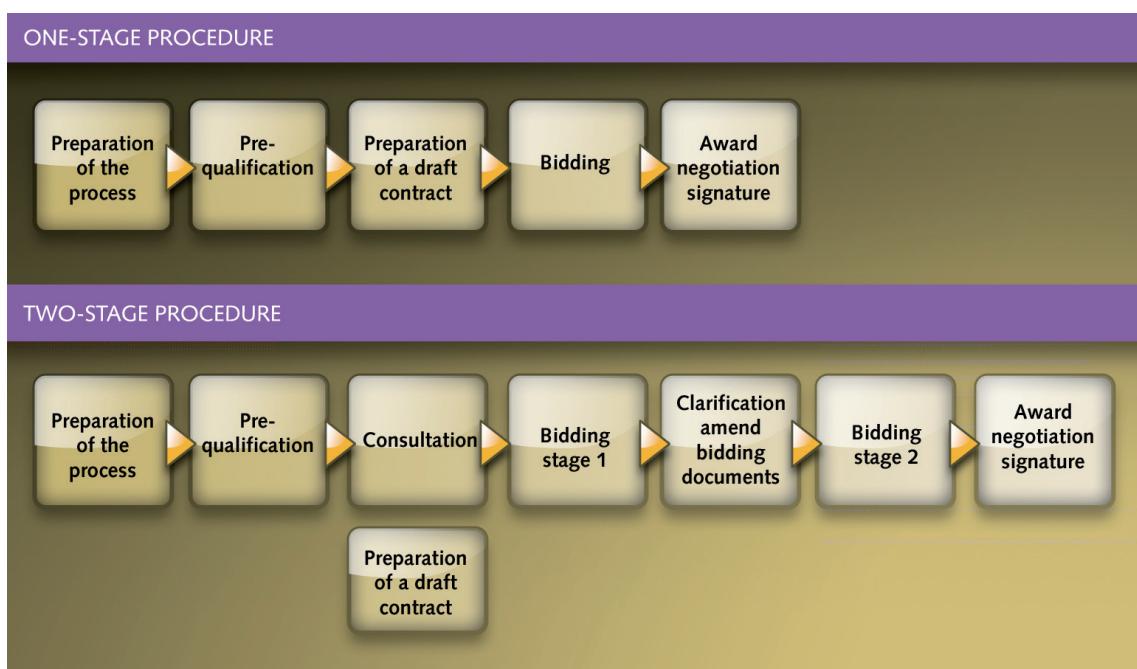
It may also be necessary to conduct preliminary talks with some of the potential bidders and financing institutions in order to gauge their interest in the project and their expectations. This will help in the contract design process and in determining the minimum pre-qualification requirements.

# Concessions: Main steps in competitive bidding

Two main approaches can be chosen by the Government for the procurement of concessions:

- **One-stage procedure:** When the Government has a precise idea on the technical options and specifications to be chosen. Prequalified firms are asked to submit bids in strict accordance with the specifications imposed by the Government. Final selection is made on a “financial” basis alone and little room for negotiation is left to the selected candidate. This procedure is often used for highway projects.
- **Two-stage procedure:** In particular when uncertainties remain on technical options to be retained, it may be undesirable or impractical to prepare complete technical specifications in advance. This is typical for large and complex PPP projects. In such a case, a two-stage bidding procedure may be used. In stage 1, unpriced technical proposals based on a conceptual design or performance specifications are invited. They then are subject to technical and commercial clarifications and adjustments. In stage 2, amended bidding documents are issued and final technical proposals and priced bids are submitted and evaluated.

The main steps of each procedure are shown on the diagrams below. While preparation, prequalification and drafting of the concession contract are similar in both approaches, the main differences are found at the bidding stage.



Preparation of the selection process mainly consists in setting up the **Steering Committee and clarifying the approval process.**

## Prequalification

Pre-qualifying bidders serves various purposes:

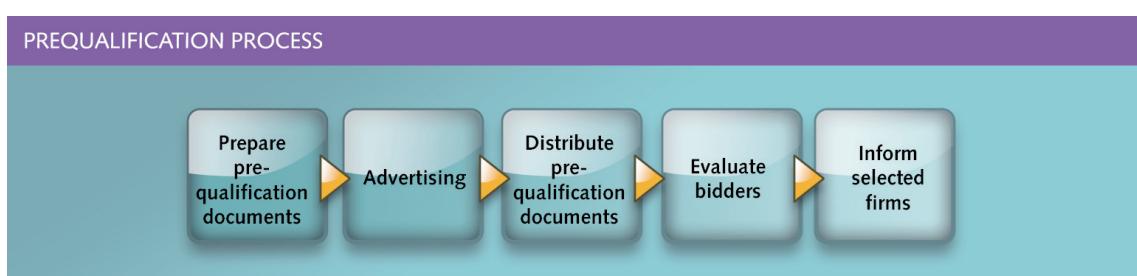
- On the part of the government, it ensures that only those capable of implementing the project to be put out to tender actually participate in the bid.
- On the part of the potential bidders, it saves an unqualified firm the substantial investment required to prepare a bid.

For experienced firms, it limits the number of competitors and eliminates inexperienced and unqualified bidders, thus reducing the risk of losing the project through an unrealistic bid (low balling). It therefore increases the incentive to participate.

In practice, however, and particularly in developing countries, there are two main issues;

- Prequalification can lead to collusion between potential bidders (moreover opinion within the World Bank seems to be moving against preselection);
- the problem is often not that there are too many bidders but that there may be too few candidates for the PPP project. Marketing the project is therefore of paramount importance to ensure that all qualified firms are aware of the project and feel confident they could benefit from it.

The steps involved in the prequalification process for a PPP are usually no different from those for typical civil works projects. Usually, 5 to 6 candidates are pre-qualified.



Two aspects are important for the pre-qualification process:

- the information provided to interested private parties,
- the information to be provided by the potential bidders:

### *Information to be provided by the public entity*

This shall be sufficient to attract qualified private parties, allow them to assess their capability to satisfy the demands of the project and to allocate resources for bid preparation:

- short description of the highway project and main design features,
- scope of responsibilities to be entrusted to the private party,
- level of autonomy left to the private party,
- outline of the cost recovery mechanisms,
- project schedule and actual progress,
- principles of the selection criteria and process.

### *Information to be provided by potential bidders*

In order to facilitate selection of the best candidates, they shall provide information on their:

- financial capacity and ability to raise private finance,
- managerial and technical capacity and expertise,
- certified experience of exercising similar responsibilities in similar projects,
- knowledge of the context of the project country,
- approach to the project and its specific conditions.

### **Typical pre-qualification documents**

The pre-qualification documents should comprise:

#### *Information on the selection process*

Criteria to be used by the Steering committee to pre-qualify firms shall be clearly stated.

#### *Project Information*

- Brief description of the project and its main design features.
- Scope of responsibility to be entrusted to the private sector.
- Project schedules showing actual progress and next steps.
- Description of the institutional framework and the role of the various government agencies directly or indirectly involved.

### *Information to be provided by potential bidders*

It is of vital importance for the project not to discourage applicants by unnecessary or unclear requests for administrative documents not directly related to the selection process. Request for document certification (legalizations, sworn and certified translations, etc.) should be kept to the minimum.

#### *Financial sustainability of the applicant.*

Typically, it must document its financing capability by submitting the following:

- A report on its financial situation (capital and net fixed assets)
- A report on the proposed financing structure for the project. Such a document, which should not be compulsory, could be used as a tool to analyze the applicant's understanding of the complexity of the project.

#### *Experience and track record*

Typically, a prospective bidder must provide the following evidence:

- that, either alone or as a member of a joint venture (J.V), it has undertaken one or more PPP projects of similar magnitude (to be defined in numbers).

- that its key personnel and that of its contractors have sufficient operational experience in the relevant activities of the project.

An important part of the relevant experience sought is for operation and maintenance, including general experience in the handling of public utilities. This is particularly important because of the impact of road operation on thousands of users.

Operating a public utility is very different from operating a typical industrial facility. It requires sensitivity to public perception and the development of a good relationship with the general public.

With regard to toll road operation and maintenance, relatively few companies in the world have enough practical experience thereof. In many developing countries, this expertise may need to be sought from foreign partners unless specific programs are conducted to develop domestic contractors (Module 3 -> PPP Policy Framework -> Capacity Building and Training-> Enhance Private Sector Capacity).

#### *Management structures and operational capabilities*

The prospective bidder typically provides information about its key personnel, particularly for project-managing the construction and handling the project's operation and maintenance.

#### *Legal requirements*

Bidders shall give evidence that they are not insolvent or in receivership and shall state that they have not committed any criminal offence relating to professional conduct. Information may be requested from the applicants about any pending legal claims against them and disputes they are involved in on other similar projects.

Due to the complexity and size of toll road projects, bidders are usually composed of several firms which will legally bind themselves together through some form of joint venture agreement.

### Preparation of a draft contract

As the Concession Contract is the main document that will regulate the future relationship between the Government and the main private entity, it is preferable to embark on its preparation at an early stage in the process.

It should be noted that most countries around the world have developed model draft PPP contracts for each specialist sector or sub-sector. This means that the private sector has already had some input to draft contracts through consultation. It also means that both government and private sector will know what to provide and expect respectively as a basis for the specific project under consideration.

The active participation of legal experts from the country concerned is essential in drawing up draft (and final contracts). Additional and supporting assistance from foreign legal advisers is often required and advisable when the scope of the project goes beyond the traditional projects implemented in the country.

The advantages of including a draft contract in the bidding documents are numerous and include in particular:

- **Transparency and fairness.** Negotiation with the selected bidder on all terms of the contract would result in substantial changes in the conditions of contract between the firm and the contracting authority. Such an arrangement would be contrary to the principle of objectivity and equality and would surely be challenged by unlucky competitors.
- **Negotiation leverage:** Prior to a bid and during the submission period, bidders are under pressure from the other competitors. Moreover, they want the selection process to end as fast as possible to avoid unnecessary spending on project preparation: both reasons make them more likely to accept contractual clauses which they do not consider as being ideal. After the bid, it is normally the government which is in a hurry to get the project started. The winning bidder often wishes to delay contract finalization because it needs time to put together a management team and secure financing.
- **Risk assessment:** it allows the bidders to identify the risks allocated to them and further evaluate their potential impacts on expected benefits. On this basis, the private sponsors of the project will be able to discuss with other future actors of the project and negotiate the internal risk allocation with them.

Preparing the draft contract consists in translating the proposed risk allocation matrix into contractual terms that, once the agreement has been formally finalized, will govern project implementation. This exercise can therefore only take place when preliminary studies have been completed, the risk allocation and mitigation principles defined and Government support determined.

## Bidding

Once a few competent firms have been selected and informed, the Steering Committee shall proceed with the bidding phase.

In the **Data room** all documents relevant to the project which will assist the firms in the preparation of their bids shall be made available in a common location managed by the steering committee.

All existing and reliable technical information on the project should be gathered in the data room. Objective project information on parameters largely influencing the project costs and revenue is particularly useful: traffic counts, Origin/Destination matrices, geotechnical investigations. All available study materials should be made available to the bidders and in particular:

- Economic and financial (pre-)feasibility study conducted on the project (Module 5 -> Due Diligence and Feasibility Studies),
- Detailed or preliminary design of the road (Module 2 -> Scope),
- Performance indicators for operation and maintenance (Module 2 -> Scope -> Performance Indicators for Maintenance Works),
- International and National standards governing the works, operation and maintenance. Description of the site location and access to the site (Module 3 ->

Sector Planning and Strategy -> Planning Process ->Technical and Performance Standards ),

- Environmental impact assessment study (if any) and a detailed description of the constraints to be imposed on the private firms during all project phases (Module 3 -> Economic Development and Public Interest -> Mitigating Negative Impacts).
- Bidding documents will be compiled and sent out to the qualified bidders. A sufficiently long period (typically four months) will be allowed to the various bidders to collect information on the project and prepare their bids.

### **Technical information in the data room**

Reference should be made in the bidding documents to the data room. Typically, bidders shall be informed on the location where the information is available, conditions to access it. A list of the main documents is also useful.

### ***Financial and economic information on the project***

- Statement of the financial requirements
- Proposed tariff, toll or fee structure and revenue-sharing arrangements, if any,
- Formulae and price indices to be used in the collection and adjustment of tariffs, tolls or fees,
- The currency in which bids may be expressed,
- Inflation, discounting rates, and foreign exchange rates for conversion of currencies to a common base for comparison,
- Information about rules and regulations governing foreign exchange remittance,
- Nature, amount, period of validity and other principal terms and conditions of security and warranties.

### ***Information on project planning***

- Timetable for completion of the construction works
- Maximum period for project construction
- Maximum concession period (if relevant)
- Timetable for project operation

### ***Support from the Government***

Specifications of the assistance and facilities to be provided by the government authority (Module 3 -> PPP Policy Framework -> Incentives ans Guarantees).

### **Bidding documents**

Unlike for the procurement of works, supplies or services, international standards for PPP bidding documents have been slow to develop until recently. Some countries with long experience of PPPs such as the UK or Chile have compiled standard bidding documents for BOT or Concessions but do not necessarily apply them to all projects. South Africa, India,

Pakistan, Zambia are among a number of countries that have more recently developed 'standardized provisions'. The main underlying reason is, once again, the differences that make each project unique and privilege customization over standardization.

The bidding documents sent to the pre-qualified bidders will include instructions to bidders. Along with other data, the instructions will outline, the required content of the bid, the procedures for clarifying the bidding documents and submitting bids, security requirements, how the bids will be submitted, opened and evaluated and the procedure to be applied for contract award and negotiation. A standard tender form is also supplied.

It is normally unnecessary to request a long list of tedious bid documents. Governments must beware of loading bidders with unnecessary requirements. Each item of the bid documents should have a clear, specific purpose. A simple way to view the bid submission is as follows:

- All bidders are pre-qualified and are therefore all capable of implementing the project.
- There must be some form of assurance that a bidder is truly committed to the project (bid bond and/or minimum committed equity).
- Information to be included in the bidding documents shall comprise:

Detailed instructions to the bidders to lead them through the bidding documents. In particular, instructions for bid submission (date, location) identify the project manager in the Government entity and relate to the relevant procurement legislation in force, if any. The procedure for contract award and negotiation, including evaluation methodology and criteria, is also detailed.

The evaluation criteria shall detail the method for the evaluation and comparison of bids, including how such factors may be quantified or otherwise evaluated and the method for evaluating alternative proposals.

## Bid documentation

The bid documentation shall include three sets of document:

- Detailed requirements of the public entity,
- Complete information on the project and its environment,
- Instructions to bidders to prepare their proposal.

### *Detailed requirements of the public entity*

This will be in line with the pre-qualification information and generally be in the form of a draft contract agreement, describing every public requirement:

Extensive definition of the responsibilities of the private party as regards highway design, rehabilitation, finance and maintenance,

- Level of autonomy of the private party,
- Risk allocation to the private party,
- Cost recovery mechanisms and conditions,

- Financial support to the project provided by the public entity.

*Complete information on the project and its environment*

- Description of the highway section,
- Specifications to be applied,
- Information relating to traffic conditions,
- Existing road condition surveys and results of recent investigations (pavement, structures, drainage, road furniture, landscape) relating to the project,
- Legal and administrative framework.

This information shall be detailed in order to minimize bidding costs for the private candidates but shall not:

- prevent bidders from offering cost-efficient alternatives based on their expertise and capacity for innovation,
- transfer unnecessary risks to the public entity.

*Instructions to bidders to prepare their proposal*

These instructions will specify:

- What documents bidders must produce regarding their technical and financial proposals,
- What information they shall give concerning their own organization for the project and its set of internal agreements,
- What guarantees they shall present with their bids,
- What mechanism will apply for exchanging information between the public party and the candidates during the bidding period,
- How long the tender period and the selection procedure will last,
- Which criteria will be used to assess their proposals.

The public entity should make sure that its tender specifications will enable private candidates to make comparable proposals which will satisfy the main objectives of the project.

## Documents to be submitted by bidders

### *Technical proposal*

- Operating program and costs
- Maintenance program and costs
- Environmental protection plan.

The identification of contractors, sub-contractors and suppliers with their qualifications is an additional and unnecessary burden on bidders and should not be compulsory. The construction market is sufficiently well developed and competitive for those actors to be identified once the concession has been awarded.

Similarly, bidders should not be requested to conduct a detailed engineering design of the project.

### *Financial proposal*

- Cash flow projections: although usually not directly used in the evaluation, such projections can show whether the bidder has used reasonable assumptions in the preparation of his bid. They can also provide an indication on the level of detail of the investigations conducted by the bidder.
- Formal bid - proposed tariff, payment to government or requested amount of subsidy.

### *Legal proposal*

- Acceptance of terms of the contract,
- Draft shareholders' agreement, consortium agreement, joint venture agreement or a similar contract by which the sponsors commit themselves to carrying out the project agreement if they are awarded the project, could be requested,
- Letter of conveyance signed by the authorized representatives of the company or consortium submitting the bid.
- Term sheets of other main contracts could also be requested (construction contract, operation & maintenance contract, insurance, etc.).

### *Draft Contract*

Bidders may also be required to submit a copy of the draft contract, as part of their bid documents, in order to affirm their compliance with the terms of the contract and limit post selection negotiation to a reasonable minimum. Such a provision is usually made when the Government wants to limit future negotiations on the terms of the contract to the minimum.

## **Bid evaluation**

Months and possibly even years of work reach their climax during bid evaluation. For the losing bidders, months of work and considerable investment may be considered as "wasted". If they suspect they have not been treated fairly by the government, many bidders will not hesitate to challenge the bid evaluation process. There have been suggestions to mitigate this risk, including compensating the losers to cover part of their expenses. Such provisions are successfully implemented for PPPs in some countries such as Holland and in other types of competitive bidding such as international architecture competitions. However, it is regarded as complex to do this and has not been tried elsewhere.

### **Evaluation criteria**

Evaluation criteria will cover (i) compliance of the bids to the tender specifications, (ii) feasibility of the proposals, (iii) costs and benefits of the proposals for the public entity.

### *Bid Compliance*

Strict verification of compliance is necessary if the public entity wishes the contract award process to be transparent. Compliance shall apply for both technical and financial proposals. Alternatives shall also be analyzed on the grounds of compliance and should not depart from the compulsory specifications.

### *Proposal Feasibility*

Technical feasibility will be evaluated against prescribed performances on the basis of standards, methods, duration of construction, associated risks, certified design, rehabilitation and maintenance experience, proven ability in environmental impact mitigation, traffic management, health and safety arrangements. Cost analysis and comparisons will be key elements in this examination.

Financial feasibility will be analyzed through a detailed review of the basic assumptions of the bids (realism of the project revenue -if any- as compared to all costs involved, credibility of financial support, existing guarantees and commitments within the groups bidding).

### *Value for Money of Proposals*

Making a transparent evaluation of the “value for money” of each proposal for the public entity and comparing them on equal terms is a difficult process:

- the first element is the financial support (explicit or implicit) given by the public entity to the project, either immediate or deferred.
- all other elements of costs and benefits, such as tolls levied, time savings, VOC savings, increased comfort and safety for users, tax revenue for the State have to be calculated at net present value, using common assumptions.

### *Selection of Preferred Bidder*

This shall be based on a combination of the quantitative assessment of the “value for money” and an evaluation of the risks of non-feasibility of the proposed solutions. The difficulty of assessing bids for complex projects should in no case lead the public entity to rely on over-simplified integrated quotations.

**Bid evaluation:** Using the criteria and the methodology stated in the bidding documents, the steering committee will select the best proposal.

### **Evaluation rules**

Objectivity in the comparison of bids should be a leading principle when drawing up the evaluation rules. The first step (validation) of the evaluation consists of checking compliance of the bids with the technical, financial and legal specifications of the bidding documents. This step is conducted on a pass / fail basis. Evaluators should focus on the feasibility of the project rather than on the bidding firms who are supposed to have demonstrated their capacity to implement the project in the pre-qualification

stage. It should be noted, however, that while validation helps reduce the risk of project failure, it may also have important drawbacks. It often involves considerable discretion and judgment by the evaluation committee, which reduces the overall transparency of the project.

The second step (financial evaluation) of the evaluation will compare the compliant bids among each others, using objective and quantifiable evaluation criteria.

### Financial evaluation criteria

The choice of an appropriate financial criterion greatly depends on the project. It should have been identified at an early stage of the evaluation process and clearly stated in the bidding documents.

Typical bid evaluation criteria are:

- Toll rate for the first year of operation (usually, a toll rate escalation formula is also provided),
- State subsidy required,
- Duration of the concession,
- Income guarantee requested from the State,
- Revenue offered to the State for existing infrastructure facilities,
- Total income from the concession,
- Degree of risk commitment that the bidder assumes during the construction stage,
- Quality of the technical offer

### Multiple-parameter bids

In some cases, bids are evaluated on the basis of multiple parameters; each bid is scored using a formula that aggregates the various parameters with chosen weighting coefficients. Such a system has the advantage of better taking into account the complexity of PPPs and balancing out the advantages and drawbacks of each proposal.

The reference provided below contains a table showing the various parameters and the corresponding criteria used for the procurement of toll roads in some European countries.



Analysis of Highway Concessions in Europe, Franck Bousquet, 1999, section III.4

The problem with this procedure is its inherent subjectivity. Typically, questions may be raised on the relative importance given to a particular parameter as opposed to another. Complexity of the evaluation system does not necessarily lead to more objectivity. Moreover, regardless of the complexity of the evaluation formula, bidders will always have the resources to mathematically analyze the formula and use its weaknesses to prepare a bid that would optimize their chances, not necessarily in the interests of the project.

## Single parameter bids

Experience has shown that selection systems based on a single parameter are often the most successful.

The criterion is usually chosen from among the following:

- A bid based on the initial toll rate. The lowest wins.
- A bid based on a payment to (or a subsidy from) the government. In this case, the initial toll rate is set by government. The highest payment (or lowest subsidy) wins.
- A bid based on the length of the network to be built. Again, the initial toll rate is set. The bidder which proposes to build the longest network wins.
- A bid based on the term of the concession. The initial toll rate is set. The shortest concession term wins.

The table below shows the evaluation criteria chosen to award various road concession projects in Latin America.

AWARD CRITERIA IN SELECTED LATIN AMERICAN TOLL ROAD CONCESSIONS		
Country	Award criteria	Concession duration
Argentina-road corridors	Highest lease fee paid to government	Fixed by government but extended after renegotiation
Argentina-urban access	Lowest toll	Fixed by government but extended after renegotiation
Brazil-Federal	Lowest toll	Fixed by government
Brazil-Sao Paulo	Highest lease fee paid to government	Fixed by government
Brazil-Parana	Largest network length	Fixed (but likely to be extended as a result of politically imposed cut in toll)
Chile-1st generation	Multiple criteria	Fixed by government
Chile-2nd generation	Least net present value	Unknown
Colombia-1st generation	Multiple criteria	Fixed by government
Colombia-2nd generation	Least cost to government	Fixed by government
Mexico	Least cost to government	Fixed by bid
Peru	Shortest term	Fixed by bid
Peru	Least subsidy	Fixed by government
Uruguay	Shortest term	Fixed by bid

Sources: Estache (2000), Irigoyen (1999) and various World Bank internal reports.

Evaluation based on the initial toll rate has the distinct political advantage of securing a bid with the lowest possible toll rate. Particularly in countries where there is substantial resistance to the payment of tolls, this procedure is the most socially acceptable. Moreover, by giving an incentive to lower the toll rates, such a process is likely to bring more vehicles on the road and maximize its economic benefits.

The other side of the coin is that reduced toll rates penalize the revenue stream of the project, in particular in its early years when financial equilibrium is particularly difficult

to achieve. Under pressure from competition, bidders can be too aggressive in their bids and if selected, might find themselves in a position where they are not able to secure the required sources of funds (debt in particular). Such circumstances would result in substantial delays for the project.

Systems based on a fixed initial toll rate and bids evaluated on the basis of the highest payment made to the Government (or lowest subsidy required) sometimes appear more reasonable. They have the advantage that the government controls the initial toll rate and sets it at a level which is both acceptable to road users and will still generate sufficient revenues to mobilize the required financing. It is however very difficult for the policy makers to set the toll rate at an optimum level whereby financial balance of the operating company is relatively secured and only the profit of shareholders is at risk.

Experience of the Chilean Government in the bidding process is commented in:



Broad Roads in a Thin Country: Infrastructure Concessions in Chile. A. Gómez-Lobo and S. Hinojosa.  
Draft paper. 1999



Route 68 Concession, Chile (PVR auction), World Bank

Comparison of single evaluation criteria used for eight different projects:



Private Financing of Toll Roads, Fishbein and Babbar, RMC discussion papers series 117, page 21.

## Contract Negotiation and Award (one-stage procedure)

The bid evaluation process shall be concluded by the elaboration of a bid evaluation report summarizing the outcome of the evaluation and the identification of the bidder to be called to negotiate.

Once again, the complexity of PPP arrangements makes this phase very delicate for the following reasons:

- Issues to be discussed are very numerous, diverse and interrelated. PPP negotiations always last several months.
- Detailed expertise on all fields relating to the project is required on both sides of the negotiating table. On the Government side, financial, legal and technical experts shall closely follow the entire process to gain a good understanding of the overall picture.
- Investment from Government at this stage has already been substantial.
- Steering Committee members are usually under pressure from Government to quickly conclude and start the implementation phase.

- Numerous unclear areas have to be clarified.

In concessions where substantial investment is required from the firm, the most sensitive issue lies with the capacity of the bidder to secure the financing of the project. While the project equity is usually to be mobilized by the bidder from its own resources, debt provided by the lenders (typically 60 to 80% of the project cost) is not firmly committed at this stage. In reality, there is no guarantee that financial closure (final commitment from financiers on the total project cost) will be reached. Requesting firms to include these commitments in their bids (full underwritten bids) is unrealistic since this would cost around ten times more to the bidders than for a normal bid and most firms would not be willing to take such risk.

Typically, the concession contract is signed upon agreement by both parties on all clauses and its enforcement is subject to financial closure being obtained by the concessionaire within a fixed period of time.

There is no guarantee however that such a financial closure will be reached and the contract shall become void if the concessionaire cannot mobilize sufficient funding.

For larger and technically difficult projects, the two stage procedure is to be recommended.

## Contract Negotiation and Award (two-stage procedure)

This procedure is made to allow the private sector to come up with technical alternatives and options that would improve the project design before conducting the actual selection.

In a first stage, bidders are requested to submit technical bids only, based on a conceptual design made by the Government. A draft contract is usually also included in the bidding documents and possibility is given to the bidders to comment and amend it. No selection is made at this stage, its main purpose is to gather information from bidders and improve the project design. The steering committee can then conduct a series of individual discussions with the bidders and request them to clarify, justify or document their proposals.

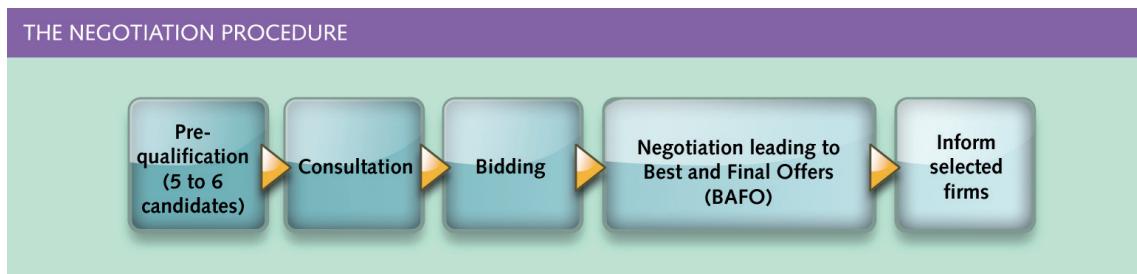
In a second stage, the Government finalizes the project design on the basis of the best proposals identified with the bidders and prepares new bidding documents and invites the participants to submits full technical proposals and priced bids as in the one-stage procedure.

The main drawback of such procedure is the lack of motivation sometimes noticed from the bidders to prepare sound and comprehensive technical bids in the first stage while no selection is made, and disclose information on their approach to the project to other bidders who could use it in the second stage.

### The negotiation procedure

The procedure detailed below has been developed by various public organizations to improve the outcome of the negotiation phase and reduce the risk of unsuccessful tenders. Even though this selection procedure has largely been developed so as to fit

in with European Union legal requirements, the principles are easily adaptable to other jurisdictions.



As in the two stages procedures, all pre-qualified bidders are requested to submit a technical bid based on a conceptual design. However, the technical proposal comes with a priced bid. Two candidates are selected from the bid evaluation process (pass/fail for the technical proposal and lowest bid for the price). The option of starting negotiations with three parties should be avoided as this would complicate the procedure unnecessarily for all parties.

The negotiations should result in the client asking the two short-listed bidders to submit new offers (Best-and-Final Offer - BAFO) on the basis of the risk allocation and technical terms that have been developed with the two candidates in parallel.

Again ultimate selection criteria should be price and the strength of the financial package.

The final negotiation phase with the preferred bidder (the other candidate should remain in reserve) should finalize actions, certain due diligence aspects by the preferred bidder in order to settle the final risk sharing and give the preferred bidder time to arrange financial close or possible acquisition.

# Performance-based contracts: Main steps in competitive bidding

This section summarizes the main procurement steps for PPPs comprising maintenance, management and performance-based contracts.

Maintenance, management and performance-based contracts require a detailed and prior definition of the scope of work and performance indicators (Module 2 -> Scope).

Competitive bidding for these types of PPPs should basically follow the steps and main principles usually in force for the procurement of civil works (maintenance contracts) or service contracts (management contracts). Notably, the usual length of PPP contracts and the focus on outputs (performances) instead of quantities (inputs) require particular care in the formulation of evaluation criteria at both prequalification and bidding stages, and in particular in the drafting of the contract.

The main steps to be followed in the competitive bidding process are usually:



In addition, maintenance, management and performance-based contracts require a detailed and prior definition of the scope of work and performance indicators.

## Prequalification

Before embarking on the prequalification process, the Government should have evaluated the capacity of the private firms to provide the required services. If required, specific programs to enhance this capacity could be implemented (Module 3 -> PPP Policy Framework -> Capacity Building and Training). Further consideration should also be made of possible collusion.

### *Reasons for prequalification*

First of all, prequalification aims to ensure that future invitations to bid are extended only to private companies with adequate capabilities and resources. This is particularly necessary for large or complex projects.

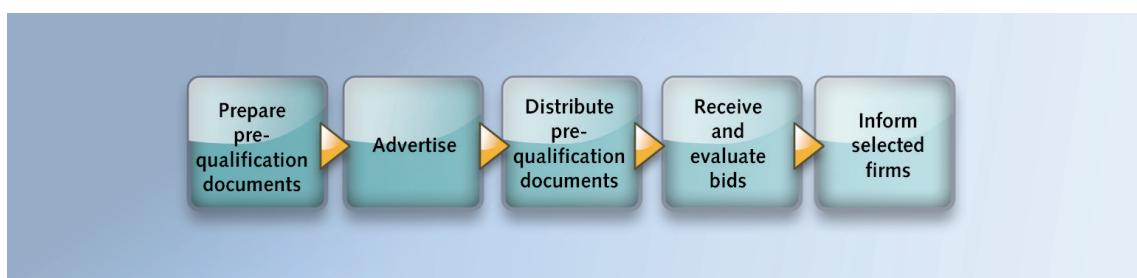
Prequalification also allows the candidates' level of interest in the project to be tested and thus to make sure that they will subsequently submit a bid. This is particularly

useful when the cost of preparing detailed bids is high in relation to the available resources of certain candidates.

Prequalification can be used to limit the number of tenderers in order to prevent the private sector (as a whole) from over-investing in the competition, and also to make bid analysis shorter and easier for the contracting authority. Prequalification can also be useful to determine eligibility for preference for domestic Contractors where this is allowed.

### *Main prequalification steps*

The steps involved in the prequalification process for a PPP are usually the same as those for typical civil works projects:



Further information on prequalification documents, advertising and bid evaluation is detailed below.

### **Prequalification documents**

Prequalification documents are prepared by the contracting authority or a competent consultant.

On one hand, they inform candidates of the key points of the project and future contract, in particular:

- Brief description of the project with its main features and objectives,
- Scope of responsibility to be entrusted to the private sector,
- Contractor's level of autonomy and mode of control of its services,
- Description of the institutional framework, the role of the contracting authority and various government agencies, directly or indirectly involved in the project,
- Contractor's mode of payment and estimation of the contracting authority's budget clearly identifying the share allocated for the remuneration of the firm. This information is crucial to attract firms with suitable capacity,
- Description of the whole bidding process before contact award and objective criteria used for the selection of candidates.
- On the other hand, prequalification documents must detail the information to be submitted by candidates. The information should be entirely based on the ability and resources of candidates, and should concern:
- Legal, administrative and financial position, in particular compliance with national and local regulations,

- Experience and past performance on similar contracts. For each contract, candidates should briefly describe the project, their responsibilities, and the human and equipment resources involved, and should give details of the contract and subcontract amounts, as well as the performance levels achieved,
- Capabilities and potential means for being involved in the project as regards staff, equipment, material, construction and/or manufacturing facilities.

### *Advertising*

The aim of advertising is to invite firms to submit pre-qualification documents to the contracting authority. It should target firms either locally or internationally with sufficient ability and experience.

Advertising regulations must be observed. For example, in Europe, advertising for major projects (for amounts above a certain level) must be advertised in all European countries.

Projects may be advertised in local newspapers, professional and specialized magazines. The advertisement may comprise the entire prequalification documents described above or only the key points on a single sheet of paper with an indication of a date and place for withdrawing the prequalification documents.

### *Evaluation of applications*

The evaluation of candidates shall be based entirely upon their ability and resources to perform the contract satisfactorily, taking into account their experience and past performance on similar contracts, capabilities with respect to personnel, equipment, construction or manufacturing facilities, administrative and financial position.

It is stressed that this evaluation should be performed by competent staff and a formal report should be written. An independent consultant may help the contracting authority if necessary. The reasons why certain candidates are not qualified must be thoroughly explained, as candidates are allowed to complain and ask for explanations as to why they have not been selected.

## Preparing a draft contract

The advantages of including a draft contract in the bidding documents are mainly:

- **Transparency and fairness.** Negotiating all the terms of the contract with the selected bidder would result in substantial changes. Such an arrangement would not be fair and would surely be challenged by unlucky competitors;
- It provides the bidders with a clear picture of the conditions that will govern the partnership between the contracting authority and the private company. It allows them to identify the risks allocated to them and further evaluate their potential impact on expected benefits.

Because of the importance of the draft contract, it is recommended to embark on its preparation at an early stage in the bidding process, it has become general practice that the advisors preparing the FS study be contracted within a 2 part FS study to prepare

draft contract documents in the second part. This is because the advisors will understand the key issues and the second part can be contracted only if the government consents to the project going to tender, so the documents are only prepared on an as required basis.

The draft contract should include different kinds of information:

### Technical information

- Description of the site location and access to the site,
- Detailed scope of work with responsibilities entrusted to the private contractor and those kept by the contracting authority,

Available documents, investigations and studies assessing the initial road network and site condition. The following themes may be addressed: geology and geotechnics, water resources, weather conditions, traffic volumes, accident data, pavement structures, equipment and structures condition, past and recent maintenance or work programs etc.

The documents should be as detailed and up-to-date as possible. The contracting authority may have a consultant carry out assessment surveys and studies before the bidding process if necessary, and include;

- Design documents and plans for any rehabilitation or development works included in the contract,
- Description of the site location and access to the site
- Feasibility study,
- International and national standards governing the expected services (works, maintenance, operation),
- Performance indicators for operation and maintenance with a clear definition of control and measurement methods, as well as performance requirements,
- Environmental impact assessment study (if any) and a detailed description of the environmental constraints during all project phases,
- Quality assurance requirements,
- Documents to be provided by each party during the contract,
- Assistance and facilities to be provided by the government and contracting authority,

### Financial and Economic Information

- A schedule allowing the bidder to present its financial offer in a clear, standard form, which will be included in the future contract,
- Contractor's mode of payment and participation in project financing,
- Penalties in case of contractor's default and guarantees,
- Performance bonds,
- Risk allocation,
- Formulae and price indices to be used for the adjustment and review of contractor's payments,

- The currency of bids and contract,
- Contractual requirements as regards subcontracting,
- Information about rules and regulations governing foreign exchange remittance (if international firms are to be involved),
- Nature, amount, period of validity and other principal terms and conditions of security and warranties.

### Information on project planning

- Timetable for completion of the construction works,
- Time-related requirements for project operation and maintenance services.

Certain documents, such as price schedules or quality assurance documents may only be provided as model documents to be completed by tenderers in their proposals. Little or no flexibility can be allowed in filling in these forms, depending on the project specificities.

To sum up, if the answers to the following questions are respectively yes and no, then the draft contract should be correct: Are the responsibilities of each party clearly defined? Is there any clause in the contract, which might be misunderstood or misinterpreted?

### Bidding

Once a sufficient number of competent firms have been selected and informed, the Government shall proceed with the bidding phase.

Bidding documents will be compiled and sent out to the qualified bidders who will prepare their bids on this basis.

Bidding documents to be provided to tenderers shall consist of the draft contract mentioned previously (including standard schedules to be filled in) and instructions to the tenderers.

The instructions should guide tenderers through the bidding documents and process. They should include information outlining the required bid content, the procedures for clarifying the bidding documents and submitting bids, standard forms for bid bonds, how the bids will be opened and evaluated, as well as the procedure for negotiation and contract award.

Instructions to the tenderers should include:

- the names and contact references of officials in charge of the tender process,
- bidding timetable and requirements: date and location for submitting bids, bid format,
- information on the mode of communication and assistance between tenderers and the contracting authority during the bidding phase,
- information regarding the site inspection visit,
- requirements as regards joint ventures and responsibilities between members,

- the conditions in which alternative tenders are allowed. Alternatives should be encouraged as far as possible, since they generally allow for fruitful competition and innovations,
- possible flexibility allowed in adjusting standard schedules and documents,
- the source of the available information, such as ground investigations or traffic surveys,
- currency(ies) to be used and foreign exchange rates for conversion to a common base for comparison,
- requirements concerning bid bonds,
- legislation and regulations in force governing the tender process,
- clear technical, financial and legal criteria for bid evaluation. They entirely depend on the particular project features

and the

- contracting authority's objectives,
- procedure for negotiation and contract award,
- description and standard forms for documents to be submitted by tenderers (see below).

Each bid document should have a clear, specific purpose. Tenderers should not be loaded with unnecessary requirements since they have passed the pre-qualification stage successfully and should therefore be capable of implementing the project. Moreover, a bid bond and/or a minimum committed equity are assurances that a tenderer is truly committed to the project.

### Documents to be submitted by bidders

Documents to be submitted by the bidders depend on the project considered, but should mainly consist of:

- a formal acceptance of the terms of the future contract. Bidders may also be required to submit a copy of the draft contract with each page initialed, in order to affirm their compliance with the terms of the contract and limit post selection negotiation to a reasonable minimum,
- a letter of conveyance signed by the authorized representatives of the company or consortium submitting the bid, the organization to be implemented for the project,
- a detailed description of the projected human resources to be mobilized (with the names and references of key management staff),
- technical information, such as location of the future site offices, equipment and materials that will be used, availability and references of the main equipment,
- if required, a conceptual design of works with drawings and design documents,
- pricing documents with a detailed mode of calculation of unit prices or lump sums,
- a detailed outline of the future quality assurance plan proposed,

- a health and safety plan when required in the bidding documents,
- terms of insurance policies and warranties,
- information as regard documents and drawings to be submitted if a conceptual design of works or services is involved,
- completed standard schedules and documents,
- administrative and financial information if any change has occurred since the prequalification stage.

### Bid evaluation

**Bid evaluation:** shall be conducted using the criteria and methodology stated in the instructions to tenderers in order to select the best bid.

The aim of evaluation is to objectively determine the lowest evaluated bid. All parameters should be taken into account and not only the prices or lump sums indicated in tenderers' proposals. Comparison should be made as far as possible on the basis of quantifiable parameters.

It is highly recommended that competent staff carry out the evaluation and formalizes it in a final report. An independent consultant may assist the contracting authority if necessary. A detailed explanation should be found in the report to justify the ranking, since unselected bidders might decide to formulate complaints on the process.

Bid evaluation shall mainly be based on the:

- **prices proposed.** The method and parameters used for their calculations should be carefully checked (lowest wins)
- **relevance and adequacy** of the human and technical resources planned for the project (pass / fail basis)
- **coherency** between human and technical means on one hand, and their pricing on the other hand (pass / fail basis)
- **planning** of services and works
- **relevance** of the proposed scheme for the quality assurance plan, as well as health and safety plans (pass / fail)

The bid evaluation process shall be concluded by drawing up a report summarizing the outcome of the evaluation and the identification of the selected bidder. Upon approval of the evaluation report by the required authorities sign the contract.

### Typical timetable of a bidding process

The timetable of a bidding process entirely depends on the nature of the maintenance and management project. It is thus difficult to indicate a typical timetable. The following indications could be taken as rough estimates.

*Prequalification:*

1 to 4 months between issuing the advertisement and the candidates' prequalification.

*Bidding process:*

A minimum of 2 to 6 months between issuing the bidding documents and contract award. The period may often be much greater (more than a year) for large and/or complex projects.

A sufficiently long period of time should be allowed to bidders to collect information on the project and prepare their bids.



Performance Based Contracting and PPP Recent Experience and Lessons Learned with the Use of Performance Based Contracts (PBC) and PPP, César Queiroz, 2007



Resource Guide: Performance-based contracting for preservation and improvement of road assets.  
World Bank, 2008

# Stage 4: Contract Award

**This section sets out Guidelines for negotiations and contract award, which include essential check lists for the government.**

## Negotiations with the Private Sector

Negotiation itself is a skill but these guidelines help the government's negotiating party to equip themselves in order to get the best possible deal.

The bases of negotiation will be:

- Experience, which will build up over time.
- The feasibility study which sets out the key parameters of the project including the business case and provides the basis for the RFP.
- The Bid Documents which set out the bidders' conformity (or otherwise) with the requirements of the RFP.

The main negotiating items can include:

- Land acquisition and costs
- Project investment costs
- Tariff
- Concession period
- Risk bearing/allocation
- Renegotiation options on specific items
- Other items specific to the particular project

It should be noted that key items in the RFP, especially technical standards and conformity to regulations, will be classified by the Government as being non-negotiable and bidders not meeting these terms will be disqualified as being non-responsive.

There remain a number of other items in the RFP which the bidder may not meet and which will form the basis of explanation, discussion and negotiation.

In general, the number of items to be negotiated should be minimized and a standard negotiation process might have only 2 or 3 areas listed above for negotiation.

## Financial Closure

After the concession contract has been awarded, there are a number of steps involved in finalizing the contracting negotiations. The concessionaire (or developer) must negotiate and sign a series of contracts with the other project participants. The concessionaire objective in this final but critical stage of the BOT process is financial closure.

Financial closure means that the project's entire equity has been unconditionally committed, all loan documents have been signed, and disbursement of the loans can start without further problems.

However, definitions of financial close vary and more significantly, have had varied interpretation in different countries.

Many governments have signed contracts with the private sector with very loose definitions of financial close. A possibly even more problematic mistake is that contracts have weak or no sanctions against failure to reach financial close within a stipulated period, so that the private sector can hold up the implementation of projects for years.

The PPIAF definition of financial closure varies among types of private participation. For greenfield projects and concessions, financial closure is defined as the existence of a legally binding commitment of equity holders or debt financiers to provide or mobilize funding for the project. The funding must account for a significant part of the project cost, securing the construction of the facility. For management and lease contracts, a contract authorizing the commencement of management or lease service must exist. For divestitures, the equity holders must have a legally binding commitment to acquire the assets of the facility. The PPIAF Database includes only projects that have reached financial closure.

## Risk Structure

In greenfield BOT projects, the concessionaire must enter into a series of contracts with suppliers, contractors, insurers, etc. and the following contracts may be needed:

- **Sponsor's agreement** (or shareholder agreement): between the sponsors or shareholders forming the special purpose company for the project.
- **Engineering, procurement, and construction agreement:** with the contractor in charge of the construction of the facilities and supply of equipment. Usually a lump sum turnkey contract.
- **Insurance agreements:** in which the terms and conditions of all required insurance policies (e.g. third party liability, business interruption, etc.) are specified.

The combination of the concession contract and all these contracts will define the risk structure of the project. These risk structures together with the cash flow of the project form the threshold whether this project can be financed by lenders.

Financial closure includes the commitment of equity and debt funds. From the sponsor's view, these are the different kinds of financing sources:

- **Equity:** funding from the sponsors' participation and other participants having active interest in the project as risk investment
- **Subordinate Debts and Preference Shares:** funding from investors who invest in like near-equity return papers without taking full risk of equity capital;
- **Debt:** funding from commercial bank loans

BOT projects are usually funded under Project Financing, which involves the funding of a project, based on its internal merits and revenue stream (also called limited or

non-recourse financing). As the assets of an infrastructure company are of limited use to lenders (it is not practical to dismantle the facilities and sell the parts), the focus is mainly on the project's cash flow and the contractual arrangements making up the project's security package. Once the security package satisfies the lender's requirements then the Loan Agreement can be signed committing the debt funding of the project from commercial banks.

**Security Package:** It is common under Project Finance for the lenders to take security over the project assets so far as this is possible under the laws of the country where the assets are situated. However, lenders may find that the local legal system gives them rights and powers that fall short of their expectations and require a "security" package. As one example, the following documents may need to be entered into to create or record the required security interest:

- mortgages or fixed charges over land, buildings and other fixed assets;
- fixed and/or floating charges over movable assets, book debts and production/work in progress;
- assignments of rights under underlying project documents, such as construction contracts,
- contractors' performance bonds, licenses and joint venture agreements;
- assignments of sales contracts e.g. "tolling" agreements;
- escrow accounts to control and, when necessary, retain cash flows relating to the project;
- assignments of long-term supply contracts and
- agreements for supplies of energy and raw materials;
- assignment of project management, technical assistance and consultancy agreements;
- pledge of shares of project company including charge over dividend rights; and
- notices, acknowledgments, endorsements, filings and "perfecting" the security created
- under the various charges and assignments.

Security here connotes the creation of rights that attach to the assets themselves, not merely claims enforceable against the owner of those assets. These rights give the security holder certain powers, most importantly:

- the ability to prevent disposal of the assets by the borrower or guarantor (owner) or the granting of interests to third parties; and
- the power to take possession of, to operate and/or to sell and realize assets ahead of other creditors and any liquidator.

Tolling agreements are types of sales contracts with guaranteed revenues for tolling services independent of traffic.

**Concession Contract Adjustment:** These considerations demonstrate the complexity of the situation after the award of concession. This complexity in an ever-changing environment might imply that the Government might need to make certain adjustments

in the concession contract even after award of the concession in order to reach financial closure.-



The Role of Economic and Socio Economic Models in Road Management, PIARC 2003.



Competitive Selection of Private Partners and Use of Standard Bidding Documents. Cesar Queiroz, 2008



Contracts for Public-Private Partnership (PPP) Options. World Bank, 2008



Procurement in Privately Provided Infrastructure (Ppi) Projects Financed by The World Bank.  
Armando Ribeiro Araujo, 1998

# Stage 5: Contract Management

Stage 5 is another key stage in the PPP project cycle and its activities start at least during Stage 4, at the latest, and extend to the end of the contract some 20 or 30 years later. It is therefore by far the longest stage and involves the most inputs from Government. Unfortunately it is often the most neglected and forgotten until late in the project cycle.

Stage 5 is intended to help the contracting authority put the appropriate mechanisms in place before contract signing, in order to manage effectively the implementation of the PPP agreement, once it is signed.

The purpose of this module is to provide Contract Management (Contract Management) guidelines for the Contracting Authority (CA) responsible for managing the concession agreement in order to:

- Ensure compliance with laws and regulations
- Ensure delivery of contracted services
- Ensure asset management
- Deal with performance variations
- Ensure and maintain Value for Money
- Handle and resolve disputes
- Ensure proper transfer of ownership of assets (If applicable)
- Manage contract negotiations (If applicable)

This module is primarily aimed at the staff of the contracting agency, who are responsible for preparing and implementing a PPP contract management plan. Whilst each project has unique characteristics, these guidelines set out common principles which may be applied by the appropriate government contracting agency to all projects.

Contract Management is a distinct activity which follows on from procurement but, as noted above, it must be considered and planned for within the procurement process. This is in order to ensure a full understanding of how the services to be provided and that the related monitoring systems are reflected in the contract documentation.

It should be noted that this stage is focused on the organization directly responsible for Contract Management i.e. the Contracting authority. However, it would be useful for the P3 Centre or P3 Node to monitor the effectiveness, problems and successes with Contract Management by Contracting Agencies on a national or sector basis respectively, possibly through the use of a data base of PPP projects. This would allow recommendations for improvement to be made, as needed, as experience with PPP develops over time.

# Defining Contract Management

Government must anticipate the contract management needs over the contract period. The main aspect to be emphasized under 'contract management' is that this vital activity must be defined, allocated and agreed well before contract signing. This is because it involves allocation of tasks and more importantly allocation of considerable management and monitoring costs and resources which will be incurred over the concession period.

Contract management must therefore be flexible. That is it must try and foresee changes which can be covered in broad terms over a long period into the future. Government must anticipate the institutional needs for it to effectively undertake contract management at an early stage and set up a contract management unit.

PPPs are more complex and operate for longer periods than traditional contracts. Therefore, there is need for an increased emphasis on project and contract management under the PPP framework.

## Issues Addressed by Contract Management

The contracting agency's role continues on contract signing and it is obligated to monitor the concessionaire's activities over the concession period to ensure compliance. It is also obligated to ensure that its own obligations are implemented in a timely fashion to both avoid any penalties that may arise and to ensure the project is implemented efficiently to plan.

The contract basis for a PPP infrastructure project is the concession agreement. This agreement governs the relationship between the Contracting Authority and the Concessionaire from contract award/signing/financial close, through the design and construction phases to the expiry of the terms of the concession.

The implementation of Contract Management is intended to ensure delivery of cost effective, reliable and timely services at an agreed price and to agreed quality standards consistent with legal standards, financial probity and management accountability.

The concession contract sets out the contractual obligations for the concession period, which can be for 20, 25, 30 or more years. These obligations cover all parties to the contract and change is inevitable over such a long period. The need to prepare flexible Contract Management conditions within a Concession Agreement has been found to be important to cope with changes.



Public Private Partnerships in Scotland, Evaluation of Performance, CEPA, March 2005.

The contracting agency should only require sufficient data to monitor the project. Excessive data collection imposes unnecessary burdens on the private sector and if the data is analyzed, also on the contracting agency.

The contract will have clearly stated the concessionaire's obligations and defined the service's characteristics and quality. Effective Contract Management depends on getting the contract right. In general a good PPP contract stresses the contracting agency as a customer buying and receiving services or outputs from the producer/seller i.e. the Concessionaire.

Risk must still be managed as must change that is inevitable over time, such as technical developments.

## Contract Management activities

Contract Management is an activity to ensure that the respective roles and responsibilities set out in the contract are fulfilled to ensure service delivery combined with value for money. Contract management is about Whole Life Performance and continuous monitoring of concessions and contracts. Its aim is to ensure that the concessionaire complies with contract provisions throughout the life of contract. Performance monitoring is a specific activity within Contract Management.

Contract Management is divided into 4 phases;

- Pre Construction, generally from Contract Award to Financial Closure
- Construction
- Operations and Asset Management
- Asset Transfer or Re-bidding Stage.

The goal of these phases is good governance and accountability, so that private sector works continuously in the public interest and it involves a series of checks and balances implemented through a rigorous set of oversight procedures comprising guidelines, rules and approvals.

Developing these tasks requires the Government to undertake two distinct but overlapping tasks;

- Preparation, planning and agreement to the Contract Management Plan before contract signing
- Implementing the Contract Management Plan

Contract Management covers the following key provisions:

- Monitoring compliance in all phases (of all partners)
- Managing the Agreed Risk Allocations (so that unplanned risk transfers do not occur)
- Management of Change (that will inevitably occur over 20-30 years)
- Dealing with Under Performance (of any partner)

Contract Management starts with well designed contracts during project preparation/procurement and includes agreement during the Negotiation process. Contract Management continues over the life of the project, with the effective management and monitoring of critical project functions through an appropriate Contract Management plan and through an effective institutional structure.

It should be noted that it is usual to prohibit transfer of Concession Agreement or share inclusion in Business Entity as holder of Concession Agreement before Infrastructure Provision is commercially operational.

The Contract Management activities should also allow for mutually acceptable changes in the Concession agreement.

It must be stressed that the Contracting Authority must manage its own activities and although it monitors the Concessionaire's activities, it does not manage the work of the Concessionaire which must retain full management authority.

Therefore, the Contracting Authority should not interfere with the Concessionaires day-to-day and management activities.

However, the contracting agency's responsibilities and duties will still remain extensive but they will be different from their public procurement responsibilities. In particular, the contracting agency must ensure that there will be in place effective systems for performance monitoring, quality management and management information. During project operations, the contracting agency must also undertake spot checks to ensure these systems are actually in place and working.

## Preparation for Contract Management

The preparation for Contract Management includes:

- Developing Contract Management rules such as:
  - Escalating system of deductions from payments for underperformance
  - Which party pays the monitoring costs
  - Payments only made for the services contracted (where payment is via the Government)
  - Monitoring and control of the contract
  - Other
- Guidelines for contract and performance management including PPP review assessment including;
- Contract Management Implementation
- Post Contract Award/Pre Construction
- Construction
- Operation

Finance will be particularly vital where Government support is provided to the project. MOF will set down conditions for such support and the Contracting authority will need to liaise with MOF on related issues including financial monitoring and auditing.

Asset management is the strategic business process approach to managing the long-term maintenance of highways. The benefits of developing and applying preventative maintenance techniques to avoid quantifiable deterioration of assets leads to significant cost savings and efficiencies and is being increasingly applied to all highways, PPP or non PPP.

Residual Value Asset monitoring: At the end of the operational period, the assets are transferred back to the contracting agency. There is therefore a need to monitor the condition of assets and agree in the Concession Contract the condition of assets at contract end.

## Contract Management Criteria for Toll Roads

The criteria generally incorporated into the Project Agreement to facilitate contract and performance management will include:

- Performance Criteria; Capacity and service standards, which for a road project will include number of lanes, widths, hard shoulders, junction characteristics etc.
- Safety; Minimum design and specifications.
- Asset Condition; Minimum standards.
- Payment and Penalty Mechanisms; This will include penalty provisions.
- Monitoring and Auditing; Traffic flows, speed, pavement condition and condition of signs and lighting etc.

Construction Management will include:

- Design Review; establishing compliance.
- Statutory processes; ensuring their completion.
- Contract Formalization; Ensuring Securities and Insurances are in place.
- Workmanship and Materials; Management of quality control.
- Commissioning; Satisfactory completion of construction, noting of defects, safety review and implementation of recording systems.

The Operational Stage will include:

- Implementing the Monitoring Plan.
- Ensuring availability of Facilities including toll booths and other factors which may affect safety and traffic flow.
- Performance Standards.
- Repair and Maintenance Standards.
- Other Contract Obligations.
- Managing any changes such as excess traffic, new standards etc.
- Stakeholder Management.

Concession end activities will include:

- Assessing the condition of the assets
- Management of re-bidding
- Handback of facilities (if included in contract)

## Financial Aspects of Contract Management

At an early stage the contracting authority must establish a budget for its proposed Contract Management activities and allocation of cost agreed in the Concession Agreement.

It is the responsibility of the Contracting Authority to estimate realistic financial and resource costs related to contract management and performance monitoring. Bearing of these costs will be agreed within the concession agreement.

The cost implications of Contract Management and Monitoring must be agreed in the contract. In general each side should bear its own costs.

Where the authority needs independent advice, surveys, dispute resolution and surveys, these should be paid by the contracting authority, although it may have workload and cost implications on the concessionaire.

The financial costs of the contracting authority should be realistically assessed bearing in mind the high (technical as well as management) levels of government staff that will be needed and the requirement for independent and specialist advice that will be needed on an ongoing basis.

## Institutional Aspects of Contract Management

An appropriate institutional structure such as a Contract Management Unit (CMU) should be established within the contracting authority with a professional contract manager at its head with an established hierarchy to avoid duplication and confusion. The concessionaire should be made fully aware of the structure of the CMU and its optimum interface points with the CMU.

The contract manager should have clear authority and clear reporting lines within the contracting authority.

The resources required for Contract Management will depend on the size and complexity of the project. The staff/human resources needed will vary over the life of the concession. Typical disciplines include:

- Design and construction
- Business and Product Assurance
- Facilities Management
- Safety and Regulatory responsibilities
- Legal
- Financial

It is also suggested that the proposed Contract Management activities are independently checked at the outset and audited from time to time to ensure their adequacy. Specialist consultants will likely be needed to do this and other ad hoc tasks on a regular or intermittent basis as required.

Appropriate training must be provided for all staff involved in Contract Management and some courses should be organized jointly for the contracting authority and the Concessionaire. The principle is that the contracting authority should be an active and intelligent customer-a buyer of services and not a seller of contracts for goods and services as under public procurement. This requires a substantial change in mind sets which can only be achieved through training and on-the-project experience.

The contracting authority must also be both prepared to expand its activities due to under performance of the concessionaire and conversely the contracting authority must have sufficient resources to ensure delivery of key enabling services by the contracting authority to the Concessionaire.

It should also be emphasized that an efficient concessionaire will be monitoring the contracting authority in order to ensure the Government also fulfils its contractual obligations.

The implementation of Contract Management is intended to ensure delivery of reliable, value for money and timely services at an agreed price and to agreed quality standards consistent with legal standards, financial probity and management accountability.

# Contract Management Plan

The Contract Management plan must be prepared by the Contracting Authority and agreed by contract signing. Its essential elements include:

- The agreed partnership approach to Contract Management.
- Ensuring service delivery management.
- PPP agreement administration.
- Key challenges and tasks of the PPP Contract Management.
- The Contract Management Plan.
- Roles and responsibilities of the contracting agency and Concessionaire.
- It is essential that the contracting agency compiles a document which sets out the responsibilities and obligations of the service provider (Concessionaire) and the contracting agency itself. Where appropriate, the arrangements should be time bound.

The bases of these arrangements will be the provisions in the contract covering service delivery and payments. The main arrangements in the Contract Management Plan will include:

- Clearly defined outputs, performance levels and objective information requirements.
- Penalties in case of default.
- Roles and responsibilities in monitoring and information provision.
- Commencement and other key dates of activities.
- Cost bearing agreement for all Contract Management activities.
- Reporting of results arrangements.
- Dates and service releases in specific sectors.
- Payment mechanisms.
- Mechanisms for benchmarking and testing where relevant.
- Managing change mechanisms e.g. changes in law, bidding, control etc.
- Mechanisms for problem solving and resolving disputes.
- Contingency arrangements in case of failure or default.
- Rights of the contracting agency.
- Other as may be necessary for particular projects management with stakeholders.
- On contingency plans for dealing with emergencies.
- Frameworks for independent auditing.
- Public Consultation Needs.

The overall aim should be to develop a framework in which the contracting agency and the concessionaire can work in partnership together. The Contract Management plan should not be too complex in order to maximize its effectiveness and avoid costly and difficult to enforce activities.

There are generally 3 stages in the development of Contract Management:

- **Procurement Stage:** Rules are established for the life of the Contract.

- **Development or Construction Stage:** From award of contract to the start of output based revenue. (This may be divided into two phases i.e. from contract award to construction commencement and construction).
- **Delivery Stage:** Provision and use of contracted services.

## Contract management tasks during the Procurement Stage

The Procurement stage requires the laying of foundations for the future partnership even though it will be at a time of negotiations. However, good relationships should not be at the expense of the government's rights and expectations under the contract. Ideally, the Contract manager designate should be party to the negotiations and contract.

The contract must allow for monitoring of performance against which payments will be made. Monitoring requirements will be based on objectives and clear quantitative data. The implications of poor performance must be spelt out. Good practice suggests that the Contract Management requirements, including monitoring and auditing processes should be made clear even at the bidding stage, with bidders encouraged to propose Contract Management procedures that are effective and minimize cost and time burdens on both parties.

## The Construction Development Stage

At this stage, issues commonly include:

- Design of the new facility or clarification of services to be provided
- Integration of new facilities into existing facilities
- Maintaining ongoing monitoring including site access and rights to raise issues related to contractual failures and non compliance
- Delays or changes to the construction program
- Variations if any requested by the contracting authority
- Determining readiness for occupation/operation
- Any construction defects
- Property and planning issues
- Staffing issues
- Risks borne by the contracting authority

## The Delivery of Services Stage

Issues commonly arising include;

- Definition, implementation and operation of the contracting authority's monitoring system
- Handling of a settling in period
- Monitoring contracted services
- Transfer of Contract back to Government or Rebidding

# Handback of facilities at contract end

Another major reason why Contract Management is so important is that at the end of a concession agreement, assuming that it has a transfer modality, is that the conditions for completion of the concession which may be 30-40 years in the future must be specified in the contract. This is so, whether the infrastructure is to be retendered, transferred back to Government or sold off.

The contract must specify the required physical state of the project at contract end. For a toll road, the contract may require that the condition of the road is fit for purpose and that no major rehabilitation or reconstruction works will be required for the next 5-10 years. Legal aspects of handover are considered in Module 4 => Contracts => Contract Provisions => Handover.

Each sector/sub-sector will have different characteristics, so conditions will likely be different. Consideration would also be needed to include the situation in which the infrastructure may be both physically and economically obsolete so very major rehabilitation or rebuilding would be required.

Transfer back to Government must remain an option and to be decided by Government at the time. If major works are required or conversely if the asset is still revenue generating, the Government will want to keep its option open to;

- Re-tender the asset to avoid expensive capital costs;
- Generate funds by a new or continued contract;
- Consider other options.

The contract management clauses defined in the concession agreement must therefore be flexible but at the same time not overly burden the private sector in its negotiations.

There has not been much experience with the completion of concession agreements but assuming the continued process of government reform worldwide (from infrastructure service provider to policy maker, technical regulator etc), it would not be expected that the asset would return to direct government control but be retendered with the prospect of the existing concessionaire having additional score in the tender evaluation for good performance in the (first) concession.

## Handback requirements

Two categories of requirements may be imposed when handing back the road to the authorities at the end of the contract:

- maintaining service quality performance up to and including the last day of the contract,
- the residual life span of the various road components.

In all cases, handing-over should be preceded by a period of assessment and concerted dialogue between the road authorities and the operator lasting several months for a short contract and several years for a long contract.

As the increase in public-private contracts is only recent, practical experience of ends of contracts is even slighter. The following comments result in the main from reflection by the Toolkit drafting team.

## Service Quality Performance

This does not pose any particular problem. As indicated above, the aim is to ensure maintenance and service quality performances up to the last day of the contract. It is simply recommended to plan a general audit several months before the end of the contract and summon the operator to carry out all the necessary repairs and corrections in good time (Regulation, technical aspects).

## Residual Life Span

The problem arises in very different terms depending on the duration of the contract, the nature of the pavement, whether or not there are any large bridges or tunnels, the nature of operating equipment, etc.

Each case is a special case which requires individual examination.

The sole aim of the following comments is to help with this examination and not to provide ready made solutions.

### *For Short contracts*

The optimum sequence of rehabilitation or pavement strengthening work, general surfacing work, installing safety equipment, may in this case be planned and determined in the contract.

### *For Long contracts*

The question of the residual life span should be examined item by item:

#### *Surfacing (surface coating or asphalt):*

The average life span for such surfacing, depending on the traffic and local conditions, is known. To preserve a minimum life span after handing back the road, it is necessary to stipulate a minimal residual life span to the operator, e.g., 2 years for surface coatings and 3 years for asphalt.

#### *Structure of flexible pavements:*

Deflection measurement allows a reasonable approximation of the residual pavement life to be obtained. A measurement campaign made a few years prior to completion of the contract may enable an agreement to be found on the necessary strengthening measures in order to achieve the residual life span imposed by the contract (e.g. 10 to 15 years).

#### *Concrete pavements*

This problem is complex for two reasons:

- The life span of concrete pavements is of the same order of greatness as those chosen for concessions (30-35 years).
- Whatever the chosen technique (they have considerably diversified in recent years) the cost of work necessary to prolong the life span of a concrete pavement is always very high.

It is not possible to recommend general rules for the clauses relating to requirements for residual life spans which should be closely examined, case by case, with the help of specialists.

*Bridges:*

For the structure itself, standards always provide for very long conception and design life spans, much greater than concession periods usually last. The only obligation the operator has to comply with is therefore to ensure correct maintenance, verified by audit before handing back. It will be necessary, in this audit, to pay particular attention to the condition of equipment (expansion joints, supports, safety barriers).

*Tunnels:*

The problem is the same, with particular attention being required by equipment (ventilation, lighting, warning systems, emergency telephone network, etc.) based on normal life spans as determined by the suppliers.

*Safety or operating equipment:*

For all safety and operating equipment, it is desirable to stipulate a residual life span, based on normal life spans as determined by the suppliers.

# Amendments to contracts and dispute resolution

## Renegotiation and Amendments to PPP Contracts

A crucial activity of the Contract Management team is to try to prevent disputes and if they arise, the ways to minimize serious impacts on the project/parties to the contract.

Renegotiations are becoming more common features of public-private partnerships (PPPs) and Governments need to recognize this and limit the risks involved. The increase in renegotiations has been noted in an increasing number of reports and if it does become increasingly common and changes become significant it can make all previous project preparation and bidding meaningless.

This is especially so if the winning bidder has intentionally prepared the bid with renegotiation in mind. Renegotiation is a double edged sword for public authorities. A major reference study on renegotiation is referenced below;



Granting and Renegotiating Infrastructure Concessions - Doing it Right. WBI Development Studies.  
J. Luis Guasch, 2004.

### Basic Disadvantages

A particular case occurs when the private party initially overestimates the potential demand and later attempts to renegotiate the agreement, so that the public party is obliged to bear the costs related to demand risk to avoid the complete failure of the PPP.

In those circumstances, the private party can bargain favorable contract terms that would have never been obtained under competitive conditions. The absence of other competitors during early renegotiation phases significantly weakens the public party's bargaining position, and in turn reduces the chances to achieve real value for money from the PPP agreement at stake.

Renegotiation is thus generally regarded as undesirable because:

- It eliminates the competitive effect of the auction allocating the concession: questions credibility of model
- Renegotiation takes place away from competitive pressures in a bilateral government/operator environment

- Competitive bidding is distorted
- It decreases the benefits of concession and the welfare of users, and might have fiscal impact
- The most likely winner is not the most efficient operator but the most skilled in renegotiation
- While some renegotiations are efficient, many are opportunistic and should be deterred.

## Occasional Advantages

- Renegotiation is also a way to correct mistakes by adapting the contract characteristics to new developments that were not foreseen or taken into account from the beginning of the PPP arrangement.
- Furthermore, renegotiations can be used to reallocate wrongly distributed risks to the party that is best suited to bear them.

It is of utmost importance to distinguish between contractually scheduled renegotiations and (early) unforeseen renegotiations that are initiated at the request of the private party. For example, early renegotiation sometimes takes place when the private operator realizes, during the operational phase, that it is not able to abide to the terms of the contract and/or needs more financing.

## Reasons and outcomes of renegotiation

Renegotiations occur for a number of reasons including;

- Poor concession design; many due to rushing to contract before the project is ready
- Adjustments to macro economic or political shocks
- Changes in governments or in priorities/policies; At least 26% of renegotiations are by government
- Taking advantage of lack of credible commitment to no-renegotiation
- Aggressive/Opportunistic bidding often tolerated by governments
- Securing additional investment or projects bypassing due diligence
- Abusing financial equilibrium principle i.e. balance in contracts
- Exploiting leverage opportunities-political capital
- Perceived opportunities for corruption
- Fear of corruption attacks dissuades disqualification of aggressive/opportunistic bids

CONTRACT FEATURES AND INCIDENCE OF RENEGOTIATIONS IN LATIN AMERICA AND THE CARIBBEAN MID 1980S-2000		
Main Feature	Detailed Feature	Percent of Occurrence
Award Criteria	Lowest Tariff	0.6
	Highest Transfer Fee	0.11
Regulation Criteria	Investment	0.7
	Performance	0.18
Regulatory Framework	Price-Cap	0.42
	Rate of Return	0.13
Regulatory Body	Exists	0.17
	Does not exist	0.61
Legal Framework	In Law	0.17
	In Decree	0.28
	In Contract	0.4

Source: Guasch 2004

### *Common mistakes which can lead to renegotiation*

Guasch lists a number of common mistakes, many of which can be characterized as *poor design and too hurried implementation lead to subsequent financial disaster*

#### ① Pre concession Issues

These include not accounting for labor issues, political support, faulty sector restructuring, faulty tariff adjustments and excessive government forecasts.

#### ② Concession Design

These include poor prequalification, favoring means over performance, ambiguous conflict resolution, improper use of guarantees, not accounting for universal service obligations and inappropriate risk allocation.

#### ③ Award Issues

A number of situations related to awarding concessions have contributed to renegotiation including direct rather than competitive awards, multiple award criteria, questionable single criteria and choosing fiscal objectives rather than longer term efficiency objectives.

#### ④ Regulatory Issues

These include absence of frameworks, disregard for institutional issues, inappropriate initial tariffs, failure to include adequate information and accounting requirements on concessionaires and failure to hold bidders accountable.

### *Outcomes of Renegotiation*

On average the terms of the contract improved for the operator/investors.

- Efficiency gains are reduced
- Users are, on average, worse off
- Adverse fiscal impacts are common

## Who initiates the renegotiation process?

In addressing the issue of renegotiation, it must be remembered that over 25-30 years there will likely be continuous 'fine tuning'. In this respect, renegotiation may be initiated by both the public and private sectors for the following reasons:

- Initiated by Government
  - Opportunistic (politically)
  - Change in priorities/policies
- Initiated by Operator
  - Opportunistic (rent seeking)
  - Shock related
  - Ambiguous

INITIATORS OF RENEGOTIATION UNDER PPP CONTRACTS				
	Both Government and Operator	Government	Operator	Total
	(% of total requests)			
All sectors	13%	26%	61%	100%
Water and Sanitation	10%	24%	66%	100%
Transport	16%	27%	7%	100%

## Lessons learned in contract renegotiation

A report by Dr S. Ping Ho provides some insights into what can go wrong with concessions and that lead to the need for renegotiations. His report goes into depth on the Taiwan High Speed Rail project which opened in 2007 at a cost of over USD 18 billion. Within his analysis of many of the problems (mainly financial) that occurred, his report showed that of the two bidders, one provided a bid that in hindsight was too optimistic and that the government with its limited experience of PPP could not easily evaluate and which did not call on experienced advisors.

Also for such a mega project, the government stated a number of times that the project would not be allowed to fail. Further, the project sponsors were mainly contractors rather than a consortium of developers who he believes concentrate on short-term contract profits rather than longer term operational returns.

According to Dr. Ping, the lessons learned from the perspectives of his work include taking extreme care with PPP projects that;

- Will not be allowed to default e.g. high profile, political projects
- Focus too much on the bidder's financial proposal
- Are adopted too abruptly when government has limited experiences and incomplete supporting systems

- Are forced on local governments
- Do not consider the separation of the developer and contractors
- Are not prepared with the possibility of default in the planning stage
- Do not use adequate or experienced professional help



Government Policy on PPP Financial Issues: Bid Compensation and Financial Renegotiation.  
 Ho, S. Ping. CRGP Working Paper #0029, 2007.

Gausch considers a different set of recommendations but ones which are also very valid. These include;

- Government reputation matters: establish early on a reputation for not easily conceding renegotiation demands
- Contracts should stipulate approach to renegotiations e.g. last resort, publicly considered etc
- Have credible commitment to no-renegotiation beyond contract clauses
- A freeze period on demands, say no significant changes for the first five years or more
- Sanctions against frivolous demands-requesting a large fee to be lost if request is denied and considered frivolous
- Use a Panel of experts to advise

Although in practice there are many guidelines for various PPP schemes in countries such as UK, these guidelines cannot be universal to every country in the world. Guidelines and policies need to be reexamined to fit the specific environment of a country according to certain logic.

Make certain that any proposed amendments and renegotiations are subject to scrutiny, both within relevant government departments and by the public in general. The reference from South Africa notes the Systems Act of 2003 obliges a municipality to inform and consult on proposed amendments to PPP contracts. Extensions of the 2003 Act and detailed regulation in 2005 go much further in terms of consultation. Chile has attempted to go further by placing prohibitions on any changes that alter the financial balance of a contract.

Amendments must be consistent with the PPP rules and regulations of the government.

In conclusion, while experience and lessons learned from various countries are useful each country has its own specific experience and needs to consider when framing contracts. However, considering where a contract may go wrong is a good start when considering whether a contract is a candidate for potential future renegotiation.



Public Private Partnerships, Models and Trends in the European Union.  
 Dg Internal Policies of the Union-Directorate A, Economic and Scientific Policy. 2006.

## Other Contract Amendments

Over the course of say 30 years there will be a continuous need for amendments to PPP contracts. This is normal. Many of these requested changes will be for mutual benefit of both partners.

Refinancing after the project is constructed is becoming more frequent as once the construction risk is passed, and a project has opened, cheaper financing is often available.

As with all requested changes, such refinancing negotiations should be as transparent as possible (as the situation allows) and the public sector should carefully balance all short and long-term impacts of change and try to obtain the best deal for the 'public' including reduction in tolls say for some targeted users.

Any requested changes that are more than just minor changes should be considered by the contracting authority with input from advisors-legal and financial at least.

# Dispute Resolution

The PPP policy and framework in each country should make reference to the proposed means of resolving disputes. This is because, as noted below, conflict is common and ensuring the principles of dispute resolution is within the PPP policy, encourages investors by giving them confidence that should problems occur there are ways to try to resolve them.

At the detailed level, contracts should always include both formal and informal approaches to dispute resolution.

Clear and fair processes to resolve disputes to attract investors are not the only objective. They allow many disputes to be resolved at an earlier stage than otherwise saving time and money to both parties. Long and acrimonious disputes also generate bad publicity and deter investment.

## The Need for Dispute Resolution

Regulatory conflicts are common in the infrastructure sector for a number of reasons:

- There are many occasions for conflict
- The contract is long-term and circumstances are bound to change
- The public nature of the services with a private partner
- Large investments in immovable assets
- Projects can be large and complex

Typically the conflicts may involve disputes between government authorities or regulators and private companies and will concern subjects such as tariff reviews, award of concessions, permits, operations and enforcement of obligations on either side.

The mechanisms that are available to resolve disputes and conflicts are a major part of the assessment of regulatory risk by private investors in PPP projects.

The **standard model**, and initial basis, for conflict resolution is the government department or independent regulator adjudicates based on law, contracts, norms or other guidance. This model is often improved through the development of appeal procedures, establishing rules for due process and norms for dispute resolution. This is the method often favored by governments as they have most control over the outcomes but governments with a poor track record of objective decision making means that regulatory risks will remain high.

The **second model** is to allow third parties to serve as an appeal body and solve the conflict through the judicial system although this can be slow and seldom adequate if the issues are technically complex and the judiciary known to be semi independent at best.

The **third option** is through specialized independent panels of experts or arbitrators and has long been used to settle commercial disputes related to investment and trade but relatively less in PPP matters.

The **fourth method** is international arbitration.

All four methods have advantages and disadvantages and it is for either or both parties to clearly utilize, through their advisors, the best dispute resolution method, if possible, related to the characteristics of the situation.

## Experience of Chile

Chile is one country that has often successfully used the third method as described below. It is noted that experience in Chile with toll roads includes that the Concession law includes a special mechanism that allows a panel of experts to both initially provide a conciliation function and then subsequently an arbitration function, assuming no resolution in the first stage.

In Chile the composition of the panel is made up of three experts; one nominated by the Ministry of Public Works (Toll Roads), one by the company and one by mutual agreement. If no agreement is made on the third expert, one is appointed by the court of appeal. Each member has a substitute in case of illness etc.

Experience showed that in Chile the most frequent sector in which regulatory disputes needed resolution was in toll roads (nearly 50% of the total). Interestingly up to 2005, there were 45 claims presented to the Conciliation/Arbitration body which resulted in 14 accepted conciliations and 17 solved arbitrations.



Experts Panels in regulation of Infrastructure in Chile; A Jadresic, Working Paper No 2, WB/PPIAF 2007.



Concessions for Infrastructure: A Guide to their Design and Award.  
Michel Kerf with R. David Gray, Timothy Irwin, Céline Levesque, Robert R. Taylor, Michael Klein;  
WB/IADB 1998 PPIAF Advisory Toolkit 2001.

# Advisors and Organization

## The effective use of the private sector requires a strong advisory team

Regardless of the intended mix between the public and private sectors in providing a particular service, the success of any PPP program depends on the organization of government and its ability to use advisory services. Before a technical assistance project is undertaken, it is important to decide how its results will be disseminated and acted upon. The following questions should be answered:

- To whom will the advisors report?
- What level of official input is required to ensure effective implementation?
- Have the relevant officials been informed about the upcoming decisions?
- Do ministers know of and support the process?
- If ministers or the head of state must make decisions, has sufficient time been set aside for them to act?
- Are the relevant resources available or has the procurement process started?

The senior official responsible for a PPP initiative should select a strong government team. The government team should have clear responsibilities for managing the advisory team, and should establish lines of communication to all other relevant senior officials for full consideration of the advisors' recommendations. Obtaining a strong advisory team is expensive and presents a challenge.

PPP requires changes and is also designed to produce change in the socio-economic environment. Since achieving these positive impacts depends on properly implementing the changes, outside expertise may be needed to:

- identify the changes required to meet the government's objectives;
- recommend the best way to implement the required changes; and
- assist in the implementation.

The expertise required related to PPP may not exist within the government. External advisors may be required.

However, the public sector should also consider that by appointing external consultants, the risk presented by the lack of in-house knowledge is reduced. However there is a risk that the use of external consultants will cause in-house knowledge to stay low, and the contracting authority organization will remain dependent on external consultants. Thus, it is important to remember that contracting authority organization has to assume responsibility and transfer back the lessons learned and knowledge to the organization.

## The cost of advisors

The advice needed to implement a major reform program can be expensive. Table below provides an example of the range of fees used across a number of projects ranging from basic institutional analysis to the full range of policy, legal, technical assistance and transaction advice.

REPRESENTATIVE OF TYPICAL COSTS OF HIRING ADVISORS FOR PPP ASSIGNMENTS (2008 VALUES)					
Type of study	Duration	Major skills Needed	Total Approx. Cost or Range	Outputs	Services are needed In what circumstances?
Preliminary PPP (Project)	2-3 months	PPP/Highways/ Other	USD 200,000-300,000	Indicative study of potential for PPP related to limited number of highway proposals	Need for very preliminary assessment of the highway program for PPP potential
PPP in Highways-National Sector Study	6-9 months	PPP/Institutional Economic/Financial Other	USD 500,000+	Country study of requirements for development of PPP potential in highways; output includes policy, legal, regulatory, risk, financial, institutional, capacity building etc	PPP framework not well developed or understood. Need for how the country can develop its PPP program nationally and sub nationally
Preliminary PPP/ Highway study	3-4 months	Technical: Design etc Traffic Analysis/ Forecasts Socio-economic Impacts PPP Planning	USD 300,000- USD 500,000	Pre feasibility study	Project that may have potential but government does not want to commit to full FS yet
FS Study (Toll Road)	6-12 months	Technical; Design, survey etc Traffic/Economic PPP EIA/Resettlement Plan Risk Business scheme Draft Tender Documents	USD 1.0 M- USD 2.0 M	Full feasibility study including consultation and draft tender documents	Government has confidence that project has potential but need much detailed information, understanding and basis for going to tender
Transaction Advisors	12 months (Intermittent)	Legal Financial Other as required	USD 1.0 M+	Submission of specific advice on the bidding, negotiations and general contract management process, and implementation issues.	Specialist advice needed between tender stage and commencement of construction
Transaction Advisors	AD Hoc/ Ongoing support	Legal Financial Other as required	Fees: around USD 30,000- USD 50,000/ person month depending on time and the skill levels needed	Ad hoc advice on issues arising	At any stage need for ad hoc advice

Unless otherwise stated in the table, costs would normally be total including fees, travel and subsistence in country. (Office accommodation would normally be provided by country but included as their contribution to total cost of study if funded by IFI).

Governments spend such sums on advisors because of the benefits they obtain from them, **including the avoidance of costly mistakes.**

## Managing advisors

Even though advisors are generally essential, governments face a significant challenge in managing advisors in order to obtain the best service from them. Managing advisors involves a number of steps.

- **First**, the government must identify the individuals or companies best placed to undertake the project.
- **Second**, the government must sign contracts that provide the advisors with incentives to use their expertise for the benefit of the government.
- **Third**, the expertise must be channeled into designing and implementing a PPP program that meets the government's objectives.

Managing a large and expensive group of advisors from differing disciplines is challenging in any country. It can be more challenging in a low-income country. The gap between host country officials and advisors may be large in terms of income, experience and understanding of the local culture.

Capable management of the advisory team is essential for three reasons:

- It is vital to the successful design and implementation of the reforms;
- Good management of advisors will reduce the need for senior officials to intervene as problem solvers; and
- Effective management of the advisory team will convey the government's competence and conviction to potential bidders for a PPP project, and may lead to greater market interest.

PPPs are complex projects, so is their procurement: hiring a team of specialized consultants is usually required to assist Government officials in conducting the selection process.

Cultural and legal differences between countries require a "case-to-case" approach to PPP projects. The general structure of PPP projects, particularly those involving private financing, is dictated largely by the international markets. Using advisors with international experience helps to understand these requirements.

If a government authority has experience in implementing similar PPP projects and if it has suitably qualified people on its staff, it may be able to handle all the work required to tender out the project. In other cases, however, and especially if the authority has little or no prior experience in PPP procurement, it is much wiser to hire consultants.

## Types of Advisory Skills Required

Even with assistance from entities such as the World Bank, the ultimate decision on the hiring of a particular consultant or set of consultants will fall on the government. In this case, a few guidelines should be kept in mind with regard to consultants:

- The consultants will require at least four types of key skills which are described below: road engineering, feasibility studies, PPP/financial analysis/investment banking and legal experience in toll roads. These areas devolve into many more types of component skills e.g. highway engineering into design, structures, surveys etc; socio-economic into economic, social, environmental and so on. These are considered briefly below.
- Credibility of the consultant is essential and consulting firm should be generally preferred over individual consultants. However, the government authority must give emphasis to the individuals that are assigned to the project. These individuals must have had direct experience with procurement for PPP highway projects.
- In the case of complex transactions such as toll road concessions, there may be several consultants, each with a particular specialization. In this case, it is often advisable for the government authority to ensure that one particular firm or individual has overall responsibility for the project to avoid the advisers blaming each other if a problem arises or a mistake is made.
- In general, it is better for the government to negotiate consultancy contracts wherein payments are tied to particular milestones (or accomplishments) rather than paying on the basis of the time consumed by the consultants. Due to the high cost of feasibility studies and transactions, especially where the number of projects is increasing rapidly, a number of countries are trying the 'success fee' mechanism whereby the consultants may claim a fee (or the balance of their fees) if the procurement process is successful. This may be more appropriate for the transaction stage i.e. bidding as it is possible that fees may be reclaimed from the winning bidder. Success fees for the feasibility stage are more difficult to justify. This is both from a funding perspective and from potential conflicts of interest (see below). Advisors could be tempted to recommend a PPP project is viable when there may be a number of potential serious flaws in the project. It is also good practice that the feasibility stage consultants be different to transaction advisors.
- Particularly for larger PPP contracts, it is possible to mandate that the winning bidder(s) will pay the government a commencement fee, which will partly or totally compensate for its expenses during the preparation phase. Such an arrangement will however only be meaningful for projects not requiring subsidies.

Consultants who offer advice, or who manage PPP processes on behalf of contracting authority must be impartial, except as noted above in relation to success fees and even then they must follow the rules of their contract. It may be established therefore at the outset, that the consultants, either individually or their companies, have no vested interest in the outcome of any procurement that may follow market sounding.

Using consultants to help with market sounding can offer great benefits. Any gaps in in-house knowledge and skills might be filled by an external consultant.

However it is important to remember that responsibility for taking decisions and the risk of the project as a whole remains with the contracting authority.

- It should be noted that for most toll road studies at least 2 and possibly 3 or 4 companies may combine to provide the requisite skills, or the lead company hires in external advisors for some key elements. The consortium approach should be encouraged in general, as the number of consulting companies having all the necessary skills is limited.
- Knowledge of the specific country, local/socio-economic conditions and institutions involved in PPPs and possibly have a local office.
- In the highway sector PPP advisors will need to have ability and skills in the three areas that follow.

## Feasibility studies and the transaction process

- Highway planning; engineering, design, surveys, project planning, programming, design mitigation of the socio environmental impact of major roads,
- Socio-economic analysis; traffic forecasts, economic studies, social and environmental impacts, poverty, economic impacts etc
- Financial analysis and Government support
- Risk Analysis and risk management
- Experience in consultation with the general public, government institutions and the private sector
- Extensive experience in PPP development and preparation of PPP tender documents, negotiations, renegotiations.
- Extensive experience in PPP transactions; financial, funding business schemes/SPVs-JVs.
- An understanding of how PPPs work, the issues and how they add value.
- Public sector; experience of working with public sector institutions, capacity building, training etc.
- Have impartiality and objectivity in the preparation of bankable projects

## Market knowledge

- Understanding how the market (private sector) is broken into various types of players including contractors, investors, finance and how these sub-sectors interact for PPPs
- Understanding how financial markets work

## Communication skills

The advisors should have the ability to engage with all parties as equals and partners, imparting their experience and technical advice to the client's best advantage.

# PPIAF/WB Toolkit on the use of Advisors

In hiring consultants, governments usually face the dilemma of needing a consultant to hire the consultants. Even drafting the Terms of Reference may be a daunting task for a government authority that has no experience of this task. In such cases, it is often best to seek help from some multi-lateral lending institution such as the World Bank.

A Toolkit on the Procurement of Advisory Services for PPP has been developed by the PPIAF and provides useful and practical material on this matter.

Therefore the PPIAF and WB produced a 3 volume toolkit for assisting countries in hiring and managing advisors. This source and its contents are described immediately below.



Toolkit on hiring and managing advisors for Private Participation in Infrastructure (PPI); PPIAF/WB 2001.

**Volume 1** describes what PPI is and how advisors help in the process. It contains:

- Background information on PPI, outlining the different stages of the process;
- Areas in which advisors can be used productively;
- How a technical assistance project should be scoped; and
- Issues related to the use and selection of advisors when PPI is being introduced on a small scale at the community or municipal level.

**Volume 2** describes the main multilateral and bilateral lending agencies and presents some detailed information about their lending policies and the sources of funds available for technical assistance. It also provides addresses where further information can be found. It provides a guide to where a procurement officer could turn for funding advisors for PPP project preparation and implementation. It is aimed at procurement officers and project developers unfamiliar with the donor agencies and their lending and granting practices.

**Volume 3** presents the competitive bidding process for advisors and describes the alternative approaches to selecting advisors. It describes the steps that need to be taken in order to implement an effective process, including how to advertise, to evaluate proposals and finalize contracts. It also describes the circumstances when other approaches may be appropriate.

# Organization

Even if advisers have been hired to conduct most tasks relating to the selection process, only Government officials will be able to make decisions and defend their choice if necessary. The more complex the project is, the more crucial and delicate the organization of the approval process is.

The following section has been prepared to provide some guidance on the organization and preparation of sophisticated PPP projects, typically involving a package of responsibilities (design & build, BOT types, rehabilitation and maintenance, etc.) and designed to tap private finance.

Officials in charge of simpler schemes may still find below some useful advice to be applied when adjusting their usual procurement schedule and organization.

## Finding the champions

Experience shows that no large government project can be implemented without it being championed. Key individuals in the government need to show an extraordinary interest in the project and push it forward. The best situation is to have 2 or 3 “champions”, with at least one at the level of those working on the details and at least one other in a relatively high government position. Although the champions’ role will not be limited to the procurement process, their contribution may prove particularly useful at this stage.

### *Organizing a Project Steering Committee (Award Team)*

A procurement process for a PPP highway project requires a considerable amount of work from the government. Even if the government hires consultants to do much of the work required for a bidding process, many tasks will still be under the direct responsibility of the government. Only government officials will be required to defend and justify the project to the public, the different tribunals, or any organization challenging the project.

Invariably, some form of committee needs to be created to handle this work. The typical composition of this committee is as follows:

- A high-ranking official of the procuring government entity,
- A legal official with experience in the particular type of procurement and contracting,
- A technical official knowledgeable about the project,
- **A financial management official experienced in project financing (in case of Project financing).**

Because of the varied skills required, a Project Steering Committee is often composed of officials from different government agencies. This, however, creates a problem because the members of the Committee would be reporting to their own parent agencies and to the Committee Chairman. If there is a conflict of scheduling between the parent authority and the Committee, it is almost certain that the Committee members will give

priority to their parent authority. Because of this, it may be wise to create a Committee composed of members from only the sponsor government agency.

In all cases, it is essential that the members of the Project Steering Committee, and particularly the Chairman, have sufficient time to devote to the project. The amount of work may vary but it will normally not require more than one fourth of a person's time. However, if no consultants have been hired, the work involved will be almost a full-time job.

The Project Steering Committee, with the help of the consultants, will have the following main tasks;

- Produce the contract agreement,
- Design the bidding rules,
- Market the project to the public and to the bidders,
- Push the project through the approval process,
- Clarification of the approval process.

The Project Steering Committee will normally be empowered only to make recommendations but not to actually approve the selection.

Typically, there are at least five principal documents which need approvals, though some of them may be approved simultaneously:

- PPP strategy,
- Procurement rules,
- Pre-qualification of bidders,
- Draft Contract,
- Contract award.

The approval process for a PPP highway project is often defined by a procurement law (Module 4 -> Legislation) or some other form of legislation of the country. If this is not the case, a set of detailed procedures will need to be developed in coherence with the existing legislation and other procurement rules. Procedures should precisely detail the rules of the competition to be followed by the selection process. International Financing Institutions have developed comprehensive and coherent procurement guidelines and standard documents for national and international competitive bidding that are usually available of their web sites.



See for example World Bank guidelines on: <http://www.worldbank.org/html opr/procure/bidding0.html>

In any case, there are frequently many sub-approvals at committee level whose procedures have not been defined. There is often considerable leeway in the approval process, namely, regarding who will be involved, the scope of approval of each person, the sequence of approval, and so forth. The scope of approval should be determined for each person or entity. For example, technical matters may be the responsibility of one entity, legal matters may be assigned to another entity, contingent liabilities may be

the area of the Department of Finance, and so on. Each approving party is confined to a particular area.

A typical review and approval process for a draft contract may look like this:



# Dialogue Process

International best practice indicates that consultation should be carried out as early as possible in the project cycle so that views of affected groups can be taken into account.

Consultation is also important related to social and environmental analysis. Therefore, consultation will also need to take place on several occasions during project implementation to identify and help address issues that arise.

For high impact projects, public consultation could take place at least three times with increasing levels of detail: Initially during project selection and prioritization (Stage 1), (ii) during the early stages of field work; and (iii) once when the draft feasibility study reports are available (Both (ii) and (iii) in Stage 2). The public consultation process and results needs to be described in the project feasibility study reports.

Public consultation should be distinguished from information provision and should be undertaken with the following characteristics;

- An interchange of information, inputs requested from the public and concerns are addressed
- Responsive feedback and accountability by Government
- Options and risks are discussed openly
- Influence to the EIA process,
- Use of meetings, workshops, consultative groups, NGOs, private sector representatives

When it is planned to conduct Consultations with the pre-qualified bidders before embarking on the bidding stage, it may be advisable for the Project Steering Committee to distribute a copy of the Draft Contract to the pre-qualified bidders with a request for their comments. The Project Steering Committee (or the advisers) should consider these comments and, if warranted, adopt those which are seen to be reasonable.

Public consultation methods and practices are presented in Module 3 ->Economic Development and Public Interest ->Public Participation and Consultation.

# Market Sounding

**In addition to 'public consultation, there is also a specific function and role for consultation with the private sector during the project implementation stages. This specific consultation is also called market sounding.**

The main objective of the market sounding is to test the private sector's ability to assume risks that are to be transferred via the concession contract from the public sector to the private sector. Naturally, if the client already has a good understanding of the issues and the position of the private sector (i.e. if it has already initiated similar tender procedures) this consultation phase could be relatively short or may even be omitted.

Market sounding should not be confused with public consultation but there are some similarities. Both should be carried out as early as possible in the project cycle so that the views of affected groups can be taken into account in project planning.

The focus of public consultations is on the general acceptability of the project among the affected stakeholders. Market sounding, on the other hand, focuses on the suitability and attractiveness of the business scheme and generates inputs and requirements from the potential partners, as a group.

It is therefore very important to view market sounding in relationship with other areas:

- **Public service need:** market sounding must be strongly related to the services that Government (through the Contracting Authority) is aiming to bring about
- **Creation of the PPP modality:** the most important link is between market sounding and the creation of a business scheme that is well suited to the market
- **Formal procurement process:** market sounding helps build-up market knowledge that will be useful in the procurement process

In each PPP scheme, the government is "selling" an investment opportunity to the private sector, therefore it must assess the market. Effective market sounding will improve marketability of the partnership opportunity and may significantly reduce procurement time, by bringing private sector perspective to the design of business scheme at an early stage.

Market sounding focuses on the private sector as a whole, rather than on any individual company. It includes no element of evaluation, and there is no commitment of any kind involved. Not every PPP project needs a formal full scale market sounding, some project can do with informal market sounding.

Market sounding is a cluster of activities which is a part of an integrated PPP cycle. The table below shows the usual timing of market sounding actions, which are generally related only to the first two stages of PPP project preparation: Stage 1: Selection and Prioritization of Projects for PPP, and Stage 2: Detailed Due Diligence.

Market sounding offers a chance to shape the business scheme at a very early stage, when this is relatively easy to do. When the business scheme is already published in formal documents there will be little opportunity to change.

The following section on Market Sounding includes:

- Important context and position of market sounding
- Definition, purpose and focus of market sounding
- Skills required and the use of consultants
- Benefit and risks
- Shaping business scheme and requirement
- Issues to discuss and questions at market sounding
- How to conduct discussion with private parties

## Objectives of Market Sounding

Market sounding is likely to offer real benefits for those projects which present one or more of the following characteristics:

- There is uncertainty about the level of private sector's interest in the project
- The in-house knowledge of the market is superficial, incomplete or absent
- There is uncertainty about which will be the right business scheme
- There is a need to manage expectations of a project
- Meeting the requirement likely to involve a consortium – perhaps one with a new or unusual structure

Market sounding involves gathering knowledge which is focused in these key areas:

- **Viability:** whether the proposed business scheme is actually viable, or has it ever been done
- **Capability:** will the private sector (individual or in consortium) be able to achieve the requirement
- **Capacity:** whether the market have the capacity to achieve what is required quickly enough and with large enough scale
- **Maturity:** whether there is an established market

TIMING OF MARKET SOUNDING ACTIONS		
Stage in PPP Cycle	Stage 1 - Selection And Prioritization Of Projects For PPP	Stage 2 - Detailed Due Diligence Of The Projects Proposed For PPP
Primary Activities	<p>Produces a ranked list of projects assessed as suitable for PPP which can then be considered as Potential PPP projects. They can be assessed at this stage as being Value for Money under PPP procurement through an additional but simple process.</p> <p>Priority PPP projects are then assessed for 'readiness' to progress to the next stage for feasibility study. Projects that are 'ready' are proposed to the Line Ministry for its approval for the Contracting Agency to undertake a much more detailed study</p>	<p>Stage 2 consist of eight key components:</p> <p><b>1-A</b> technical basis of the PPP project including demand and project preliminary/basic design.</p> <p><b>2-Demand</b> projections</p> <p><b>3-A</b> Social Cost Benefit Analysis (SCBA) which measures the social and economic value of the project to the nation as a whole.</p> <p><b>4-A</b> Financial Analysis, which is vital and presents the business case for the project and indicates the financial characteristics of a project. It must show whether (or how) the project will be attractive to the private sector and whether any fiscal support is necessary and/or warranted.</p> <p><b>5-Environmental Impact</b></p> <p><b>6-Social Impact Studies</b> including resettlement issue</p> <p><b>7-PPP Modalities and Business Scheme</b></p> <p><b>8-A</b> risk assessment including a preliminary allocation of risks</p>
Market Sounding Actions	<p>Early market engagement to build-up market knowledge and assess the existence and capacity of market.</p> <p>Input to a preliminary information memorandum.</p>	<p>Obtain feedback on various technical/financial aspects of the project.</p> <p>Feedback from private sector including on concerns, issues and also conditions required sector for transactions.</p> <p>Obtain market feedback on potential business schemes/modalities and the structuring of PPP, as preparation of a full-scale information memorandum.</p>

## Which private sector actors should be approached?

The crucial part of conducting a discussion is to know whom to have the discussions with, or in another words selecting which private party to approach.

Ideally the team should have discussions with private companies who have achieved outcome of a similar nature and scale to the PPP project we are seeking. If those are not available at least we should approach those who have demonstrated the required capacity and capability.

However doing discussion with individual companies may increase the risk of providing information to certain companies which will give them unfair advantage at the procurement process. A better solution is to approach business association (groups) which are closely related to the scope and nature of the project, and which may include the following:

- National Chamber of Commerce and Industry
- Investment (Finance) Association
- Construction Groups
- Property Developer Association
- Equipment Groups
- Association of Consultants
- Academic Community (not potential partner but they can give impartial comments)
- Once a suitable group has been identified, discussion can be arranged and held with the group or with each company.

## Benefits and Risks of Market Sounding

### For The Contracting Authority

For the contracting agency the main benefits obtained from market sounding are:

- Establishing that there is in fact a market for the requirements, alternatively an early understanding of the requirement may help establish the market
- Confirming, through market reaction, that the scope and objective of PPP scheme are sound and achievable
- Finding out about new, innovative or alternative solutions
- Identifying potential issues or problems with the project
- Gaining first hand knowledge of what private sector can and cannot do
- Establishing that the business scheme is packaged in such a way that the market is encouraged to respond, and that real competition is stimulated
- Laying useful foundation for contract and relationship management
- Managing stakeholders expectation of what will be achieved by the PPP project.

The risks for the Contracting Authority include:

- The risk of gravitating solutions toward ideas suggested by dominant and/or experienced player
- The risk of giving particular private party “inside information” which gives unfair advantage during the following procurement process

- The risk of misdirecting the project based on incomplete information or misleading information obtained during market sounding
- The risk can be reduced by deploying market sounding team with the necessary competence and skill. The team should also be able to maintain their impartiality and set a high ethical and integrity standards.

### For Private Sector

The benefits of market sounding for private sector involved include:

- The chance to assess whether the opportunity will be suitable
- The chance to raise issues and queries about the opportunity, and about the procurement process
- The chance to gain valuable insight into public sector working practices, requirement and priorities

The risks for private sector include proprietary ideas and solutions may be compromised if spending valuable time without guarantee of any business.

# Shaping the Business Scheme and Requirements

Poorly framed business scheme and requirements may not accurately reflect what is needed by the Contracting Authority:

- It is not focused on meeting public service need
- It is unclear and difficult to understand
- It is too loose and open ended, fail to set out those requirements that are not flexible
- It is too detailed and leaves no room for the private sector to innovate or suggest alternatives.

Alternatively, business scheme may not fit well with the market:

- It cannot be achieved by any means presently known (lack of viability)
- The market cannot deliver it in time (lack of capability)
- The required scale, level of service or roll out time cannot be achieved (lack of capacity)
- There is no market, or not enough market (lack of maturity)
- The solution is not in accordance to public sector policy (related law and regulations) or not aligned with the general direction the market is taking
- It involves the use of proprietary solutions
- It failed to attract sufficient interest for a competitive procurement.

The following items are important areas to remember:

- Keeping option open; avoid tendency to “zero in” on particular options, allowing private sector ample room for suggestions
- Considering business models: look at all the options for how the arrangement between the Government (represented by contracting agency) and private partner might work
- Consider the way market sub-sectors work and how it might affect the PPP project.

## Market Sounding can Identify a Range of Options

The output from market sounding is not always a single best option, but it could be a range of possible options. These options can be weighted against each other to represent the best way forward, taking into consideration the Government’s strategic goals. On the other hand options could be presented in the RFP (Request For Proposal).

Factors to be considered in weighing options include:

- **Affordability:** indicative costs to the Contracting Authority.
- **Benefits:** the specific benefit (and disbenefits) that each option realizes.
- **Risks:** the difference that each option would make to the risks (type of risk, magnitude, allocation).

- **Viability:** how certain it is that each option can be achieved, especially on the issue of technology.
- **Market interest:** the level of interest that the option is likely to receive from the market.

# Discussion Aide-Memoire

This section lists some items to discuss and questions to consider during market sounding exercises. This is meant as a guide, the actual discussion may include a range of items outside the list below.

## Scope of project including range of services

It is important to explain and discuss the scope of the project including what kind of services are involved; what are the core services and non-core services generated by this project?

## The Government's expectation and role in the project (including local Government)

Explain and discuss the goal of the project and the intended benefit to the public, the role of agencies/ministries take in the project and the interests and role played by Local Government.

## Technical aspect and cost of the project

Show the proposed technical requirements (capacity, service level, architectural aesthetics etc.) and the main features of the project's technical design and their costs:

- Indicate components of financial feasibility
- Explain the basis for demand projection, the project's projected financial indicators and their assumptions

## Business scheme or partnership model

Explain the PPP modality and focus discussions on:

- Will any potential private partners be interested?
- Comments and concerns about the scheme?
- If there are serious concerns, what changes might be necessary to make it work?
- Will a consortium be needed to build and operate the infrastructure?

## Risk allocation

Explain the main risks and how they could be allocated based on preliminary government thinking:

- Any comments on changing the risk allocation

- Future commercial development opportunities (other than those already included in the financial revenue projection)
- What are possible additional commercial opportunities available to private partner?
- Explain the rules of the game for non-core business development and commercial exploitation?

### Procurement procedures

A subject of major interest to the private sector, the Contracting Agency should present a description of the proposed procurement procedure:

- What are the main concerns about the procedure?
- Are there specific requirements?

### Conducting Discussions with Private Party

The essential activity of market sounding is having meaningful discussions with private sectors, in a group or one to one. Thus it is important to give some serious thought and manage this process.

Meetings should be conducted on a formal and professional basis and recorded appropriately. To avoid subjective interpretation and difference of opinion over the content of meeting, it is a good practice to conduct the meeting by at least two staff present, to avoid one-to-one meeting.

The meeting started with presentation by the Contracting Authority (with support from consultants if necessary) describing the project, stressing investment merits and proposed business scheme. After the presentation a discussion followed. This discussion should be open (free speech and equal opportunity to everyone present) but well organized (good moderator) and recorded.

Beside general discussion (section 7 above), there will be discussion on business scheme and service requirements and private party's thought about it. The market sounding team should try to elicit important information such as:

- The likely level of interest in the project
- The technical as well as business feasibility of what is proposed
- Timescale
- Indicated Value for Money

### Important Considerations

- **Discussion on costs:** at this early stage figures are a rough estimation especially at Market Sounding Phase 1, intended to establish reality in a general sense. This point should be clearly stated to the private party.

- At Market Sounding Phase 2, which would be conducted toward the end of the full-scale Project Feasibility Study, a better idea of project cost would be already established.
- **Specialization:** each potentially suited partner has a specialization. Market sounding team must understand specializations of each company involved in the market sounding discussion.
- **Impartiality and fairness:** no advantage should be given to any group or company who get involved in market sounding.

## Module 6 Tools



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# Module 6: Tools

## *Case studies, financial models, bibliography, key issues, Toolkit files*

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## Module 6 Tools



### Case studies, financial models, bibliography, key issues, toolkit files

**Module 6: Tools** provides complementary references and features to the Toolkit modules as well as specific functions to assist the presentation and dissemination of Toolkit related materials.

**Case studies** present both well and lesser-known examples of PPP on all five continents and which comprise the range of PPP options from performance-based maintenance contracts to highway BOT concessions. The case studies present either the specifics of a particular PPP project (seven project case studies) or the development and application of policy and strategy for PPP projects and programs (six country case studies).

**Financial Models** are intended to familiarize non-financial users with the basics of project finance and better understand the key parameters which affect the financial viability of a highway project. Two models are proposed, a graphical model as a pedagogical tool for financial simulation and a numerical model for an initial project analysis at pre-feasibility level of possible PPP options, including possible toll rates and subsidy levels.

**Bibliography** is the key reference source for documents included in the toolkit. Each document listing includes the principal reference details, main topics addressed in the document and links to relevant document sources, including pdf file, weblink and publisher website. All pdf files are integrated in the toolkit for easy reference.

**Key issues:** This section facilitates consultation of the Toolkit on a number of key issues related to PPP development, particularly with respect to those subjects included in several sections of the Toolkit. For each key issue, a series of questions guides the user to the related section of the Toolkit. The section also provides a brief summary of other World Bank toolkits which may assist in certain aspects related to PPP development in the highway sector.

**Toolkit files** allows the download of the complete Toolkit in PDF version and of all Toolkit figures for professional-level outputs for consultation, reports and presentations, as well as of the complete CD-Rom version with CD cover and label.

# Case studies

## Brazil

The private participation in road infrastructure in Brazil led to better management and investments in the rehabilitation of the network. Brazil has three levels of government (Federal, State and Municipalities), each one managed its own concessions providing a wide range of type of concessions, problems faced and solutions adopted. The case study presents the Federal and the Rio Grande do Sul's road concession programs.

## Urban Highway Concessions in Santiago, Chile

This is the first example in the world in which urban highways have been implemented in a city almost simultaneously with free-flow toll charges that are inter-operable, as the highways were tendered to four different operators. This project overcame a number of problems, especially planning issues like quality of customer service and public acceptance.

## A6 Motorway, Croatia

The company ARZ demonstrates the rapid progress of Croatia in the area of PPP ventures, which have driven motorway densities to record levels. The case study discusses many fundamental aspects of this project.

## France

France has a long history with toll roads since the enactment of the first law for toll motorways in 1955. The French toll motorway system has since traversed a number of schemes from a fully public system to a privatized system, although it has not been a constant evolution. The case study presents the development of toll motorways in France with respect to the main challenges faced.

## M1/M15 Motorway, Hungary

The M1/M15 Project is an ideal case study project as it shows how a major infrastructure project can be successfully implemented on a project finance basis, whilst also demonstrating that the combination of poor preparation and lack of political support can reverse the fortunes of a project very quickly.

## India

India is a country that has emerged in the past ten years as one of the leading proponents of PPP. It has been stemmed from its policy conclusion that its infrastructure needs are huge and cannot be met without additional funding through the development of PPP, a conclusion which is being increasingly demonstrated over time. Based on its successful use in the highways sector in India, the Annuity Concession model of PPP holds the potential to attract private finance into other sectors which often do not generate sufficient revenue to support BOT or concession type models, and provides valuable lessons to other governments looking for PPP solutions to leverage private finance without incurring dramatic increases in tariffs or user fees.

## Indonesia

Indonesia has come a long way in toll road development. Projects stretch back some 30 years and over 1,000 km have been built. However, the first major regulations and PPP initiatives in the late 1990s, were halted by the Asian crisis, whilst the second round of PPP measures have been slow to take off, even after the new PPP regulations were passed in 2005. Compared to many countries Indonesia has made substantial and possibly sufficient progress, with policy and regulatory framework, although more can always be done to improve regulations.

## Korea

Korea is a very good example of how effective governmental action has helped promote private capital investment in infrastructure and provide an extensive network of about 3,000 km of national highways. However, a main lesson from this country is the importance of initial arrangements for PPP, which may well not have been ideal. The importance of monitoring PPP programs and having flexibility, to adjust programs is thus important. Korea has made and continues to make substantial adjustments, as well as fine tuning, to its PPP regulations.

## Performance Based Contracts (PBC) in Serbia

The case study presents the rehabilitation and maintenance project financed primarily by international organizations and managed by the Public Enterprise Roads of Serbia (PERS). Particular features included in the contracts, such as, winter maintenance characteristics, safety and environmental issues.

## N4 Toll Road from South Africa to Mozambique

This project represents an example of a successful PPP toll road implementation in the African context. The project stems out of a political will for economic cooperation between the neighboring countries South Africa and Mozambique but which also has wider ramifications for other regional SADC countries.

## M6 Toll Road, UK

The case study presents the first and only motorway project with real tolls within the UK PPP program (except for major bridges). There was a major delay in implementation due to public objections both to the road and to the charging of tolls. The project was subsequently refinanced after opening, with overall financial benefits shared between government and concessionaire on non-contractual basis.

## United States

Although the private sector has always played a large part in the provision of public infrastructure in the USA (especially dealing with the water and waste sector), private participation has been slow to develop in transportation, in comparison with other countries. However, because of the increase in demand for highways and growing gap in state funding, various PPP methods have been recently developed.

## Zambia

Zambia has a successful and arguably under-recognized experience in performance-based contracts from which a number of lessons can be learnt. Over the past 10 years, these contracts have become the norm for a range of maintenance works.

# Country case study: Brazil

## WHY READ THIS CASE STUDY?

- Ⓐ Several practical restrictions to the implementation of the first package of road concessions were observed including economic crisis, lack of experience, the development of bypasses to avoid the payment of tolls, opportunistic behavior of government and concessionaires.
- Ⓑ The different government levels resulted in different forms of road concessions. Federal and states concessions independently designed, faced different problems and provided different results.
- Ⓒ The use of crossed subventions, with the benefits of high traffic level motorways balancing out the losses incurred in low traffic motorways, provided very positive results.
- Ⓓ The private participation in road infrastructure led to better management and investments in the rehabilitation of the network.
- Ⓔ The experience acquired in the first package of road concessions has been successfully applied in the design of the second package.

## Background

Brazil has three levels of administration: the Federal Government, 26 States and one Federal District, and the municipalities. The Federal government is in charge of infrastructures of national importance while states and municipalities administrate local infrastructure. In the road sector for instance, the federal government plans and builds interstate roads while states administrate the intrastate network.

The Brazilian Road Network represented 1.6 million Km in 2006; the federal network reached 73.009 km, from which 58.152 km were paved. Road is the most important mode of transportation, responding for 65% of freight movements and 95% of passenger's displacements. Traffic volumes are composed by 20% of heavy vehicles and 80% of cars and light commercial vehicles.

Despite its importance, recent surveys show that the road network lacks a considerable amount of investments (CNT, 1999; The World Bank, 2007). GDP's share devoted to road financing decreased from 1.51% in 1975 to 0.54% in 1982 and less than 0.1% in 1998. Consequently, there has been a decline on network growing, which was 12% a year in 1975 and has reached 2% a year in 1996.

In the last years the investment in rehabilitation and maintenance has been just enough to avoid the network deterioration; however, to increase the parcel of roads in good

condition from 25% in 2007 to 63% and avoid unnecessary reconstruction investments, the World Bank estimates that about RSUSD 1.2 billion (USD 0.6 billion) per year should be invested in the next six years.

In Brazil, the private provision of road infrastructure was motivated by severe shortages of public resources, which led to an increasing deterioration of the quality of roads, requiring enormous investments to recovery, maintenance, operation and expansion of the network. In this context, partnerships between public and private sectors have gained strength. The resources of the private sector have become an alternative solution to the crisis. Initially, from 1995, the private participation took place through concessions. Recently, to facilitate the participation of private enterprises in projects with little or no economic return, the government enacted in December 2004, a law regulating the establishment of public-private partnerships - PPP.

## Road concessions

The Federal Road concessions program started under the responsibility of DNER (Brazilian National Department of Roads, succeeded by DNIT – Departamento Nacional de Infraestrutura de Transporte, in 2002), which was a government institution (a type of state owned enterprise). As a way to reduce problems related to capture, and to improve transparency and efficiency, in 2001 a law creating the National Agency for Land Transport (ANTT) was approved, whose main responsibility was to coordinate and regulate road concessions.

The first package of road concessions included 5 concessions awarded by the Federal government (bidding process conducted by the DNER between 1994 and 1997), and two contracts between the Federal government and concessionaires of Rio Grande do Sul (whose bidding occurred in the scope of state government, and were subsequently transferred to federal responsibility).

In the second package, 7 concessions, totaling 2,600 km have been auctioned in October 2007. Institutional arrangements in the Federal Program of Concessions include the federal government to maintain ownership of facilities and regulation of the concession. The investment, operation and revenue collection are the responsibility of the private operator.

The States' concessions are managed by the states and are mainly based on federal highways through agreement, being formed by stretches of roads delegated to the states to be included in a broad program of concessions. This includes basically the current concessions, consisting of sections of roads delegated to the states and awarded to private companies, following bidding process in the states of Paraná and Rio Grande do Sul (with 3008 km in length); and concessions operated by the own state public sector.

The private management of roads brought a good level of service for the network under concession. The CNT survey published yearly since 1999 shows that the road extension

classified as good or very good rose from 19.7% in 1999 to 26.1% in 2007. Among the thirty best highways, 24 are toll roads. The concessions offer good traffic conditions and quality service, which has a positive impact on the economy.

In December 2004 a law approving PPP's was adopted by the government. Under a PPP the private sector has the right to receive payments from the user (as in concessions schemes) but also transfers from the government. So far, the regulations about concessions and those about PPPs are independent, in order that a project must be designed either as a concession or as a PPP.

### The Federal program

The central government began its program of federal roads concessions in 1993. The main features of the awarding of Via Dutra (i.e. the Rio de Janeiro to São Paulo expressway), which is representative of the main characteristics of projects of the first phase, include:

- The concession was awarded to the bidder submitting the lowest fare;
- The financial structure was 32% of equity and 68% debt, with the latter consisting of 45% from the National Bank of Economic Development (BNDES), 10% from suppliers credit, and 13% from the International Finance Corporation (IFC) and foreign banks;
- Concessions contracts detail the work of construction and maintenance to be carried out by the concessionaire, and daily fines are imposed if the specified schedule is not reached;
- The concessionaire is authorized to start collecting tolls after the initial work is completed; about 4-6 months after the award of the concession;
- The concessionaire takes the traffic risk, but is entitled to have the levels of toll revised if the costs change significantly;
- The traffic along the route is mainly centered in urban areas, rather than long distances, with volumes around 25,000-30,000 vpd in the state of São Paulo and 15,000-20,000 in the state of Rio de Janeiro, and in a range between 80,000 -150,000 near the cities of São Paulo and Rio de Janeiro;
- The same basic rate (toll per km) is charged on each of the four toll plazas along the route, and
- The concessionaire has the right to use alternative sources of revenue, primarily from commercial developments related to concessions (for example, service stations).

CHARACTERISTICS OF THE FIRST PACKAGE OF FEDERAL ROAD CONCESSIONS IN BRAZIL*								
Road Segment	Length (km)	Date of contract signature	Term of concession (years)	Estimated investment (USD mi)	Forecast Vehicle Per day	Investment (UUSD)/ km/ years	Toll fee evolution (UUSD / km)**	
							1998	2008
Rio-Niteroi Bridge	13.2	Dec 94	20	70	72	265,152	0.057	0.144
Rio de Janeiro- Juiz de Fora	179.7	Oct 95	25	150	58	33,388	0.027	0.020
Presidente Dutra	406.6	Oct 95	25	720	197	70,831	0.018	0.040
Rio de Janeiro- Alem Paraiba	144.4	Nov95	25	150	30	41,551	0.032	0.026
Osorio- Porto Alegre	112.3	March 97	20	20	60	8,904	0.030	0.026
Total / Average	856.4	-----	23	1,110	83,4	83,965	0.032	0.045

\*excluding the two concessions in Rio Grande do Sul that have been transferred to the federal government.

\*\* in current values and current exchange rate; while in general fares of public services decreased in American dollars they increased (in real terms) in national currency.

*Source: Consultants' compilation.*

The Brazilian experience with toll roads emphasizes several issues with respect to the development of toll roads. Some of these issues are important to best practices in the future. These include the following.

An interesting practice employed was the use of cross-subsidies; cases in which the operating profits of a toll road with high volumes of traffic are used to cover losses incurred on links with low volumes of traffic (or not tolled) in the network (this is particularly used in some states, like Rio Grande do Sul and Paraná). Subsidies are also employed in toll roads individually, such as the Via Dutra, in which the long distance traffic pays the toll, while in some areas the local drivers can enter and leave without being charged.

The overall results of this first package of road concessions were positive despite the numerous problems faced. The lack of experience, the creation of a regulatory agency after the concessions have been awarded, the strategic behavior of government and operators increased by the information asymmetry, were the main challenges faced in this first concessions.

The economic crisis in 2002 represented a challenge for private investors. The crisis started with the presidential campaign. Markets were afraid of the victory of the candidate of the left Luiz Inácio Lula da Silva, leader of the Labor Party (Partido dos Trabalhadores – PT). The Brazilian currency – Real – was devaluated, from 2.35 per dollar to 4 per dollar in 4 months and the country risk rose. As an extreme measure to stop the devaluation and avoid a dangerous crisis, the IMF lent USD 30 billion. Lula won the election in October and took his functions in January 2003, leading the first government of the left in Brazil. The chaos expected by the market did not take place. The government kept

the conditions imposed by the IMF, doing even better in some points. The Real regained value and stability, the country risk dropped and the inflation was drastically reduced.

An example of strategic behavior of government was the unilateral decision of reducing tolls or non-accepting their programmed adjustments, with the objective of attracting public support during the election campaigns. This occurred in many states. In Paraná, only 50 days after the beginning of toll charging, the government reduced fares by 50%. Tolls have been readjusted in 2000 to compensate the loss occurred during this period. While the main problem has been solved, this fact underlines the problem of governmental incoherence between long-term engagements and short-term political interests.

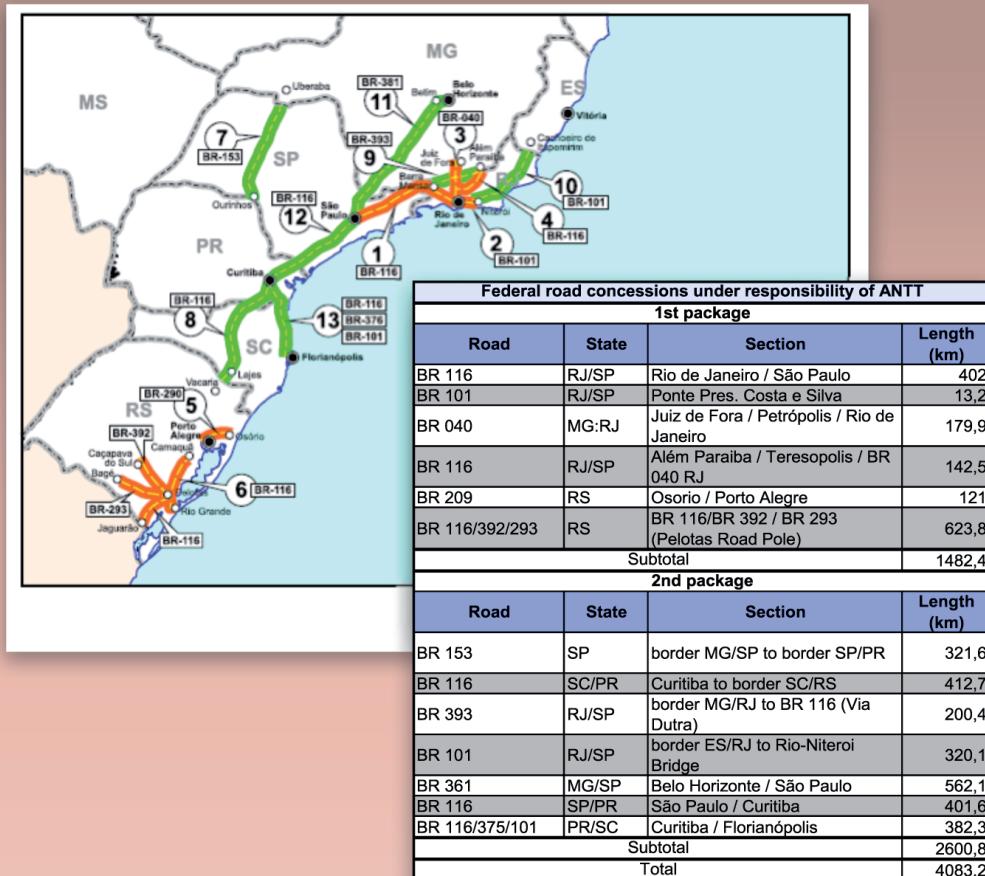
In a survey with 21 Brazilian regulatory bodies realized in 2005 (The World Bank, 2007), more than 50% informed that the Executive interfered at least once in a final deliberation. A new law defining the activities of the regulatory agencies, called "lei das agências reguladoras", whose project was created in 2004 but remains to be approved, aims to strengthen the regulatory role of agencies.

The second package of concessions covered 2,600.78 km, consisting of seven lots. The experience acquired with the regulation of the first concessions was applied in the design of this second package. It includes a better risk allocation giving more responsibilities but also more breathing space to the private operator. The regulation rules are now more focused in economic and quality aspects rather than in the technical requirements for the first package.

CHARACTERISTICS OF THE SECOND PACKAGE OF FEDERAL ROAD CONCESSIONS IN BRAZIL		
Highways	Sections	Length (km)
BR-116/PR/SC	Curitiba – Div. SC/RS	412.70
BR-376/PR - BR-101/SC	Curitiba – Florianópolis	382.33
BR-116/SP/PR	São Paulo – Curitiba (Régis Bitencourt)	401.60
BR-381/MG/SP	Belo Horizonte – São Paulo (Fernão Dias)	562.10
BR-393/RJ	Div.MG/RJ – Entroncamento com a Via Dutra	200.35
BR-101/RJ	Ponte Rio-Niterói – Div.RJ/ES	320.10
BR-153/SP	Div.MG/SP – Div. SP/PR	321.60
TOTAL	7 sections	2,600.78

Source: ANTT ([www.antt.gov.br](http://www.antt.gov.br))

FIGURE 1: LOCATION OF FEDERAL ROAD CONCESSIONS IN BRAZIL



Source: ANTT ([www.antt.gov.br](http://www.antt.gov.br))

### States' concessions program

The lack of appropriate sources of finance for investment in roads is also seen at state levels. The option for self-sustaining roads was reflected even before the launch of concessions programs. Many states have adopted road pricing managed directly by the government.

In general, we can say that at state levels the picture is mixed. For example, in the state of Paraná, the government had been actively hostile to private participation. The new governor announced his intention to submit a bill to the Legislative Assembly of the State proposing the re-nationalization of six awards of roads concessions in the state. None of the contracts was changed, but this behavior introduced uncertainties and treats the stability of such concessions.

Across the spectrum are Minas Gerais and São Paulo. Minas Gerais submitted law projects to the Legislative Assembly to create a legal framework for public-private partnerships and a PPP Fund to participate in financing and guarantees of long-term obligations to the government. One example is the highway MG-50, auctioned through PPP. São Paulo also made the necessary changes in order to adapt its legislation. The most striking fact

in this direction was the bidding of the subway line 4. Both states plan other projects to be implemented as PPP within their multi-annual plans of investments.

Given the lack of public investment in roads, the private sector investments are significant. The program of investment of the 36 concessionaires administrating toll roads in seven states - Bahia, Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo, Paraná and Rio Grande do Sul - was approximately USD 0.7 billion in 2007, according to ABCR's annual report (2007). This amount represents about 15% of the total investment in roads in the country.

The concessionaires are in charge of about 9,768 km of highways awarded, which represents 6.4% of the Brazilian road network. Revenue in 2007 was RUSD 6.2 billion, with costs reaching RUSD 8.4 billion. Payments for governments reached RUSD 363 million. Additionally, concessionaires paid about RUSD 1.7 million in taxes, bringing direct benefits to 245 municipalities.

### **The case of Rio Grande do Sul**

Among the diversified experiences of Brazilian states, Rio Grande do Sul provides an interesting example. The model used in Rio Grande do Sul was based on the idea of "poles". A pole is a set of toll plazas forming a cordon line (which can be partial or total) around a network hub (or central point where at least three highways converge). The toll plazas are located in at least three of highways converging, with toll collection in both directions (the collection was initially made in a single direction, and a renegotiation of the contract authorized the collection in both directions). The program was based on two main principles: the levels of toll are set by the state, and must be acceptable to users. Other principles were considered:

- The structure of toll collection should maintain a fixed ratio between the values for different types of vehicles; this ratio is directly related to their impact on the deterioration of the pavement;
- Users should understand the basis of toll settings, and how the revenue would be used;
- The system should offer extra benefits for users of non tolled roads; these should include a comprehensive and technically advanced traffic signaling, covering the entire area under tolls;
- The state should evaluate the financial aspects of the system, and
- At the end of the concession, every highway in the system should return to the state in perfect conditions. It happens in general in any case of concession in Brazil, not only in roads and not only in Rio Grande do Sul.

In 1996 the poles were located in only 25% of territory in an area that includes 90 cities, about half the population of the state (50.3%) and 51% of its GDP. This is an important aspect to be highlighted, since it intended to provide a good road standard for the traffic connecting commercial and industrial centers, including traffic between regions exporting agricultural products and the port of Rio Grande, without depending on availability of public funds. The process of bidding was based on the following principles:

- The concession was awarded to the bidder offering the highest tender for a pre-defined level of services and works;
- The bidders must demonstrate expertise in quality control, the successful implementation of construction work, and provision of services;
- The period of concession is 15 years, given both the requirements of public interest as to ensure concessionaires recover the initial investment;
- Revenues of concessionaires come only from the collection of tolls (no compensation of the State if the demand is lower than expected);
- There is transparency on how the revenues are used;
- It is forbidden to give concession privileges for specific groups of users;
- The bidding process follows the pre-defined legal procedures.

CHARACTERISTICS OF ROAD CONCESSIONS IN RIO GRANDE DO SUL							
Concessionaire	Length (km)	Number of toll plazas	Duration (years)	Date of contract signature	Date Operations started	Total investments (millions USD)	Toll fee 2008 (UUSD / km)
BRITA	144.9	3	15	20-05-98	09-11-98	N.A.	0.063
CONVIAS	173.7	4	15	14-04-98		128.640,06	0.062
COVIPLAN	250.4	4	15	21-02-98	29-12-98	92.313,98	0.043
METROVIAS	535.9	5	15	14-04-98	09-12-98	142.654,22	0.025
RODOSUL	132.7	3	15	15-06-98	31-12-98	26.400,73	0.061
SANTA CRUZ	208.0	3	15	29-05-98	09-11-98	9.844,05	0.039
SULVIAS	317.8	6	15	09-04-98	09-12-98	125.297,91	0.067

Source: ABCR (2004), DAER (2008)

One of the main challenges faced by the concessions program was the development of alternative routes of escape through the construction of bypasses to avoid the payment of tolls by users. This action was encouraged by some mayors as a populist measure to win elections. These bypasses are a serious problem that profoundly affect revenues and costs as well as the safety of highways.

In Rio Grande do Sul there was also some friction between the government and the concessionaire. The government elected in 1999 was against the concessions and criticized the precedent government for implementing them. The new government introduced some changes in the program and transferred two poles (formed only by federal roads) to the federal government. Also, the awarding process of the metropolitan region of the states' capital –Porto Alegre – was interrupted and transferred to federal responsibility.

Another concession, in the region of Santa Maria, had been awarded but, by governmental decision, never operated; the case is still being discussed in the tribunals.

The readjustments, which should be automatic as stated in the contract, are a constant source of political discussion; some politicians argue what has been stated in the contracts. These discussions influence the public opinion and hamper public acceptance.

Another challenge was the low traffic levels compared to forecasts, due to these bypasses but also probably as a consequence of the economic optimism in the country and especially in the region during those years. The government refused to solve this problem during a long time generating a high risk situation.

### Conclusions and lessons learnt

Brazilian experience in partnerships between the public sector and the private sector in the provision of infrastructure has been remarkable. Various types of concessions were awarded, and political decisions strongly influenced the risks involved in the program.

The private investments in roads are considerable and the quality of roads under private operation is high. Private participation is viewed as the only way to achieve the necessary investment in infrastructure the country needs to satisfy its needs.

Economic shocks, threats of expropriation, lack of adjustments in prices, opportunistic behavior of governments and concessionaires, local politicians building routes of escape, provide a range of practical constraints faced in implementing concessions programs and highlight the difficulties of reforms implementation.

However, a set of public policies have been implemented and the experience acquired by both public and private sectors were applied in the design of the second package of road concessions. The regulation on public-private partnerships (PPP) provides a more flexible framework to private participation in the transport sector.

In 2007, the first public-private partnership for highways in Brazil effectively started. In Minas Gerais, works began on the recovery and maintenance of MG-050, a highway of major logistic importance for the State. At the end of the year, the government of Pernambuco signed an authorization to build a 320-meter long bridge and a 6.2 km long road at Praia do Paiva.

In spite of the problems discussed here, a summary of the Brazilian experience shows that private ownership of infrastructure has, in general, led to better management and investments in the rehabilitation of the network. This is a key issue in terms of the country's competitiveness. The rethinking and promotion of financing models through PPP must be priority to Brazil.

### Further information

This case study is largely based on the chapter 12 of:

Senna, L.A.D.S. and Michel, F.D. (2006) Rodovias auto-sustentadas: O desafio do século XXI. CLA. Brazil.

Complementary sources are:

ABCR (Brazilian Association of Road Concessionaires) [www.abcr.org.br](http://www.abcr.org.br)

ANTT (National Agency for Land Transport) [www.antt.gov.br](http://www.antt.gov.br)

Karisa Ribeiro, K., Dantas, A. and Yamamoto, K. (2007) The Brazilian Experience in Road Concession: Past, Present and Future. World Conference on Transport Research. Berkeley, US.

LASTRAN (1998) Avaliação do Impacto da Implantação de Concessões nas Rodovias do Rio Grande do Sul. Laboratorio de Sistemas de Transportes, UFRGS, Porto Alegre – RS, Brasil.

The World Bank (2007) Como Revitalizar os Investimentos en Infra-Estrutura no Brasil: Politicas Publicas para uma Melhor Participação do Setor Privado. Report n° 36624-BR.

# Urban Highway Concessions in Santiago, Chile

(Sistema Norte-Sur, Costanera Norte, Sistema Américo Vespucio Norte and Sistema Américo Vespucio Sur)

## WHY READ THIS CASE STUDY?

- Ⓐ This is the first example in the world that urban highways were implemented in a city almost simultaneously with free-flow toll charges that are interoperable, as the highways were tendered to four different operators. These projects followed the smaller, initial PPP development programs.
- Ⓑ They provide a number of lessons, especially for planners, since the problems that have emerged have not come from the "hard" areas like engineering and ITS (Intelligent Transport System) technology, but rather from the "soft areas" like the performance quality of service as well as planning and social impacts.
- Ⓒ The impact of planning and institutional weaknesses has led to the Chilean government spending much more money to support these urban highway concessions than it expected for example, subsidies for additional projects or monetary compensations to the concessionaires.
- Ⓓ Consequently, while the Chile government made mistakes, it started with smaller PPP projects, it was not afraid to innovate and it updated and adjusted its PPP framework with the experience gained to mobilize substantial private finance and to implement a number of successful PPP projects.

## The Chilean Concessions Program

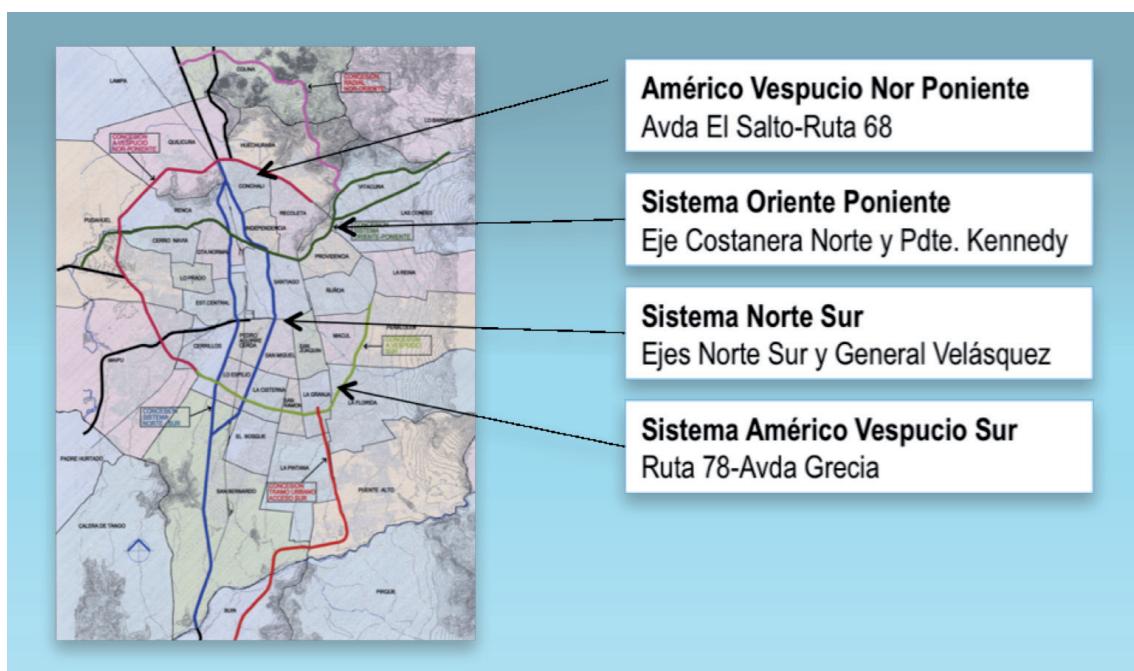
Urban highways are an important part of the road concessions program implemented by the Chilean Government beginning in the early 1990s. The program has allowed the country to be equipped with a modern network of inter-urban and urban highways in only a few years, in addition to airports, hospitals and prisons.

The PPP (Public-Private Participation) model chosen by the Chilean Government is: Build, Operate, Transfer (BOT), with a call for an international tender process. Financing is obtained by the private sector, which regains its investment through toll collection. However, the government has financed certain complementary projects not contained in the tender ground rules, in addition to guaranteeing the road projects a minimum income in the event of a significant drop in vehicle traffic, which ensures up to 70% of the investment plus maintenance and operation costs.

It is important to highlight that financing transportation infrastructure with tolls is an old practice in Chile that dates back to the 19th century. Indeed, private investment on roads, was first contemplated in Chilean legislation in 1835, but had practically disappeared by the 1990s. This explains to a great degree why they have been so well received by the population and with a low level of evasion. For example, of the total number of monthly transactions for the urban highways (55 million on average), only 0.3% correspond to the payment of penalties (150,000).

According to information from the Public Works Ministry (MOP - Ministerio de Obras Públicas), total private investment in highways in 2005 was USD 5.3 billion, of which 19 are (inter-urban) highway projects for USD 3.7 billion, and of which 4 are the interoperable urban concessions (Sistema Norte-Sur; Sistema Oriente-Poniente also called "Costanera Norte"; Vespucio Norte and Vespucio Sur) representing a total private investment of USD 1.5 billion.

## Project description



The four projects are summarized below.

<b>Sistema Norte-Sur (North-South System)</b>	
Investment Pledged Technical Bid:	USD 455.2 million
Public investment:	USD 144.8 million (USD 99.2 million in 2005)
Total investment:	USD 600 million
Award Decree:	DS: MOP N°4153, Sept. 14, 2000
Beginning of concession:	July 3, 2001
Concession Duration:	30 years
Provisionally Operational:	December 2004 (First Stretch), May 2006 (final stretch, General Velásquez bypass)

Concessionaire:	Autopista Central, S.A (ACS, BELFI, SKANSKA, BROTEC S:A)
Length:	61.2 km.
Toll charge points:	28
Inhabitants benefited:	1.8 million
<b>Sistema Oriente-Poniente (Santiago East-West highway System)</b>	
Investment Pledged Technical Bid:	USD 389,2 million
Public Investment:	USD 210,8 million ((USD 111,3 million in 2005)
Total investment:	USD 600 million
Award Decree:	DS: MOP N°375, Feb 24, 2000
Beginning of concession:	July 3, 2001
Concession Duration:	30 years
Provisionally Operational:	April 2005.
Concessionaire:	Costanera Norte S.A. (Autopista do Pacifico S.A; Autostrade Sud America S.R.L)
Length:	44 km.
Toll charge points:	16
Inhabitants benefited:	1.4 million
<b>Sistema Américo Vespucio Nor-Poniente (Vespucio North-West System)</b>	
Investment Pledged Technical Bid:	USD 328.3 million
Public Investment:	USD 21,7 million (USD 0 in 2005)
Total investment:	USD 350 million
Award Decree:	DS: MOP N° 493, March, 2002
Beginning of Concession:	April 24, 2003
Concession Duration:	30 years
Provisionally Operational:	Jan 5 2006
Concessionaire:	Soc. Conces. Vespucio Norte Express S.A.
Length:	29 km
Toll charge points:	15
Inhabitants benefited:	1.5 million
<b>Sistema Americo Vespucio Sur (Americo Vespucio South System)</b>	
Investment Pledged Technical Bid:	USD 263.4 million
Public Investment:	USD 386,6 million (USD 0 in 2005)
Total investment:	USD 650 million
Award Decree:	DS: MOP N° 1209, August 20, 2001
Beginning of the concession:	December 6, 2002
Concession Duration:	30 years
Provisionally Operational:	April 2006
Concessionaire:	Soc. Conces. Autopistas Metropolitanas S.A. (Ití-nere Chile S.A., Sacyr Chile S.A., Acciona Conciones Chile S.A, Acciona S.A.)
Length:	24 km
Toll charge points:	14
Inhabitants benefited:	1.8 million

## The technological aspects

### *The electronic free-flow tele-toll inter-operable collection system, "Televía"*

The inter-operable free-flow tele-toll known as Televía allows users to avoid stopping when paying the toll, passing under a portico that permits information to be exchanged for automatic invoicing. To use it, they must sign a contract with one of the concessionaires. At the end of each month, users receive a bill for the service at their postal or electronic mail addresses.

Occasional users and/or those who do not live in the city can buy a day pass. The toll charge points take a picture of the license plate and the central system compares it with the database for daily passes that have been activated. It is valid for 24 hours on the four urban concessions.

The data transfer between the vehicle and the portico is carried out by an electronic device called a Televía, which is affixed to the vehicle's windshield.



The Televía allows drivers to use any of the urban highways in the inter-operable system.

There are currently 1.5 million tags distributed on free loan (owned by the government and not the user), which will gradually increase, because the capital's carpool has grown quickly since 1990 (10.9 people/vehicle in 1990 and 6.6 people in 2005).

For reference, Santiago's population is 5.7 million inhabitants (2002 Census) and it is considered that there are 16 million vehicle trips per day.

The demographic projection of Santiago is that of a city of 8.1 million inhabitants by 2025.

## MOP requirements in the Tender Ground Rules

The tender ground rules establish that bidders must include the standard to be used in their technical proposal. The first urban highway that was awarded included the following technical standard in its proposal: CEN TC 278 – GSS - A1.

Likewise, the ministry established the principle of a plurality of tag suppliers to avoid monopolies. There are currently three suppliers: Kapsh, Q-Free, CS Route. The tags must be certified by certification agencies that are internationally recognized, in addition to being approved by the MOP.

## Fees

Fees were established in the tender ground rules and are determined based on:

- The number of kilometers in a given segment
- Vehicle type

- Time of day: Off-peak, Peak, Saturation (Saturation charges come into effect during times when the roads are operating at far lower speeds than they were designed for because of the amount of traffic).

The tender ground rules indicate that in all cases users are obliged to pay an Off-peak Base Fee when average speeds are at or around the road's design speed (80 km/h).

According to the contract, the Peak Base Rate ought to come into effect during those times when the highway is operating at speeds that are below the road's design speed. In other words, when average speeds are less than 70 km/h and over 50 km/h.

The Saturation Rate is applied during periods when, thanks to high levels of traffic, vehicles are moving at speeds far below those the road was designed for, or less than an average of 50 km/h.

#### *National Registry of Tele-pol Users*

The MOP has a single database for the Televías that have been distributed in order to make the commercial inter-operability of toll collection possible. The main data is: user identification, license plate number, vehicle class, tag manufacturer reference. The concessionaires must feed information into the database and can gain access to it.

#### *Infringements*

In the event that users do not pay the amount owed for two consecutive months, the concessionaire that they owe the debt to can disable their Televía and begin legal action in local courts for infringing the terms of use. The concessions law in force establishes a fine of 40 times the amount owed. As of May 2008, only 0.3% of monthly transactions required sanctions.

#### *Experience during the operational phase of the Concession*

The main problems that have emerged during the implementation of the inter-operable urban concessions do not have to do with the technological aspects, but rather with the planning, coordination, and the comprehension of new expectations on the part of users. These are problems or flaws that are not exclusive to the urban concessions and can also be seen in the inter-urban concessions.

#### *Flawed service quality*

Aspects related to the quality of customer service were not appropriately considered by the ministry or the concessionaires. This can be explained by the dominance of professionals and experiences from the construction sector.

*"During the tender process we did not worry about the quality of service and we did not deal with it using the proper professional specialties (...) We are only now working on issues of user satisfaction."*

**Valentina Flores**, head of communications unit.

*"... complaints take place in areas where inter-operability is not regulated – no longer in a technical sense, but in terms of commercial and procedural interoperability. And that – lead and coordinate – is where the role of the government is ineludible."*

**Carlos Encalada**, Head of Technological Innovation and Development Unit.

#### *Planning failures:*

The road concessions were not designed in an integrated way, but rather as separate road projects, which made itself self-evident with connections, especially between the Sistema Norte-Sur and the Costanera Norte.

Likewise, there were serious planning problems with the distribution of the tag: the MOP had anticipated free delivery of tags for up to a certain number of users, carried out through the concessionaires. The concessions contracts foresaw a certain number of tags being distributed, but since the first concession to enter into operation was the Sistema Norte-Sur, demand for the tag was centered exclusively upon it and the number considered in the contract was surpassed, which caused stocks to be depleted and discontent among users/potential users.

According to the director of tolling for Autopista Central S.A (the Sistema Norte-Sur, highway) there was also lack of support from the concessions department during the implementation of the system:

*"Nobody had any experience in urban concessions of this kind ... The Ministry expected us to be able to coordinate because it had a dogmatic vision of the market's regulatory capacity ..."*

*The correct role that the ministry ought to play is a semi-active one, meeting with us and helping us to find solutions together. Instead, they were totally absent."*

**Salahdin Yacoubi**, director of tolling, Autopista central S.A.

In addition to the inexperience on the part of all parties involved, there were the ideological differences between MOP officials regarding regulatory mechanisms: market vs. more direct government intervention. The dominating view though was to let market work that is not interfering in coordination matter between concessionaires.

*"There continue to be viewpoints in the Concessions Coordinating Board that say, well, the concessionaires are the ones who have to come to an agreement here, something like saying let the market work. But the market is not at work here. The market is not at work because there are four concessionaries with at least two different clients and with shareholders that sometimes get along well, while at other times they do not."*

*Carlos Encalada, Head of Technological Innovation and Development Unit*

These differences are not exclusive to concessions, but rather are a reflection of an open debate in Chile today, as can be seen in the education or public transportation systems.

#### *Problems related to public participation:*

The MOP did not take sufficient account that some of the population affected by the construction of the highways was likely to oppose the projects, which in fact they did and significantly increased the government's investment costs and caused the execution of the project to be delayed. The government then had to pay significant compensation to the concessionaire, which likely could have been avoided.

Yet it would possibly be inappropriate to seek the origins of such flaws in deficient project preparation. As a matter of fact the MOP, more than any other ministry in Chile, has invested large sums of money on environmental and urban impact studies. A special "public participation unit" was even created when the Concessions Program began.

Such problems can be better explained by structural reasons related to MOP institutions (traditions of centralized and authoritarian style of bureaucracy), finance (cost reductions to maximize benefits), and politics (electoral calendar).

#### *Unexpected lawsuits from the concessionaires*

According to the concessions law that is currently in force, lawsuits must be presented to a conciliatory commission comprised of 3 members, 2 of which are named by each of the parties involved and one appointed by mutual agreement. To date, the Chilean government has had to face multimillion dollar lawsuits for breach of contract.

For example, in May 2007 the concessionaire of the Américo Vespucio South System presented a lawsuit against the MOP for USD 100 million, mainly due to delays in expropriations, the rising cost of steel and oil, and for failing to meet the deadlines for transferring services. Other lawsuits for a total of USD 500 million had previously been presented by the concessionaires of urban highways (by August 2007 the government had paid over USD 200 million).

#### *Major increase in public investment*

The planning mistakes caused the Chilean government to significantly increase public investment through complementary agreements. For example in the Sistema Américo Vespucio Nor-Poniente, public investment went from 0 in 2005 to USD 386.6 million today.

Yet the Chilean government had expected the highway concessions to be entirely financed by the private sector with no public subsidy.

## Conclusions and Lessons learned

The urban concessions mark a new milestone in the Chilean road concession program. In general they have been successful if success is measured by the number of bidders in the tender process, the completion of works, and their profitability for the private sector.

However, the flaws that have emerged and which were described in the previous point allow one to learn a few lessons for the future:

### Do not neglect the operation phase (Contract Management) during planning

Because of professional and institutional culture, the administrative departments in charge of preparing tender processes tend to concentrate on aspects related to engineering and construction, while at the same time neglecting the operational phase, despite the fact that it constitutes the majority of a concession.

Thus, the MOP still does not have systematic information available regarding users' level of satisfaction or payment preferences and depends on the information that concessionaires can give it regarding relevant issues like users' billing preferences (one bill per concessionaire or a single bill).

To provide a solution to the main flaws identified in the operative phase, in 2007 the MOP sent Congress a draft bill to modify 2 main aspects of the current concessions law: greater attention paid to the quality of service with the creation of a Superintendence (a semi-autonomous regulatory body) and replacing the Conciliatory Commission with an Arbitration Court comprised of three expert professionals whose decisions must be in keeping with the law (the Conciliatory Commission ruled "in conscience").

### Undertake real public consultation processes

Not taking the opinions of the affected population into account from the outset and in an opportune fashion has been very costly for the government, both on a financial level (compensation for delays), as well as on a political one. Though this has not resulted in electoral sanctions, there is a general perception among the Chilean population that the government has favored the private interests of the concessionaires over users' interests.

### Integrated planning of concessions even if they are tendered separately

Huge amounts of money would have been saved and a number of road connection problems could have been avoided if the projects had been planned (designed and well thought out) jointly, or at least coordinated with, teams that have complementary skills.

Reinforce coordination between the different bodies in the institution in charge of the concessions to avoid repeating problems.

Coordination allows information feedback and in that way improved projects. However, in practice it is hard to implement such coordination in a systematic way because of the work rhythm of the work teams in charge of preparing the projects to fulfill the tender process schedule.

It is often the case that entire chapters are copied from the tender ground rules of projects that have already been tendered into those of projects yet to be tendered. Because of this, currently the Department of Concessions is considering formalizing a coordinating body among its employees to maximize information feedback.

### Adopt a pragmatic approach

Unlike with the first tag distribution, the Technological Innovation and Development Unit has considered playing a more active role in the distribution of more tags, which will have to be replaced as of next year as the batteries run down.

*"We now hope to achieve a more rational distribution of the devices, including on a geographic level ... Together with the Transport Ministry we are considering [changing Tag batteries] at the same time that cars undergo their [annual] technical review."*

*Carlos Encalada, Head of Technological Innovation and Development Unit*

## Further information

### Public sector



<http://www.concesiones.cl>



[http://www.aic.cl/documentos/presenta\\_bull.ppt](http://www.aic.cl/documentos/presenta_bull.ppt)

### Concessionnaires' Websites



<http://www.copsa.cl/>



<http://www.autopistacentral.cl>



<http://www.vespucioexpress.cl>



<http://www.costaneranorte.cl>



<http://www.vespuciosur.cl/>

## Contacts

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# A6 Motorway, Croatia

## WHY READ THIS CASE STUDY?

- A** The particular composition of the SVP created to develop and manage the A6: the fully state-owned concession company ARZ.
- B** A6 motorway construction was realized within the time schedules and the estimated cost and ARZ is one example supporting that Croatia has certainly advanced with high speed in the area of PPP ventures, which have driven motorway densities to record levels.
- C** M6 is a brownfield project. ARZ received under the concession agreement an existing road and is in charge of its upgrade to a full motorway standard.
- D** It is an interesting example of a toll collection system evolution.

## Country background

Croatia stands out among transition countries as it has developed a large number of PPP projects despite the small size of its economy. The strategy was, however, mainly state-driven with few 'true' commercial projects.

After the violent break-up of the former Yugoslavia, Croatia began to ponder a coherent road development strategy only in the second half of the 1990s. At that time, the country had an extensive public road network, though of poor quality due to a long period of insufficient maintenance.

In 2001, the government recognized the need to rapidly rehabilitate and extend Croatia's highway network, including major transport corridors within Croatia and with its neighbours, notably EU countries. To achieve this goal, the Croatian government passed the "Program of Construction and Maintenance of Public Roads in the Period from 2001 to 2004" bill, which – among other things – put in place a new model for financing road transport infrastructure and a new structure for the management of this sector. Management of the existing road network was to be fully financed from public expenditures, whereas the management and construction of new highways was to rely primarily on foreign long-term loans and private participation.

The Croatian government considers PPPs important for raising private capital for the highway sector. The 2001 public road program estimated investment requirements at EUR 2.1 billions, of which budgetary funding could cover only EUR 860 million. Several projects were earmarked for private concessions reflecting their advanced stage. However, contrary to the initial objective, the bidding process was replaced by direct negotiations between the Ministry and the companies.

By 2013, Croatia expects to have a highway network totaling 1,365 kilometers. This represents an increase of 635 kilometers or 87% in ten years. Most of this growth is

supposed to come in the form of tolled highways, with opportunities for development using some form of PPP concession arrangement.

## Administrative Organization

Following the approval of the above mentioned law, a new administrative organization was set up. The Ministry of Maritime Affairs, Transport and Communications decides over the realization of projects and two fully state owned incorporated companies have been created for the implementation of the projects:

- Croatian Road Authority (Hrvatske ceste d.o.o. - HC), responsible for the financing, construction, and maintenance of state roads which are not tolled;
- Croatian Motorways Ltd. (Hrvatske autoceste d.o.o.) (HAC) responsible for the operation, construction and maintenance of Croatian motorways which are under concession.

According to the law, 0.5 Kuna (about EUR 0.0625) from the retail price of each litre of fuel sold on the market is dedicated to motorway construction financing in 2002-2004 (about EUR 137 million/year) and are at the disposal of HAC, completing toll revenues (about EUR 85 million/year). It was expected that sovereign loans (EUR 1,180 million for the whole period) would complete the financing plan. The intended budget was the following.

FINANCING STRUCTURE OF THE CROATIAN ROAD MAINTENANCE AND CONSTRUCTION PROGRAM FOR 2001-2004					
Maintenance, reconstruction and construction of State, country and local roads			Construction and management of toll motorways managed by Hrvatske AutoCeste (HAC)		
Funding source	EUR million	%	Funding source	EUR million	%
Budgetary resources (2001)	122	12.8	Budgetary resources (2001)	67	3.4
Revenue from fuel tax (EUR 0.075/l)	472	49.4	Revenue from fuel tax (EUR 0.065/l)	495	24.8
Annual revenues from vehicle registration	186	19.5	Revenues from tolls	253	12.7
Loans	175	18.3	Loans	1,180	59.1
Total	955	100	Total	1,995	100

Note: based on EUR 1.0 = Kuna 8.0 exchange rate.

*Source: Ministry of Maritime Affairs, Transport and Communications*

In Croatia, besides Hrvatske autoceste d.o.o. three other concession companies have been established to build and manage toll motorways:

- BINA-ISTRA d.d. Pula (operates the so called Istrian Upsilon - A8 and A9),
- Autocesta Zagreb-Macelj d.o.o. (AZM for A2).

- and Autocesta Rijeka-Zagreb d.d. (ARZ for A6)

NETWORK LENGTH (KM)					
	Company	2005 total	2005 not tolled	2006 total	2006 not tolled
1	HAC d.o.o.	702.3	20,8	735.0	-
2	ARZ d.d.	146.5	-	146.5	-
3	BINA-ISTRA d.d.	130.1	-	145.0	-
4	AZM d.d.	41.6	-	42.0	-
	<b>TOTAL</b>	<b>1,020.5</b>	<b>20,8</b>	<b>1,068.5</b>	<b>0</b>

## A6 Project Overview

The Zagreb-Rijeka Motorway consisted of the Building, Financing, Operation and Transfer (initial concession of 28 years) of 147 km of the A6 Motorway between the Croatian capital Zagreb to the largest seaport in Rijeka.

The Zagreb-Rijeka Motorway forms part of the Budapest-Varazdin-Zagreb-Rijeka highway, European Road E-65. The roadway connects Central European countries with Croatia's largest port Rijeka and on towards other Mediterranean countries. The Budapest-Zagreb-Rijeka highway is contained within the north-south Trans-European Motorway Project (TEM) and the Rijeka-Zagreb-Budapest route constitutes part of the Pan-European Transport Corridor VB.

In addition to its role in the European context, A6 motorway is an essential part of the Croatian road network, being part of the main road from Gorican-Cakovec-Varazdin-Zagreb-Karlovac-Rijeka-Pula. Zagreb acts as the central transport node from which traffic flows are directed towards the main industrial and urban centres in the central region. On the coast in the Croatian part of the Adriatic, Pula, Rijeka, Zadar, Sibenik and Split, act as significant tourist destinations. The Rijeka to Zagreb highway therefore represents a crucial connection between both the continental and the littoral parts of Croatia.

The Rijeka-Zagreb-Gorican highway corridor ranks among the highest priority road traffic corridor in Croatia and the completion of motorway construction along this route has been the main strategic goal of Croatia and a top priority in the national motorway network improvement plans.

In order to develop a more rapid and efficient construction of the Rijeka to Zagreb motorway, the Croatian government established the company ARZ to be responsible for the operation and maintenance of the existing sections of the motorway as well as development activities (the upgrade to full motorway profile current single lanes road section).

The Concession Contract between the Government of the Republic of Croatia (Conceding Authority) and Autocesta Rijeka-Zagreb d.d. (Concessionary) was signed in 1998 for 28 years of concession duration.

### Key dates:

- The "Rijeka-Zagreb Motorway" – public limited company Autocesta Rijeka-Zagreb d.d. (ARZ) was established by Government Resolution on December 11, 1997.
- The Concession Contract relating to construction and operation of the Zagreb – Rijeka motorway (tollgate Orešovica - tollgate Lučko) was concluded in June 1998.
- The building activities to develop the motorway under the concession agreement started in 2001 (Phase II) with the upgrade of roughly 70 km to full motorway profile.
- Phase II of building activities started in 2007 to upgrade to full motorway profile 43 km of the existing network.
- In August 2007 the Government decided to extend the concession:
  - From Rijeka towards the north until the the Slovenian border (30 km).
  - From Rijeka towards the south until the Krk bridge (20 km).
- Parts of this new section are full motorway profile when other parts gather single road to be upgraded by ARZ to full motorway profile during the concession period.
- ARZ had to pay for those new highways section a concession fee to the State of EUR 200 M and the concession period was extended from 28 years to 31 years in order to avoid that this asset transfer jeopardizes future ARZ financial situation.

### Financing:

- Phase I
  - long-term funding is provided by KfW (EUR 98 M), EBRD (EUR 48 M), EIB (EUR 60 M) and ZAGRABANKA.
  - Short-term funding is provided by Barclays, KfW and RijekaBank.
  - Guaranty of the state for the long-term funding.
- Phase II
  - EBRD loan (EUR 50 M), EIB (EUR 210 M) and DEXIA (EUR 140 M) to complete the construction upgrading to full motorway profile between Kikovica and Stara Susica.
  - KfW loan (EUR 110 M) to finance the equipment and construction of two interchanges.
- Addendum to the concession contract
  - DEXIA loan (EUR 200 M) to pay the extension concession fee.
- Loan refinancing
  - KfW (EUR 133.5 M) to refinance the repayment of the ZAGRABANKA/KfW loans.

To sum up, the total long-term debt amount to be repaid by ARZ is EUR 951.5 M.

### Subsidies:

- Financial subsidies.
- Transfer of 147 km of existing highway (113 km semi-motorway profile and 34 km full motorway profile).

### Toll Rate:

- Toll rates are fixed by the Government. There is no tariff revision formula in the concession contract.
- The last toll rate increase was in 2003.
- The traffic has been increasing significantly each year since the beginning of the concession (40% between 1999 and 2003).

### ARZ project history

**From 1999 to 2007:** upgrading of the existing 170 km highway to a full motorway.

In order to develop a rapid and efficient realization of the Rijeka to Zagreb Motorway, the Rijeka-Zagreb Motorway – public limited company (Autocesta Rijeka-Zagreb d.d.) was established by Government Resolution on December 11, 1997. The company is responsible for all the operation and maintenance of the existing sections of the motorway as well as its upgrade to a full motorway profile along its whole network.

The company ARZ started its operations in April 1998 and in October 1998 all activities related to the motorway operations were transferred from the road administration to the state-owned company. The Government granted to the company the concession right over the motorway sections. A concession agreement was signed on June 24, 1998 for a period of a maximum of 28 years.

The value of the concession right was made by an independent organization and used as the basis for the registration of the company's capital at the court. The concession value was estimated at Kn 2,152 million (EUR 300 millions).

In March 2001, the Government published the Programme of Construction and Maintenance of Public Roads for the period from 2001 to 2004. In accordance with this program, it was envisaged that the Rijeka-Zagreb motorway would be completed in the period up to 2004, involving the expenditure of Kn. 2,900 million financed from "own resources and debt".

The Rijeka-Zagreb motorway comprised initially a total length of 146.45 km which has been constructed in staged development of 10 sections over the past 30 years.

THE RIJEKA-ZAGREB MOTORWAY SECTIONS				
No.	Section	Length (km)	Profile	Year of start up
1.	Orehovica - Kikovica	10.50	motorway	1971
2.	Karlovac – Lu ko	38.60	motorway	1972
3.	Kikovica - Oštrovica	7.25	semimotorway	1982
4.	Oštrovica - Vrata	12.44	semimotorway	1996
5.	Vrata - Delnice	8.93	semimotorway	1996
6.	Delnice - Kupjak	7.92	semimotorway	1997
7.	Vukova Gorica - Karlovac	18.20	motorway	2001
8.	Kupjak - Vrbovsko	17.80	motorway & semimotorway	2003
9.	Bosiljevo - Vukova Gorica	7.80	motorway	2003
10.	Vrbovsko - Bosiljevo	16.60	motorway & semimotorway	2004

*Source: ARZ*

Due to the great illiquidity situation prevailing at that time in Croatia, ARZ had to call upon short-term loans to finance long-term investments. The biggest fund sources were short and medium-term loans from foreign banks: Deutsche Bank, KFW and Barclays Bank. These loans were granted and withdrawn in 1999 to finance the construction of the phase 1 of the motorway. In 2001, two other loans were concluded, partly to repay the installments of the previous loans, partly for the purpose of construction work on the motorway section from Karlovac to Vukova Gorica. The first loan was a syndicated loan from three local banks and the other one from the Rijeka Bank, one local bank of the syndicate. All the loans were guaranteed by the State of Croatia.

In addition to the foreign loans, the Ministry of Finance granted in 1999 to ARZ a loan to finance construction work on the motorway in the amount of 5,5 million EUR . ARZ has got also several non returnable donations from the State budget amounting to 70 million EUR . So far, the State has met its liabilities in paying the amounts due at the date due. The Rijeka, KFW, the Syndicated loan and the Barclays bank commercial loan have been totally paid off.

In 2001 and 2002, four long-term loans from foreign banks were granted to ARZ to finance the construction of the motorway from the following banks: KFW, ZAGRABANKA, EIB and EBRD, each loan being allocated to specific portions of the motorway related to the construction of the Kupjak-Vrbovsko and Vrbovsko-Bosiljevo sections. The loans are guaranteed by the State of Croatia. The average rates accorded by the banks were between 3 and 4%.

In 2007 Phase II, meant to upgrade the semi-motorway Stara Susica-Kikovica to a full motorway (44 km), was launched. It will be financed through several new loans (KFW and DEXIA). It is interesting to note that KFW also provided ARZ with another loan to refinance the former KFW and ZABA loans signed to pay the Phase I works.

From 2007: extension of the road network and the period of the concession.

In mid 2007 the concession agreement between the State and ARZ was amended. The Government decided to extend the concession:

From Rijeka towards the north until the the Slovenian border (30 km)

From Rijeka towards the south untill the Krk bridge (20 km)

Part of these new sections are full motorway profiles when another part gathers single road to be upgraded by ARZ to full motorway profile during the concession period.

ARZ had to pay a concession fee to the State of EUR 200 M for those new highways sections (through a DEXIA new loan), and the concession period was extended from 28 years to 31 years in order to avoid that this asset transfer jeopardize future ARZ financial statements.

### Toll system evolution

The most important source of cost recovery for ARZ comes from the toll collection along A6. However, since construction of the motorway began from its end points, Zagreb and Rijeka, it was impossible to consolidate the pay-toll system until the last section of the

motorway Vrbovsko-Bosiljevo was completed and the start up effected in June 2004. During the period from 1999 to 2004, on the motorway Rijeka-Zagreb, depending on the degree of completion, whether traffic or pay-toll infrastructure, two pay-toll systems were used:

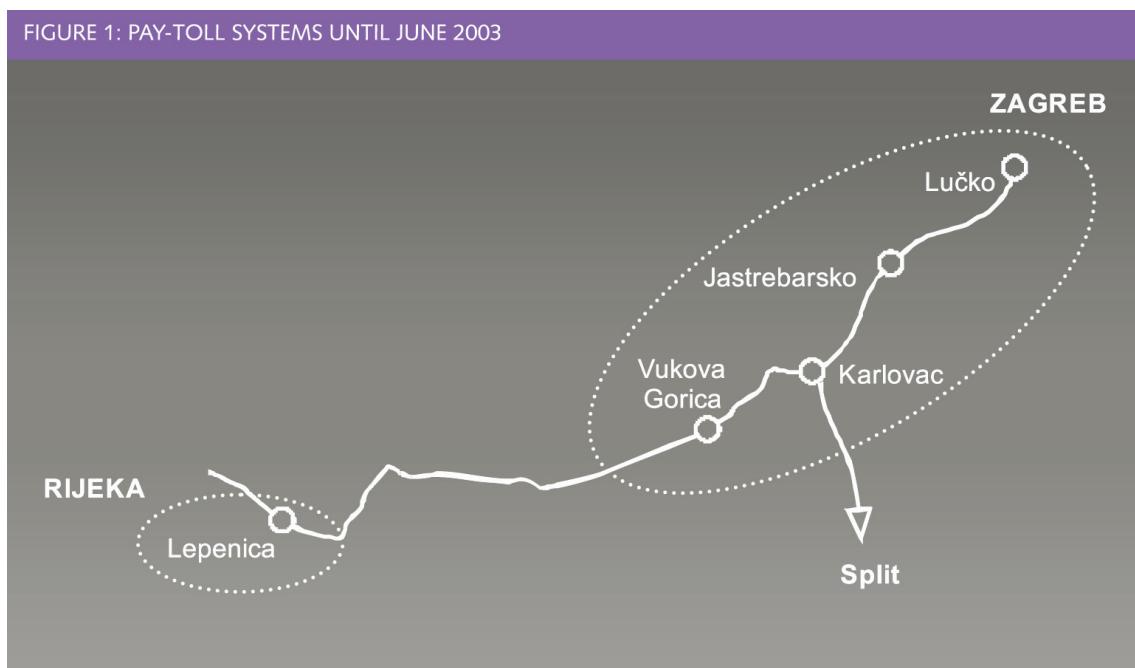
- "open"
- "closed" pay-toll system

In an "open" pay-toll system, the toll is collected during the passage of the vehicle at a certain point. The toll is collected for use of the road notwithstanding the number of kilometers passed.

In a "closed" pay-toll system the driver, entering the pay-toll system, takes a toll card and returns it at the exit. In such a way the toll for use of the appropriate section is collected per kilometre for a specified amount of money.

#### *Period Until June 2003: 1 closed with 1 open pay-toll system*

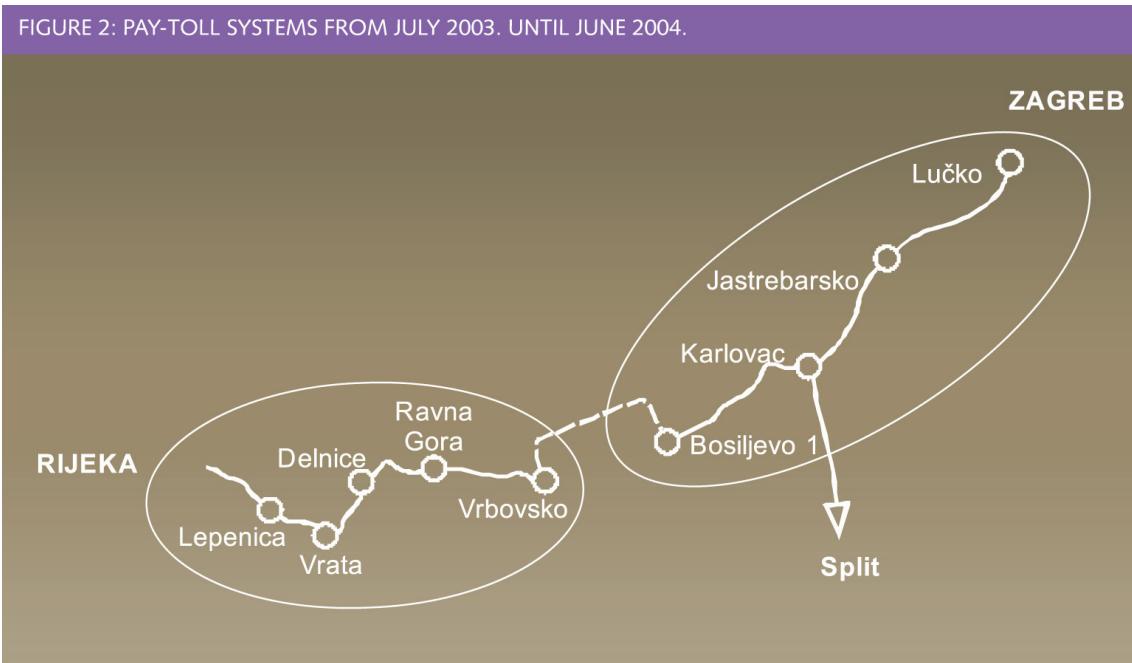
Until June 2003 the pay-toll system for use of semi-motorway was effected by the open system in Lepenica, while the closed pay-toll system was used in Vukova Gorica (Karlovac) – Lučko.



#### *Period from July 2003 to June 2004: 2 closed pay-toll system*

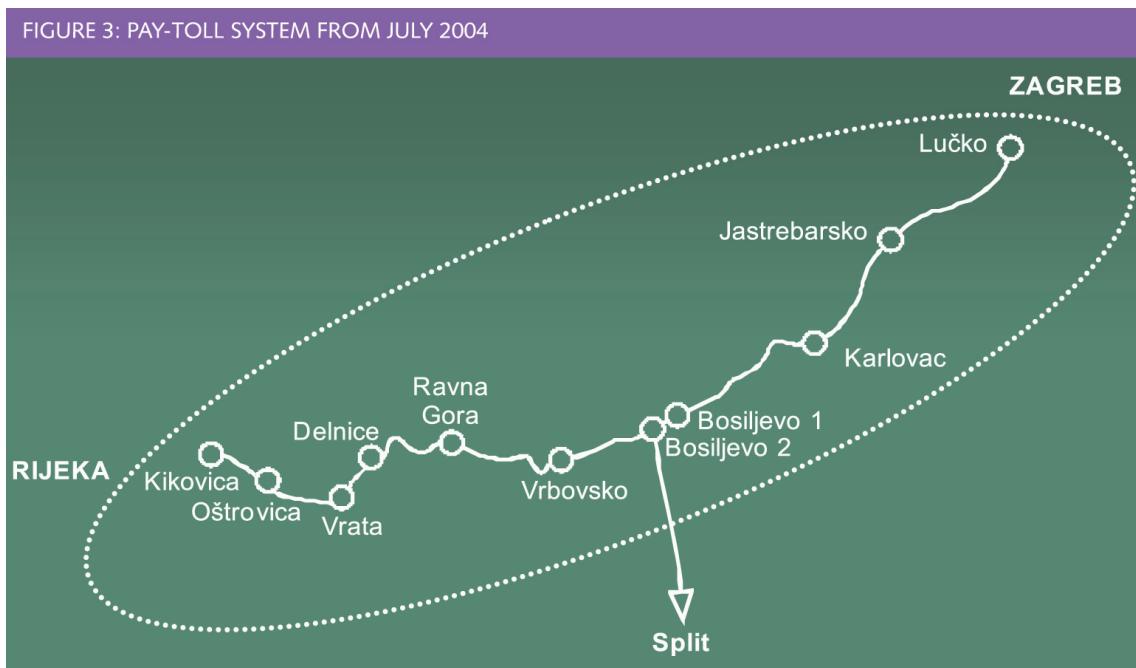
Upon completion of particular sections of semi-motorway together with the pay-toll system, the open pay-toll system in Lepenica was replaced by the closed one. The system started in Lepenica and ended in Vrbovsko. The sections belonging to that system were: Lepenica –Vrata –Delnice- Ravna Gora –Vrbovsko.

In that period two independent pay-toll systems existed (Figure 2). They were connected by the old road section from Vrbovsko to Vukova Gorica (Bosiljevo 1).



*Period from July 2004: 1 closed pay-toll system*

After the construction of the motorway between Vrbovsko and Bosiljevo, the two closed systems merged in one.



From 1999 to 2003, the number of vehicles along the A6 motorway has increased by roughly 40%. Road toll revenues have more than doubled over the period due to the traffic increase generated from the opening of new sections in 2001, 2003 and 2004 making the motorway more attractive, the increase in the number of tourists, the growth rate of the GNP, the rise in the number of vehicles bought.

ARZ has no right to increase toll rates which are fixed by the Government. The last increase was in 2003 and the toll rate per Km is the following:

Category	KN/Km	EUR /Km
1	0.40	0.05
2	0.70	0.10
3	0.95	0.13
4	1.70	0.23

*Source ARZ*

## Conclusions and lessons learned

### An efficient PPP scheme for a quick network development:

A6 motorway construction was realized within the time schedules and the estimated cost and ARZ is one example supporting that Croatia has certainly advanced with high speed in the area of PPP ventures, which have driven motorway densities to record levels. Indeed, in Croatia a relatively large number of projects and highway kilometers have been carried out, involving either the modernization of existing highways or the construction of new ones. Despite the challenging construction work, most of the awarded projects were built on time and within budget. Since the Concession contracts have been awarded without tenders the procurement has been speeded up but the transparency of procurement, required by EU directives and IFI rules, may not be fully respected in practice.

### Financial high risks

Due to the large debt amount supported by HAC and the other concession companies it is uncertain whether this strategy is sustainable given its large medium- to long-run fiscal burden. In fact, public debt is not negligible, and international financial institutions have argued strongly in favor of more fiscal discipline, including a cut in expenditure on highways. For instance there are criticisms raised by the European Commission, of the "Croatian model" of motorway financing and development. It is felt in particular that:

- ① borrowing too much for infrastructure may jeopardize the public debt/GDP ratio considered as affordable for sustainable economic growth;
- ② loans received by a fully State owned company, like HAC or ARZ should not be accounted for as off-budgetary borrowings;  
and
- ③ the risk transfer to the state is too high since the Croatian Government has guaranteed the loan received by ARZ and the other concession companies.

### A strong traffic increase

ARZ and generally speaking the Croatian motorway model success is mainly based on a strong traffic and toll revenues increase. First of all this can be explained because the long Dalmatian sea coast and the several dozen islands in the Adriatic sea located relatively close to Western Europe, well equipped, and offering affordable prices, are primary targets of foreign summer holiday tourists. They represent a huge traffic/revenue generating potential.

### A long experience with tolls

The direct toll collection system has been in existence for many years (toll collection existed in the time of the Yugoslavia) and is well accepted by Croatian and foreign motorists. In contrast with EU new member States as Hungary or Poland, the Croatian motorway network is predominantly tolled, a concept generally well accepted by the public.

### A strong public involvement

The government has maintained a considerable involvement, as witnessed by joint ventures between public entities and private partners or by a fully state owned concession company such as ARZ instead of typical PPP structures under which the public sector procures highway sector services. Some observers have noted that the lack of separation within the public sector (notably between the function of a PPP manager and a shareholder in the concession) can make unclear the responsibilities and interests of the Government.

# Country case study: France

## WHY READ THIS CASE STUDY?

- Ⓐ The country is a good example of long history with toll roads since the first law related to the toll motorway development dates from 1955.
- Ⓑ The French toll motorway system went through various schemes from a fully public system to a privatized system. But this evolution was not linear.
- Ⓒ The development of the toll motorway system was based during a long time on a pooling system.
- Ⓓ The evolution of the French motorway concession system is fundamentally a pragmatic process with no dogmas; the main concern was to meet the issues when they occur in order to provide the country with the infrastructures needed.
- Ⓔ The pragmatic approach led to a procurement system incompatible with European Legislation. It is interesting to highlight how the French Government adapted its toll motorway network system to the new legal environment.

## Case study description

### Introduction

The toll motorway concession system initiated in France in 1955 is now over 8,200 km long, and constitutes over three quarters of the 10,800-km-long motorway network, the remaining quarter being toll-free. The entire paved road network in France is 1,000,000 km long. Most of this network falls under the responsibility of local authorities as anticipated by decentralization policies.

The government is in charge of 20,000 km including:

- 8,200 km of tolled motorways operated in concession
- 2,600 km of toll free motorways (urban ring roads)
- 9,200 km of toll free trunk roads (main axis considered as strategic)

The motorway network, which constitutes 1% of the total length, accommodates 25% of the national traffic.

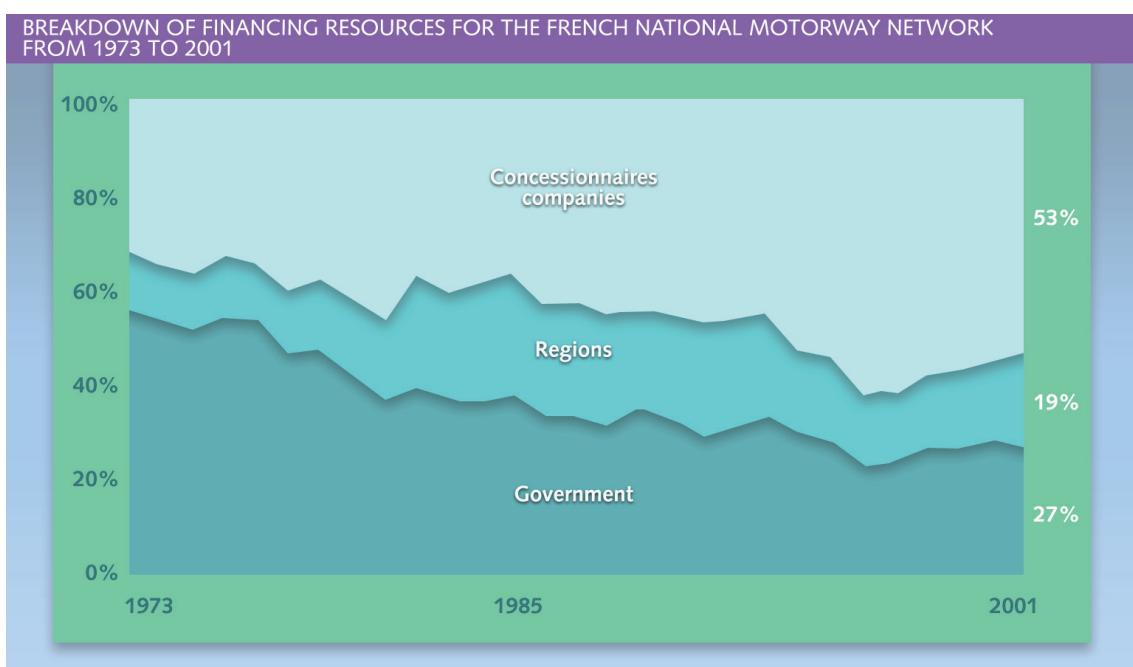
Privatized companies	
ASF	2504km
APRR	1821km
SANEF	1374km

SAPN	368km
AREA	384km
ESCOTA	460km
<b>Private companies</b>	
COFIROUTE	985km
SMTPC (Prado-Carénage)	2,5km
Viaduc de MILLAU	3,7km
ALIS	125km
ARCOUR	Under construction
ROUTALIS	Under construction
ADELAC	Under construction
<b>Public companies operating tunnels, bridges and urban ring roads</b>	
ATMB	118km
SFRF	80km
CCI du Havre	7km
COURLY-EPERLY	10km

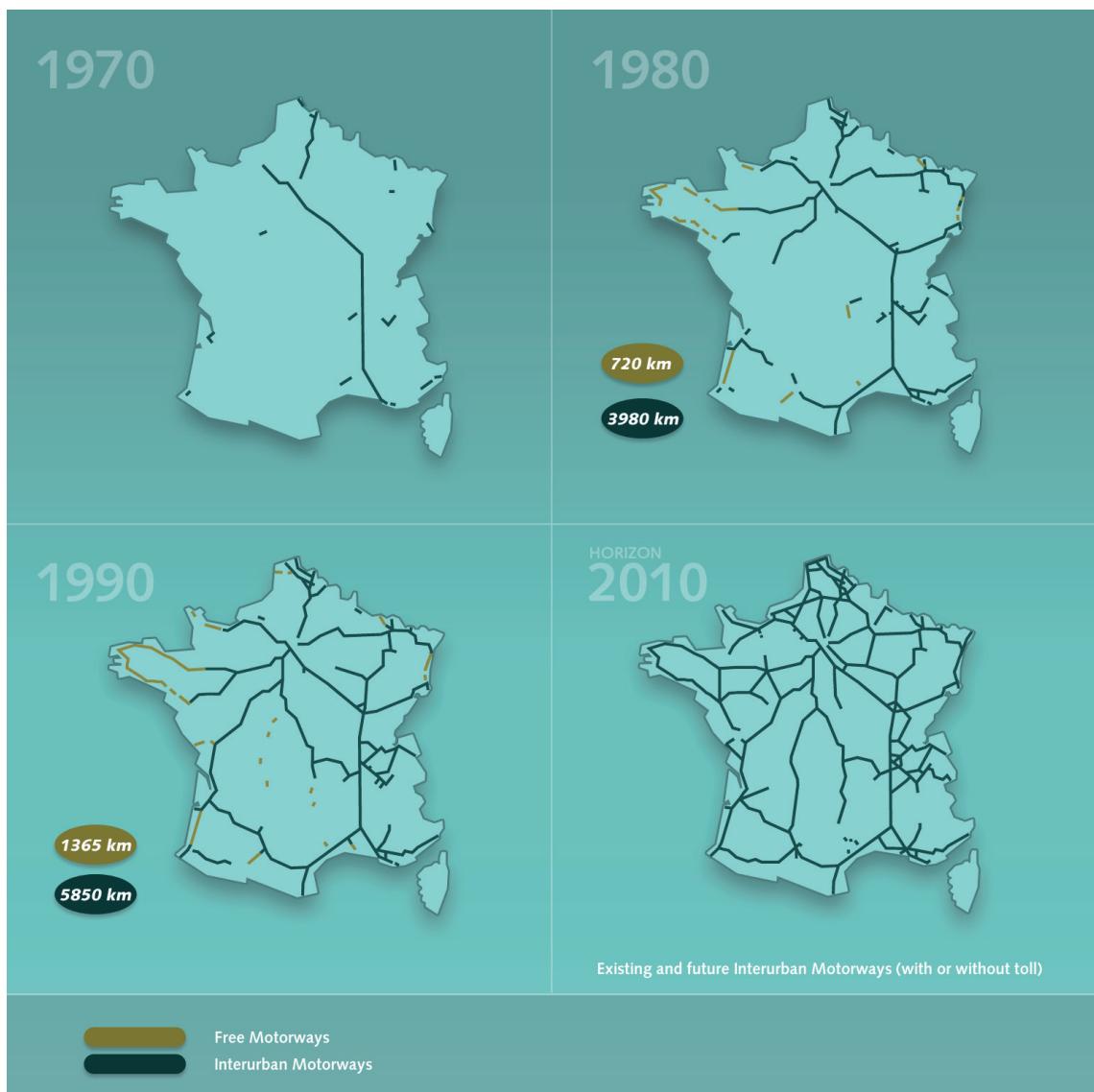
*Source: French Road Administration*

## Toll motorways operating in France

France has experimented with both toll and non-toll financing as well as with publicly and privately-owned toll roads in building its motorway system. The construction, maintenance and operation of the national road network is financed through the national budget (25% of total resources), regional budget grants to the national network (20%), and toll motorway concession companies' resources (50%).



The density of the French motorway network is about 16 km per 1000 square km and 130 km per million inhabitants. The French toll motorway system began in the 1950s and went through four main periods of development as presented hereafter.



## Evolution of the toll road network system

### 1955-1969: a commitment to tolls with public companies

In the 1950s most rebuilding after World War II damage was over and car-ownership began to increase rapidly (200 cars per 1000 inhabitants in 1966). By 1951, the Government had established a dedicated road fund (FSIR) which was to receive a percentage of motor fuel tax receipts, but competing budgetary pressure prevented the Government from funding the FSIR in full. In 1955, therefore, a law was passed to allow motorways to be financed from tolls. Public control was to be maintained by granting concessions only to

a local public organization, a Chamber of Commerce (a public body in France) or a semi-public company in which public interests had a majority shareholding.

The 1955 law stated that, in principle, motorways are free. However, the exception rapidly became the rule, since within a decade, between 1956 and 1963, five semi-public companies were set up. These companies were called semi-public motorway concession companies ("sociétés d'économie mixte concessionnaires d'autoroutes") or "SEMCAs". The initial concessions were only for short portions of motorway, 50 to 70 km, except, in 1963, for the top priority north-south route between Lille, Paris and Lyon with 130- and 160-km segments.

All five SEMCAs shared a similar financial and organizational structure: they had very low capital (USD 100,000 to USD 300,000) and share-holders were public bodies only. The national equity stake was held by the Caisse des Dépôts et Consignations (CDC), a State-owned investment bank.

The Government provided initial financial assistance by guaranteeing the loans of the SEMCAs and providing fairly significant amounts of cash and advances (averaging 30 to 40% of construction costs). Throughout the 1960s, the SEMCAs were little more than paper organizations, nothing more than the "false nose of the State" as one Minister said:

- a State-owned investment bank (CDC) marketed the State-guaranteed loans for the SEMCAs through a special office established in 1963, Caisse Nationale des Autoroutes (CNA), which pooled the funds borrowed by the SEMCAs;
- another subsidiary of the CDC, SCET, managed the accounts and construction contracts;
- the Road Authority in the Department of Public Works and Transport designed and operated the motorways (except for toll collection). Private contractors built them.

### 1970-1981: liberalization and privatization, the emergence of cross-subsidization

At the end of the 1960s, only 1,125 km of intercity motorways were in service. A reform was set up in order to (i) allow private companies to compete for new concessions and (ii) strengthen the existing SEMCAs, to give them greater autonomy and responsibility.

Between 1970 and 1973, four private toll road companies were awarded contracts for between 300 and 500 km of motorway each (except for one 63-km-long concession). All four new concessionaires were consortia of major French public works companies. No investors were interested in investments with such a long payback period and banks are said to have taken out shares more because they wanted to support contractors with which they had links and to issue bonds rather than because they wanted to invest.

The Government was less generous with assistance for concessions granted in the 1970s than it had been in the 1960s. Nevertheless, significant financial aid remained available to both private and SEMCA concessions. For example, for the first private company, COFIROUTE, 10% of the funds were covered by equity, 10% by in-kind advances from the

State, 65% by State-guaranteed loans and 15% by loans without guarantee, i.e., 75% of the funds were provided or backed by the Government.

At the same time, the SEMCAs, with SCET, established a new company, SCETAUROUTE (nowadays Egis route), to act as their "maître d'oeuvre" (Engineer), their engineering firm and prime contractor for construction and research into motorways. The SEMCAs created their own maintenance services.

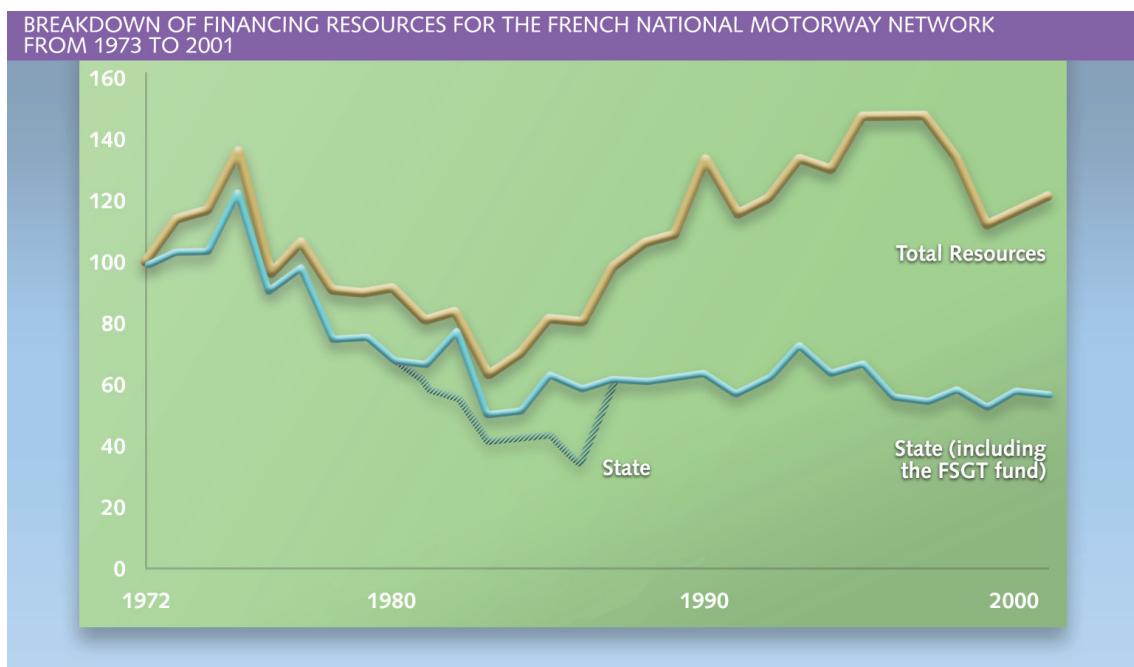
Increasingly the motorway companies were expected to subsidize new stretches with surpluses generated from their older segments which had higher traffic and had been built at lower cost. Moreover the dates at which the concessions on these older and more lucrative sections expired would often be extended. A system of cross-subsidization within companies gradually emerged. It undermined the concept of profitability of the individual motorway segments and even of the company (for SEMCAs).

Lastly, the concession agreement of the four private companies stated that toll rates would be set by the company within the limits determined in the concession agreements. This procedure was extended to the SEMCAs. However, in 1975, the Ministry of Finance declared that it would regulate tolls. Tolls returned firmly under the authority of the Ministry of Finance thus enabling it to control the entire toll motorway system.

### **1982-1994: facing the crisis, a nation wide mechanism of cross-subsidization**

At the beginning of the 80's the motorway system faced serious cash deficit problems, one reason for which was the oil crisis. The State took over three out of the four private companies and indemnified shareholders, which was a soft enforcement of the forfeiture clause.

In 1982 the Government established a new dedicated fund, the FSGT (Special Fund for Public Works) in replacement of the FSIR. This fund was allowed to issue bonds to give a leverage effect to the additional tax on top of fuel tax, which was earmarked for it. On average, public resources dedicated to roads (budget + FSGT) were stable during the existence of this Fund, until 1987, when the FSGT's increasing resources were compensated by decreasing budget funds, as shown in the figure below.



## Evolution of road financing in France

In 1982, a new Government Agency, Autoroutes de France (ADF), was set up to serve as a clearing house for issuing new advances to and receiving repayment of former advances from the SEMCAs. ADF allowed the Government to authorize cross-subsidies among companies (as well as within companies as had occurred since the mid 1970s).

In 1987, the Government announced its intention of strengthening ADF with a capital injection of about EURO 300 million which ADF could use to make advances to the SEMCAs and increase the State's equity. This capital injection, made by tapping funds generated by the privatization of public-owned companies, strengthened central Government control over the SEMCAs.

By the late 1980s both local and national Governments began to discuss the possibility of new private concessions on a non-recourse basis, especially in urban areas, and projects were implemented, for instance, in Marseille (Prado-Carénage Tunnel).

## 1994-2000: contractualization and consolidation within the public sector; improvement of competition

Since 1994, multi-year investment contracts have been implemented. These contracts create a balance between investment and toll increases and provide certainty to concessionaires for a five-year period. The public companies have been consolidated into three main groups in order to gain in terms of geographical coherence and financial viability. Parallel to this consolidation, there was an increase in capital (from about USD 4 million to USD 150 million). As of 2000, the different concessionaire companies involved in the motorway sector in France, and the respective networks under their responsibility were the following: (i) SANEF (1,254 km); (ii) SAPN (366 km); (iii) SAPRR

(1,768 km); (iv) AREA (382km); (v) ASF (1,996 km); (vi) ESCOTA (460); (vii) Cofiroute (798 km); (viii) ATMB (107 km); and (ix) STRF (55km).

Until 1998 each new stretch was conceded to an existing company (public or private) and this new stretch was merged into the global concession contract, the terms of which (especially duration) were globally renegotiated. In 2000 a final extension to the concession period (which constitutes State aid according to the European Community treaty) was negotiated with the European Commission (European Commission letter SG (2000) D/ 107823 dated October 10, 2000). In compensation, each new concession will be a stand-alone project.

### Since 2000: privatization of concessionaires

In the begin of the years 2000, the toll motorways policy has known important changes in order to improve, according to the general European orientations to improve efficiency. First, from now on, concessions are granted after publicity and no more directly backed by collateral. Secondly the accounting regime of the present concessions has been made more in line with the common one (the core question was the depreciation process), and the State gave up the guarantee for liabilities to existing concessions; in compensation, the duration of the concessions was increased; this State aid was agreed by the European Commission (State aid n° N540/2000). As a consequence (linear depreciation on a longer period of time) the companies, without any change in their cash flows, have produced positive results, paid income tax and distributed dividends.

Thirdly tolls have been made subject to VAT (CJEC case C-276/97, Judgment of 12/09/2000, Commission / France) for when use of the road depends on payment of a toll, the amount of which varies inter alia according to the category of vehicle used and the distance covered, there is, therefore, a direct and necessary link between the service provided and the financial consideration received.

Since 2000 the new concessions have been granted to private firms through this transparent procedure.

In 2002, the main public motorway company, ASF was introduced on Euronext, the State retaining 51% of the shares, the rest being floated in the stock market. In the same orientation, the motorway firms adopted a more aggressive commercial policy, based on tariff differentiation (discount fares, season tickets, subsidies from local authorities for discount rates to the local users, ...). SAPRR has been introduced on Euronext in December 2004 through the flotation of 30% new shares and SANEF floated quickly in similar conditions.

In May 2005, the French government decided on the total privatization of ASF, SANEF and APRR and the process was achieved early 2006 with the sale of these concessionnaire companies to international and national banks, insurance companies, contractors and infrastructure funds. It must be stressed that the shares have been sold to private sector, i.e. the concession companies privatized, but that the facilities remain public property.



## Conclusions

Eventually, the French system has moved from an administrative one based on "quasi non-autonomous" organizations to privatized companies concessionaires of public utilities. The last move was based on the French government's need of immediate cash but the rationale has remained an operational one more than a pure financial one.

The scheme of the French motorway system development has changed many times since 1955 but one principle always remains: the motorway cost recovery is based on the toll

collection. In other words, the willingness to pay tolls of the road users was never lost, whatever the liberalization, nationalization or privatization of the system.

But today it can be expected that the toll collection system has reached an end in France. Actually, the French motorway network is "mature": the most interurban socio-economical advantageous motorways have been built. The Ministry of Transportation since October 2007 with the meeting called "Grenelle de l'Environnement" started a big curve towards sustainable development and the priority in land infrastructure development is given to the railways. Therefore the challenge faced by the French motorways is not to extend its length but to face up the congested sections mainly in urban areas where there are no tolls!

In order to allow new ways to involve private finance in motorway projects without relying on direct tolls a new law to develop PPP was voted on June 17, 2004 (n° 2004-559) and amended in 2008. This law is supposed to foster the development of PPP for motorways projects since it will allow a private partner to recover its costs without tolls (shadow toll, availability payment, etc.). The first law was not really a success since only two road projects had been financed based on new PPP schemes. It remains to be seen whether the amendment will help to start new kind of motorway PPP in France.



Annual Report 2006, Association of French Motorway Companies (ASFA)



Annual Report 2006; National Motorway Fund of France



Association of French Motorway Companies (ASFA). <http://www.autoroutes.fr/en/homepage.html>



National Motorway Fund of France. <http://www.cna-autoroutes.com/default.htm>

# M1/M15 Motorway, Hungary

(with comments on other Hungarian Motorways)

## WHY READ THIS CASE STUDY?

The M1/M15 motorway is presented because;

- A** The project was completed and the two sections opened in 1996 and 1998 so there is experience of completed project implementation and operation over a substantial period.
- B** The project shows a number of relevant aspects for toll road planners.
- C** The project was constructed to a high standard, but failed financially due to optimistic traffic forecasts and was nationalized partly due to unpopularity of tolls and especially the high tolls.
- D** The implications of renationalization were not fully understood by the government.
- E** The M5 motorway is also commented on because;
- F** Notwithstanding the problems on M1/M15, similar problems were experienced on M5, which opened in 1998.
- G** Problems arose from optimistic traffic and resulting financial issues.
- H** A number of measures however were taken which resulted in this case in refinancing rather than nationalization.
- I** As a result of these difficulties, the toll road program was quite substantially affected. Although in the early 1990s, Hungary had been very advanced in its PPP program, by 2007 it still had only 3 toll roads under private sector operation.

## Project overview

The M1-M15 project consisted of the Design, Building, Financing, Operation and Transfer (concession of 35 years) of 43 km of Motorways between Gyor (North West of Hungary) to the Austrian Border (M1) and 14 km of motorway linking the M1 to Bratislava (M15).

The M1- M15 lies on the Trans European Corridor N°IV connecting three capitals: Budapest, Vienna and Bratislava.

Toll collection relied on one main toll plaza and five tolling stations on three interchanges.

### Key dates:

- Project tendered in 1992/1993 (4 bidders, 2 invited for negotiation)
- Concession signed in April 1993, Financial Close in November 1993
- Construction started in January 1994
- Completion and opening M1 in January 1996 and M15 in July 1998
- Road users started a well publicized legal action against the concessionaire to reduce the tolls
- Negotiations and proposals for restructuring
- Subsequent concession substitution September 1999 leading to nationalization of the project

### Financing:

- 80% debt (EUR 230 million) and 20% equity (EUR 50 million), with debt provided by EBRD combined with international (USD and DEM nominated) and local (Hungarian Forint nominated) commercial debt in an "A & B-type loan structure".
- Standby loan facility available (EUR 50 million).
- Loan maturity: 14 - 15 years (longest maturity secured by a Hungarian public or private borrower, at this time).

### Subsidies:

- No financial contributions,
- Provision of land for motorway construction,
- Restriction on construction of parallel competing roads.

### Toll Rate:

- Set at tender award with formula for maximum annual toll increases, depending on local inflation and exchange rate developments.
- Initial toll rate based on "revenue maximization principle".
- Possibility to adjust them in accordance with agreed indexation tariffs (HUF CPI inflation adjustments for HUF/foreign currency exchange rate variations).
- Given the high level of foreign and occasional traffic and the existence of only one toll barrier between the border and Budapest, traffic studies indicated that a relatively high toll could be charged.

The M1/M15 project was the first toll motorway project tendered and implemented in Central Europe. Following a successful tender and financing, construction was largely completed on time and within budget even though the construction period was ambitious and Hungary underwent a period of high inflation.

M1 traffic at opening and traffic growth during the first three years was substantially below expectations, resulting in the impossibility to service debt. The level of toll rates turned out to be politically unacceptable and a court case made the financial situation

untenable. Attempts to restructure company finances, starting with the issue of letters of credit by Government and shareholders, remained unfruitful. Government and lenders agreed however on a substitution process after three years of operation.

## Project description

The M1/M15 Project is an ideal case study project as it shows how a major infrastructure project can be successfully implemented on a project finance basis, but also demonstrates that the combination of a poor preparation leading to a major structuring fault, and lack of political support can reverse the fortunes of a project very quickly.

In 1989 Hungary opened its borders to the west and required a good motorway link with Austria. Thus the completion of the M1 Motorway between Budapest and the Austrian border became a high priority. Given Hungary's high state debt, a number of studies were undertaken in order to analyze whether a private concession structure would be a viable solution. The results both indicated that the M1 project could be developed as a 100% private finance solution and that there would be sufficient interest to create a competitive international tender. As a result, the Hungarian Government decided in 1991 to introduce extensive legislation for constructing toll motorways by way of concessions, to create a specific office within the Ministry of Transport to deal with concessions and to launch an ambitious program of motorway construction, starting with the missing section of the M1 motorway.

By the end of 1991, financial and legal advisors to the Ministry were appointed and a pre-qualification procedure was started leading to four international groups being invited to submit bids (August 1992). Of those four, two groups were invited to negotiate in parallel the concession contract and the results thereof were formalized in the submission of improved bids (January 1993). On the basis of these bids (taking into account the construction price, the toll rate and the proposed financing package including the commitment to provide equity), negotiations were concluded in April 1993 with the signing of the concession contract with the preferred bidder, ELMKA Rt, a private company comprising international contractors and toll-road operators.

Following a construction period of two years, the M1 section opened to traffic in January 1996.

## Risk allocation and funding

The draft concession contract prepared by the Ministry's advisors offered a good basis for negotiating a viable concession with a proper allocation of risks. As the construction of the remaining sections of the M1 did not pose specific problems (no big structures required, flat land with little ground risk, no particular archaeological risk, no specific environmental issues), the contractor was able to broadly accept these risks and offer a turnkey, lump sum and fixed price for the construction works.

The acceptance by the private sector of the full traffic risk was driven by a combination of tender requirements (the Ministry did not want to accept any traffic risk), competition

(showing low projections would mean losing the tender) and the relatively high traffic flows indicated by the various studies.

Traffic forecasts were also based on time savings to be realized by users (estimated at 20 minutes per full journey).

The private sector agreed to accept this traffic risk provided that it would be "free" to set the toll rate, which was translated into fixing the initial maximum toll rate within the concession contract and allowing for increases in this rate on the basis of a particular formula that took into account Hungarian inflation and the devaluation of the exchange rate between the Hungarian Forint and the currencies in which the project would be financed. The initial toll rate was determined on the basis of the revenue maximization principle.

As the traffic projections indicated high growth during the early years of operation, the development of a viable financing structure depended on finding the right combination of an equity/debt structure and loan maturity, whilst achieving acceptable annual and loan life coverage ratios. Moreover as the revenue would be in Hungarian Forints, funding in Forints would reduce foreign exchange risks.

Given the financial market for and in Hungary at the time, these goals were very ambitious. Nevertheless, the participation of the EBRD in the financing made it possible to raise foreign financing with a loan maturity of over 14 years (a first in modern Hungary) and to raise a significant amount in local financing with a similar loan maturity.

The EBRD, created in 1991 to promote private sector investment in the former Warsaw Pact countries, played a crucial role in getting the necessary finance raised as it provided the lenders, but also the investors, with the necessary reassurance that the Hungarian Government would not turn against the project once the construction works had been completed and the project would benefit from a significant cash flow to repay its debt and provide the investors with an adequate return. Although the cost of bringing in EBRD in financial terms was significant, without it, it would not have been possible to reach financial close 6 months after the signing of the concession contract.

Finally, the total funding (320 millions of Euros) was shared as follows:

- 19% provided by ELMA, the private concessionaire in the form of equity and shareholder funds.
- 81% provided by International and Hungarian commercial banks, insurance companies and the EBRD.

### Experience during the operational phase of the Concession

Four major difficulties have appeared since the first year of operation:

- Low level of traffic: Traffic volumes amounted only to 46% of the forecasted figures reducing the concessionaire's revenues at a critical point. In fact, many commercial vehicles preferred to use the parallel free roads to avoid tolls even if they were to remain unimproved. In addition, due to the economic development of Hungary, the forecasted traffic

growth of the passenger cars was also reduced, as inhabitants benefited from shopping centers within the country, removing the need for cross border travels.

- Financial difficulties of the concessionaire: as a result of the revenue shortfall, the company was unable to pay the first debt principal due in June 1998 and was on the brink of bankruptcy. In December 1996, the EBRD as security agent, realizing that the financial case for this project as a private venture did not exist anymore, strongly encouraged all the Ministry of Transport to renegotiate the deal. Within this changing environment, the Ministry "refused to take sides" arguing that the project it had so vigorously promoted was a private undertaking which needed to be resolved privately. It became clear that only under strong pressure would the Ministry eventually agree to support the project for an interim period by issuing a letter of credit (the investors also provided a letter of credit) in July 1997. Albeit all intentions, the negotiations with the Ministry never really took off prior to the national elections in 1998.
- Complaints about the level of toll rates: the toll rate on M1/M15 appeared the highest in Europe per km traveled, led to the accusation that the concessionaire was abusing its dominant position at the expense of the Hungarian users and resulted in a court case against the Concessionaire. The litigation was supported by a well organized association of users, including the Hungarian Automobile Club. The first instance court's decision obliged the concessionaire to pay back to the plaintiff about one third of the toll, but did not oblige the company to reduce its tariffs.
- Change of the political framework: the new government elected in 1998 considered that motorway users had only to pay the operation and maintenance costs, while capital costs could be financed by international grants, budgetary contributions and sovereign borrowing.

The unexpected victory of the opposition, which opposed tolls and other PPP solutions, the adverse decisions of the courts and the realization within the EBRD that the concession contract did not provide any protection in an environment where the Government opposes PPP solutions, resulted in the EBRD negotiating a deal with the Ministry for taking on the larger part of the debt through substitution for the Concessionaire.

In compliance with the appropriate provisions of the Concession Contract, the EBRD, the private lenders reached an agreement with the government in April 1999.

The revamping of the concession and its consequences could be summed up as follows

- The outstanding debt of the concessionaire ELKMA was transformed into a sovereign debt under much favorable terms and conditions than those of the original debt (which was non sovereign guaranteed)
- ELMKA was substituted by a newly established, fully state owned special purpose company(NyuMA)
- The Shareholders of ELMKA lost their participation in equity without compensation
- The toll rates were reduced by nearly 50% in August 1999

As a result, the traffic volume increased by 15-20% immediately, while the revenues on an annual basis decreased by 45 %.

In January 2000, the toll booths previously collecting money were replaced by a "vignette" system that allows a user to pay to use the tolled roads for a certain number of days (1, 4, 10, 31 or for the whole year). In fact, this system extended toll collection onto previously freely accessible sections of the motorways network, increasing potential revenues.

Progressively, cameras, using license plate recognition based electronic control system, were implemented and operated by the Ministry of the Interior's services.

This system, relying on random control of users by flying squads seems to be inefficient as it is estimated that 20% of users are not holding a valid vignette.

Moreover, the system is considered as unfair even by users as it is expensive for infrequent and short distance travels. Finally, the generated revenues on the network do not cover the maintenance and operation cost of the State managed motorways.

Since 2007, the government has been considering alternative distance based tolling systems and in particular the progressive introduction of electronic toll systems which will allow more flexibility for pricing.

For updated information, please refer to the official website for motorways in Hungary:



<http://www.motorway.hu/>

## Other highway projects

Following the encouraging reaction of the private sector to the M1/M15 project, the Ministry started tenders for other motorway projects in Hungary: M5, M3 and M7. Unfortunately, studies showed that none of these projects could be financed 100% by the private sector (mostly due to the lack of foreign users). Notwithstanding this strong and obvious requirement for Government participation, the Ministry had difficulties in accepting this need. Consequently, reaching financial close on the M5 project took much longer and the tender offers for both the M3 and M7 projects were never fully analyzed.

This resistance to find proper PPP solutions for the M3 and M7 projects partly originated from the internal organization of the Ministry and the opposition of civil servants to a transfer of traditional public sector activities to the private sector.

However, the concession of the M5 in 1995 and its successful refinancing in 2004 has positively influenced the PPP policy framework in Hungary.

The M5 project is also part of the Trans-European Network on the Corridor n°IV linking Budapest to Southern regions.

The first phase comprises the upgrading and tolling of existing roads and the construction of new sections on 90 km. It was completed on schedule and within budget in June 1998. The second phase comprised a 45 km extension and was completed in 2004.

The initial classical toll system implemented for the first phase was substituted by a mechanism of availability payments based on performance criteria in 2004.

The M5 met the same kind of difficulties as the M1/M15 project at the end of 90's: Traffic below forecasted levels and litigation on toll rates led by users'. However, the concessionaire AKA had negotiated a more appropriate allocation of risks with the public sector to avoid the transfer of unmitigated traffic risk to private investors and lenders.

In particular, the contract anticipated the implementation of a "revenue deficiency facility", a sort of complementary fund financed by the government and available for the concessionaire as critical safety net to face cash deficiency and pay debt service obligations. The money drawn by the concessionaire on this facility has to be repaid after discharge of project indebtedness to senior lenders.

Moreover, contrary to M1/M15 case, the concessionaire and the government implemented very early active measures to enhance traffic with marketing campaigns and to limit the competition of alternative routes. The Ministry supported also AKA in the lawsuit against the toll rates and the claim was rejected on first instance in April 1998, calming public opinion.

AKA was able to resist pressures to reduce the agreed overall toll rates but proposed substantial discounts for frequent and local users.

Finally, the M5 project benefited from refinancing the initial borrowings in 2003. By then, the loan maturity available to borrowers had substantially increased as a result of Hungary's improved economic position and EU accession status. The new financial plan, supported actively by EBRD, took advantage of lower interest rates to increase the amount of debt compared to equity and enhanced investors' rate of return on equity.

Hungary extended also its network with the concessions of the M6 Motorway in 2005 and the M6-M60 project in 2008. Both were implemented on a DBFO scheme, with availability payments by the government to the concessionaire on the basis of pre-set performance criteria.

Both projects benefited also from loan facilities from EBRD which played an active role to attract other commercial lenders.

These transactions relaunched the private provision of capital and services in the Hungarian road sector. However, only three motorways are operated privately in 2007 whereas Hungary was among the first countries in the 90's to use PPP schemes.

## Conclusions and Lessons Learned

Poor traffic forecasts had a substantial financial impact on these projects and led to wider national political issues.

- There will always be variations from forecasts but good project preparation can minimize such variations. Local specific issues should also have been taken into account in preparing forecasts in Hungary.
- User's willingness to pay should be assessed properly by the public and the private sector to set from the beginning relevant toll levels to attract traffic and limit public (then political) opposition to the project

Despite the negative aspects, it should be noted that the risk transfer undertaken on the M1 project created significant benefits to the Hungarian tax payer as:

- the construction was completed on time and within budget
- its operation and maintenance during the short period thereafter were effective and of the highest standard, and
- during the critical economic period following its opening to the west, Hungary benefited from the M1 whilst not contributing to its financing

In the early years of operations and the financial problems that occurred, the public sector did not wish to step in and find a viable PPP solution jointly with the private sector. This caused possibly more harm than good to the Hungarian state and tax payer. Earlier renegotiations may have avoided the re-nationalization process.

The decision of re-nationalization had major consequences in Hungary. Whereas the Ministry claimed victory after bringing this vital piece of infrastructure back into Hungarian hands whilst accepting only a part of the debt at very favorable conditions, it remains doubtful whether this was the best solution for Hungary in macro economic terms. International funding sources dried up (even private funding of the extension of the publicly and EBRD supported M5 motorway has become near to impossible). Of the ambitious motorway program outlined in 1991, only parts were realized by the end of the century and others postponed for a while. When problems occur, deal with them properly and quickly if possible, but always consider the wider impacts.

Toll reduction on M1/M15 was a popular way out but this meant that significant income from foreign sources fell away. After years of operation by the public sector, tax payers are still financing the gap between the revenues generated by the network and the real cost of maintenance and operation. Easy financial solutions have wider economic and financial ramifications.

In contrast, the M5 concession demonstrated that adequate share of risks and good cooperation between public and private sectors could help to face initial difficulties and avoid total revamping. In times of project difficulties, the public and private sectors should try and work together to produce a solution. Independent advisors can help.

The implementation of a revenue deficiency facility on the M5 project proved to be very efficient to face revenue shortfall due to traffic volumes below forecasts in the first years of operation. This kind of mechanism seems to be particularly appropriate for corridor without previous experience of tolling. Transferring too much risk to the private sector can lead to major problems subsequently. This suggests that proper project preparation with robust forecasts and proper risk mitigation is essential.

Refinancing of the initial borrowings could be very advantageous to benefit from new economic position of a country but it could also be motivated during the concession life, once the construction period ended, as lenders are more willing to assume only operation risks. This should be considered and the contract should allow for this with adequate sharing of such resulting benefits between public/users and private sector.

## Further information



<http://www.worldbank.org/eca/trans/roadfinancing/en/PPP-EasternEurope.pdf>



<http://www.ebrd.com/projects/psd/country/hungary.htm>



<http://www.motorway.hu/engine.aspx?page=MOTORWAYS>



<http://www.cemt.org/online/ppp99/Timar.pdf>



[http://ec.europa.eu/regional\\_policy/sources/docgener/guides/pppresourcebook.pdf](http://ec.europa.eu/regional_policy/sources/docgener/guides/pppresourcebook.pdf)

# Country case study: India

## WHY READ THIS CASE STUDY?

- A** The country is a good example of major program revamp involving a major shift from public procurement to a predominant focus on successful PPP in Highways within a relatively short period.
- B** This shift started about 10 years ago with major political commitment at the highest levels, with strong support from the multilaterals and the creation of PPP focused institutions and systems.
- C** India is using a mix of BOT type PPP arrangements and Annuities which also makes it instructive.
- D** India is an example where laws, regulations, institutions, modalities, funding, sub national development, expansion into non traditional areas for PPP etc are being developed on a step by step basis. That is, not all that is advised as being required for successful PPP development was initially in place but the country is moving to a comprehensive PPP system.
- E** Key considerations are considered to be political commitment, recognition of the role of highways in economic development and severe shortage of funds, initial development of a few successful highway projects through contracts and strong support from the multilaterals and especially the WB and ADB, especially in project preparation, financial support/funding mechanisms, risk management and tendering procedures.

## Background

India is now the fourth largest economy in the world and one of the fastest growing. However it faces both a tremendous backlog and a growing demand for infrastructure.

The Indian economy expanded significantly in fiscal year 2006. According to advance estimates released by the Central Statistical Organization, the economy recorded a gross domestic product (GDP) growth rate (at factor cost) of 9.2% at constant prices, compared with 9% in the previous year. The increase in growth rates in recent years is reflected in the 11th (FY 2007–FY 2012) Five-Year Plan average annual growth target of 9% compared with the 10th Plan target of 8%.

High quality infrastructure is essential to harness the growth impulses in the economy. The Planning Commission (equivalent to a Ministry of Planning) has observed that poor infrastructure is India's "Achilles' heel" which is estimated to cost India 3-4% of lost GDP a year. The Planning Commission has estimated that India needs to increase its spending on infrastructure from 4–5% to 9% of GDP if it is to achieve its growth targets.

In the highway sector, 50% of villages do not have all weather road access and only 15% of the strategic national highway system has 4 lanes. In the cities, traffic congestion is

worsening, impacting both public and private transport. Table 1 provides a comparison of India's infrastructure availability.

COMPARISON OF INFRASTRUCTURE AVAILABILITY IN INDIA		
	Population (million)	National Expressways ('000 miles)
India	1,100	3.7
China	1,300	25
United States	300	47

Sources: ADB, International Monetary Fund, National Development and Reform Commission.

Lack of infrastructure also undermines the competitiveness of the economy and poor infrastructure hinders FDI in non infrastructure businesses. Poor infrastructure also impedes inclusive growth and poverty reduction.

In the highway sector the GOI (Government of India) has established its National Highway Development Program (NHDP) and the Prime Minister's Rural Road program. However, available funding has been providing less than 50% of needs.

Following many years of hesitation with PPPs, India has made great strides in its PPP program and especially in the highway sector. India now sees PPPs as a necessity to mobilize sufficient resources for its infrastructure needs.

India has been actively engaged in recent years in finding the appropriate policy framework to make public private partnership for infrastructure financing a viable option. The country is seeking a comprehensive policy framework which gives the private sector adequate confidence and incentives to invest on a massive scale, while simultaneously providing adequate checks and balances through transparency, competition and regulation.

## The PPP Process in India

### Recent trends in the PPP Framework for Highways

#### Policy

All contracts whether for construction or BOT are awarded through competitive bidding.

Private sector involvement is currently through:

- Public Construction contracts
- Concessions for some stretches – based on either the lowest annuity or the lowest lump sum payment from the Government
- Concession contracts permit tolling on those stretches of the NHDP (see table below for breakdown)

### Incentives:

- 100% FDI under the automatic route is permitted for all road development projects;
- Incentives include a 100% income tax exemption for a period of 10 years;
- NHAI agreeable to provide grants/viability gap funding for marginal projects, as well as traffic support/guarantees, on a case by case basis;
- NHAI possible equity participation of up to 30% of the SPV established to develop a road project;
- Private investors' protection against force majeure type situations including political, non political and legislative changes;
- Land required for highway construction can be leased to private operator under a PPP (but remains in the ownership of the State).

A Model Concession Agreement has been formulated and provided to bidders. A large pipeline of projects is being developed, amounting to the USD 50–60 billion investment that is estimated by NHAI will be required over the next 5 years to improve road infrastructure.

### *Legal and Regulatory*

The National Highways Act, 1956, has been amended to attract private investment in road development, maintenance, and operation.

In order to specify the policy and regulatory framework on a fair and transparent basis, a Model Concession Agreement (MCA) for PPPs in national highways has been introduced. The government also approved a new Model Concession Agreement (MCA), which, some have considered is "a very attractive document as far as lenders are concerned", as it allows for grant funding and government guarantees, is high on transparency, and addresses principal concerns of lenders, such as land acquisition and protection in the event of default.

Dispute resolution will be governed by the 1996 Indian Arbitration and Conciliation Act, which incorporates the UNCITRAL provisions.

### *Institutions: Organizing the Government for PPPs*

Steps are being taken for restructuring and strengthening of National Highways Authority of India (NHAII), which is the implementing agency for the National Highways program.

Institutional mechanisms have been established to address bottlenecks arising from delays in environmental clearance, land acquisition etc. A special focus is being provided for traffic management and **safety<sup>1</sup>** related issues through the proposed Directorate of Safety and Traffic Management.

1 Highway related deaths are estimated to be around 100,000 per year in India. China has a similar absolute level.

It was noted that a key part of the growth of PPPs in India represents a paradigm shift, with line agencies initially reluctant to embrace the concept. Successful pilots and a major emphasis on PPPs, from the Prime Minister's Committee on Infrastructure with Empowered Sub-Committees, have provided both overall leadership as well as strategic direction. PPPs have now become integrated in the planning process, and in some cases PPPs are now the default option, for example national highways.

The Government is undertaking an active program of capacity building, including support to PPP nodal cells at the state government level and in central government line agencies, and supported by the World Bank; and capacity building visits of PPP-related officials to countries with successful PPP programs under an Asian Development Bank Technical Assistance facility.

State governments are needed to work more on establishing robust PPP units, and that they are required to develop clear procedures for dealing with potentially contentious issues such as unsolicited proposals.

It is expected that this common framework, based on international best practices, will significantly increase the pace of project awards as well as ensure an optimal balance of risk and reward among all project participants.

The Cabinet Secretary of the Government of India noted at a recent conference the steps that the GOI has taken recently to develop the framework for PPPs and build up capacities.

These measures included:

- Establishing PPP as the preferred mode in sectors such as national highways;
- Strengthening the regulatory and policy framework, including the expansion of user fees;
- Providing fiscal incentives in terms of "tax holiday" to infrastructure projects and tax incentives to investors providing long-term finance or investing in equity capital;
- Permitting FDI up to 100% on the automatic route in several infrastructure sectors;
- The creation of PPP Cells in all central ministries and state governments;
- The creation of the Public Private Partnership Appraisal Committee (PPPAC) at the national level;
- Preparation of standard documents such as Model Concession Agreements, pre-bid qualification methodology and procurement processes.

### *Financial, Modalities and Risk*

The Viability Gap Fund (VGF) was introduced with Guidelines and appears to be working reasonably well.

The provision of longer term funding to match the long concession periods involved in PPPs is under preparation with the development of a USD 6 billion fund under the IIFCL.

In 19 projects, private operators offered to pay upfront for the road **concessions**<sup>2</sup>. Even among the projects which opted for support under the VGF, the grant component, on average, accounted for only 8% of the total project cost (as against the cap of 40%). A number of modalities are being used. Reference above has been to BOOT. However, the annuity model is increasingly popular in India.

For high density corridors where the potential for direct tolling of road users exists the GOI has successfully used BOOT toll road concessions as a way of mobilizing private financing. Under this model the private sector builds, operates and maintains the road for the period of the contract (usually up to 30 years), after which the road is transferred back to the Government. The private operator is remunerated through the collection of tolls charged for use of the road, and, in some cases, in part by payment directly from the Government. To date approximately 500km of national highways are privately managed as toll roads, raising around 10.5 billion rupees per year (USD 224 million).

This model has been used primarily for port connectivity projects, the least risky of the NHDP programs. Under this model, the Government and the private sector join forces in establishing a Special Purpose Vehicle (SPV) for financing and implementing the PPP project. Because user entities generally can contribute to part of project financing, these projects have been able to achieve investment grade ratings from at least one credit rating agency and thereby attract long term financing from such risk averse sources as insurance companies, pension funds, and other institutional investors.

Where revenues from tolling are uncertain or will be insufficient to attract BOT operators, the GOI had to employ Engineering, Procurement and Construction (EPC) contracts which entail little or no risk on the part of the private sector. To fill this gap, NHAi has developed the Annuity Concession model. To date, approximately 8% of the length of roadways subject to NHDP funding has been commissioned using the Annuity Concession model.

Annuity Concessions are a variant of the BOT/BOOT model in which the private operator is remunerated via a fixed, periodical payment ("annuity") from NHAi rather than through toll proceeds. Under these contracts, the private operator is responsible both for constructing the road, as well as for operating and maintaining it for a fixed period of time (typically 10 years). Because the break-even point for the private operator does not occur until late in the contract (typically around the seventh year in a ten year contract), this form of PPP transfers both responsibility for bridge financing and performance risks to the private sector. In addition, because the annuity payment are not indexed, the private sector retains any risk associated with higher than anticipated operations and maintenance (O&M) costs.

Although Annuity Concessions do transfer certain key risks to the private sector, they keep revenue risk with Government which retain the right to set and collect tolls). This makes Annuity Concessions attractive to private operators where a BOT type arrangement

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2 In fact, in one particular stretch between Mumbai and Vadodara, the government received a negative grant of Rs. 900 crore.

would be considered too risky, because although total costs of construction and maintenance are provided by the private sector they are guaranteed by the public sector and repaid as an annuity and only after the construction is completed which makes it attractive to the Government; their incentive being faster and quality construction and also better maintenance (the amount of annuities would be reduced in case of failure of implementing specific performance requirements).

Annuity Concessions do not require any advance payment to the private operator. Instead, NHAI does not begin paying the annuity until the road is constructed in accordance with the quality standards set out in the contract. This model rewards early completion and provides the private operator with a built-in incentive to ensure that the road is constructed in a way that minimizes long term O&M costs while meeting quality standards. This focus on performance has reduced the amount (and cost) of monitoring and oversight required of Governments during the construction period. It has also resulted in construction costs that are on average 12 to 25% lower than NHAI's estimates.

In addition to the transfer of the initial financing, construction, O&M and project completion risks to the private sector, a construction faster and less expensive than under traditional EPC contract, the GOI has seen other advantages to Annuity concessions including:

- A payment structure allowing a firm calculation of NHAI's financial exposure under the contract;
- A reduction in the risk of contract renegotiation with the private contractor resulting from the fixed nature of the annuity payments, and
- A substantial growth of domestic private sector capacity (not just in construction, but in operations and maintenance as well) in the roads sector.

Two toll based annuity schemes are possible:

- Toll to be collected by the public sector; or
- Toll to be collected by the concessionaires.

TOTAL ALLOCATION OF MODALITY TYPES NHDP I-VII (ONGOING AND PLANNED)						
	Km		Cost in Rs Crores		Cost in USD million (approx)	
BOT type	23.8	52%	148,000	67%	32,889	67%
Annuity Mode	15.9	35%	31,400	14%	6,978	14%
Traditional Public Tender	6.3	14%	40,200	18%	8,933	18%
Total	46.0	1.00	219,600	1.00	48,800	1.00

*Source: NHAI, 2006*

The response from the private sector to these initiatives has apparently been encouraging. However, while the annuity model has considerable advantages in many situations, it is not being applied universally in India, with the 'traditional' BOT still preferred for

many PPPs. Maximum practical risk transfer and cost recovery from the users are still objectives to be aimed at if possible.

## The Recent PPP Framework

Three significant improvements have recently been made in the PPP enabling environment. Two initiatives relate to funding needs. The increasing growth in the key infrastructure sectors requires huge finance, which cannot be met fully from the budgetary resources of the Government of India.

These three measures comprise;

- **India Infrastructure Financing Company Limited (IIFCL)**

The infrastructure finance market in India is largely characterized with inadequate flow of long-term funds despite a large and diversified financial sector. The tenor of available funds from the domestic market is typically 10 years or less with a 2-3 year re-set clause, effectively making such funding short-term.

This typically leads to higher than desirable tariffs during the initial years of the project cycle which adversely affects affordability of the services for the low-income end-users. Since user tariffs are required to provide for debt repayments, return on equity, and depreciation costs, tariff affordability depends on amortizing debt through smaller repayments over a longer period of time. In the absence of long-term fixed rate financing, stability of cashflows are difficult to achieve.

Despite initiatives by the Government for improving the availability of long-term funds, policy, institutional, and market gaps remain. The impact of the ongoing reforms in the real and financial sectors will only be felt over the medium- to long-term and as a result, the already significant gap in infrastructure financing will further increase.

IIFCL was set up in 2006 and is expected to catalyze and promote PPPs by leveraging market-based project development skills and providing much needed long-term debt for financing infrastructure projects. This includes;

- ① extending support to infrastructure projects in partnership with institutions like IL&FS, IDFC, and National Highway Authority of India;
- ② considering PPP projects at the state and municipal levels e.g., roads, urban development, ports, tourism related infrastructure;
- ③ providing financial instruments for enhancing investments in infrastructure, e.g., such as guarantees, debt, and equity; and
- (iv) establishing market benchmarks.

Accordingly, the Government has also designated IIFCL as the debt manager of a USD 3 billion debt fund of the USD 6 billion India Infrastructure Financing Initiative.

### • Viability Gap Funds

In order to remove project financial shortcomings, the Government of India is also promoting PPP development through a special facility envisaging support to PPP projects through 'viability gap funding'

The prime objective of this facility is to reduce the capital cost of the projects by credit enhancement, and to make them viable and attractive for private investments through targeted supplementary grant funding. Provisions for this facility is made on a year-to-year basis

The criteria of eligibility for funding are;

- The project must be implemented, i.e. constructed, maintained and operated during the project term, by an entity with at least 40 per cent private equity
- The projects should have been vetted/endorsed by the concerned line ministries in the Government of India. All central projects should have received requisite Government approval at the appropriate level
- The total Government support required by the project, including support from the Government of India under this facility, or any other sources of the Government of India and its agencies, must not exceed 20 per cent of the total project cost as estimated in the preliminary project appraisal, or the actual project cost, whichever is lower
- The implementing agency must be selected through a transparent and open competitive process
- Project proposals must be accompanied by a preliminary project appraisal covering
  - ① techno-economic viability of the project,
  - ② financial appraisal and project financing arrangements,
  - ③ extent, nature and target of the viability gap funding proposed and
  - ④ a commitment letter on behalf of the lending institutions

An Empowered Committee has been set up in the Department of Economic Affairs under the Additional Secretary (EA) to consider and authorize sanction of funds up to Rs.50 crore (USD 15m) beyond which approval of the Finance Minister will be required

### • Infrastructure of Contract Enforcement

Modern concepts of regulation of contracts involved in infrastructure require a sound framework of law and enforcement. India started out with an English "common law" tradition, where laws were written in terms of general principles, and courts played a major role in interpreting principles in the light of contemporary issues.

Over time, this common law heritage has become less important, and the structure of Indian law has moved closer to "civil law", where legislation contains explicit

detail and extensive codification. This is more rigid, and gives courts less room to interpret general principles to reflect evolving conditions

## Financing

The early stages of the NHDP were funded traditionally from a variety of sources (See also Annex 1 Central Road Fund) including budgetary support, multilateral/bilateral loans, fuel cess, tolls and private sector. Increasingly, the NHDP will be funded by the fuel cess, through PPPs, tolls, and budgetary support where necessary. Loans from multilateral agencies will be increasingly devoted to project preparation, viability gap funding, long term financing of PPP projects and guarantee funds.

From the private sector perspective in India, the following were seen as key priorities for their equity participation:

- PPPs are viewed as representing an enormous long term opportunity for the private sector which will grow as projects expand significantly.
- Government initiatives to develop the framework for PPPs are welcomed especially streamlining the PPP process and providing VGF and IIFCL funds. Also welcomed are the various PPP cells and also the encouragement of PPPs at the state level.
- Reforms and Capacity building at state and federal level are still required.
- There is still more need for information and publicity on PPP opportunities.
- The creation of a pipeline of credible and well structured projects is very important to sustain private sector interest
- The policy and regulatory framework needs strengthening to ensure transparency and confidence. Transparency is paramount.
- Tender procedures need standardization.
- Land acquisition and environmental approvals are best done by government; projects should build in the cost of land and mitigation/safeguards as part of project preparation.
- Risk and perceived risk as well as return on investment need better understanding and treatment by the public sector to attract investors.
- The private sector wants to build genuine long term partnerships with the public sector which should recognize this and act accordingly.
- Foreign investors could be attracted by large, complex projects with market driven fundamentals within medium term programs and with projects that could be funded by new types of finance to augment domestic capital.

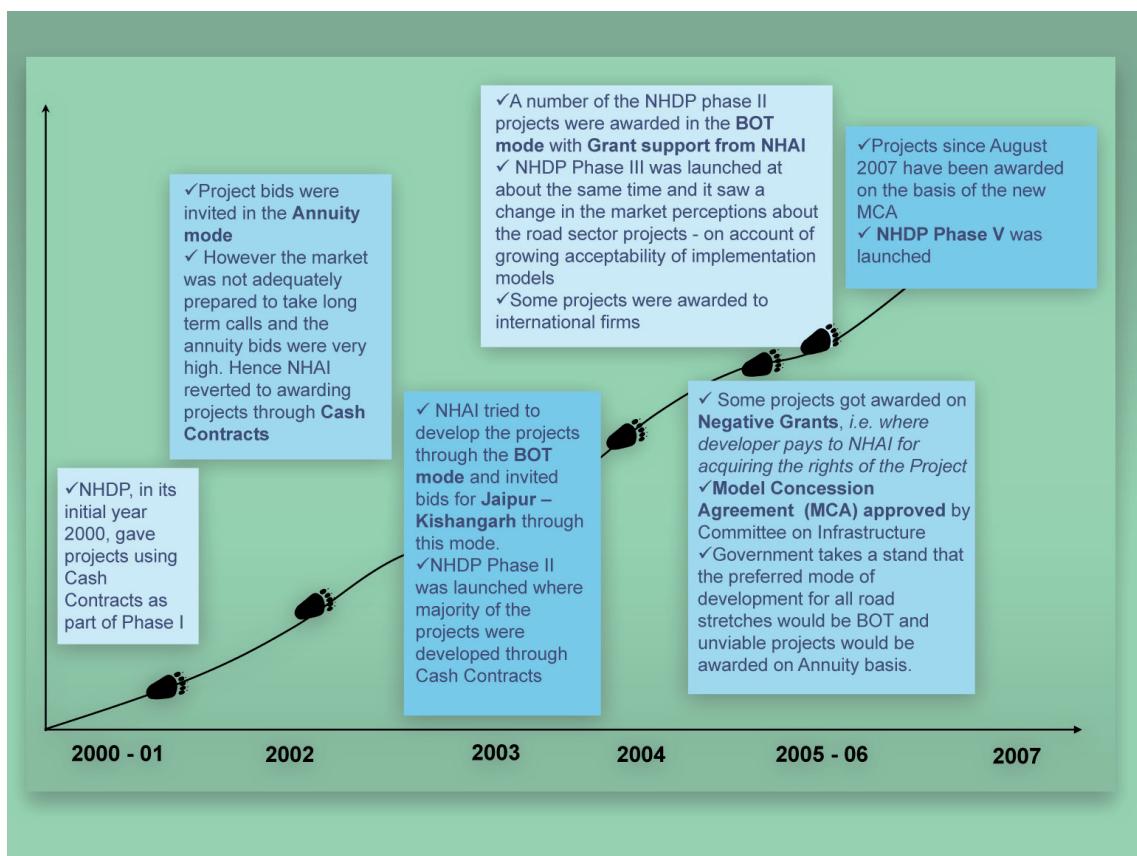
## Role of multilaterals

In India, the government has had substantial support from multilaterals such as WB and ADB in PPP development. Such support has included:

- TAs to help design and implement the appropriate institutional and enabling environment for PPPs including capacity building.
- TAs to help design the appropriate guidelines for PPP development.

- Provision of funds to support PPP development including for project preparation, viability gaps funds, longer term funding not available in the commercial market place, guarantee funds, etc.
- Support to maximize private sector interest including transparency, competition, incentives and dispute resolution.
- Other critically important issues such as land acquisition and environmental impacts and mitigation as well as ensuring pro poor dimensions are included in planning and implementation.

The following figure shows the graphical development of PPP over recent years.



## Overview of highway development and PPP

India has an extensive road network of 3.3 million km – the second largest in the world and an annual growth of 12-15% and 15-18% for passenger and freight traffic respectively has been projected. Roads carry about 61% of the freight and 85% of the passenger traffic. Highways/Expressways constitute about 66,000 km (2% of all roads) and carry 40% of the road traffic. The Government of India until recently had been spending about Rs.18,000 **crores**<sup>3</sup> (US \$ 4 billion) annually on road development.

3 A crore is a unit of 10 million; a lakh is 100,000. USD 1.0=Rs45

India believes that an efficient road network is necessary both for national integration as well as for socio-economic development. The National Highways (NH) system, with a total length of 65,569 km, serves as the arterial network across the country.

The current 10 year planning program of the government is the National Highway Development Project (NHDP) and is at an advanced stage of implementation. The NHDP involves a total investment of Rs.220,000 crore (USD 50 b) up to 2012. Under the National Highways Development Project (NHDP) - the largest highway project ever undertaken by the country and with the shortest time span for completion - 14,279 kilometer of National Highways are to be converted to 4/6-lanes, at a total estimated cost of Rs.65,000 crore (USD14+ billion at 2004 prices).

Since the opening up of the economy in 1991, initially there have been several cautious attempts at PPP in India with most PPPs being in the road sector. However, the last 5 years has seen an acceleration of PPPs and the USD 100 m Delhi Noida bridge being a successfully completed BOOT project. Other PPPs have been in water and sewage, ports and telecommunications.

Some of these projects took a considerable time to implement but the lessons on how not to handle PPPs has been well learnt it seems.

Up to 2004, some 86 PPP projects had been awarded with a value of about USD 7 billion, a relatively small amount over that period and for the whole country. Most of these projects are roads and bridges. However, this amount is now accelerating markedly.

Between 2000 and 2006 India's investment in PPP in highways represented 19% of all worldwide highway concessions which jumped to 40% in 2006 amounting in that year to USD 4.0 billion.

Institutionally, there are marked differences across the state/federal administrations with regard to PPP. No clear link between institutions and PPP frameworks and successful PPPs was evident in 2004 although this may be changing.

In 2004 a Committee on Infrastructure was set up under the Prime Minister and supported by various high powered committees. A number of key PPP guideline documents have been published, as well as consultation papers and conferences and workshops.



Department of Road Transport and Highways, Ministry of Shipping, Road Transport and Highways (<http://morth.nic.in>), National Highways Authority of India (<http://www.nhai.org>)



[www.infrastructure.gov.in](http://www.infrastructure.gov.in)

## Challenges

The infrastructure needs of India are very substantial and will be difficult to achieve under any circumstances.

The Government of India also has a policy to make infrastructure services available to those who need them but cannot afford to pay the full cost of service provision. Here, too, the government sees a substantive scope for leveraging its support through engaging the private sector as a partner in its development agenda.

It was also said that, in order to be able to attract private sector players, the government would have to improve a number of areas such as credible dispute resolution mechanisms, and satisfactorily resolve sensitive and contentious issues like land acquisition.

Although the government is committed to relying on PPPs significantly in the provision of infrastructure services, it is facing a variety of large and small challenges in translating its intent into action. It is noted that, in trying to scale up its program, India was facing the same challenges that other countries also face, namely:

- The huge scale of infrastructure needs whether funded with private sector assistance or not.
- How to marry private sector motivation for profit with public sector concern for public service (and the need for inclusiveness).
- How to apportion risk in a manner that is fair, rational and sustainable.
- How to manage the partnership through tightly-framed concession agreements over 20–30 year periods, in a rapidly changing environment.
- How to develop capacities in the concerned financial institutions so that they are able to appraise projects which have a life span of 20 and more years, since effective due diligence by these institutions will be critical for proper screening of PPP proposals brought to them by bidders.
- Weakness in enabling policy and regulatory framework. Without the active and effective participation of the States it would not be possible to achieve satisfactory results.
- The financial markets presently do not have the adequate instruments and capacity to meet the long-term equity and debt financing needed by infrastructure projects.
- There is also a lack of a pipeline of credible, bankable infrastructure projects. Initiatives taken both at the central as well as the states' level tend to be isolated cases and have demonstrated a lack of consistency.

There is also lack of capacity in public institutions and officials to manage the PPP process.

NHAI's experience with different PPP approaches to date, for example toll BOTs and annuities, should be analyzed in more detail to guide the states and the center on future approaches towards PPPs, particularly in less-trafficked segments of the network.

Across the states, there are significant differences in capacity for undertaking PPP projects. Expeditious action to remove these asymmetries and, also, to replicate the best practices achieved under the NHDP and successful PPP programs in selected states, would not only help the states to better manage their own road services, but also play an active role in the implementation of the National Highway PPPs in some of the remaining phases of the NHDP.

Many countries have, or are, turning to PPPs to finance much-needed infrastructure, in particular, roads. To attract global investment funds for infrastructure, India's PPPs need to offer returns comparable to those in other markets.

## Conclusions and Lessons Learned

India is a country that less than ten years ago had barely dabbled in PPP. However, at the beginning of that period it came to the policy conclusion that its infrastructure needs are huge and cannot be met without PPP development. This conclusion is being increasingly reinforced over time.

Given its successful use in the road sector in India, the Annuity Concession model of PPP holds the potential to attract private finance in other sectors which often do not generate sufficient revenue to support BOT or concession type models, and provides valuable lessons to other governments looking for PPP solutions that leverage private finance without necessitating dramatic increases in tariffs or user fees.

From an initial start and with multilateral assistance, the Government and its Highway agency, the NHAI, prepared an ambitious strategic highway development plan covering the whole country and which is dependent on private financing. This plan is regularly updated.

The government at the outset seems to have taken a bold policy decision, that PPP will be its financial cornerstone and that even though not all elements were either in place at all or fully in place, the country will pursue a policy that it hopes will provide it with the highway infrastructure it needs with acceptable risks and at an accelerating pace.

As that pace accelerates, it recognizes the need is for:

- Continuing to improve its human resource capacity.
- Continuing to improve its PPP frameworks-legal, regulatory, financial, risk, etc.
- Proper monitoring of ongoing projects (lessons learned).
- Dissemination of knowledge and capacity to states and local levels.
- Extension of the program to rural roads, PBC etc and other parts of PPP that have not been the easiest to initially develop
- Consideration of road safety.

It seems to show that while not every piece of the recommended frameworks for PPP need be in place at first, key elements are necessary. Political commitment and support to government civil servants with assistance from the IFIs and well experienced advisors to assist in the preparation of solid preparatory studies are the bare minimum at the outset.

Experience has shown that governments should not;

- Offer projects before proper studies are completed
- Make commitments that cannot be kept
- Change the rules after award of concession
- Revisit project design

- Superimpose public processes on private initiatives
- Not recognize the business nature of PPPs

Experience has shown that governments should;

- Try to align the economic interests of all parties
- Define PPPs on a package basis not just sum of different parts
- Induct private sector as partners
- Encourage initiative of officers
- Encourage plurality of approaches

## Further information



India: Public Private Partnerships in Highways Sector



International Conference on Meeting India's Infrastructure Needs with Public Private Partnerships  
The International Experience and Perspective February 2007  
<http://www.pppinindia.com/events-details.asp?id=3>



Multitranche Financing Facility India: India Infrastructure Project Financing Facility. Report and  
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<http://www.adb.org/projects/project.asp?id=40655>



The World Bank Group, Highway Sector Financing In India, Volume I/II 2004  
[www.worldbank.org/in](http://www.worldbank.org/in)



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[http://www.unescap.org/ttdw/Publications/TPTS\\_pubs/bulletin72/bulletin72\\_fulltext.pdf](http://www.unescap.org/ttdw/Publications/TPTS_pubs/bulletin72/bulletin72_fulltext.pdf)



Private Sector Participation in The Transport Sector: Policy Measures And Experiences In Selected Countries  
United Nations, New York, 2003  
[http://www.unescap.org/ttdw/Publications/TPTS\\_pubs/bulletin73/bulletin73\\_fulltext.pdf](http://www.unescap.org/ttdw/Publications/TPTS_pubs/bulletin73/bulletin73_fulltext.pdf)

## Annex 1 Central Road Fund

The Central Government has created a dedicated fund, called Central Road Fund from collection of cess from petrol and diesel. Presently, Rs. 2 per litre is collected as cess on petrol and High Speed Diesel (HSD) Oil. The fund is distributed for development and maintenance of National Highways, State roads, rural roads and for provision of road

overbridges/underbridges and other safety features at unmanned railway crossings as provided in Central Road Fund Act, 2000.

Out of the cess of Rs. 2 per litre levied, Rs. 1.5 is being allocated in the following manner:

- ① 50% of the cess on high speed diesel (HSD) oil for development of rural roads.
- ② 50% of cess on HSD and the entire cess collected on petrol are allocated thereafter as follows:
  - A An amount equal to 57.5% of such sum for the development and maintenance of National Highways;
  - B An amount equal to 12.5% for construction of road under or over bridges and safety works at unmanned railway crossings; and
  - C An amount equal to 30% on development and maintenance of State Roads. Out of this amount, 10% shall be kept as reserved by the Central Govt. for allocation to States for implementation of State road schemes of inter-state connectivity and economic importance to be approved by the Central Government.
- ③ Balance cess of Rs. 0.5 per litre is entirely allocated for development and maintenance of National Highways. An allocation of Rs.12,830 crores has been made under the CRF for 2007-08 with the following break-up:

National Highways	6541.06 Cr.
Rural Roads	3825.00 Cr.
Railways	724.69 Cr.
Grant to State Governments and UTs for State roads	1565.32 Cr.
Grant to States & UTs for Roads of Inter-State Connectivity and Economic Importance	173.93 Cr.
<b>Total Rs.</b>	<b>12830.00 Cr.</b>

*Source: National Portal of India/Sectors/Transport/Roads/PPP (2007)  
[http://india.gov.in/sectors/transport/public\\_private.php](http://india.gov.in/sectors/transport/public_private.php)*

# Country case study: Indonesia

## WHY READ THIS CASE STUDY?

- A** Indonesia has come a long way in toll road development. Projects stretch back some 30 years and over 1,000 km have been built. However, compared to other Asian countries, PPP development has been limited.
- B** The first major regulations and PPP initiatives in the late 1990s, were halted by the Asian crisis. The second round of PPP measures have been slow to take off even after the new PPP regulations were passed in 2005. So far only two toll roads have been offered under the PPP framework.
- C** Both of the toll roads mentioned above were ad hoc i.e. not identified, ranked or prioritized under any objective PPP analysis and both require substantial government support. The first toll road offered under PPP may be agreed this year (2008).
- D** Government has recognized that PPP in toll roads is essential but that many proposed highways, although economically viable are weak in financial terms. The government's regulations therefore provide for government support in a number of different ways depending on the type and characteristics of the project. PBC is proposed for a number of projects.
- E** There is a major need for a pipeline of suitable PPP projects tendered through the PPP framework and the development of a few successful highway projects through competitive PPP contracts, with continued strong support from the multilaterals and especially the World Bank and ADB.

## Background to PPP in Indonesia

### Pre-Asian crisis up to 1998

Indonesia's experience with the private sector and public infrastructure dates from the early 1990s. By the end of 1997 (start of the Asian financial crisis) it had attracted over USD 20 billion in investment, dominated by electricity (USD 10.2 billion), telecommunications (USD 8.4 billion) and transport-mainly highways (USD 2.1 billion). In some cases positive results were achieved while in others major difficulties were encountered.

In 1997, during the early part of the Asian crisis, the Government of Indonesia (GOI) through the Ministry of State Development Planning (Bappenas) reviewed PPP projects that had been committed by various Ministries and/or state-owned enterprises (SOE's).

In common with several other countries in the region, Indonesia focused on using the private sector to develop greenfield projects.

The Bappenas review concluded that structural reforms tended to lag behind (with little progress in pricing and subsidy reform), the regulatory framework was not sufficiently credible, and the issue of proper competition was not adequately addressed. Projects tended to be procured through a non-transparent unsolicited process, giving rise to poor governance (corruption, collusion and nepotism).

From this review, it was considered that an effective system must be in place to oversee the PPP program. It was decided to accelerate the establishment of a national policy by developing a cross-sector policy and regulatory framework for PPP.

Consequently, regulation Keppres 7/1998, (hereafter described as the 1998 PPP Regulations) on the Cooperation between the Government and Private Enterprise for the Development and/or Management of Infrastructure) was issued in 1998.

However, it should be noted that a Keppres is a decision or regulation issued by the President and does not over rule national laws or the constitution. Therefore where such regulations contradict or are in conflict with higher levels they cannot be applied.

The Keppres defined the GOI's policy on PPP and how to monitor such projects. Key policy objectives included expanded infrastructure investment and to receive greater value for money from PPP projects. It set out the broad principles transparency and competitive bidding and protection of the interests of the consumer and investor under which PPP projects were to be undertaken.

1998 PPP Regulation also assigned Bappenas the responsibility to produce a draft operational guidelines manual (OGM) for its implementation. Bappenas was thus charged to oversee and administer the PPP program, being responsible for monitoring its implementation for compliance with 1998 PPP Regulation, as well as identifying and prioritizing projects to be undertaken on a PPP basis. Moreover, approval from a Procurement Evaluation Team (An inter-ministerial body) was required before a PPP concession was awarded publicly.

### **During and Post Asian Crisis**

The Bappenas guidelines, though drafted, were never used for all intent and purposes because of the Asian crisis, when most infrastructure development (and all PPP) was effectively at a standstill for 5-6 years.

Since its promulgation, the administrative machinery for the implementation of 1998 PPP Regulation has undergone significant changes and reform, especially with the establishment of the Committee for the Policy on the Acceleration of Infrastructure Development (KKPPI) in 2001.

KKPPI is an inter-ministerial committee chaired by the Coordinating Minister for Economic Affairs and was established in 2001. Its membership comprises 10 key infrastructure ministries and its main function is to accelerate infrastructure development and is tasked with policy and strategy formulation. Part of its task is to develop an effective PPP

framework (to replace 1998 PPP Regulation) that is consistent with policy, regulatory and institutional reforms that have occurred. Many of the principles featured in 1998 PPP Regulations and the draft operational guidelines, however, remain relevant to this day.

The secretariat of KKPII is managed by both the Deputy for the Coordination of Infrastructure and Regional Development (CMEA) as the First Secretary and the Deputy for Facilities and Infrastructure (Bappenas) as the Second Secretary. Such overlapping responsibilities is not unique but has probably reduced the effectiveness of the PPP laws and regulations.

The formulation of a PPP framework as one of the main tasks of KKPII, and it focuses on PPP implementation and developing a PSO framework. The definition of infrastructure in the regulations includes transportation, which in Indonesia is split between two ministries, Transport, for non road transport infrastructure and Public Works, for road infrastructure.

From the viewpoint of the private investor, government policy declared that PPP projects should entail:

- A Fair Rate of Return on Investment
- Transparent Procurement Procedures
- Predictable and reasonable performance standards

These, and orderly mechanisms for making adjustments to tariffs and settlement of complaints and disputes, are necessary. This requires that the Government create a legal and regulatory framework that will encourage the private sector – in exchange for an attractive and agreed rate of return - to assume and manage the risks of building, owning and operating infrastructure facilities throughout an agreed concession period, which may be 20 years or more.

This also means that tariff setting must be transparent, and the revenue earned by the investor should, in principle, be enough for full cost recovery. If this makes the costs of any services unaffordable for some disadvantaged users, government subsidies to close this gap must be properly quantified and targeted in order to make certain that the subsidies benefit only those recipients in need.

A demonstration of this commitment is shown in that two further presidential regulations were passed in 2005 including a major PPP regulation on Government Cooperation with Business Entity in the Provision of Infrastructure (replacing the 1998 PPP Regulations). A Policy Package on Infrastructure Provision was also announced by the Coordinating Minister of Economic Affairs in mid-February 2006.

The 2005 PPP Regulations provided the GOI's cross-sector regulatory framework for PPP. Issued in November 2005, it had four main objectives, i.e. to provide a credible regulatory framework; to ensure clarity and predictability of the rules of the game for infrastructure investment; to promote sustainable infrastructure provision; and to ensure accountable, competitive, fair and transparent PPP procurement.

The 2005 PPP Regulations had important features that were to be elucidated subsequently, namely:

- the general principles of Partnership (mutual needs, mutual support and mutual profitability);
- the importance of government due diligence (in preparing the social cost benefit analysis, capital cost scrutiny, environmental study, and choice of PPP modalities);
- commercial issues, including tariff setting and adjustment, risk management, and government support; and
- fair, transparent, competitive and accountable procurement of the PPP concessionaire.

### **Recent Developments 2007-**

These two regulations were still not considered sufficient to create an effective PPP framework and amendments are under finalization. An Operational Guidelines Manual was prepared in 2006 to elucidate the regulations in significant detail.

While the 1995 regulations built on previous regulations, they had both structural and detailed limitations. At the detailed level, it suffered from not being fully complete (e.g. more detail was required on the consultation process), had contradictory sections (Conventional Public and PPP procurement mixed up) and its elucidation through Guidelines had no legal status.

However, it should be noted that technically the draft law would probably have been adequate, even if imperfect.

It is currently (June 2008) envisaged that the manual will soon be supplemented by these legislative, policy and institutional amendments - as explicitly indicated in the Policy Package - that will make the cross-sector PPP framework fully functional.

It is understood that revisions to the 2005 regulations will be finalized soon. However, issues remain to be finalized including several small but crucial proposed changes including;

- retendering in case of weak bidding
- unsolicited bids
- the role of SOEs in the PPP process

A PPP central unit is being established by KKPII to assist users of the PPP Guidelines manual and to ensure compliance with the PPP Regulations. Legal decrees will further define the scope, function and organizational structure of the KKPII secretariat, including the relationship of the PPP Centre to the network of PPP nodes to be established.

## Toll road sector and PPP

### Historical Development

There can be said to be at least three periods for toll road development in Indonesia;

- **First period:** State development of toll roads under public financing, 1978-1990
- **Second period:** Toll road concessions 1990-2001 (Including Asian Crisis)
- **2001 onwards:** Reactivation of toll road concessions and the start of the development of the PPP framework proper

#### *First Period*

Indonesia's experience with toll roads began in 1978 when Indonesia's first toll road was financed by the Government and transferred to Jasa Marga as equity. Jasa Marga was then the only (state owned) company in the sector authorized to operate toll roads. The Jagorawi toll road with a total length of 59 km started operating in 1978 which connected Jakarta, Bogor and Ciawi.

The development of subsequent Jasa Marga toll roads in the first period was financed primarily by a combination of foreign loans (lent by the Government), and Rupiah bonds issued by Jasa Marga.

In earlier toll roads in Indonesia, there was an expectation that loans to toll road concessions would be backed up by Jasa Marga, and/or the government, and thus lenders' project appraisal was quite limited.

The first period of toll road development cannot be defined as development under PPP. At the end of 1980's, the government invited the private sector to take part in the development of the toll road network through types of Build, Operate and Transfer (BOT) schemes.

#### *Second Period*

After legal changes in 1987 and 1990, Jasa Marga, had the authority to cooperate with other parties and grant concessions for toll roads.

About a third of this network has been developed by private consortia, with Jasa Marga as a minority equity partner in each consortium.

Equity investment in private toll roads has been sourced exclusively from domestic investors, while debt has been financed by a mix of domestic bank lending and commercial paper, some of which was purchased by foreign buyers. Once the concessions are reformulated with proper public-private risk sharing, private financiers would need to take on more risks, namely commercial risks of toll road development and operation. Generally speaking, individual toll road project assets are considered riskier than a portfolio of diversified toll road assets (e.g., Jasa Marga corporate risk).

### *Third Period*

This period is the current (post Asian crisis) period. This is characterised by two main types of toll road and PPP activities.

The Government is reactivating the toll road projects that stalled or were put on hold as a result of the crisis of 1988-2000. After 2001 the Ministry proposed proceeding quickly with toll road projects totalling 322 km. However private interest was limited and many 'non compliant with the new PPP regulations' bids were received in response to attempts to tender.

This period is also noted as a period of change including:

- Regulatory reform to support private sector involvement in Toll Roads;
- Some project transactions and progress, and
- Proposals for Toll Road Model Projects under the PPP regulations.

## **The PPP Background and the Transport Sector**

### *Sector Organization for PPP*

Under the 1998 PPP Regulations the scope of infrastructure includes toll-roads and bridges. This sector, regulated by separate law, is the responsibility of the relevant line ministry i.e. Public Works. As of 2005, the infrastructure sector laws include the (higher) Law no. 38/2004 on Roads that give mandates to the line ministries and the various PPP regulations under Presidential decrees.

This legal structure is the same across most line ministries, and thus, as there are many sector responsibilities for infrastructure development, effective coordination is essential. KKPPI's role in this area is therefore critical. Therefore, KKPPI developed a policy package for implementing PPP, consisting of policy, regulatory and institutional elements.

Each line ministry will also establish a PPP node or cell, which are designed to be fully coordinated with the center and each other. One of the node functions is to assist the PPP Centre to monitor compliance with the PPP Regulations with the aid of these PPP Guidelines.

A PPP network is necessary in Indonesia because PPP projects are implemented in a decentralized/line ministry manner and because Indonesia decided, probably correctly that each sector faces sufficiently different issues (compare toll roads to power stations) to warrant a sector basis, even though of course many issues such as competition, transparency and good project preparation are cross sectoral PPP requirements.

One aim of the PPP Centre and PPP nodes will be to ensure each PPP transaction, independently of the sector, goes through consistent quality control. Another is to address constraints to improve the PPP framework over time.

A ministerial decree in the Ministry of Finance (MOF) set up a risk management unit (RMU) to decide on and manage the provision of fiscal support to PPP infrastructure projects.

It should be noted that much of the work undertaken within GOI, including at various levels, such as Bappenas, CMEA, KKPKPI, Public Works, Transportation and other line ministries has been funded under technical assistance provided by WB and ADB under both substantial grants and loans.

Therefore many reports, guidelines and draft laws and regulations have been produced by advisors with GOI support but still the progress on PPP is limited especially in roads and the transport sector overall.

There may be some explicit reasons for this including the Asian crisis which went on longer in Indonesia than all other Asian countries, political upheavals, financial crises, inadequate laws (discussed below), overlapping responsibilities in government, institutional weaknesses and capacity, and other causes. However, the continual improvement of laws and drafting reports on the problems in itself has not been sufficient, even though the laws and guidelines are quite sophisticated and conform to good to best practice.

The most important starting point is highest level commitment to enforce PPP development through best practice methods i.e. transparent, competitive and professional procedures that lead to at least a few appropriate projects being implemented, irrespective of constraints. In that regard many of the model projects were not model in the sense of being ready, risk minimizing and suitable, or selected through any proper process such as multi criteria analysis. Many selected PPP projects (not only toll roads) were quite difficult, involving SOEs and requiring substantial subsidies e.g. the toll road model project, Solo Kertosono, requires a subsidy of about USD 300m.

### *Guidelines for PPP*

While the GOI spent considerable resources on preparing guidelines for PPP implementation based on the 2005 law, the status of the Guidelines was uncertain given that they were not referred to in the law and that Guidelines could not legally overcome the confusion in the law itself. It is now proposed that the essence of the PPP guidelines will be included as annexes to the revised regulations.

### *Regulation: Sector Regulator and Re-alignment of the Four Primary Functions*

A sector regulator is important because one of its functions is to ensure a level playing field. In toll roads the agency has two roles regulation and contracting agency. For this reason, PPP is likely to be less attractive relative to other sectors from the point of view of the private sector because independence is compromised, there is less transparency and more potential conflicts of interest.

Thus, to create a level playing field, the four functions (The four functions are policy making (the responsibility of the line ministry), regulatory, contracting and operator) need to be re-aligned. The objective of at least aiming for a functionally independent

regulator is important because part of its role is to ensure compliance with the "rules of the PPP game" in Indonesia.

In toll roads progress has been made in regulation but there is no independent regulator and also the regulatory agency still has conflicting functions, so more progress is considered needed.

#### *PPP Implementation and Local Government*

Local autonomy allows the local government to organize and implement their own PPP projects subject to direction from the local parliament. The 2005 PPP Regulations applies also to PPP at the local level. It is envisaged that any local regulation issued by a local parliament would be in accordance with The 2005 PPP Regulations and the Guidelines.

Another pertinent issue concerns local fiscal support for PPP projects at the local level. Clarity is essential in the application of PPP regulations at the local level, if local government wishes to implement more PPP projects.

#### **The reform process**

##### *Government Regulation on Toll Roads, No. 15/2005,*

The New Government Regulation No. 15/2005 on Toll Roads reformed the legal framework and potentially paved the way for greater PPPs in highways. The sector has been unbundled by splitting off the regulatory functions from its main State Owned Enterprise, Jasa Marga, calling for the establishment of a new regulatory body, ending Jasa Marga's monopoly on toll road development; and allowing fully private investors to bid for new Build Operate Transfer or concession projects in competition with Jasa Marga.

The Indonesia Toll Road Authority (BPJT) was established in June 2005. Its responsibilities include developing business plans and feasibility studies for toll road projects; conducting bidding, facilitating land acquisition, and recommending tariffs for such projects; and supervising implementation of toll road concessions.

##### *The 2005 PPP Regulations.*

As already discussed above, the introduction of this Regulation in 2005 should have provided greater certainty to private investors by clearly defining the rules of the game within the government's policy framework.

##### *Presidential Decree on Land Acquisition No. 36/2006.*

In 2006 the government-amended regulation on land acquisition was adopted. This brought government policy on land acquisition closer to internationally accepted principles especially on involuntary resettlement.

##### *The Ministry also issued a decree on tariffs.*

The decree enables toll road tariffs to be set on the basis of the bidding process. At the same time, tariffs for existing toll roads were increased very substantially to ensure

financial sustainability of their operation. To complete the legal framework, the Ministry issued a series of implementing regulations.

#### *Land Acquisition Fund*

The Government has now established a revolving land fund, by setting up a General services Agency, which will, to same extent; help ensure that land is acquired before a project is put out for tender. The BPJT (Indonesian Toll Road Authority) will act as a Land Banking which will facilitate and manage the land acquisition process and the seeding funds for the land banking has been prepared by the Government.

#### *Government Support and the Risk Management Framework*

Government Support is to be provided by the Government to projects that meet the requirements of the 2005 PPP Regulations. Government support is based on both these regulation and the principles of management and financial risk control under either the Minister of Finance or a Regional Finance Unit in the event the Government support is to be provided by Regional Government.

In 2006, the Minister of Finance issued a legal Guideline for Controlling and Managing Risks of Infrastructure Provision. Types of the risks covered, include Political, Project Performance and Demand Risks. It would appear that if a toll road project needs government financial support it must follow the PPP regulations.

## Highway Program/Projects

#### *Status of the Current Toll Road Program*

- In operation: 4 links, 51.6 km
- Construction Stage: 7 links, 114.55 km
- Concession Agreement signed: 16 links, 641.14 km
- Finalization of Concession Agreement, 3 links, 104.72 km
- At Tender stage: 4 links, 61.94 km
- At the prequalification stage, 2 links, 117.12 km

Total on-going Toll Road Projects consist of 36 links around 1,151 Km whose total cost is approximately Rp. 91,824 Billion (About USD 82.6 billion). At the same time the Government is now preparing 18 toll road links for tender, around 683 km and approximately will cost around Rp. 37,926 billion (about USD 3.8 Billion).

## Model PPP Projects

The government also proposed two toll road projects to be designated 'model' projects. That meant in theory that they would be developed in strict accordance with the 2005 PPP regulations. These two projects are namely:

- ① Medan-KualaNamau-Tebingtinggi (The proposed project will provide a direct and vital access to the proposed Medan New Airport Project. However, the estimated Financial IRR is only around 9% and this far below the 18-19% target rate)

- ② Solo-Mantingan-Ngawi-Kertosono (Part of the Trans Java Toll Road Project). The Financial IRR is around 14 %.

There is need for government support for these two projects, and the government reviewed the case for providing government financial support rationalizing incentives and subsidies, increasing competition and moving to more market-based tariffs.

However, at the same time, subsidy is now more acceptable for PPP schemes, and the government now, preparing the tendering out of the Jakarta port access Toll Road, as part of the Jakarta Outer Ring Road (JORR). Due to its low financial viability, the Government will build the Project under JBIC funding, and later on will put into tender to the private sector through Operation and Maintenance Schemes (including possibly PBC) which will support its PPP initiatives.

#### *Maintenance of National Roads and Funding*

The total national road network is approximately 36,600 km; 50% of the total National Road Network is in good condition, 31% is in fair condition, while the rest around 20% is in poor condition.

Efforts have also been made to improve the road network partly through strengthening the procurement process with innovative approaches including Performance Based Maintenance Contracts which will be put into practice through a Pilot Project, proposed for 2008.

The Government is also said to fully support the principle of a Road Fund mechanism.

#### **Key sector developments and Issues facing toll road development**

The Government of Indonesia has implemented a number of significant reforms, which have affected or been directed at the toll road sector, the objectives of which included:

- ① Introduction of automatic tariff adjustment mechanisms;
- ② Accommodation of using the existing toll road assets to help finance new toll road sections; and
- ③ Land policy reforms to enable timely acquisition of land.
- ④ They have also tried to separate policy, planning and regulatory functions from toll road operations.

Substantial debate and focus has been put to how to attract new private capital to develop the toll road framework, and the World Bank has been assisting the GOI to reorganize the institutional and regulatory framework for toll road development through technical assistance.

Some key issues facing investors in the toll road sector continue to be:

**Regulatory framework:** There was general consensus among stakeholders that toll road reform was needed and should involve the separation of policy, regulatory and contracting functions. Some progress was made but the body created still combined regulation and contracting.

**Tariff setting and other regulatory risks:** Tolls have been set by Presidential Decree and had not been revised over a decade prior to the recent average increase of 25%. The introduction of automatic tariff adjustment mechanism has now been made, using appropriately structured formula to attract private investors and enable them to project revenues. It is still not clear how this will work in practice. Implications of decentralization: In a decentralized environment it is important that all legal and regulatory issues are clarified.

**Land acquisition:** Many toll road concessions failed to start construction due to the difficulty of acquiring land in a timely manner, as there was no enforceable legal framework to expropriate land for public services (such as roads) and to agree on land acquisition prices. This has been addressed in principle and remains to be seen as to success.

**Coherent transport development plan:** In addition to the creation of a national toll road agency, there is need for the country and regions to formulate a credible transparent process for the implementation of a coherent transport plan covering both toll and non-tolled roads and different transport modalities, to allow private investors to assess and forecast traffic demand for toll roads in a meaningful manner. Some coordinated plans have been prepared but more remains to be done.

The European Business Chamber of Commerce in Indonesia said that the country's infrastructure program is realistic, but suggests that the government not only focus on providing legal certainty but also on expediting implementation.

"One of the reasons why the first Infrastructure Summit was unsuccessful was because the legal framework did not exist and has suggested that while providing the necessary legal framework was imperative for attracting investors, building up program-implementation capacity would be the future key to success.

The government held its first infrastructure summit in 2005, offering a total of 91 projects worth USD 22.5 billion. Only nine deals were clinched, however. During the Summit of 2006, the government put 10 "model" projects (including 2 toll roads) worth USD 4.4 billion on the table. In addition, it is also offering 101 other potential projects worth about USD 14.7 billion.

EuroCham is helping the Ministry of Finance with capacity-building because implementation is key. Therefore, it says that the government has to train people, who can work in teams and are aware of what global best practice is.

Consistent regulations and security have always been the key problems. Investors want to be here for the long haul and they want to be able to forecast their profits. Thus, they require consistent regulations and long-term security for their projects. He added that the ten projects being offered at the conference were all quite realistic".

## Conclusions and Lessons Learned

Indonesia has come a long way in toll road development. Projects stretch back some 30 years and over 1,000 km have been built. Indonesia has spent much resources and time in developing its PPP framework but with limited success so far. While the overall

PPP concept seems reasonably well understood among the senior staff in government, effective implementation remains a problem. Therefore, in the toll road sector, real PPP based projects remain elusive.

The legacy of direct government involvement in toll roads through Jasa Marga and in the other transport sectors through other SOEs may dominate thinking. The tendency is for projects that could conceivably be good candidates for PPP are passed on to the SOE. While some progress has been achieved in the toll road sector to convert Jasa Marga into a corporatized entity that will bid for projects in competition against or as a partner with private companies, this has not yet been seen in practice.

With much more funding available from both public and private sources, but still insufficient from public sources the need is to develop a proper program of toll roads and prioritize them into those most appropriate for public funding and those most suitable for PPPs.

The main problems faced in project selection, preparation and execution are:

- Business-to-business (B2B) versus the PPP approach. B2B implies direct SOE to private concessionaire contract without reference to PPP regulations;
- Changes or adjustments of priority in response to unforeseen policy decisions by the Government;
- The roles of the PPP Central Unit and the PPP nodes in PP project development remain unclear;
- The need for PPP regulations and guidelines focused on local governments
- The minimum requirements in terms of completeness for pre-feasibility or feasibility study for both solicited and unsolicited PPP projects;
- The breadth and depth of the environmental impact assessment (AMDAL) to enable the contracting agency to estimate the cost of mitigating adverse environmental impacts of a PPP project;
- The importance of incorporating risk management procedures and good practice in the PPP Guidelines and the need to revise the former to include both direct and contingent government support as well as support for and/or from the local government;
- Coverage of the entire spectrum of PPP modalities: the need to select for each project the modality relevant to Indonesia's conditions;
- Market sounding with private sector is needed; to help prepare bankable projects;
- Tendering procedures at the fine detail level cause problems e.g;
  - Extended bid conference or pre-bid negotiations
  - Discussion of tender variations
  - Finalizing contract agreements
  - Avoiding too many loop backs in the prequalification or tendering process in the case of less than three applications/bids
  - Identification of negotiable and non-negotiable items of the contract agreement

Important aspects not adequately dealt with in the 2005 PPP Regulations are:

- the definition of a contracting agency,

- the approach to PPP-type projects proposed for implementation by the SOEs
- the process and mechanism of public consultations,
- the provision of government support for PPP projects of local governments,
- the definition of financial closure, and the re-bidding process.

There should be various possibilities to compromise between implementation procedures that enforce international best practice and other proposed practices that might inadvertently weaken the whole process to the point of eliminating transparency, competition and accountability so vital to PPP.

### Additional information

Progress on Public Private Partnership Program for Toll Road in the Ministry of Public Works,  
H.E. Joko Kirmanto, Minister of Public Works.

# Country case study: Korea

## WHY READ THIS CASE STUDY?

- A** This fast growing developed country is a very good example for having effective governmental action to promote private capital investment in infrastructure which now includes an extensive network of about 3,100 km of highways.
- B** It has successfully implemented many PPP projects since the 1990's. Regarding highways, the Korean Government plans to complete 3,300 km of additional highways with an integrated national network by 2020 as well as 907 km linked to the trans-Asian road network between Japan and China.
- C** In the late 1990's, Korea learnt lessons from the Asian financial crisis to adapt its policy to develop a more efficient PPP program.
- D** A main lesson from this country is that in order to develop PPPs, initial arrangements may well not have been ideal. Therefore, the importance of monitoring PPP programs and having flexibility, to adjust programs is thus important. Korea has made and continues to make substantial adjustments, as well as fine tuning, to its PPP regulations.
- E** The PPP program also encourages the private sector to use its creativity and innovation capacities through unsolicited projects which are allowed but have been much more restricted under recent PPP laws to better control such types of projects and avoid their negative aspects.

## Background

South Korea, officially the Republic of Korea and often referred to as Korea is a presidential republic in East Asia, occupying the southern half of the Korean Peninsula. Also known as the "Land of the Morning Calm", it is neighbored by China to the west, Japan to the east and borders North Korea to the north. South Korea's capital and largest city, Seoul, is a global financial and cultural center and the second largest metropolitan city in the world.

South Korea is a major economic power and one of the wealthiest countries in Asia. It is a developed country with a high standard of living, having a trillion dollar economy that is the third largest in Asia and 13<sup>th</sup> largest in the world. Forming the G20 industrial nations and the world's top ten exporters, it is an APEC and OECD member, defined as a High Income Nation by the World Bank and an Advanced Economy by the IMF and CIA. A major non-NATO ally, it has the world's sixth largest armed forces and the tenth largest defense budget in the world. The Asian Tiger is leading the Next Eleven nations and is still among the world's fastest growing developed countries. Today, its success story is known as the "Miracle on the Han River", a role model for many developing countries.

South Korea is leading several key industries in the world, particularly in the fields of science and technology. It is a world leader in information technology such as electronics, semiconductors, LCD displays, computers and mobile phones, led by Samsung and LG. Home of the world's third largest steel producer, POSCO, it is the world's largest shipbuilder, the world's fourth largest oil refiner and one of the world's top five automobile producers, headed by Hyundai and Kia.

## Investment in Infrastructure

There have been many changes in infrastructure development policies over the past in the Republic of Korea.

In the 1960's, investment in the transport sector was mainly made in railways, and industrial ports were also built to handle imported materials. However, in the late 1960's, the focus of investment in the transport sector began to shift to roads with the massive construction of **expressways<sup>4</sup>**.

During the 1970's and 1980's, the Republic of Korea achieved exceptional economic development. The Government long-term development plans focused clearly and exclusively on infrastructure with priority being placed on the construction of facilities to promote industrialization, such as the Seoul-Pusan Expressway.

However, during this period, the Government changed its policies for infrastructure development and began to place great emphasis on regional development. Less allocation of funds for transport infrastructure facilities focused on major congestion problems in the transport system rather than on the necessity to mobilize new resources for capacity expansion.

In fact, efforts to develop private investments in infrastructures began in the early 90's. The introduction of a first program to promote private sector participation in infrastructure development started in 1994. The PPI program aimed at creating infrastructure facilities by the private sector in order to reduce the public budget and to exploit the efficiency of the private sector. It was during this time that the importance of transport systems was recognized.

## PPP History

"The Private Capital Inducement Act" of the Republic of Korea was formally launched in 1994. The concept of private participation was not new to Korea. However, this act was the first legal framework which specifically promoted PPI.

The first Act divided PPI projects in two categories: Category I projects dealt with the most strategic infrastructure projects such as roads (and also railways, subways, ports,

4 The two major road construction projects were the Gyeongin Expressway in 1968 and the Gyeongbu Expressway in 1970.

airports, water supply and telecommunications); Category II projects involved other infrastructure projects (like gas supply, bus terminals, power generation plants, tourism promotion area, sport complexes and other more commercial fields).

It meant that private sector could only obtain ownership in category II projects. As a result, category I PPI projects (especially for roads) could be carried out only through BT0 (Build Transfer Operate) scheme, whereas the other PPI projects (in category II) were eligible for other options like BOT (Build Operate and Transfer) or BOO (Build Own Operate) schemes as well as the public-private joint venture company scheme (in which less than 50% of the capital participation was by state or local government).

But this first PPI policy was not really a success because the risks were not always well evaluated. Projects were promoted under the laws governing each sector such as the Road Act. These investments were of limited budget, and operation and maintenance of these facilities by the private party was not allowed; as a result, the Government which targeted 40 infrastructure facilities was only able to develop five of them.

Subsequently, the Asian financial crisis of 1997 damaged the whole Korean economy. This particular context led the Government to take new initiatives to promote private sector participation in infrastructure development. A new PPI law was adopted in December 1998, "The Act on Private Participation in Infrastructure", in order to remove the main constraints to private investment in infrastructure.

In view of reducing barriers to private sector participation, this new Act abolished the former categorization of infrastructure projects. It also improved the procurement process for both solicited and unsolicited **projects<sup>5</sup>** and provided new incentives to private investors.

In addition, it created a special unit, the Private Infrastructure Investment Centre of Korea (PICKO). This Centre acts to provide technical assistance to the Government and local competent authorities to promote private sector participation in infrastructure sectors. Its tasks are preparation of feasibilities studies and PPI tenders, review of studies and evaluation of bids, negotiations and concession agreement conclusion.

Finally the Korean Government prepared a ten-year plan which identified desirable PPI projects. It defined their investment terms and conditions, operation and maintenance facilities as well as government support measures. These projects involved major road infrastructure, the development of which central and local governments had been involved previously.

The enactment of the new Act of 1998 changed the investment climate for Korean PPI. The previous projects under the former act were reviewed. Concessionaires designated

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5 The old PPI law had provision for unsolicited projects. A special procedure was defined for them in order to lead the private sector to develop new ideas (different from those included in the PPI projects list of the annual plan). Initially they also benefited from the same advantages as for solicited projects. The new law reduces the advantages for unsolicited projects in order to avoid opportunistic behavior.

under the first PPI law were given a chance to renegotiate their concession agreements in order to take advantage of more favorable conditions.

As a result, by June 2002, ten road projects were in operation like, for example, the **Chonan-Nonsan Highway<sup>6</sup>**.

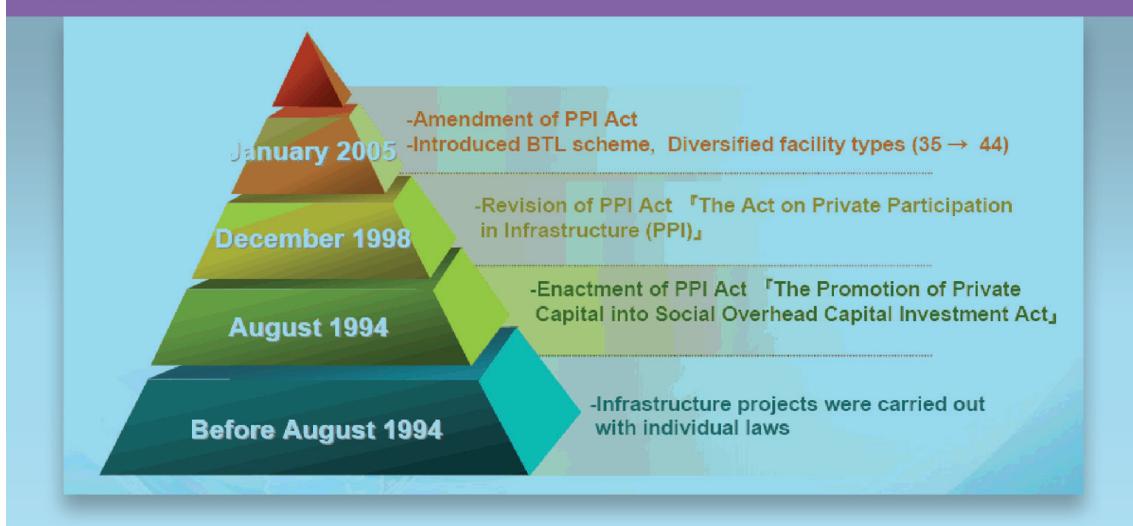
The Act was amended again in 2005. This revision not only introduced Build-Transfer-Lease (BTL) scheme but also expanded eligible facilities to social infrastructure such as education, defence, culture, and welfare facilities. In addition, the revised Act established a specialized agency ("Public-Private Infrastructure Investment Management Center") to provide technical assistance to the Ministry of Strategy and Finance and procuring authorities.

The following changes were introduced:

- The expansion to more diversified infrastructure facilities (44 types instead of 35 before; they include now for example social infrastructure as an eligible sector for PPI)
- The BTL (Build Transfer and Lease) scheme was introduced. The available project types of private participation are now more diversified: BTO (especially in the road sector considered as a key field of infrastructure), BOT, BOO, BTL (this last one being the most popular type now) and ROT (Rehabilitate Operate Transfer)
- The MRG was amended due to excessive demand. It was also abolished for unsolicited projects. For solicited projects, the guarantee period was reduced from 15 to 10 years and the maximum guarantee limit had also been reduced from 90% to 75% (and then to 65%). There was also a new condition: the MRG is not provided for projects which earn less than 50% of forecast revenue.
- The creation of an infrastructure fund;
- The requirement to assess the value for money for all PPI projects;
- The compulsory documents for proposals have been simplified;
- A new PPI unit has also been established (PIMAC) which is hosted within the Korea Development Institute (KDI), a prestigious government research institute which plays a key role in national and regional planning;
- Since 2007, compensation is mandatory for project preparation cost in order to introduce more competition.

<sup>6</sup> This highway (80 km/ four lanes) was realized and funded jointly by the Highway Corporation and a Daewoo led private consortium under a BTO scheme, in 1997 in order to improve access to the existing Honam expressway (110 km); it had a five-year construction period until 2002 and it has a 30 years operation period until 2031; it cost KRW 1.7 trillion (equivalent to about 1.5 billion USD).

FIGURE 1. EVOLUTION OF THE PPI ACT



## PPP Framework

### Financial Modalities and Risks

As mentioned previously, the PPI Act in 1998 and its amendment in 2005 provided new incentives to private investors and notably for foreign investors, including special administrative and budgetary measures provided by the government to assist investors and to mitigate commercial and other risks. These measures refer to a package of financial support facilities and include:

- The application of 0% Value-Added Tax (corresponding to a 10% VAT exemption) for BTO (Build-Operate-Transfer), BOT (Build-Transfer-Operate) and BTL (Build-Transfer-Lease) projects;
- The creation of a Minimum Revenue Guarantee (MRG): the Government guaranteed up to 90% of operating revenues (these conditions were changed when the act was amended in 2005, see above);
- Foreign exchange risk guarantees were adopted to compensate losses due to exchange rate fluctuations; Since the Asian economic crisis of late 90's, one of the serious concerns for foreign investors was related to foreign exchange fluctuations. This main investor's risk has been positively limited by the Government: when they exceed 20% of losses, the concessionaire may benefit from adapted provisions (like modifications of tariff rates, government subsidies or adjustment of the concession period).
- The exemption of acquisition and registration tax for land acquisition on BTO projects;
- A bonus is given for early completion of construction or for lower construction costs;

- A buy-out option is allowed in a "force majeure" case<sup>7</sup>.
- Public loans and loan guarantees may be provided to the concessionaire by the state or local government; an infrastructure credit guarantee fund can be created. A concessionaire or a financial institution may issue bonds in order to procure funds necessary for private investment.
- Subsidies or long-term loan may be granted to the concessionaire by the central or local government; Public sector dividends may be provided to the shareholders in the private sector;
- Sovereign guarantees exist with a maximum limit on operation revenue for solicited and unsolicited projects and a project can be purchased by the State or local government if requested in certain circumstances;
- Other revenue sources are possible when supplementary projects could be implemented jointly with the private investment project;

There are also non-financial supporting measures usually included in the projects agreements which can be considered as other governmental facilities to promote PPP. Korea, for example, adopted a comprehensive law about deregulation of restrictions on property rights with respect to PPI projects.

The acquisition of land could be considered as a risk for the investors, notably in road projects. Although the Korean legal system originally didn't allow the private sector to get property rights on public properties, a very special measure which has been taken by this country is the right to use facilities like being a property right (ownership or leasing) making it easier for the project investors to raise funds.

The Korean government supports the acquisition of projects sites if necessary. The state and local governments may purchase the land on behalf of a project company (which is highly appreciated by the private investors). It reduces cost of the project and accelerates the implementation process<sup>8</sup>.

As a result of an improved PPI regime, bank financing of PPI projects increased substantially, from KRW 20 trillion in 2002 (USD 26 billion) in comparison to KRW 2.5 trillion (USD 2.06 billion) in 1995 when the first PPI legislation was enacted).

### Legal Issues and Institutional Arrangements

The Korean PPI Act and its Enforcement Decree of 1998 clearly states the requirements for both public and private sectors. They provide the details of the processes of project selection and contractor bidding. They outline the project implementation procedures and prescribe the maximum period of each process as well as the contents to be included in proposals. In Korea, rules and procedures applied to the procurement of PPI projects

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7 Regarding the possibilities to terminate the concession, the private sector can only invoke "force majeure" or bankruptcy.  
 8 This buy-out right is applicable when the construction is suspended for six months or more or when the total investment cost increases by more than 50 percent.

are influenced by a legacy of civil works procurement. It is also based on a two-stage bidding process now.

Regarding the criteria for the projects' selection, the central government presents an Annual Plan which gives principles for each PPI project. Within a year, the authorities have to announce a Basic Private Investment Plan for each project.

This one shall include seven major requirements of the proposals, including the amount and duration of investment, construction details, eligibility of the concessionaire, the method used (BOT, BTO, BOO or other), subsidies, information on the operation and maintenance and the eligibility requirements for the concessionaire.

The implementing agencies designate the projects in relation with the government's medium-term public investment program (as "priority projects"). The Decree of 1998 shows nine aspects of the evaluation, including composition of the implementing authorities, project feasibility, financial plan, land's purchase plan and management abilities. The director of PIMAC (previously called PICKO) can designate members of the evaluation team.

Dealing with the process of negotiation, the competent authority shall designate the concessionaire and prepare a concession agreement. According to the legal procedures, the concessionaire shall prepare a detailed engineering and design plan for implementation and shall obtain the approval from the competent authority. These necessary contents of a concession agreement are given in the Annual Plan.

Public authorities are sometimes approached directly by private companies who submit projects for which no selection procedures have been opened. These proposals are called the "unsolicited" ones. They may result from the identification of a necessary infrastructure which may be financed by private funds.

They have been promoted by an incentive governmental procedure that allows a contracting authority to negotiate them directly with their initiators in a fair competition. In the view of awarding contracts, a competitive screening is necessary through a special procedure which differs from the treatment of solicited projects.

The **PIMAC**<sup>9</sup> is a special organization which has been created to provide support services in various fields of PPI projects (like feasibility studies of unsolicited projects which are all subject to evaluation by this central organization). Its support for the negotiation and conclusion of concession agreements is particularly appreciated by the foreign investors who are not familiar with the Korean language and the local system.

Another important function of this institution is to assist the Korean government in formulating policies related to PPI. This is carried out through various research or advisory activities of the Government.

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9 Its roles and functions are given in more detail on the website of the Korean Ministry of Land, Transport and Maritime Affairs ([www.moct.go.kr](http://www.moct.go.kr)).

A further important institution is the Korean Infrastructure Guarantee Fund (KICGF) set up under the 1994 PPI Act. This body is funded from a mix of sources including directly by government, MRG fees, guarantee fees and bank loans. It provides guarantees for debt or revenues in PPP projects up to about USD 200 million per project.

In the ten years to 2005, the KICGF had provided guarantees for 65 projects for an accumulated amount of over USD 3 billion. The fund guarantees, for example, that if revenue is insufficient, even though the MRG has guaranteed the amount, the KICGF will ensure money is available on time to the project sponsor. This fund therefore gives great security (and comfort) to investors.

## Recent trends in PPP for Highways

As stated above, the PPI Act (article 1) clearly states that its purpose is to contribute to the development of the national economy by encouraging private sector investment in infrastructure facilities. This is the reason why incentives have been prepared to attract foreign investors.

In 2001, the Korean government formulated the ten-year plan for PPI with the main objective to provide a clear overview to the private sector concerning prioritized areas of investment (such as roads). This PPI plan includes a list of 179 selected possible projects to be financed by the private sector from 2002 to 2011.

In the road sector more specifically, a total of 80 projects were selected including ten expressways, four bypass roads and four local roads. This plan is to be revised every three years in order to be more adapted to the PPI market.

In 2006, the Ministry of Planning and Budget formulated fiscal guidelines and strategies for the sustainable development of PPI up to 2015.

By 2020, seven new North - South corridors as well as nine new East- West corridors are planned to be realized. The Government plans to have 6,400 km of highways in 2020 (in comparison with the existing **3,100 km<sup>10</sup>**).

It has also to be stated that in October 2007, North and South Korea signed a peace agreement on eight main issues including renewal of highways.

For example, two major highways are already under construction: the AH1 highway (500 km) linking Japan, South Korea, North Korea and China and the AH6 highway (407 km), linking **Japan, South Korea, North Korea and Russia<sup>11</sup>**.

<sup>10</sup> These national highways have mainly four lanes (75%); the remainder (25%) have six or eight lanes.

<sup>11</sup> The first one is almost completed in South Korea except the 30 km between Seoul and Munsan which is under consideration for private investment. The second has only a small completed part around Gangneung at the north of which 51 km are under completion (they should be completed in 2009). Moreover 40 km. should be completed this year in the South East, the remaining parts are under consideration, under planning or are being re-examined. They mainly utilize an existing highway (the Gyoungbu one) for AH1 and the 7th national road for the AH6. So, new constructions are not really

## Conclusions and Lessons learnt

A growing economy creates massive demand for infrastructure facilities and Korea places high priority on sustainable development of the country for which the provision of adequate infrastructure facilities is crucial.

This country has enacted a comprehensive law to be regarded as a political commitment to push forward PPI. Clear rules and criteria have been set at each stage of the PPI process and a special procedure has been settled to accept and encourage unsolicited proposals. To complete this framework, effective organizations have been established to promote and coordinate PPI.

A main lesson from this country is that in order to develop PPPs, initial arrangements may well not have been ideal. The Government of Korea has learnt lessons from its earlier experience and has established a more transparent and effective PPP framework. By defining clear responsibilities between the different authorities and by including various forms of government support, the specific law in 1999 has accelerated PPI. The importance of monitoring PPP programs and having flexibility to adjust as programs mature and experience learned is thus important.

Since the enactment of this PPP policy in Korea, many infrastructure projects have been initiated through private participation. Private investment increased from KRW 300 billion in 1995-1997 to KRW 3.2 trillion (USD 3.2 billion equivalent) in 2006. The share of private investment to Government investment in infrastructure increased from 1.2% in 1996 to 17.4% in 2006.

By June 2007, the total project costs of signed BTO projects amounted to KRW 42.1 trillion. Almost 50% of this relates to 17 signed road contracts with a total investment of KRW 19.8 trillion. The average cost of those projects was KRW 1.2 trillion (about USD 1 billion) and they have, mostly, a 30 year concession period. In addition, 12.1 trillion KRW were invested in BTL projects.

South Korea is now an attractive country for private investment in infrastructure sectors. This country has been a pioneer in PPP; Build-Transfer-Operate and Build-Transfer-Lease type projects are now actively implemented. By adapting its PPP system as well as its experience on project construction capability, it has contributed to meeting increasing demand for infrastructure in the Asian Pacific Region.

But the PPI procurement is a long, complex and politically sensitive process which still has to be improved in order to gain competition. According to Noumba and Dinghem (2005), Korea should now focus on developing an efficient market as regard to its **construction industry**<sup>12</sup>. More importantly, Korea should now adopt a more efficient

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required for those additional roads. Only adding AH route signs to existing plates should be completed and additional services should be planned.

12 The Korean market is dominated by five construction and engineering firms (in 2005) and the participation of foreign firms is very limited.

procurement process for its PPI projects especially regarding the effective capacity of its institutions which organize **bidding processes**<sup>13</sup>.

### Further information

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13 There is a too limited competition in tenders and a too high number of unsolicited proposals.

# N4 Toll Road from South Africa to Mozambique

## WHY READ THIS CASE STUDY?

- A Represents an example of a successful PPP toll road implementation in the African context.
- B The project stems out of a political will for economic cooperation between neighbouring countries South Africa and Mozambique but which also has wider ramifications for other regional SADC countries.
- C Recognition by African countries to promote self-reliance in view of enhancing economic development via a major transportation project.
- D BOT project where no Government subsidies were involved.

## Background

The rehabilitation of the N4 toll road forms part of the Maputo Development Corridor (MDC) project, between Johannesburg and Maputo, which also includes other modes of transport. Projects such as the MDC are seen in a larger context of a Spatial Development Initiative (SDI) by the South African government to promote development where export-oriented economic potential exists and with the assistance of the private sector.

South Africa has an important experience in PPP<sup>14</sup> projects, involving about 300 such projects on the national and provincial levels since 1994. The South African National Treasury, the body that deals with PPP projects, developed a PPP Manual to guide projects of this nature. The manual defines a PPP to be a contract between a public sector institution and a private party, in which the private party assumes substantial financial, technical and operational risk in the design, financing, building and operation of a project. The guidelines discuss various procurement possibilities varying between public procurement and full privatisation. The South African National Roads Agency already began tolling part of the major national roads in the mid 1990s and developed concessionary structures to overcome budgetary constraints. However, the N4 project linking the economic heartland of the country (Gauteng Province) to Maputo port is the first major PPP project implemented, although other PPP road projects followed, such as the N3 between Johannesburg and Durban.

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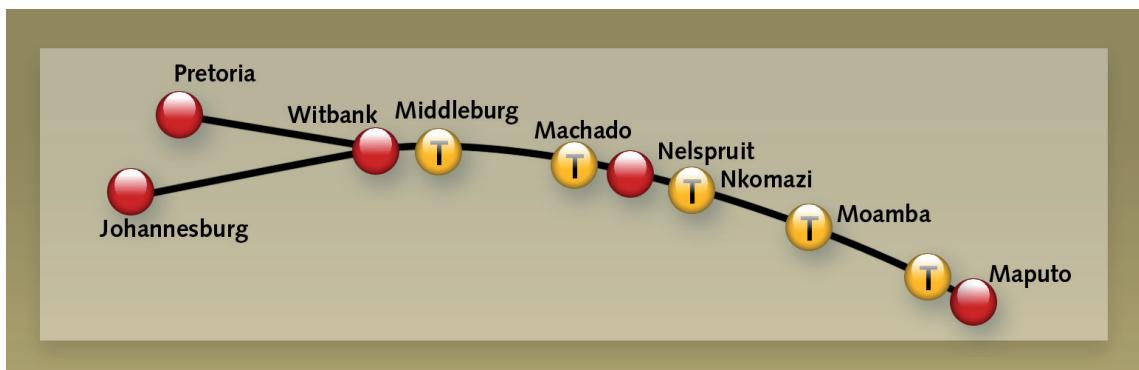
## Project Overview and Description

### Extent of the toll road

Initially the project involved the upgrading and rehabilitation of 390km of existing road between Balmoral (20km west of Witbank) and Moamba (proximity of RSA/Mozambique border) and a further 50km long road between Moamba and Maputo. The project was later extended to include the N4 road sections between Witbank and Pretoria, a total of 630km.

The road is partly 4-lane separated carriageways and partly 2-lanes with widening to accommodate large hauling vehicles.

A one-stop border facility was developed at Komatiport/ Ressano Garcia in order to reduce cross-border bottlenecks between the two countries.



DISTANCES				
	Witbank	Nelspruit	Komatipoort	
Maputo	450	221	92	

### Duration and features of the concession

The original agreement stipulated a 30 year concession period beginning in 1997. This period was maintained although in 2004 the contract was amended to extend the concessionaire's responsibility over the N4 road section between Witbank and Pretoria. The concessionaire now manages 630km of toll road, the majority of which is in South Africa and only about 50km in Mozambique. The cost of the initial contract was about 3 billion ZAR (South African Rand) - about 660 million USD in 1996 value over 30 years of which 1.5 billion Rand to be allocated in the first three and a half years.

The concession was awarded to the Trans African Concessions (TRAC) consortium. TRAC is responsible for the financing, design, construction, rehabilitation, operation and

maintenance of the toll road. Financing for the project was split between 20% **equity<sup>15</sup>** and 80% debt. The governments of South Africa and Mozambique jointly and severely guarantee the debt of TRAC and to a certain extent the equity. The concession contract was signed with South African National Roads Agency (SANRAL) and the Mozambique Roads Agency (ANE) and ends in 2027, after which the road reverts back to the governments.

For toll pricing purposes, four types of vehicles were considered (light, medium heavy, large heavy and extra heavy). Tolls are collected at six main line toll plazas and at two ramp plazas. However, only two toll plazas are located in Mozambique, implying that the project is by and large supported by toll revenues collected along the South African road stretches and that South African road users subsidise Mozambican users of the entire toll road.

The concession was initially based on 0.20 Rand per km for a light vehicle and 0.50 Rand/km for heavy vehicles. Nonetheless, a discount system was introduced for commuters and local users. Since then toll rates have increased but the agreement stipulates that toll tariffs can only be increased annually in line with consumer prices. In practice, increases varied between South Africa and Mozambique, due to the exchange rate fluctuation between the South African Rand and the Mozambique Metical.

## Experience during various phases of the project to date

### Traffic

Traffic volumes, which greatly depend on the trade and economic growth in South Africa and Mozambique, were less than the financers expected, but the concessionaires felt that the traffic growth is acceptable at rates between 5% and 7% per annum<sup>16</sup>.

### Issue of overloading

Although one of the major concerns of the concessionaire was the potential damage caused by overloading, the concession agreement did not specify regulations of truck loads. In order to overcome this problem, the concessionaire began assisting both governments in establishing axle load control measures. The project which is operational since 2002 consists of a set of six traffic control centres, adequately equipped with measuring equipment to weigh axle loads. These are complemented by mobile units that are dispatched to pre-defined lay-by areas in the surrounding, where weigh bridges are

15 The construction companies (Stocks & Stocks, Bouygues, Basil Read) provided 331 million Rand worth of equity and the remainder of the capital was provided by investors such as SA Infrastructure Fund, Rand Merchant Bank Asset Management. The debt part was financed by four major banks of the country as well as other bodies.

16 For example, in December 2006 it was estimated that traffic flows ranged between 15000 vpd (closer to Mozambique) and 30000 vpd (near Middeleberg toll plaza).

installed and by weigh-in-motion equipment at certain points, which serve to identify possible overloaded trucks. Since 2007, a sophisticated overload control center operates east of Pretoria on 24-hour basis / 7-days a week, enabling vehicle testing and electronic tagging facilities. Between 2001 and 2004, it was noticed that overloaded vehicles fell from 23% to 9%.

When a truck is found to be overloaded, it is placed in a holding yard where the load needs to be rectified, for example, either by redistributing the load more evenly over the axles or by downloading part of the load to be carried by another vehicle to be dispatched by the owner.

## Conclusions and lessons learned

This particular PPP project is an example of a successful implementation of a toll road project which involves the cooperation of two neighbouring countries of southern Africa. The implementation of the project stemmed out of the political will of the two countries to build cross-border economic relations after years of unfavourable political conditions in both countries that hampered such relationships.

This project came into being in spite of the imbalance between the two partners South Africa and Mozambique, regarding various aspects related to such a project. For example, the economy of South Africa is much stronger compared to that of Mozambique, most of the route is across South African territory, and most fees were likely to be contributed by road users along the South African sections of the road.

The risk associated with the financing of the project was borne entirely by the TRAC consortium (no government subsidies were allocated), although the two governments guarantee the debt.

The entire toll road was rehabilitated and reconstructed to appropriate standards, including both dual and single carriageway road sections. This is believed to be in line with forecast traffic flows.

Although the details relating to the setting-up and implementation of the PPP per se constitutes the main reasons for its success, other parameters related to the general context and environment of the project are also believed to contribute to these results. Among such parameters one could mention the following:

- South Africa already had some experience with toll projects prior to embarking on the N4 PPP project and in general a very good and established road network country-wide.
- The east-west corridor between Pretoria/ Johannesburg area and Maputo existed prior to the PPP project as an established route. The PPP toll project contributed to its strengthening.
- Related to the above, the Gauteng province is the major trade generator of the South African economy and Maputo region is similar in Mozambique. The port of Maputo is an alternative to Durban as a gateway to the Indian Ocean for South African trade.

- The N4 between Pretoria and Maputo can be considered to be the eastern part of a much longer east-west corridor which includes the N4 west of Pretoria (Magalies toll route) and which continues up to Lobatse border between South Africa and Botswana (about 330km). From there, the Trans Kalahari route crossed Botswana to Mamuno at Botswana/ Namibia border (about 770km long). The route continues along 320km between Mamuno and Windhoek, the Namibian capital, and a further 160km brings the route to Walvis Bay on the Atlantic Ocean. In this context, the N4 toll road constitutes the eastern part of the southern Africa east-west road corridor of about 2100km (in relation to Pretoria), a route that crosses four SADC countries (Mozambique, South Africa, Botswana and Namibia) and connects their respective capitals, while providing a inland route corridor between the Indian and the Atlantic Oceans.

Among the problems encountered with the implementation of this project:

- Complaints by commuters and other normal users, to the effect that a road that was previously free of charge becomes a toll road after upgrading. This subject was addressed by introducing much lower toll fees for these categories of road users.
- Potentially higher than expected damage due to over-loading of trucks. This subject was addressed via the implementation of an efficient axle load control system along the corridor.

Some criticism levelled by the general public to the South African government regarding the massive investment in such a transport project included the fact that the project is likely to benefit big business and not much the poor. The governments of both countries indicated that mega projects such as Mozal Aluminum smelter near Maputo or the Pende gas extraction project are likely to benefit the economies of both countries and that in return is going to benefit the citizens.

# Performance Based Contracts (PBC) in Serbia

## WHY READ THIS CASE STUDY?

- Ⓐ Rehabilitation and maintenance project financed primarily by international organizations but managed by the recipient country, in this case Public Enterprise Roads of Serbia (PERS).
- Ⓑ Particular features included in the contracts, such as, winter maintenance characteristics, safety and environmental issues.
- Ⓒ Monitoring the work as sofar shown satisfactory results.

## Background

In 2004 the International development Association (IDA) allocated credit amounts to the Republic of Serbia (then Serbia and Montenegro) for institutional capacity strengthening of PERS and for enhancement of road rehabilitation and maintenance, project known as the Transport Rehabilitation Project (TRP).

The World Bank project included the implementation of two pilot contracts involving routine maintenance of about 1200km of road in Mačva and Kolubara district, for 3 years. The rehabilitation part included ten road sections totalling about 240km.

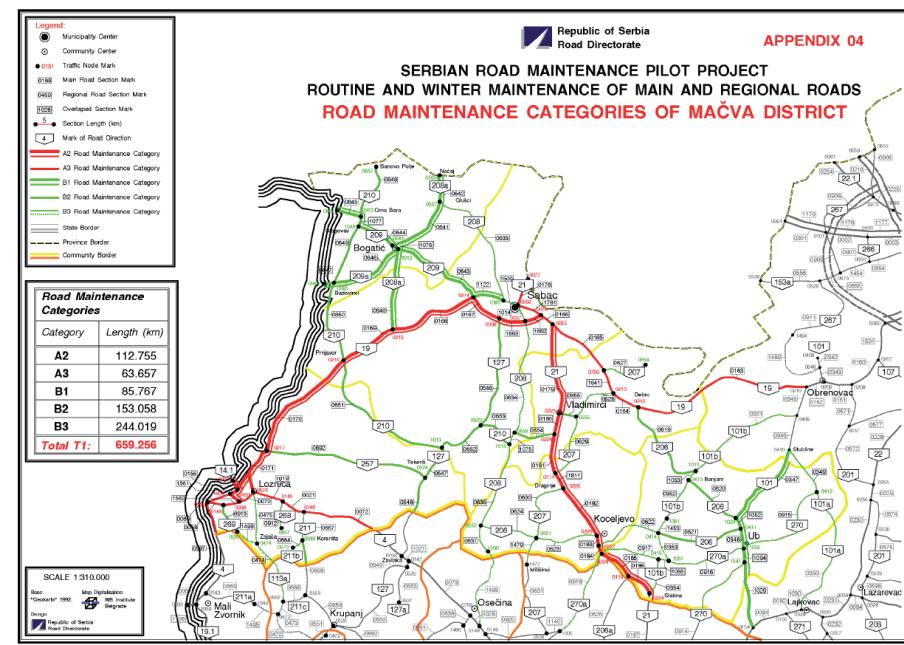
Later the Swedish International Development Association (SIDA) donated an additional amount for consulting services related to winter maintenance, road safety and environmental protection issues.

The TRP was to be implemented over the four year period 2004 – 2008.

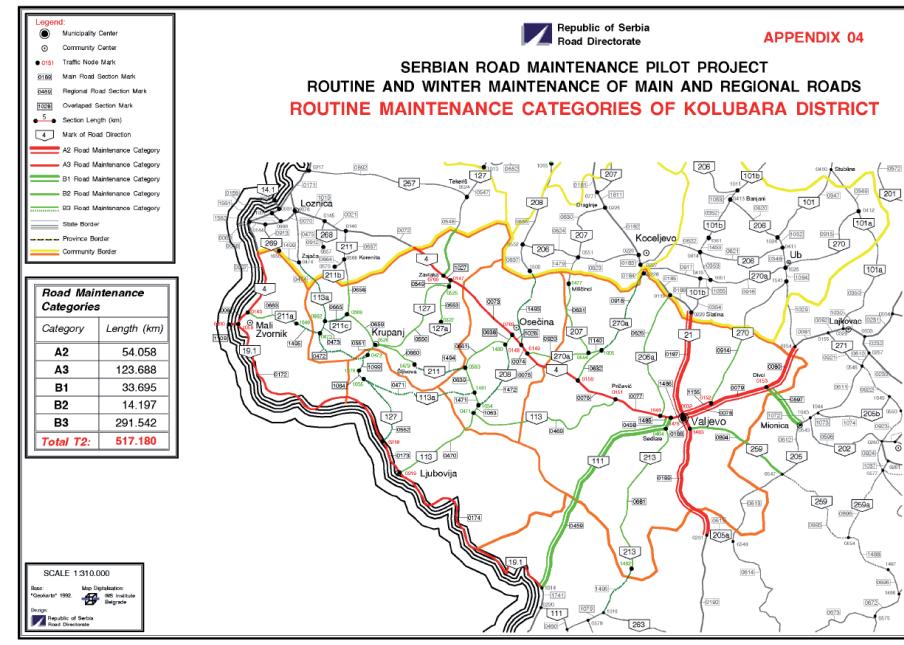
## Project Description

The location of the pilot projects are illustrated in the following figures (Source: Routine and Winter Road Maintenance in Mačva and Kolubara Districts - Output and Performance based Road Contracts (OPRC) - presentation of 3 October 2006. The Highway Institute).

## MAČVA DISTRICT



## KOLUBARA DISTRICT



Details on the routine maintenance contracts are summarised below:

Item	Mačva district	Kolubara district
Contract ID number	WBC/RMC/2003-1	WBC/RMC/2003-2
Scope	Routine maintenance works involving about 660 km of main and regional road network. The duties include administrative ones, routine road maintenance, routine bridge maintenance and winter road maintenance.	Routine maintenance works involving about 517 km of main and regional road network. The duties include administrative ones, routine road maintenance, routine bridge maintenance and winter road maintenance.
Cost estimate	5.9 million USD	5.8 million USD
Contract period	4 years (2004 – 2008)	4 years (2004 – 2008)
Contractor	Alpine Mayreder Bau GMBH	PZP Beograd

In 2007, the total estimated cost for the performance based road maintenance was amended to 14.6 million USD, of which 13.1 million USD IBRD loan and the remainder government financing. The project will finance extending the ongoing PBC for 3 more years to include more routine maintenance activities, as an output rather than input basis.

Initially the rehabilitation part included ten road sections, as follows:

Road	Section	Length (km)	Contract ID number
M-23	Kragujevac - Ravn Gaj	10.3	WBC/RRC/2005-01
M-23.1	Ravn Gaj - Kraljevo	33.9	WBC/RRC/2005-02
M-19	Šabac - Zminjak	20.9	WBC/RRC/2005-03
M-19	Prnjavor - Loznica	18.8	WBC/RRC/2005-04
M-21	Šabac - Koceljeva	34.0	WBC/RRC/2005-05
M-21	Koceljeva - Valjevo	27.8	WBC/RRC/2005-06
M-4	Loznica - Zavlaka	25.6	WBC/RRC/2006-02
M-4	Zavlaka - Pričevići	31.7	WBC/RRC/2006-03
M-4	Pričevići - Valjevo	12.4	WBC/RRC/2006-04
M-4	Valjevo - Ćelije	20.9	WBC/RRC/2006-01

In addition, consulting services were sought for the supervision of works and environmental monitoring. The cost for this component was 1.6 million USD awarded to the Highway Institute (Institut Za puteve a.d.), Belgrade, Serbia.

The total cost of the TRP was estimated at 61.3 million USD, of which 55 million USD were financed by the World Bank and 6.3 million USD by PERS. The rehabilitation works consumed most of the budget. In 2007 the total rehabilitation component was estimated to cost 36.2 million USD (of which 32.6 million USD IBRD loan). The project will finance approximately an additional 100km of roads, over and above the one listed above, as follows:

M25	Prokuplje – Mala Plana	8.3km
M3	Odzaci – Kula	23.5km

M23	Medjuluzje – Krevac	10.4km
M4	Krcevac – Topola	2.6km
M5	Marcovica – Ovcar Banja	11.0km
M7	Kac – Za Zabalj	13.3km
R100	Kruzni Put – Grocka – Smederevo	31.9km

## Particular characteristics of the PBC

The road maintenance contracts were set-up according to an organised system which details the roles of the different role players, the works to be done and the associated monitoring of performance.

The consultant in charge of the works supervision and monitoring has an important role to play, as the liaison between the government and the contractors.

The consultant was assigned duties related to:

- routine road maintenance supervision
- bridge maintenance supervision
- preparation of road databases
- carrying out joint inspections with the contractors
- inspection and analysis reports.

Particular features include:

### i. Environmental monitoring

Environmental monitoring entails the control using a check-list to sample, measure and report on pollution related matters, e.g. disposal of waste material, removal of wild deposit sites within the road reserve, adequate handling of fuel and lubricants, noise and vibrations during working hours, workers' safety.

### ii. Winter road maintenance

Road maintenance works were classified by road classification (e.g. main highways with traffic above 6000 vpd, regional roads with traffic ranging between 3000 and 6000 vpd and so forth down to roads of below 500 vpd).

Two basic winter service standards were determined: a snow-free and skid-free standard (applied to the highest category of road A) and snow covered roads (applied to a lower category - B roads).

Preconditions for winter road maintenance, includes:

- the existence of a winter service plan
- timely provision of machinery, equipment and materials for road maintenance
- posting of winter traffic signs

- operation of a road winter information system (RWIS), which includes a network of meteorological stations positioned along main routes.

### iii. Use of penalties (demerit points)

In case the maintenance standards were found to be below those stipulated, a penalty of points system is applied, according to which a number of points are equivalent to a monetary value:

Range of points	Penalty value of 1 point in dinars	Penalty value of 1 point in USD equivalent
1 to 50	20,000	385
51 to 75	50,000	960
76 to 125	100,000	1,920
126 to 175	120,000	2,310
176 to 200	150,000	2,880
Above 200	200,000	3,840

Associated terms were determined which allow the employer to terminate the contract, e.g. if in the first year the contractor accumulates over 100 demerit points, if in the second year the contractor accumulates over 160 demerit points, etc.

### iv. Traffic safety aspects

A road safety improvement component was introduced to support road safety improvement activities, including actual elimination of dangerous spots and road safety audits along the rehabilitated and maintained road sections in order to reduce and monitor accident trends. The estimated cost for this component was 2.1 million USD (of which 1.8 million USD IBRD loan).

## Experience during various phases of the project

### Rehabilitation works

Works are carried out within the existing right-of-way, avoiding any encroachments into potentially environmentally or cultural protected areas.

### Interviews of drivers

Drivers were interviewed to express their views on the ongoing maintenance and road safety issues. The responses were not conclusive, as some drivers were satisfied with some items of the maintenance, while others complained about other items, such as, lack of shoulders, safety barriers or parking areas.

## Control supervision by Consultants

Joint inspections by the supervision consultants and the maintenance contractors, the summaries of which were done using predetermined verification reporting formats, e.g. for road and bridge maintenance works, lead to unambiguous quantification of the works carried out. Results can therefore be measured and if need be, demerit points applied if works do not comply with the predetermined standards.

## Conclusions and lessons learned

Setting up a PBC system, whereby the responsibilities of the contractors are clearly identified and controlled by specially appointed consultants, are likely to yield satisfactory results.

During the ongoing contract period improvements were noticed, notably with respect to:

- road conditions compared with the period prior to the maintenance contracts
- reduction in materials used for road maintenance purposes
- reduction of costs and material for winter maintenance
- cost savings for items contracted in accordance with performance based principles.

## Further information



Routine and Winter Road Maintenance in Mačva and Kolubara Districts - Output and Performance based Road Contracts (OPRC) - presentation of 3 October 2006. The Highway Institute  
[http://www.putevi-srbije.co.yu/pdf/1/Nenad\\_Djordjevic\\_Highway\\_Inst\\_Pilot\\_Project\\_Consulting\\_Services\\_for\\_supervision\\_of\\_works.ppt](http://www.putevi-srbije.co.yu/pdf/1/Nenad_Djordjevic_Highway_Inst_Pilot_Project_Consulting_Services_for_supervision_of_works.ppt)



Project information document (PID) appraisal stage. IBRD. Report No. AB3014. June 2007.  
[http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2007/04/18/000104615\\_20070418170437/Original/Project0Info3Doc4Appraisal4March30.doc](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2007/04/18/000104615_20070418170437/Original/Project0Info3Doc4Appraisal4March30.doc)

# M6 Toll, United Kingdom

## WHY READ THIS CASE STUDY?

- Ⓐ It is the first and only highway/motorway project under tolls within the UK PPP program (Except for major bridges).
- Ⓑ There was a major delay in implementation due to public objections both to the road and to the charging of tolls.
- Ⓒ The project was subsequently refinanced after opening, with overall financial benefits shared between government and concessionaire on non-contractual basis i.e. the contract did not include sharing of benefits.
- Ⓓ Related to point 3, it is now good practice that all recent PPP projects worldwide have contractual agreements that include benefits to be shared by the public sector in any proposed refinancing, 'windfall' profits and renegotiations.
- Ⓔ There were environmental mitigation measures.
- Ⓕ There is an electronic charging system and variable tariffs by time of day.
- Ⓖ Actual traffic did not meet the original traffic forecasts and especially relating to heavy vehicles, but refinancing was achieved satisfactorily.

## Background

The M6 through the West Midland conurbation is a very major UK transport artery with serving, local, regional, national and even international traffic. It is/was one of the most congested motorways in Western Europe.

Prior to the opening of the new toll road, the M6 through the east side of the West Midlands carried up to 160,000 vehicles a day - it was built to accommodate just 72,000. The average speed between junctions 4 and 11 of the M6 (the section bypassed by the M6 Toll) was approximately 17mph (27 km/h), producing rush-hour journey times of up to 79 minutes.

A new road to the west of Birmingham had been proposed for many years and severe congestion was causing high vehicle operating costs to users and regional economic development constraints. Lacking the public funding to develop the roadway, the Government in 1991 decided the M6 Toll road would be a privately funded venture through a public-private partnership and a design-build-operate-maintain-finance concession arrangement.

The M6 Toll Road was built eventually in 2003 as a privately financed and operated six lane motorway that bypasses the busiest section of the existing M6. It is 27 miles (43 km) in length and has eight entry and/or exit junctions, and six toll stations and is the first tolled motorway scheme in the UK.

## Project Objectives

- To ease chronic traffic problems in the West Midlands.
- To bypass the most congested parts of the M6, which serves the second most important urban conurbation in the UK, after London.
- To support regional/national economic development

## How it Works

### *Charges:*

Tolls vary by classification of vehicle, time of day, and which toll station(s) passed on the journey and can be paid by cash, credit cards, or electronic toll collection (ETC) transponder.

CURRENT (2008) PRICES AT MAIN TOLL PLAZAS				
	Day (06:00 - 23:00) UK£	Night (23:00 - 06:00) UK£	Day (06:00 - 23:00) USD *	Night (23:00 - 06:00) USD *
Class 1 (e.g. motorbike)	£2.50	£1.50	USD 5.00	USD 3.00
Class 2 (e.g. car)	£4.50	£3.50	USD 9.00	USD 7.00
Class 3 (e.g. car & trailer)	£8.00	£7.50	USD 16.00	USD 15.00
Class 4 (e.g. van/coach)	£9.00	£8.00	USD 18.00	USD 16.00
Class 5 (e.g. HGV)	£9.00	£8.00	USD 18.00	USD 16.00

\* USD included for comparison purposes at UK£1.00=USD 2.00

Tolls are quite expensive and truck operators and some car users, who are potential customers, have exhibited, so far, an unwillingness to pay. Most of the longer distance traffic continues to use the existing, congested road to the east side of the conurbation and it is probable that shorter distance traffic avoids both routes if it can. The recent substantial increases in fuel prices may have an impact on usage.

## Technology

As drivers approach a toll station on the motorway they are filtered into specific toll lanes. These toll lanes contain clear signs above the toll booths as to which form of payment will be accepted.

Payment can be made at a manned booth by credit card, debit card and cash; or at an automatic booth, using credit or debit cards, or coins only (no change given).

Drivers can also pay in advance of their journey using the electronic toll collection (ETC) system whereby an electronic tag is attached to drivers' windscreens, which includes a microchip that is automatically read at each toll booth.

This entitles drivers to go through the ETC lane which does not involve any stopping but speed is reduced both by speed restriction limits within the toll booth area and by rumble strips (low speed humps) on approaches to the toll booths.

To use ETC, the driver sets up an account with the private company operating M6 Toll. This system works in the same way as a top-up mobile phone - the driver 'tops-up' their account with money including by phone.

## Enforcement

Self-enforcing. Drivers cannot use the toll road unless they pay.

## Partnership Basis

This highway is the UK's first privately funded tolled motorway even though the government had introduced its Private Financing Initiative in the early 1990s. A 53-year DBFO concession contract was originally awarded in 1992. However, local opposition and legal delaying tactics meant that the PPP process did not restart until 2000 and the road opened to traffic in 2003. The concession ends in 2054.

The PPP partners include:

- ① Public Sponsor: Highways Agency (HA).
- ② Private Concessionaire: Midland Expressway Ltd (MEL) which consists of the following two partners: Macquarie Infrastructure Group (75%) and Autostrade (25%)

Supporting the initial development/concessionaire were the following functional bodies:

- ① Technical Advisor: Jacobs Babtie
- ② Construction Joint-Venture: CAMBBA Construction Group, Carillion, Alfred McAlpine, Balfour Beatty, Amec
- ③ Toll Operations: Ascom
- ④ Financiers: Banque Indosuez (lead), National Westminster, Barclays de Zoete Wedd
- ⑤ Other Private Advisors: Dresdner Kleinwort Benson, Ashurst Morris Crisp, Berwin Leighton

NB The above information from internet sources and assumed correct

## PPP Issues and Strategies

### Delay

There was substantial public opposition to the project as it was the **first toll road**<sup>17</sup> and the UK government had funded all previous major roads through either public procurement or PPP arrangements that were based on shadow tolls and availability payments and not tolls. Opposition was based on both the concept of user tolls and the negative impact of the construction of new roads/major roads in general.

As part of the environmental mitigation the M6 Toll uses a noise reducing asphalt that significantly reduces the environmental impact of the highway on adjacent neighbourhoods and provides a more comfortable journey for patrons of the toll road.

Under the terms of the agreement, the concessionaire bore the entire risks for the project except for design standard changes. This included planning, delivery, cost, quality, revenue, and some statutory risks.

Highway standards changed over the eight years delay and affected the cost of the project. These risks had been allocated to the HA, which subsequently bore these costs, since the changes were generated by the HA.

Once the public opposition to the project was overcome, most other risks were allocated and managed by the concessionaire, led by Macquarie Infrastructure Group (MIG), which owns 100 percent of Midland Expressway Ltd.

The successful management of these many risks may be attributed to the following features of the concession arrangement:

- The technical capability and experience of the concessionaire;
- The long-term commitment of the concessionaire to the project;
- Delegating technical quality approval authority to the concessionaire, which allowed for timely structural inspections and approvals and enabled the design-build program to proceed on schedule;
- An integrated contract that included delivery of the tolling systems under the main DBFO contract;
- The strong positive partnering relationship that was established and maintained throughout the project between the concessionaire and the project sponsor, the Highways Agency.

<sup>17</sup> Except major bridges and tunnels including the Severn bridges, the Humber bridge, QEII Bridge (London), Mersey Tunnel, Dartford Tunnel and a number of major bridges in Scotland. A recent change in the political Administration in Scotland has led to the revocation of tolls on all major bridges in Scotland due to their general unpopularity.

## Revenue

- The Concession agreement provides for the private company, Midland Expressway Limited, to carry out the design, construction, financing, operation and maintenance of the M6 Toll at their own cost and risk, without recourse to government funds or Government Guarantees.
- No figures have been released on annual revenue.

## Benefits/Results

- Traffic flows have improved as have journey time savings and reliability.
- A Trafficmaster survey estimates that using the new M6 Toll has reduced some journey times by up to 45 minutes.
- Diversion of car traffic to the M6 Toll resulted in freight hauliers benefiting because of lower levels of congestion on the existing M6.
- However, the use of new road by heavy vehicles, so far, is very limited.
- The impact on other roads in the conurbation is more mixed with overall traffic level in the M6 corridor having increased.
- In addition to the beneficiaries on the existing M6, the other main beneficiaries of the M6 Toll are car travellers who divert to the new road, with a high willingness and ability to pay.
- Introduction of new tolled road facilities has caused substantial changes to route choice and departure time choice. These vary by day of week and season of year.

The project has been open for over four years with the first two annual monitoring reports available. Car volumes are more or less as expected, but truck volumes are much lower than forecast. In late May 2008, the Government granted MIG, as the sole owner of the M6 Toll concession, permission to refinance the project by restructuring its USD 1.1 billion in debt so that the debt service on the project better matches the cash flow expected from the project over the 54 years of the concession.

This has enabled MIG to take out early profits from its investment in the project. The refinancing is expected to provide MIG with significant gains, amounting to about UK£350 (about USD 700 million). Unlike most other PPP projects sponsored by the Government, MIG it is not legally required to share the gains derived from refinancing with the project's public sponsor, the Highways Agency.

This is because in earlier UK contracts, the thinking was that as the concessionaire assumed most of the risks for this project as a toll road, instead of a shadow toll road or availability payments which is the way all other PPP projects in UK have been financed, it should reap all the benefits of refinancing. This is no longer regarded as good practice and most PPP contracts worldwide are expected to include sharing of benefits in some way.

Therefore, even though not legally obligated, MIG agreed to reinvest 30 percent of its refinancing gains to fund several neighboring public projects of great interest to the Highways Agency. These include a toll-free extension of M54 to the M6 Tollway plus

expansion of an interchange at the southern end of the M6 Tollway. Both projects will improve accessibility to the facility.

This has been represented as a win-win solution for both public sponsor and private provider in the PPP, whereby the Highways Agency gets several priority projects built without cost to the public, while MIG receives the benefits of increased traffic volumes and toll revenues on its toll road as a result of the improved accessibility to other portions of the region's highway network, 70 percent of the proceeds from the debt restructuring, and a more positive public image for its contribution to the area's highway infrastructure.

MIG also agreed to operate and maintain these additional facilities during the concession period.

A request to the Highway Agency for the concession agreement was not responded to.

It should also be noted that in 2008, the Scottish parliament removed payment of tolls from all toll bridges in Scotland, making them free and with the administration paying off the debts outstanding.

## Conclusions

As the first toll road in England to charge motorists a direct charge for using a highway, the M6 Toll represents a move to use different financing arrangements to the traditional UK shadow/availability tolling approach in order to (i) augment the insufficient funding resources for highway development and (ii) to minimize the project risk to the sponsoring Highways Agency.

While traffic continues to gradually grow but truck traffic continues to lag expectations, there was discussion about extending the M6 Tollway 50 miles north towards Manchester for a total cost of USD 6.5 billion (£3.25 billion).

However, several factors caused the proposal to be abandoned in late July 2006, including:

- High cost of right-of-way needed for the project;
- Significant local opposition to tolling along the proposed corridor; and
- Lack of private partner interest in the project given the early performance of the existing M6 Toll and
- The perceived risks of advancing such an expensive project in the face of local opposition.

Without a private concessionaire willing to tackle the project, the Government has elected to increase the capacity of the existing M6 expressway from 6 lanes to eight lanes, thereby reducing significantly the cost and land needed for the project.

The main drawback of returning to the traditional approach to highway development is that the new capacity will not be available until 2017 at the earliest, assuming the Treasury has the funds to widen the road, which is not assured.

## Other Aspects

The Government has agreed that before any decisions about whether to proceed with more tolled motorways are taken there is a need to provide more detailed information and to assess a full range of potential social, economic and environmental impacts, and the scope for minimising any adverse impacts, as well as maximising the benefits.

A multi-agency steering group looking at the impact of the M6 Toll has commissioned a '12 months after study'. This will cover traffic flows and journey times on the M6 Toll as well as safety issues for the M6 Toll and the wider area network.

The group has also commissioned a report looking at the environmental impacts of the new motorway. Land use and regeneration have longer term effects and thus will be the subject of a longer term study.

## Further information



Commission for Integrated Transport (CfIT), 1/F16, Ashdown House, 123 Victoria Street, London SW1E 6DE  
E-mail: [cfit@dft.gsi.gov.uk](mailto:cfit@dft.gsi.gov.uk): Road Charging Scheme: Europe - UK, M6 Motorway Toll Road (M6T) Europe - UK.



AECOM CONSULT, an affiliate of DMJM HARRIS: 2007.  
Case Studies of Transportation Public-Private Partnerships around the World.:  
[http://www.fhwa.dot.gov/PPP/int\\_ppp\\_case\\_studies\\_final\\_report\\_7-7-07.pdf](http://www.fhwa.dot.gov/PPP/int_ppp_case_studies_final_report_7-7-07.pdf))



Concessionaire Website: M6 Motorway Toll Road: [www.m6toll.co.uk](http://www.m6toll.co.uk).

# Country case study: United States

## WHY READ THIS CASE STUDY?

- A** Although the private sector has always played a large part in the provision of public infrastructure in the USA (especially in the water and waste sector), the private participation has been rather slow to develop in transportation, in comparison with other countries. However, because of the increase in demand for highways and the lack of state funding, various PPP (Public-Private Partnership) methods have been recently developed.
- B** The Federal funding regulatory framework began to change in 1991 and is now more encouraging for private sector involvement using innovative highway financing. The use of federal funding has now allowed non-interstate toll roads, state infrastructure banks to be established, Design and Build contracts for highways to be developed and federal loans/guarantees to be offered to cover a part of PPP projects costs. Moreover, in 2005, USD 15 billion in tax-exempt private activity bonds were introduced by the Federal Government to encourage PPPs for highways.
- C** Despite this encouraging "PPP" federal legislation, private financing development has been rather slow in the transportation sector. The PPP reform process has recently developed in the different US states, starting in Virginia and California in the 1990's. Since their enactment, these states' PPP legislations have been mainly reviewed in order to adapt their framework on the basis of results achieved.
- D** The US market is now considered to provide a good opportunity for the private sector to invest in transport infrastructure.
- E** Providing better information to, and consulting with, decision makers and the wider public may be needed to encourage greater acceptance of the PPP concept.

## Background

The year 2006 marked the 50<sup>th</sup> anniversary of the interstate highway system in the United States (which represents more than 74,000 km from North to South and from East to West). The system was created under the Federal Aid Highway Act in 1956 which included the establishment of the Highway Trust Fund (HTF) as a key element to build a network of federal aid highways.

This act created special revenue, sourced from the federal gas and motor vehicle user taxes, which aimed to guarantee a self-financing program. This 1956 Act laid down the

principles of the national highway system based on a progressive ("pay as you go") payment.

Unlike most countries, tolls were expressly forbidden on federal-funded roads (although they were allowed on bridges and tunnels). State funding could come from public bond issues (which are tax exempt) and issued either by the state or a specific public authority. Today, more than USD 30 billion is spent on the federal surface transportation system each year.

In 2002, USD 135.9 billion was spent on highways by all levels of governments in the USA: almost 24% by the federal government, 51% by the states and 25% by local governments. Total highway expenditures by all levels of governments increased by 33% between 1997 and 2002, especially for maintenance and operations use (PIARC).

Currently, the highway transportation sector faces a fiscal challenge due to the gap between available funding and the costs of providing and maintaining the infrastructure. High costs have resulted from several causes such as deterioration and obsolescence related to the advanced age of much of this equipment, the increasing movement of freight over the highway system, the rising costs of construction materials in recent years, public opposition to higher fuel taxes and no solution to the lack of state funding.

The traditional Transportation Trust Fund, which was specifically dedicated to provide for the maintenance of highways, no longer provides sufficient resources and prompts the policymakers to think about new financial models like PPPs. The US department of Transportation is now encouraging its state and local counterparts to consider PPPs as an opportunity for national highway development and their preservation program.

## PPPs in Highways

PPPs in transportation have been relatively slow to develop in the United States, when compared to other nations around the world, especially in Asia, Europe and some developed countries in South America.

Putting public-private partnerships into practice can be difficult at state level when existing state laws and policies hinder the formation of these partnerships. Procurement regulations, design-build laws and regulations and state enabling laws impact the relationship between the State's Department of Transportation and a private entity.

In many states, such as California, Washington, Arizona and Minnesota, the first PPP attempts did not provide a good track record for them.

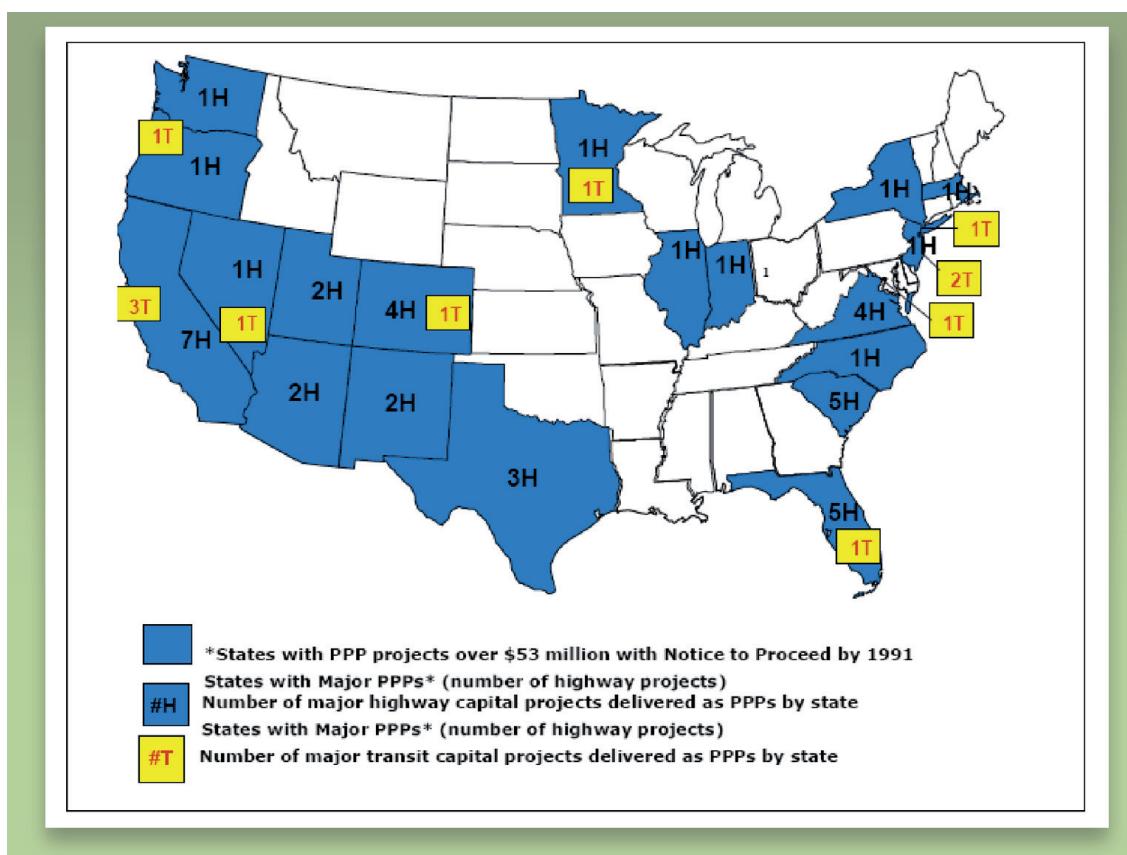
However at the end of the 20<sup>th</sup> century, PPPs for highway improvements were seeing a "rebirth," particularly in some states. As a result of the increased highway demand in the early 1990's, various methods of private sector involvement in highway construction were explored, especially in Virginia and California.

The Federal funding framework began to change with the ISTEA Act of 1991 (Intermodal Surface Transportation Act) which allowed federal funding to be used for non-interstate toll roads, in conjunction with state or private sector funding.

In 1995, the NHS Act (National Highway System Designation) allowed for the creation of State Infrastructure Banks. In 1998 the TIFIA (Transportation Infrastructure Finance and Innovation Act) encouraged the use of private sector financing for major transportation projects (more than USD 100 million): it offers direct federal loans and guarantees that up to 33% of project costs be covered.

A total of 44 highways (for an average cost of USD 53 million and a total amount of USD 22.4 billion) have used a PPP approach since 1991.

Since 1991, several US states have implemented PPPs to deliver major highway or transit projects.



Source: *US PPP case studies (AECOM-2007)*

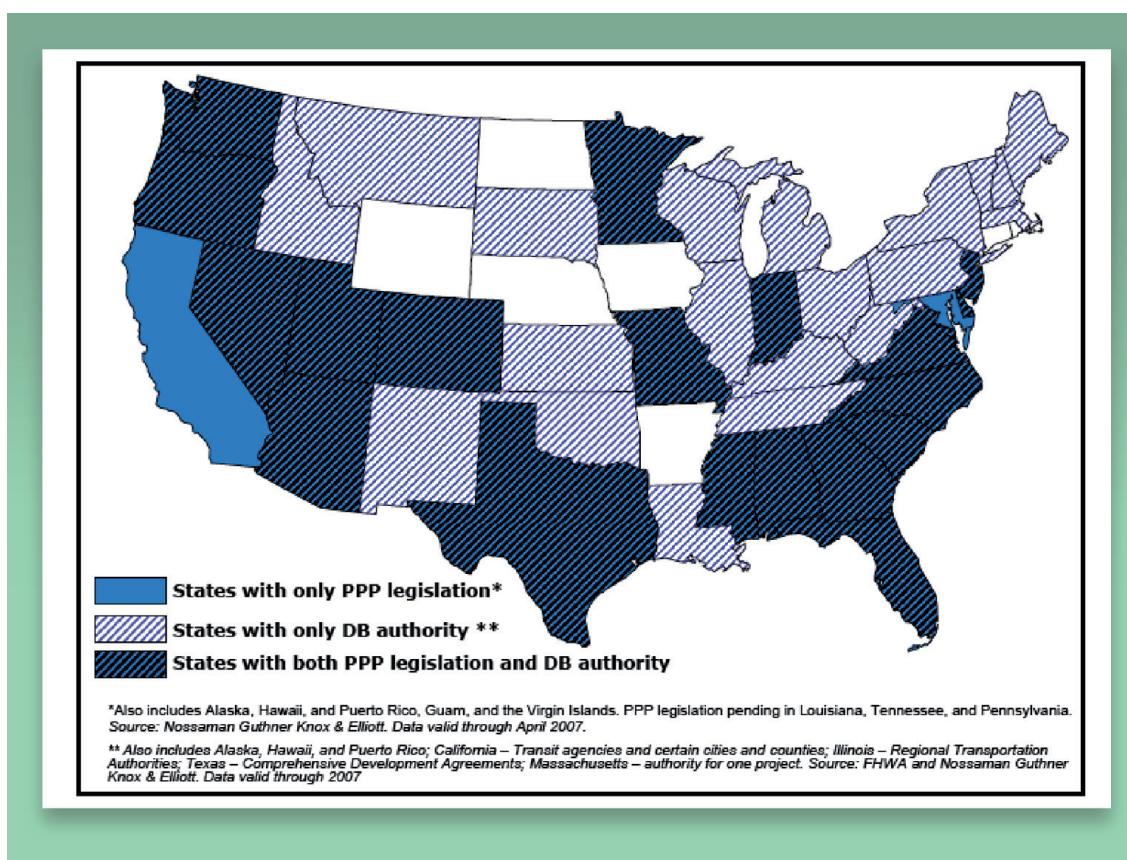
Since 2005, innovations in highway finance have expanded greatly in the United States. The SAFETEA-LU federal law (Safe, Accountable, Flexible, Efficient Transportation Equity Act: Legacy for Users), enacted in 2005, provides opportunities for public funds to be leveraged with private investment for transportation infrastructures projects.

Among the new tools available for public-private partnerships are: USD 15 billion in tax-exempt private activity bonds for highway and surface freight transfer facilities, more authority to use tolling for financing construction of interstate highways and increased flexibility in using design-build (DB) contracting (the norm for a US State Department of Transportation was to have separate design and construction contracts for a highway project but now more than twenty-eight states allow such DB contracts for highways). This Act also reduced the project size limit to USD 50 million.

Recently, the US Ministry of Transport announced a "National Strategy to reduce congestion in America". The continuing growth of congestion in the United States has a negative impact on the economy and the quality of life for all. One of the key elements of this plan encourages the growing interest of private sector capital investors in transportation systems.

Dealing with the same idea of using the leverage of private capital to supplement public funding, two senators (Dodd and Hagel) recently proposed a bill for a National Infrastructure Bank to have a bond-financed federal capital budget for infrastructure such as toll roads. Another draft bill has been prepared by two other senators (Thune and Wyden) in order to issue a USD 50 billion bond "to stimulate public and private investment in transportation infrastructure".

Many US states are currently considering PPP agreements for Brownfield or Greenfield projects, estimated to be over 70 at the end of 2006 according to the Federal Highway Administration PPP website, which also presents a map of the interested states in Highway PPPs in 2006.



Source: *US PPP case studies (AECOM-2007)*

The main types of PPPs used in this country include 70% DB (Design-Build) projects, 11% Concession agreements, 5% DBFO (Design-Build-Finance-Operate) projects and 5% DBF (Design-Build-Finance) projects. Most of the highway PPP projects have been delivered using the DB (Design-Build) and concession approaches.

Many states including Colorado, Iowa, Massachusetts, Michigan, Minnesota, Oregon, South Carolina and Texas have special commissions to identify new revenue sources for investments. In other states, such as Arizona, Nevada, North Carolina, Oklahoma, Washington state and Wyoming, special legislative committees are studying revenue enhancements to supplement existing transportation funds. Most of the infrastructure funds tend to favor investments in toll roads. Around twenty-two states are now considering the use of tolls to support road capacity expansion.

## Examples of the PPP Reform process through summary Case studies (1988 to 2007)

### The Capital Beltway I-495

As part of the Interstate Highway System, the Capital Beltway (I-495) is the busiest corridor servicing commuters in the National Capital Region. Despite the various improvements implemented since opening to traffic in 1964, this major transportation route has exceeded capacity and is in need of significant upgrade and preservation. Given the extent of the demands and the existing financial constraints at all levels of government, it is likely that any sort of expansion to the Beltway will entail utilizing an innovative and efficient method of project delivery.

Virginia and Maryland have been studying methods for improving mobility on the Beltway since the mid-1990s. Recently, Virginia partnered with Fluor-Transurban, Inc. to expand and preserve the existing highway and develop new High Occupancy Toll Lanes on a 14 mile segment of the Beltway.

Under this partnership agreement, Virginia will retain ownership of the new lanes while Fluor-Transurban will design, build, maintain, operate, and finance the project over an 80-year concession period. For its part, Maryland has conducted extensive studies of its 42-miles of I-495 and is exploring similar lane management systems and the idea of partnering with the private sector. However, they continue to study the issue and have no firm plans for adding capacity to the Beltway. While both jurisdictions share responsibility for this 64-mile stretch of roadway, each faces unique challenges in adding capacity and coping with congestion.

At the request of the National Council for Public Private Partnerships (NCPPP), a graduate level research team from The George Washington University Trachtenberg School of Public Policy and Public Administration conducted a study to evaluate the approaches Virginia and Maryland are taking to add capacity to their respective portions of the Capital Beltway (I- 495).

The research team decided it would be beneficial to examine the inter-workings of this agreement and predict its long-term success using NCPPP's six criteria for a successful public-private partnership.

The research team used several methods to conduct the investigation, including reviewing applicable literature and interviewing over a dozen stakeholders, including past and

current government leaders, transportation officials, legal experts, and various other stakeholders.

To achieve the objectives of the report, the team developed the following research questions in consultation with NCPPP:

- ① To what extent and how have Virginia and Fluor-Transurban satisfied NCPPP's six criteria for a successful public-private partnership with their effort to add capacity to the Capital Beltway? What areas do they need to improve on, if any?
- ② What are the key challenges and obstacles Maryland faces for building additional highway lanes on their portion of the Capital Beltway?
- ③ If Maryland decides to pursue widening the Capital Beltway, do the conditions exist for Maryland to use a public-private partnership to finance, build, maintain and operate the additional lanes? If not, what conditions need to exist for a public-private partnership to be a viable option in Maryland?

Across the Potomac River, the team took an in-depth view of where Maryland stands on Beltway improvements and the challenges they face in building additional highway lanes. Since Maryland's plans to improve its portion of the highway are still in development, the team examined whether or not the requisite conditions exist to duplicate Virginia's PPP efforts. In the end, the research team uncovered thirteen key findings:

### ***Key Findings:***

#### *Research Question #1*

- ① Virginia's partnership with Fluor-Transurban satisfies NCPPP's six criteria for a successful public-private partnership and we predict its success.
- ② Since highway PPPs are still in their nascent stages of operation and no projects of this magnitude currently exist in Virginia, it is difficult to facilitate an equivalent comparison.

#### *Research Question #2*

- ① Maryland's highest transportation priority is system preservation.
- ② Given the limited financial resources for current projects, expanding the Capital Beltway is currently cost-prohibitive using traditional financing methods.
- ③ The potential environmental impacts of Beltway expansion and the resulting political opposition may create a contentious environmental approval process.
- ④ There is limited local support for expansion of the Capital Beltway in Maryland.
- ⑤ Montgomery County and Prince George's County have other transportation priorities.
- ⑥ There is a lack of political consensus on how to move forward with expanding capacity on the Capital Beltway.

#### *Research Question #3*

- ① Maryland does not have adequate legislation to pursue public-private partnerships for highway projects.

- ② Maryland does not currently have a political champion for highway related public-private partnerships.
- ③ Maryland's TP3 Guidelines prohibit unsolicited proposals for highway projects.
- ④ Maryland already has a tolling authority (MDTA) to help finance highway projects.
- ⑤ Local opposition to tolling will likely prevent Maryland from pursuing a PPP agreement for the Capital Beltway.

From these key findings emerged the following conclusions and recommendations:

**Conclusion 1:** Virginia has an extensive history of successful public-private partnerships that has enabled them to be a leader in this innovative method of constructing and financing highway projects.

**Conclusion 2:** Maryland does not have the support necessary to widen the Capital Beltway.

**Conclusion 3:** Maryland is not well-suited to enter into a public-partnership for highway projects.

**Recommendation 1:** NCPPP should continue its educational activities across all sectors to enhance knowledge of public-private partnerships and their applicability to transportation projects, specifically the expansion of the Capital Beltway in Maryland.

**Recommendation 2:** NCPPP should continue its relationship with the Trachtenberg School of Public Policy and Public Administration at The George Washington University as a means of furthering research into topics relating to the Beltway and PPPs. Topics recommended for future research include:

- The politics of PPPs: Exploring the roles and positions of the executive and legislative branches in implementing PPP transportation projects
- PPPs and the Maryland General Assembly
- Issues and options pertaining to a comprehensive approach to regional congestion management (e.g. highway expansion, smart growth, transit options, etc.).

The Capital Beltway and Public-Private Partnerships. Prepared for The National Council for Public-Private Partnerships by M. Brown, T. Cronin, S. Lall, J. Lataille, and M. Sacks. December 2007.

### Dulles Greenway, Virginia (1988)

This is one of the first US projects to embody the basic concept of project revenue financing based on enabling legislation, authorizing private development of toll roads. The Greenway is also the first toll road to feature variably priced tolls.

In the late 1980's, the first PPPs were single purpose legislation for particular projects with a limited number of "demonstration" projects. For example, the Dulles Greenway legislation was enacted in 1988 for a single private road using a particular regulatory model (the company was organised as a utility and the tolls and rate of return were decided by the State Corporation Commission. In 1994, Virginia enacted further legislation also based on the public utility model. The Dulles Greenway in Virginia is considered the first

PPP modern toll-road project in the USA, but it ran into financial problems when traffic was below **forecasts<sup>18</sup>** and a major financial restructuring of the project was necessary.

Legislation was revised in 1995 by using a more "market-based" and a more open approach to PPP in transportation. The Virginia Public Private Transportation Act no longer regulates such projects on the utilities model, as was the case with the initial 1988 Greenway project. Significant new features included:

- the tolls and user fee rates were decided on a project-by-project basis.
- there was no regulation by a public utilities body, such as the SCC in the Dulles Greenway case.
- there was no limit of number of projects, as was the case in legislation in other states at that time.
- the act did not limit PPP projects to highways by including all modes of transportation. It also included opportunities for the operation and maintenance of projects, not only capital projects.
- lastly it allowed unsolicited proposals alongside solicited projects.

In 2005, five proposals were submitted to the Virginia state to take over the Dulles Toll Road (a 37 km road between the beltway and Dulles airport near Washington DC). Many offers of more than one billion USD were presented from which a portion of money was to be used to pay the state's portion of a parallel PPP to build the rail extension to Dulles airport.

The concession was sold to new investors, the MWAA (Metropolitan Washington Airports Authority), which submitted a proposal to take over the Dulles Toll Road and the construction of the Dulles Rail project, assuming all responsibilities for both projects.

The track record established by Virginia laid the foundation for other states to take another look at PPP legislation.

### The recent innovative Texas PPP legislation

In 2003, Texas enacted the House Bill 3588 which provided several new tools to assist in delivering transportation projects, especially PPPs.

This Bill, among other things, allows:

- the creation of regional mobility authorities (RMA),
- expansion of the tolling authority of the state,
- comprehensive development agreements (CDA)

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<sup>18</sup> When the Greenway opened to traffic in September 2005, tolls were USD 1.75 each way, but when traffic fell short of projected levels, it was reduced to USD 1.00. This attracted more users but did not increase revenues. So, tolls were increased again in July 1997 and the speed limit was also increased (65 miles per hour) on the facility. Since September 2004, tolls could increase or decrease according to varied peaks.

- flexibility in funding the Trans Texas Corridor.

The RMAs (Regional Mobility Authorities) allow one or several counties to develop a regional approach to transportation needs. RMAs may issue bonds or collect tolls, including converting an existing road section of the state highway system to a toll road with the approval of the Texas Transportation Commission. RMAs can purchase or lease portions of the land for non transportation purposes. They also may use the largest part of its revenues for other transportation projects.

The Texan legislation also provides greater tolling authority. This state may associate toll revenue with State highway funds to build public and private toll roads. Pass-through toll agreements ("shadow" tolls) are also allowed. It means that a local or private entity makes highway improvements using its own funds. It is then reimbursed by the State based on the number of vehicles which use the highway.

The legislation also allows the use of a DB (Design-Build) approach for a highway's construction by CDAs (Comprehensive Development Agreements). A CDA can include project design, construction and financing, land acquisition and highway operation and maintenance. It is defined and requires a popular vote for any conversion from free lanes to tolled ones. It also limits toll franchises to fifty years in most circumstances.

Concessions are forming a large proportion of the Trans Texas Corridor; a new road and rail network, estimated to cost up to USD 180 billion, is probably the world's largest PPP program. Under this Texan Bill, the Trans Texas Corridor is authorized to finance the corridor through bonds and sets funding caps in view of reserving funding for other transportation projects. It means that this authority provides some financial flexibility to construct this corridor without being obliged to sacrifice funds for other highway projects.

In 2005, the state signed such development agreements with private investors relating to TTC-35 which covers 960 km from Dallas Forth Worth to the Mexican border. In 2006, a similar agreement was also reached to build the state's first privately-financed highway, the SR-130 near Austin, at a cost of USD 1.3 billion (for the 78.8 km four lane road extension with toll facilities and major interchanges). It is the largest element of the Central Texas Turnpike program which should cost, in its entirety, USD 3.66 billion. This SR-130 highway has been developed under a Comprehensive Development Agreement (CDA) allowing the work of property acquisition, design and construction to be undertaken simultaneously.

The current Texas Governor said recently that "[he is] convinced that private dollars, administered through public-private partnerships, are a significant part of the answer to [the US] transportation infrastructure challenge"(Annual Meeting of the Texas Transportation Forum, April 22, 2008). But, although several new Texan toll projects are moving forward, a two-year moratorium on PPPs in Texas has also shown the level of opposition to tolling and private sector involvement.

## South Bay Expressway (SR-125) Toll road, San Diego county, California (1991-2007)

This was made possible through an innovative PPP. It was the first TIFIA loan provided to a private toll road development.

The South Bay expressway (formally known as SR 125 South toll road) is a 9.5 km highway alignment which is planned to connect the US-Mexico border in San Diego (the commercial port of entry) to the regional freeway network. After much delay (its planning originated in the late 1950's), it was scheduled to open to traffic in 2007.

It is a four-lane toll road with six interchanges, a major toll plaza and a bridge crossing the Otay river. Its design allows for expansion to additional lanes (three or four) in each direction to meet future traffic increases.

This new toll highway is expected to achieve the following goals: complete a missing link in the San Diego freeway network; reduce traffic congestion and drive time especially in the suburbs of San Diego including the city of Chula Vista; improve regional mobility in the South Bay; and give residents and businesses access to employment centres on both sides of the US-Mexico border.

The concession was awarded in 1991 under the California Assembly Bill 680 to be constructed as a privately financed and operated toll road (under the DBFO, Design-Build-Finance-Operate scheme). It granted the California Transportation Ventures (CTV) consortium a 35-year franchise to operate the facility once it opened to the public, at which time control would transfer to Caltrans at no cost (but the Californian state will not control this toll road until the franchise expires in 2041). But in 2002 and 2003, CTV, which sought to limit their investment, was sold to new investors, the Australian Macquarie Infrastructure Group (MIG), which remains the majority shareholder today. Construction on SR-125 South began in September 2003 and was opened to traffic in 2007.

It cost USD 635 million and had a 35 year concession period: USD 400 million in bank loans, USD 140 in federal loans and the rest as private equity capital from Macquarie. Financing will be mainly repaid through tolls (but rates have not been yet announced) along with a regional tax revenue and federal funds.

Planning a facility for this corridor was adopted by the California Transportation Commission in the early 1960's. But due to lack of funds, it was dropped from the plan in 1976. In 1984, the San Diego Association of Governments (SANDAG) and the region's Metropolitan Planning Organization added it again to the Regional Transportation Plan but without having identifying funds to construct it. In 1988, a new tax was voted to support the "TransNet" transportation projects. It provided funding for the north ending part of SR-125 (San Miguel connector) but not for the **SR-125 South itself<sup>19</sup>**. After having reached an agreement in 1991, this project took nine years just to receive final

19 SANDAG estimated that this public tax would not provide its necessary funding before 2020.

environmental **approval**<sup>20</sup>. This is the reason why the CTV consortium decided to sell its shares to new investors (Macquarie), who subsequently built the facility.

It has to be stated that California was one of the first legislatures (in 1989) to initiate a PPP Act. It specified four privately-financed pilot projects but only two of them (including the SR-125 South toll road) advanced. The others failed due to lack of financial resources (this act did not allow federal money to fund the projects mentioning that tolls should be the main source of revenues for the PPP projects; in this case, the part financed by a federal loan was only accepted as being used to pay the debt service costs, as that was not considered as being direct state funding).

This highway faced some of the most serious difficulties related to any transportation project in the United States. The two main impediments were:

- ① the non availability of project funding which delayed the project for fifty years. The main reason was that the PPP financing model was too strict and allowed little flexibility to adapt it during the follow-up of the project (only public funds were permitted); and
- ② a too long and too costly environmental clearance process (nine years) which was considered afterwards as insufficient risk assessment. This experience suggests that the public sector is in a better position to handle the environmental impact assessment and the land acquisition process.

When the Californian 680 bill was enacted, it was firstly considered as "ground-breaking" legislation which would enable private involvement in the development of a public-use highway infrastructure. Subsequently it was considered as a bad PPP legislative model which should be avoided and was repealed in 2002 for the two main reasons:

- ① it placed all project risks on the private sector and,
- ② precluded the use of public funds for the PPP projects. In 2006, California enacted new legislation enabling four state-sponsored transportation PPPs.

The two main lessons learnt are the following:

- Have more flexible PPP state legislation to propose different PPP models allowing both private and public funding (as it is the case in Virginia and Florida).
- The risks to the private sector partners are significantly reduced when proper due diligence is conducted by the State before tendering for private investment. The public sector should assume responsibility for environmental and other permit clearance, with possible compensation from the winning bidder.

Because of this particular project, it should be noted, that due to public scepticism about PPPs, a recent Californian bill failed to establish an Office of Public-Private Partnerships to promote PPPs among local agencies and to permit the use of public-private partnerships in infrastructure development.

20 Seventeen alignments were assessed which were subject to an intense public review.

## Chicago Skyway, Illinois (2005)

Is the first long-term lease agreement of an existing toll road in the United States. One of the new elements, which has also transformed the PPP market, has been the sale of fixed-term franchises in Brownfield toll roads. Buyers could obtain a franchise (which was in public sector ownership) to operate the road and collect revenues for a fixed term. The private investors pay for continuing maintenance obligations, to be financed by future tolling revenues.

On the public sector side, the purpose is to generate funds for the general public sector budget.

In terms of ownership, contracting and financial structure (although the private sector is not investing in new infrastructure) it is considered as a new PPP facility.

The first franchise sale was realised for the Chicago Skyway by the city of Chicago in 2004. This 99-year concession skyway is an elevated toll road extending 12.8 km from the Indiana State line (I-90 toll road) to the Dan Ryan Expressway (I-94) in South Chicago which had been operating for 50 years by the city of Chicago Department of Streets and Sanitation.

The new entity, the Chicago Skyway LLC is owned by Cintra and Macquarie, two international toll operators who paid the city USD 1.83 billion, and who took full responsibility for operation, maintenance and reconstruction but with the right to all toll and concession revenue (up to USD 2.5 billion until 2008 and up to USD 5.0 billion in 2017). This facility carried approximately 50,000 vehicles per day in 2005. This operation funded a USD 500 million long-term and USD 375 million medium-term reserve for the city of Chicago (with USD 100 million for human and business infrastructure over a five-year period).

## Other State Highway PPP Projects

In March 2006, the Governor of Indiana also signed landmark state legislation authorizing a concession of the 252.6 km **Indiana Toll Road** for the Macquarie-Cintra consortium for 75 years. In exchange, the state will receive a payment of USD 3.8 billion which should be used to finance a program of highway improvement across Indiana (called "Major Moves").

The Indiana Toll road is also a long-term lease agreement which establishes toll rates and possible increases, and places limits on the return on investment for the concessionaire.

This toll road has been in operation since 1956. It provides the main connection to the Chicago skyway and downtown Chicago. It also links the largest cities on the Great Lakes with the Eastern seaboard. It carried approximately 46,000 vehicles per day on its western end and 25,000 vehicles per day in the east.

This toll road was operated by the Indiana Department of Transportation (INDOT) for the first twenty-five years. But in 2005, the Governor asked the Indiana Finance Authority to explore the feasibility of leasing it to a private entity. Four teams submitted proposals in October 2005. The lease concession was awarded to ITR Concession Company (50% Cintra-50% Macquarie) which submitted the highest bid of USD 3.8 billion. This lease

transaction was possible upon authorizing legislation: the "Major Moves" law (House Enrolled Act 1008) was enacted in March 2006 to allow the execution of this concession agreement.

The above noted concession fee will provide funding for the Major Moves program aiming at supporting two hundred transport projects around the state, including the beginning of construction of the I-69 road between Evansville and Indianapolis. The proceeds will also fund projects in the seven toll road counties and provide USD 150 million over a two year period to all the state's ninety-two counties for roads and bridges.

Like Chicago and Indiana, Florida and Pennsylvania are proceeding with plans to lease existing infrastructure assets. A concession bid has been launched for the Pennsylvania Turnpike and the Florida Department of transportation is considering a long-term private concession for the Alligator Alley toll road (I-75).

Care is being taken with such long-term private concessions, such as the Chicago Skyway and the Indiana toll road, as it is not so clear how strong long-term interest will be at state and local level. Public support for such initiatives could vary between jurisdictions, but state and local governments could consider their leasable assets as a considerable source of new revenue. Opposition also exists against diversion of lump sum lease payments for non-transportation projects.

For example, the New Jersey governor has abandoned his plans of "monetizing" the New Jersey Turnpike due to public opposition and lack of legislative support. Instead he has proposed creating a new public agency which would issue bonds backed by higher tolls on New Jersey toll roads.



More information is available on a comparative analysis of states' legislation:  
<http://www.fhwa.dot.gov/PPP/legislation.htm>

## Conclusions and lessons learnt

Although scepticism about PPPs and questions about the proper role of the private sector in infrastructures development persist in the USA, there is a continuing interest in private sector participation in the roadway network of the United States.

It is being actively encouraged at federal and state levels. New PPP arrangements, new legislation and tools are providing public financial resources that can leverage significant private sector resources.

Worldwide experience shows that PPPs can meet that challenge but the need is for all parties to understand PPP relationships that respect the interests of each other while meeting the financial needs of the US surface transportation system. Therefore, the complexity of PPP arrangements should be limited and it is imperative that the risks between the public and private sectors are shared appropriately and fairly. Public control should also be secured to take control for ensuring the continued delivery of services to the community.

To meet these needs, state enabling legislation is a key element in providing opportunities for private participation through PPP. The legislative and regulatory framework must be sufficiently flexible to expedite delivery of a needed transportation project in a cost-effective manner. In fact, almost half the states in the USA now have a legal authority for PPP transportation projects (particularly highway agencies).

Another important element is the political will and the strong involvement from the public sector to encourage the private partners to enter into a relationship for a PPP highway project. Local support is necessary to support the facility.

It can be stated that other states (other than those presented in the case studies) are currently considering opportunities for concession agreements or public-private ventures.

For example, there is a proposal in New Jersey to sell an interest in the New Jersey Turnpike and the Garden State Parkway. There is also a measure under consideration in New York to allow investors to rebuild or replace the Hudson River's Tappan Zee Bridge.

The State of Virginia has also announced that it will lease a toll road outside of Richmond to a private firm for USD 522 million. In 2006, Oregon signed a development agreement with private-sector investors on three toll-road projects.

While some states such as California, Texas, Florida and Pennsylvania have chosen private tolling concessions, others prefer to choose the more traditional way of municipal bond financing, through their departments of transportation or through special public toll authorities.

In conclusion, both the United States and foreign investors are now looking at the emerging US market as an opportunity for investments in infrastructure. An increasing number of private equity funds are willing to invest in public infrastructure assets and tend to favor their long-term investment in toll roads (this should not be affected by the recent credit crisis).

With regards to the US existing transportation infrastructure needs for rehabilitation, modernization and expansion, private capital and toll revenue financing should play a major role in funding future transportation infrastructure.

## Further information



AIPCR PIARC internet dossier ([www.piarc.org](http://www.piarc.org)) "RoutesRoads 2006- N° 332";



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A fresh look at the role of Private Investment in Transportation Infrastructure. Kenneth Orski. 2008.



PPP Case studies by the U.S. Federal Highway Administration  
([http://www.fhwa.dot.gov/PPP/case\\_studies.htm](http://www.fhwa.dot.gov/PPP/case_studies.htm))

# Country case study: Zambia

## WHY READ THIS CASE STUDY?

- A** Most sub-Saharan African countries are struggling to introduce sustainable systems for the maintenance of their road networks. The issue is not just funding. Following the creation of Road Funds, financial resources for maintenance are much more plentiful than they used to be. The main issue is building capacity to actually execute the work and achieve quality results for the money spent. The experience from traditional contracting has been patchy, leading to frustration in Road Agencies and dissatisfaction amongst road users.
- B** Many countries are now experimenting with performance-contracts in an attempt to move responsibility closer to those who are able to make a difference on the ground, i.e contractors and consultants themselves. The motivation is not to save money, but to make sure that money spent has a real and meaningful impact on road conditions.
- C** Experience in Zambia is of interest because of the commitment key players in the road sector have shown in the approach. Over the past 10 years performance-contracts have become the norm for a range of maintenance works.

## The context

The situation in Zambia is typical of many other countries in sub-Saharan Africa who are struggling to maintain extensive road networks from a very limited resource base. The country is large (752 000 km<sup>2</sup>) with a population of around 12 million. Zambia is classed as a Low Income Country with a GNI per capita of USD 630. Total road network is around 90 000 km of which 20 000 km are Trunk, Main and District roads carrying the vast majority of traffic outside urban areas. Only 7 250 km are paved, constructed mostly in the 1960's and 1970's. Many roads are gradually being improved/rehabilitated often with financial assistance from donors and external funding agencies.

Zambia was the first country in the region to adopt a second generation Road Fund in 1993, and since 2002 has an agency structure with separate agencies responsible for funding, road management and road safety each reporting to different ministries. The Road Fund now receives about US 160 million per year from road user charges and a levy on fuel for road maintenance. One of the main challenges facing the agency is disbursing maintenance funds efficiently and effectively over the network.

## Motivation for performance contracts

The Roads Board, who managed the Road Fund from 1998 up to the creation of the agencies in 2002, had a mandate for road maintenance that overlapped with the then Roads Department. The Board had a specific interest in getting best value for money from the then very limited Fund resources and was influential in setting maintenance policy.

The Board believed that traditional ways of contracting out maintenance using measured contracts, especially for simple routine maintenance works, was not giving required results, and that it was time to introduce a new system. Traditionally, routine maintenance contracts were let for small road sections (about 20 km each) under contracts procured in the provinces but paid for centrally from the Road Fund. Each year many hundreds of contracts were awarded after a lengthy and administratively burdensome procurement process.

As in most tropical countries road maintenance in Zambia needs to be scheduled around the rainy season. Using traditional contracts and procurement procedures it was almost impossible to ensure works on the ground took place at the right time of year. Grass was not cut until well into the dry season when it could be up to 2 metres high, drains were not cleared until after the rains, potholes patched during the rains, grading done in the dry season when there was little or no moisture for compaction etc.

In addition, because estimating maintenance work is so difficult, the suspicion was that contractors were being paid for work that was either not needed (because the time for intervention had passed) or for quantities that bore little relation to the work actually done. Although the costs per km were low there was dissatisfaction with the quality of the work and impact on the condition of the network. By 1999, the Board wanted to move forward and introduce a better system. After a study tour to some developed countries (notably Australia and New Zealand) the potential benefits of performance-based contracting were appreciated and the decision was taken to organize a trial in Zambia under Road Fund financing.

## Contracting capacity

The contracting sector in Zambia is typical of that found in many other countries in the region; a small number of medium to large sized firms equipped to do the larger road construction/rehabilitation and periodic maintenance contracts, plus numerous small-scale labor-based contractors with limited equipment.

Even the larger local firms lack the financial resources to pre-finance works to any extent. It is difficult and expensive to borrow money locally since loans to road contractors are perceived to be high risk. Most companies operate with small overdraft facilities in relation to turnover.

In recent years larger regional and foreign contractors have been able to displace local firms in their home market for the bigger road construction and maintenance contracts, mainly because they have access to more financial resources and equipment.

## Pilot projects

It was decided to start at the 'bottom end of the spectrum with a simple performance-contract for routine maintenance. A contract format was developed using the FIDIC short-form and some simple specifications; mostly for off-carriageway works such as verge and drainage maintenance. Other works for repairs to culverts and road-signs is instructed and paid through dayworks schedules.

To begin with pilot contracts were launched on about 1 000 km of the paved Trunk and Main road network but the system was later extended to urban roads in Lusaka and some of the larger provincial towns. Roads were divided into 50 km sections and bidders were asked to satisfy some simple technical criteria to qualify. Contracts were initially for 12 months but are now typically for 3 years provided contractors perform satisfactorily. The first contracts on the Trunk and Main Roads were relatively small in value (up to around USD 50 000/yr) each. Later, similar contracts were awarded for maintenance of streets in the capital Lusaka.

Today, these simple contracts are used on 18 000 km of the core road network covering all the paved roads and some of the more important unpaved roads.

The introduction of the performance-based system was not without its troubles. It was difficult for road managers to accept that Contractors were entitled to be paid irrespective of the amount of work needed, even when there was virtually nothing to do. Supervisory staff in the then Roads Department had difficulty applying the performance criteria or adopted a 'hands off' approach assuming the contractors were responsible for supervising themselves. To help out, the Roads Training School took an active role in managing a number of contracts directly and organizing training for the contractors and supervisors alike.

## Results

The benefits of the approach soon became apparent mainly because of the longer term nature of the contracts and the stronger linkage developed between the contractor, road users and the road section(s) under maintenance. An increased sense of responsibility resulted in more professional working practices (signing and worker safety) and better organization which in turn has led to improved quality of work with interventions better timed to coincide with the seasons.

There was a lot of criticism of the approach in the early stages. Some managers pressed hard for performance contracts to be abandoned. But the Roads Board had sufficient belief to argue the case for continuing with the system for the following main reasons:

- ① Continuity in maintenance programming, avoiding the need for repeated procurement from one year to the next, resulting in smoothing of disbursements and easier budgeting;
- ② Increased accountability for the quality of work being done, facilitating monitoring and auditing;
- ③ The change in focus from quantities of work done to road quality.

With time the benefits were accepted by most critics. The system has now been in use for almost 10 years and is firmly established in routine maintenance policy.

## The move to OPRC

Soon after its introduction on paved roads attempts were made to extend the PBC approach to maintenance of unpaved roads using small contractors. To limit the implications of risk transfer only simple tasks such as drainage maintenance were paid through a lump sum and assessed on performance criteria. All other works were instructed by a monitoring Consultant who applied quality standards to trigger interventions such as grading and graveling which were paid on a schedule of rates basis.

In 2006 performance contracts were introduced on over 3 000 km of unpaved District Roads with funding assistance from the European Union. The District Roads had been neglected for many years as the main thrust of road investments in Zambia had gone into bringing the paved roads into maintainable condition. As a result connections between district centres had become increasingly problematic, with many roads becoming impassable during the rains.

A total of 10 contracts were awarded using the World Bank sample bidding document; 'the Output and Performance-based Road Contract, OPRC'. This splits the works into four elements: Initial Rehabilitation, Improvement Works, Maintenance Works and Emergency Works of which only Maintenance is paid on a performance basis. Under this contract, bidders are required to make their own estimate of the initial work needed to bring roads up to maintainable condition (the design) which is paid on a measured basis under the 'Output' part of the contract, normally during the first year or so. Maintenance services are priced as a lump sum which is paid in monthly instalments according to the length of network under maintenance and the Contractor's ability to respect performance criteria. The total value of contracts currently underway is about USD 70 million. Costs average USD 12 500 per km for initial works and USD 2 500 per km/yr for maintenance.

## OPRC procurement

Only larger contractors were able to qualify during the tender process for these contracts which were for networks of up to 700 km of roads. None had previously worked with this type of contract before. Only one firm joined up with a consultant to bring in road management expertise. The contracts were tendered with a minimum of preparation by the Road Agency so Contractors were asked to take all responsibility for design of the initial works. Due to the very poor state of the roads, in many cases the initial work needed was substantial.

As a result the Road Agency had great trouble comparing the bids, complicating the evaluation, and because no studies had been done there was no baseline for judging prices. During implementation it proved difficult to establish exactly what the Contractors had, or had not, priced for in their bids. The lesson learned was that these types of contracts require just as much, if not more, preparation than a traditional contract. There are no short cuts or quick fixes.

Despite the problems with agreeing on the scope of the initial works, the impact on the ground has been quite remarkable with some roads becoming all-weather routes for the first time in years. Traffic levels, and vehicle speeds, have increased quite dramatically especially in some of the more remote areas. Some Contractors have complained that maintenance demands are higher than originally expected, but most roads are still only carrying less than 200 vehicles per day.

### Supervision

The smaller performance contracts for routine maintenance are supervised by Road Agency staff, normally simply through monthly drive-through inspections and spot checks.

Local consultants have been engaged to supervise the larger OPRC contracts. None had previous experience in performance-based works and all experienced difficulty in managing the contracts in the early stages, linked mainly to poor contract preparation by the Road Agency. Difficulties were also experienced because supervision began several months after the works. Inputs from consultants were part-time even during the initial stages when the important rehabilitation works were being done.

The Agency had assumed that this type of contract only required light supervision due to transfer of responsibility to contractors. However, it soon became apparent that closer management of the contracts was needed to compensate for lack of experience and poor preparation.

### Future OPRCs

Lessons learned from the District Road contracts are being incorporated in a new batch of contracts for other unpaved roads financed jointly by the EU and the Road Fund. Initial Improvement and Rehabilitation Works have been separated in a traditional measured contract procured separately to the maintenance services. However, it is expected that the same contractors will be involved at each stage so responsibilities will not be separated.

In 2007 more performance-contracts were prepared for maintenance of over 1 000 km of feeder roads under a World Bank financed project for Agricultural Development. These contracts are due to be awarded in 2008.

Much care has been taken to define the initial works in these contracts. Design responsibility is only passed to Contractors for clearance of simple backlog maintenance which has been combined with maintenance services in the performance-based part of the contracts. Everything else, including earthworks and additional structures needed to bring roads up to required standards, is specified in a traditional way in bills of quantity and on drawings.

In addition, detailed cash-flow analysis has been undertaken to estimate the financial demands placed on contractors for pre-financing performance-based services. Factors have been introduced to the monthly payments in relation to performance compliance

schedules so contractors are compensated for the peaks in expenditure incurred at the beginning of the contracts.

### Technical Support

Despite efforts made to brief contractors and consultants during the procurement of the OPRCs it has become clear that support needs to be carried through into implementation, and that both contractors and consultants require assistance especially during the early stages of the contracts. The difficulty in Zambia, as in most countries in the region, is finding the staff with the experience to perform this role. The agency and the private sector are both stretched keeping up with the workload. However, without such support, demands on contract management are increased, thus distracting agency staff away from other work. Clearly, appropriate monitoring and evaluation frameworks need to be developed so the industry can gradually adapt to new working practices.

### Lessons learned

The lessons learned from the years of experience in Zambia for maintenance of both paved and unpaved roads are applicable to many other countries in the region experimenting with introduction of the performance-based approach:

- Introduction of new ways of working requires high level commitment and belief to get through the early parts of the learning curve;
- The approach works best when it is homegrown and funded from local resources. The role of Road Funds and Road Boards is critical;
- It can take several years for Road Agencies to adapt to new working practices and accept performance-criteria as a robust payment mechanism;
- Performance contracts require closer supervision than might be expected and Road Agencies should not underestimate supervision requirements;
- Monitoring and evaluation frameworks need to be developed to assist contractors and consultants in contract supervision and management;
- Design responsibility should only be passed to Contractors for more straightforward backlog maintenance works. Other more substantial interventions should be specified in the tender documents to simplify bid evaluation and contract supervision;
- Local contractors have very limited pre-financing capacity so transfer of risk and financing needs for the performance-based part of the services needs to be carefully assessed to minimise the possibility of default by Contractors;
- Performance contracts offer interesting opportunities for local consulting firms, joining with Contractors to help plan and manage the maintenance services;
- If possible build-in technical support to assist contractors and consultants during the early stages of implementation.

# Financial models

The financial models are intended to familiarize the user with the basics of project finance and financial simulations for a highway PPP project and to better understand the key parameters which affect the financial viability of a highway project.

Whilst they allow a first-level analysis of a proposed PPP project, they are not suitable for the detailed and specific project evaluation required for PPP project development by the public sector. For such project preparation, public authorities would need to apply the more comprehensive financial models available from specialized audit companies and banks.

The Toolkit presents two financial models

- The **graphical model** uses simplified project data and a graphic format to familiarize non-financial users with the basics of financial simulations. The model allows to visualize real time impact on project cashflow of adjustments in fourteen key project assumptions.
- The **numerical model** allows a more detailed financial evaluation. It enables more developed financial variables and results to be understood and could be used by the public authority for an initial project analysis of possible PPP options at pre-feasibility level, to assess possible toll rates and subsidy levels.

Financial terms are described in Module 2 -> Financial Evaluation.

Both financial models have been audited for mathematical accuracy in 2009.

User guides are available for both models, accessible from left-hand menu.

## IMPORTANT

BEFORE OPENING THE FINANCIAL MODELS, THE USER MUST VERIFY THAT THE SECURITY LEVEL IN EXCEL IS SET TO **MEDIUM** (Tools>Macro>Security) IN ORDER TO ACTIVATE MACROS.

ON OPENING THE EXCEL FILE, THEN CHOOSE "**YES**" TO ENABLE MACROS.

## Graphical model

The graphic simulation tool has been developed to familiarize the user with the basics of financial simulations for a highway PPP project. It presents in graphic form the principal financial features of a project company and their sensitivity to a range of key assumptions, through real-time adjustments of the cashflow graphs.

This simplified model has been designed for educational purposes only and is not suitable for project analysis at any level.

- This Tool uses only one currency (USD) and does not thus allow for exchange rate issues. This is a key simplification of the model since currency effects may have

a considerable impact on project cashflows and can play an important role in the financial sustainability of a PPP project, especially in developing countries.

- The model uses only annual data, which means that all the figures are calculated for each year of the concession period.
- Nominal interest rate (real interest rate + inflation rate) is used to calculate interest. The construction period is variable from 1 to 5 years.

## Numerical model

The numerical financial model is principally intended as a more advanced educational tool for financial evaluation of PPP projects in order to allow a better understanding of the key parameters affecting the financial viability of a highway project. However, the model allows sufficient range of input data to make it suitable for initial project evaluation at pre-feasibility level.

This financial model provides financial statements by a would-be concessionaire to analyze the construction and operation of a highway concession under a Build-Operate-Transfer (BOT) scheme. The basic data provided with the model has been obtained from real highway concession contracts in Eastern Europe.

It has been developed on a project finance basis, i.e. a non- or limited-recourse financing where lenders rely primarily on the cash flows generated by the project for debt repayment. Revenues are composed of tolls paid by road users and subsidies provided by the Public Authority.

The Assumptions sheet of the model contains all the key parameters and data input entered by the user. The model provides a user-friendly interface where most figures can be adjusted using the scroll bars with a corresponding real-time change in the financial results. Principal data entry ranges and consistency between data are checked by the model in real time, which may trigger comments and warnings for the user. However, the extensive range of possible input combinations prohibits all potential data inconsistencies being shown and the user must remain attentive to data entry values.

The numerical model allows the entry of the following key parameters:

- four categories of vehicle with detailed assumptions of growth
- detailed operation costs based on real cases
- three different debts in the financial structure
- two types of subsidy paid by the Public authorities: operating subsidy and/or subsidy of investment
- three accounting methods for depreciation (Linear, Progressive, Decreasing)

The financial model is not intended to provide project-specific financial modeling. The World Bank absolves itself from any liability, in the event that such models are used and relied upon by third parties in connection with any project or transaction. For such project preparation, public authorities would need to apply the more comprehensive financial models available from specialized audit companies and banks.

# Graphical Model for Financial Simulation of Highway PPP Projects

## User guide

### Worksheets

The graphical model comprises four worksheets, for which the main functions and outputs of each worksheet are described hereafter.

### Data sheet

This sheet summarizes the main characteristics (assumptions) of the PPP project. A few easily identified assumptions can be determined and changed using this sheet. The other key characteristics can be changed directly from the graph sheets.

Graphical Model for Financial Simulation of Highway PPP Projects					
<b>Summary of project assumptions</b>					
<b>Source of funds</b>	<b>Construction costs</b> (VAT excluded, indexed on inflation)				
Subsidies	30%	Duration of works (years)	4	years	<input type="button" value="▼"/>
Equity	30%	Year	%	Amount (MUSD)	<input type="button" value="▼"/>
Credit	40%	1	10%	17	
Nominal interest rate	6.0%	2	30% <input type="button" value="◀"/> <input type="button" value="▶"/>	51	
Repayment period	20 years	3	50% <input type="button" value="◀"/> <input type="button" value="▶"/>	85	
Grace period	4 years	4	10% <input type="button" value="◀"/> <input type="button" value="▶"/>	17	
Capitalization	4 years		0% <input type="button" value="◀"/> <input type="button" value="▶"/>		
Repayment of loan	P+I constant <input type="button" value="▼"/>	Total in MUSD	170.00		
		Amortization	46	years	
<b>Traffic and Tariff</b>	<b>Operation costs (indexed on inflation)</b>				
Initial traffic	20.6 ×1000 vehicles/day	Fixed part	1,000	kUSD per year	<input type="button" value="▼"/>
Traffic growth	5% per year	Variable part	0.1	USD per veh.	<input type="button" value="▼"/>
Toll rate (VAT included)	3.4 USD per vehicle				
(VAT excluded)	2.8 USD per vehicle				
(indexed on inflation)					
Initial daily revenue	58.6 kUSD / day	Economic			
(VAT excluded)		Inflation rate	4.0%		
		Corporate tax rate	30%		
		VAT rate	19.6%		
		State discount rate (real terms)	4.0%	<input type="button" value="▼"/>	
		(nominal terms)	8.16%	<input type="button" value="▼"/>	

**Repayment of loan** corresponds to the type of reimbursement of loan. Two types are proposed:

- P+I constant: A constant amount (including Reimbursement of Capital and Interest) is paid at each term
- Linear: The same amount of capital is reimbursed at each term. The interest is calculated from the non reimbursed capital.

**Duration of works** can vary from 1 to 5 years. The user enters the duration of works and default values for distribution of works are displayed. The user can modify the default values by using the scrolling bars. The percentage of the first year is calculated: 100% - sum (% year 2 to % year 5). If the % of year 1 equals to 0%, it is not possible to increase the % of the other years.

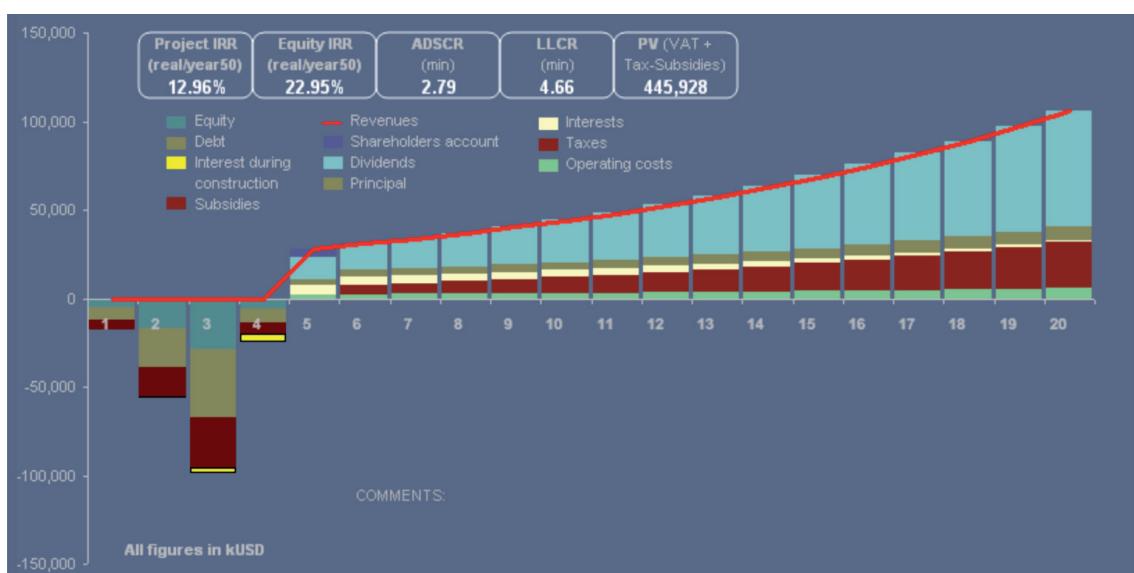
*The capitalized items are assumed to be depreciated on a straight line basis throughout the operating period. The datasheet reports the corresponding number of years of depreciation.*

The **operation costs** are paid during the operation period (after the construction period). They are indexed on inflation.

- The **fixed part** of operation costs covers personnel costs, administration costs, safety and security costs, annual routine maintenance costs of highway and equipment, periodic maintenance costs.
- The **variable part** of operation costs is linked to the traffic. It corresponds to additional costs due to the growth of traffic (operation personnel, maintenance of tolling station, etc). It is may vary in the range from 0.1 to 5 USD per vehicle.

**State discount rate** is the rate used to calculate the NPV of government cash flows.

### Cash Flow Graph

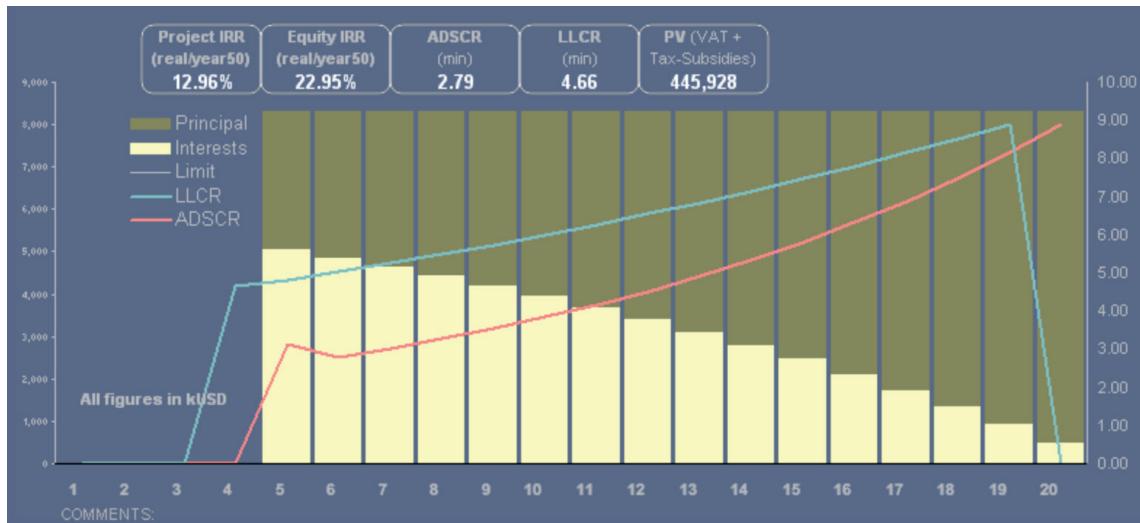


The graph represents all concession company cash flows during the concession period. They are classified by order of repayment priority: Operation costs > Taxes > Debt service > Dividends > Shareholders account.

The **shareholder account** represents a bank account controlled by the company shareholders (fiscal restrictions generally limit the authorized distribution of dividends to the project net income) to which the cash balance is transferred (or drawn from if negative) until it can be distributed as dividends.

When the shareholders' account is insufficient to service the debt, shareholders have to fill the gap and this appears on the graph in the form of negative dividends.

## Debt graph



This graph represents, for the first twenty years of the concession period, separately on the LH and RH axes:

- ① Yearly payment of principal and interest during the debt servicing period (grace period + repayment period)
- ② Changes in the two main bank ratios over the repayment period: Annual Debt Service Coverage Ratio (ADSCR) and Loan Life Coverage Ratio (LLCR). A definition of both ratios is provided in the Toolkit (Module 2 - Financial Evaluation)

Nominal interest rate is used to calculate the annual interest paid.

## Dividend Graph



This Graph displays, for the first twenty years of the concession period, on two different axes:

- ① The equity mobilized by company shareholders during the construction period and the dividends received by them during the operation period.
- ② Changes in the two main investment ratios over the concession: the financial Internal Rate of Return of the project (Project IRR) and the Equity IRR.

The graphical model allows a rapid verification that Project IRR is independent from financial structure (subsidies, equity, credit conditions) whilst Equity IRR is directly related to it.

## Summary of assumptions and results

SUMMARY OF THE MAIN ASSUMPTIONS			
<b>GENERAL</b>		<b>TOLL AND TRAFFIC</b>	
Concession life <b>50</b> years		Toll, VAT included <b>3.7</b> USD per vehicle	
Construction Period <b>4</b> years		Initial traffic <b>20,600</b> vehicles / day	
Construction costs <b>170,000</b> kUSD		Traffic growth <b>5.0%</b>	
Amortization <b>46</b> years			
<b>FINANCIAL STRUCTURE</b>		<b>OPERATING COSTS</b>	
Subsidy <b>30%</b> of the construction costs		Fixed part <b>1,000</b> kUSD per year	
Equity <b>30%</b> of the construction costs		Variable part <b>0.1</b> USD per vehicle	
<b>Debt</b>		<b>OTHER KEY PARAMETERS</b>	
Maturity <b>20</b> years		Inflation rate <b>4.0%</b>	
Interest rate <b>6.0%</b>		Corporate tax <b>30.0%</b>	
Grace period <b>4</b> years		VAT rate <b>19.6%</b>	
Repayment of loan <b>P+I constant</b>			

SUMMARY OF THE RESULTS			
<b>FINANCING PLAN</b>		<b>SOURCES</b> (in kUSD)	
Uses (in kUSD) Construction costs (nominal terms) <b>197,167</b> Capitalised Interests <b>188,343</b> <b>197,167</b>		Investment subsidy <b>56,503</b> Equity <b>56,503</b> Debt <b>84,161</b>	
<b>FINANCIAL RATIOS</b>		<b>SHAREHOLDERS' RETURN</b>	
Minimum ADSCR (Annual Debt Service Coverage Ratio) <b>2.79</b> Minimum LLCR (Loan Life Coverage Ratio) <b>4.66</b> Minimum PLCR (Project Life Coverage Ratio) <b>21.32</b>		Project IRR after tax (real terms) <b>12.96%</b> Project IRR after tax (nominal terms) <b>17.48%</b> Equity IRR (real terms) <b>22.95%</b> Equity IRR (nominal terms) <b>27.86%</b>	
<b>PUBLIC AUTHORITIES' FINANCIAL FLOWS</b>			
PV on Subsidy (kUSD) <b>-46,078</b> PV on the VAT (kUSD) <b>215,518</b> PV on the Corporate Taxes (kUSD) <b>276,487</b> PV on the State revenues (kUSD) <b>445,928</b>			

This sheet summarizes the assumptions and results of the project.

## Project indicators / ratios

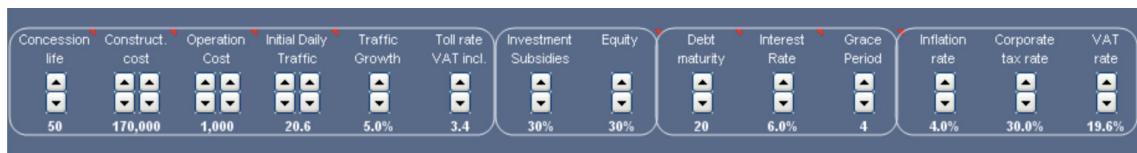
<b>Project IRR (real/year50)</b> <b>12.96%</b>	<b>Equity IRR (real/year50)</b> <b>22.95%</b>	<b>ADSCR (min)</b> <b>2.79</b>	<b>LLCR (min)</b> <b>4.66</b>	<b>PV (VAT + Tax-Subsidies)</b> <b>445,928</b>
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On each of the three graphs, five key project indicators / ratios are displayed.

- **Project IRR** for the last year of concession in real terms,
- **ROE** for the last year of concession in real terms,

- Minimum LLCR,
- Minimum ADSCR,
- NPV of net financial contribution from government. The government may pay subsidies during the construction period and recover taxes and VAT during the operation period. The indicator shows the net present value and the financial balance for the government throughout the concession period.

## Project data



Fourteen key project characteristics can be modified on any of the three graphs which are then automatically adjusted. Ranges of variations have been limited on purpose to realistic values.

## Concession duration

Although **concession duration** can be set at any figure between 7 and 100 years, results are displayed on the graph for the twenty first years only.

## Construction cost

The **construction cost** can vary from USD 5 million to USD 5 billion. This amount represents the total cost over the years of construction period (1 to 5). The incremental steps are adjusted accordingly, varying with the Construction cost. The construction cost excludes VAT, but it is indexed to inflation. The nominal construction cost for the year n will be calculated according to the following formula:

$$(nominal\ construction\ cost)_{year\ n} = (real\ construction\ cost)_{year\ n} \times (1 + inflation\ rate)^n$$

Two arrow keys can be used:

- the increment of the RH arrow key is 250,000 kUSD,
- the increment of the LH arrow key is 5,000 kUSD

## Operation cost

The fixed part of the **operation is varying** from 1 million USD to 500 million USD per year.

Two scrolling bars can be used:

- the increment of the scroll bar on the right is 10,000 kUSD,
- the increment of the scroll bar on the left is 1,000 kUSD

## Initial daily traffic

**Initial daily traffic** corresponds to the daily traffic of the first year of operation.

Two arrow keys can be used:

- the increment of the arrow key on the right is 2,000 vehicles per day
- the increment of the arrow key on the left is 100 vehicles per day

## Traffic growth

**Traffic growth** is used to estimate the traffic forecasts during the period of the project. It can be increased in increments of 0.5%.

## Toll rate

**Toll rate** corresponds to the average toll paid by vehicles in the first year of operation, including VAT. For subsequent years, the toll rate is adjusted with inflation.

The initial revenue is the amount of revenue generated by the project in the first year of operation. This revenue equals the initial traffic multiplied by the initial toll rate excluding VAT; the operator shall receive the road toll proceeds with VAT and pay the VAT back to the State.

## Subsidy rate

**Subsidy rates** can be adjusted by the user. The amount of debt is calculated by the model to reach 100% of investment cost (Equity + Subsidy + Debt = 100%).

## Equity rate

**Equity rate** can be adjusted by the user. The amount of debt is calculated by the model to reach 100% of investment cost (Equity + Subsidy + Debt = 100%).

## Debt maturity

**Debt maturity** = Grace period + Repayment period of capital. Concession duration must be greater than Debt maturity.

## Interest rate

**Interest rate** is a nominal rate (including inflation). It can vary from 0% to 25%.

### Grace period rate

**Grace period** is the period during which repayment of the principal is deferred. This term does not refer to interest payments. The grace period is adjusted according to the duration of works (construction period): grace period must be above or equal to the duration of works.

### Inflation rate

**Inflation rate** is used to estimate the forecasts of revenues and operating costs, and to calculate the real rates of financial indicators.

### Corporate tax rate

**Corporate tax** corresponds to the corporate tax (profit tax) paid by the concession company. This rate is applied to Earnings before Taxes (Revenues - Operating costs - Amortization - Financial costs).

### VAT rate

**VAT rate** is used to calculate the VAT paid annually to the State by the private partner from project revenues. The Model assumes that no road users can reclaim VAT on tolls.

### Summary of project data ranges

The following table describes the lower and upper limits of the 14 project characteristics.

Data	Minimum	Maximum
Concession life	7 years	100 years
Construction cost	5 million USD	5,000 million USD
Fixed operation cost	1 million USD	500 million USD
Initial daily traffic	0 vehicle per day	120,000 vehicles per day
Traffic growth	0%	10%
Toll rate	0.1 USD per vehicle	100 USD per vehicle
Subsidy rate	0%	100%
Equity rate	0%	100%
Debt maturity	<b>Grace period + 1</b>	
Interest rate	0%	25%
Grace period	<b>Duration of works</b>	
Inflation rate	0%	50%
Tax rate	0%	100%
VAT rate	0%	100%

## Comments

Comments are triggered by the model to inform of unrealistic or impossible data entries. For example, if the concession period is set at a value less than the sum of the repayment period and the grace period, a message is displayed to alert the user and the model automatically corrects one of the three parameters to ensure their coherence. Similarly the model would also adjust automatically the financial structure to ensure coherence (Equity + Subsidies + Debt = 100%).

# Numerical Model for Financial Simulation of Highway PPP Projects

## User guide

### Main characteristics of the Numerical Financial Model

#### General

This financial tool is based on the following main criteria:

- Sources of highway project funding are:
  - ① **Equity** provided by the Sponsors, as a percentage of construction costs, defined by the user.
  - ② **Debt** provided by commercial banks or specialised institutions such as the World Bank. The total debt provided to the Project is defined in three tranches with different rates, maturities and grace periods. All these tranches are in the same currency and have the same seniority. The financial model does not take account of currency exchange issues. Repayment of the 3 tranches will be on a Principal + Interests constant basis.
  - ③ **Tolls** from up to four vehicle categories during the operating period,
  - ④ **Subsidies** from public authorities of the beneficiary country.
- Financial evaluations are calculated using nominal values, based on real values and escalation rates, defined by the user (inflation rate for costs and indexation rate for tolls and revenues). A single sheet, the Assumptions sheet, presents all data used by the model.
- Input ranges are proposed to the user in the Assumptions sheet. The user can select the figure by using an arrow key.
- The financial tool integrates subsidies which may be provided by the Contracting Authority during the operating period. Two modes are available for these subsidies.
  - ① The first mode is an automatic mode where the subsidies provided by the Contracting Authority are automatically calculated to enable the Project to be financially viable (i.e. to cover operating costs and repay the debt). This is done through an ADSCR target specified by the user in the Assumptions sheet. If the project is viable without subsidies, these will be set at 0 and the ADSCR target mechanism will not be used as there is sufficient cash to fund the project during the operating period. The ADSCR will then be calculated using the project cash.
  - ② The second mode, the “input mode”, is a fixed mode. The subsidies are set by the user as a total amount of subsidy for the whole

operating period, this amount being then equally spread over the annual operating period.

## Data Entry

The key data for the model are defined in the assumptions sheet. Data is entered using the arrow keys with data consistency controlled in real time (e.g. coherency between concession life, construction period and operating period).

There are three data types:

- Data related to technical and financial project characteristics

Cells	<b>Project definition inputs</b>
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- Data related to the country-specific data (eg economic and fiscal data)

Cells	<b>Country specific inputs most likely to be changed</b>
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- Data related to financial ratios for the project

Cells	<b>Default values that can be changed if needed</b>
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## Case study

A case study is defined as the default values in the model. The system is automatically reset with the case study values by pressing the button “Case study” in the sheets “Assumptions”, “Cash Flow graph”, “Debt graph”, “Dividend graph” and “Flux Authority graph”.

## Case study

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## General

Length	125 km of 2x2 lanes
Concession duration	50 years
Construction duration	4 years

## Traffic and Toll

Categories of vehicles	Light vehicles (70%) -
heavy vehicles (30%)	50 years
Average Daily Traffic at opening	10,000 vehicles / day
Annual Traffic Growth	3%
<b>Toll collected</b>	
Category 1	0.13 USD / vehicle / km
Category 2	0.25 USD / vehicle / km

## Construction costs

Total cost of construction	5.5 millions USD / km
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## Operating costs

Fixed costs	
Concessionaire costs (1)	2 millions USD / year
Operation fixed costs	6 millions USD / year
Roadway heavy maintenance costs (2)	17% of construction cost per 3 years
Other maintenance costs	0.25% of construction cost per year
Variable costs (3)	
Average daily traffic	<=10,000      >10,000      >20,000      >30,000 =>20,000      =>30,000
Costs per vehicle (in USD)	0.0      0.6      0.3      0.15

## Financial structure

Equity	10% of the total construction costs
<b>1<sup>st</sup> Tranche Debt</b>	
Maturity	20 years
Interest rate	4%
Grace period	5 years
Allocation vs Total debt	80%
<b>2<sup>nd</sup> Tranche Debt</b>	
Maturity	15 years
Interest rate	4.5%
Grace period	6 years
Allocation vs Total debt	0,1
<b>3<sup>rd</sup> Tranche Debt</b>	
Maturity	10 years
Interest rate	6%
Grace period	6 years
Allocation vs Total debt	10%
Repayment profile	Annual Debt Service Cover Ratio (ADSCR) = 1.3 used to calculate subsidies
Fees (% of total construction costs)	1.5%

## Other

Type depreciation	Linear
Corporate tax	30%
VAT	19.6%
Inflation rate	2%
Discount rate for the state	8%

## Comments:

- (1) **Concessionaire costs:** costs of the concession company throughout concession (including construction period).
- (2) **Roadway heavy maintenance costs:** These periodic maintenance works are performed every 8 years but they are considered as annual costs in the financial statements (annual cost = 1/8 of cost).
- (3) **Variable costs:** These costs are dependent on the traffic level according to a regressive scale.

## Project periods

### Year of study

The **year of study** corresponds to the current year in which the Project is being assessed, which may be prior to the concession and/or construction period, if so defined. The **beginning of operating period** corresponds to the year of traffic opening. The **beginning of operating period** is after the year of study and the construction period.

### Concession, Construction and Operation

**Concession life:** This ranges from 5 to 100 years.

**Construction period:** A range of 1-10 years is proposed. **Construction period** is less than or equal to: **year of study - beginning of operating period**.

**Operating period:** This is the difference between the concession and the construction period. The operating period immediately follows the construction period. Grace period runs from the start of construction. Operating period begins at the "project year of traffic opening".

DATES AND CONCESSION LIFE		Study case (default values)
Study year	2008	<input type="button" value="▼"/>
Beginning of operating period	2013	<input type="button" value="▼"/>
Concession life (between 5 and 100 years) (including construction period)	50	<input type="button" value="▼"/>
Construction Period (between 1 and 10 years)	4	<input type="button" value="▼"/>

### Construction costs

The construction costs are calculated from Length of highway and Construction cost per km. They can either be spread linearly over the construction period, or specified each year as a percentage (examples of non linear distributions are proposed).

The construction costs specified are costs in the project study year and exclude VAT. The impact of inflation on construction costs is taken into consideration during the period of construction ("Construction costs in nominal terms").

CONSTRUCTION									
Length of the highway (km)	125	Fine							
Construction costs per km (USD million taxes excluded) in 2008	5.5	<input type="button" value="▲"/> <input type="button" value="▼"/>		Total costs <input type="text" value="687.5"/> Million USD					
Flow chart of works	<input checked="" type="radio"/> Linear <input type="radio"/> Special								
if <b>special</b> , enter data									
years	2008	2009	2010	2011	0%	0%	0%	0%	0%
% of works	10%	30%	50%	10%	<input type="button" value="▲"/> <input type="button" value="▼"/>				

Two arrow keys can be used to enter the values:

### Length of highway

- the increment of the RH arrow key is 10 km
- the increment of the LH arrow key is 1 km

### Construction cost per km.

- the increment of the RH arrow key is 10 Million USD
- the increment of the LH arrow key is 0.5 Million USD

## Revenue

### Revenues from traffic

The model enables toll levels to be specified for 4 categories of vehicles. These tolls are in USD per km for the Project study year and include VAT.

In the case study, only two toll levels are generated: Category 1 (default value: 0.13USD) and Category 2 (default value: 0.25USD).

In the same way as for tolls, traffic is split into four vehicle categories. Two profiles can be selected:

- **An automatic profile.** In this case, three linear growth rates are used to model the traffic increase. The number of years between each growth rate can be changed as required.

TRAFFIC		Study case (default values)	
Traffic type of growth			
<input type="radio"/> Linear <input checked="" type="radio"/> Special			
Linear traffic			
Year of traffic increase		from	until
1st period		2013	2020
2nd period		2021	2030
3rd period		2031	2058
	Category 1	Category 2	Category 3
Initial daily traffic in 2013	5,000	5,000	0
Yearly traffic increase			
until 2020	3.00%	3.00%	0.00%
from 2021 until 2030	3.00%	3.00%	0.00%
after 2031	3.00%	3.00%	0.00%
Special traffic - Go the sheet Traffic to input data.			
TOLL			
	Category 1	Category 2	Category 3
Toll, VAT included			
USD/km in 2008	0.13	0.25	0.00
USD in 2008	16.25	31.25	0
	Category 4		

In this example, the first growth rate applies to 2020 included, the second rate applies from 2021 to 2030 included and the third rate applies after 2031.

Two arrow keys can be used to enter the toll rates:

- the increment of the RH arrow key is 0.2 USD per vehicle
- the increment of the LH arrow key is 0.01 USD per vehicle

- A **special profile** can also be specified by the user by providing the annual daily number of the four categories of vehicles.

Traffic forecasts are input in the TRAFFIC SHEET. The user can generate the linear traffic from the characteristics of "Linear traffic" and then modify the data, or he can input other data. The missing data are generated automatically from the rate of growth of "Linear traffic".

Date	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Category 1	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524	6,720	6,921	7,129
Category 2	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149	6,334	6,524	6,720	6,921	7,129
Category 3	0	0	0	0	0	0	0	0	0	0	0	0	0
Category 4	0	0	0	0	0	0	0	0	0	0	0	0	0

## Other revenues

The concessionaire can receive other revenues. Three periods of revenues are possible. For each period, the user enters the amount in real value (value of study year). The revenues are indexed on "index on toll and revenues" (see above).

For example:

- Study year: 2008
- Index on revenues: 3%
- From 2020 to 2030 – revenue: 4 Million USD (in real amount)

- Revenue for 2020 (indexed on “index on revenue” )=  $4 \times 1.03^{2020-2008} = 4 \times 1.03^{12} = 5.703$  Million USD

## Indexation of tolls and revenues

Tolls and revenues are not indexed on inflation, but on a specific index, which can be updated by the user.

OTHER REVENUES (VAT included)				
Years	Amount (million USD)	from	until	
1st period	0.0	<input type="button" value="▼"/>	<input type="button" value="▼"/>	2013      2020
2nd period	0.0	<input type="button" value="▼"/>	<input type="button" value="▼"/>	2021      2030
3rd period	0.0	<input type="button" value="▼"/>	<input type="button" value="▼"/>	2031      2058
<b>Indexation of tolls and revenues</b>			2.0%	<input type="button" value="▼"/>

## Recurrent costs

The operating costs are split in two categories: fixed costs (irrespective of traffic volumes) and variable costs.

### Fixed costs

#### *Concessionaire costs*

These annual costs cover all the expenses (linked to the management of the concession) of the concessionaire over the entire concession period from the beginning of the construction to the end of concession.

#### *Operation costs*

These annual costs are linked to the operation and are incurred by the concessionaire during the operating period (after the construction period). They include personnel costs, administration costs, toll collection costs, etc.

#### *Roadway heavy maintenance costs.*

The heavy or periodic road maintenance is performed every ‘n’ (to be specified by the user) years. The amount is a percentage of the construction cost.

#### *Light maintenance costs.*

This annual maintenance concerns the routine maintenance of the highway. The amount is a percentage of the construction cost.

## Variable costs

The variable costs depend on traffic level and correspond to additional costs resulting from growth in traffic (operation personnel, maintenance, etc.). These costs are estimated as follows:

- From 0 to 10,000 vehicles per day, **variable cost** = daily traffic x 365 x 0.0 USD
- From 10,000 to 20,000 vehicles per day, **variable cost** = (20,000 - daily traffic) x 365 x 0.6 USD
- From 20 000 to 30 000 vehicles per day, **variable cost** = 10 000 x 365 x 0.6 USD + (30 000 - daily traffic) x 365 x 0.3 USD
- If daily traffic > 30 000 vehicles par day, **variable cost** = 10 000 (veh) x 365 x 0.6 USD + 10 000 x 365 x 0.3 USD + (daily traffic – 30 000) x 365 x 0.15 USD

These costs are increased throughout the concession period at the specified inflation rate.

Fixed costs				Study case (default values)
Concessionaire costs	2.0	Million USD per year	 	
Operation costs	6.0	Million USD per year	 	
Highway heavy maintenance	17.0%	of construction costs	 	every 8 years 
Light Maintenance	0.25%	of construction costs per year	 	

Variable operation costs					
Segments	1	2	3	4	
Average daily traffic	from 0 to 10000  	from 10001 to 20000  	from 20001 to 30000  	> 30000  	
Variable operation costs	0.00 USD/veh  	0.60 USD/veh  	0.30 USD/veh  	0.150 USD/veh  	

Two arrow keys can be used to enter the rate applied for variable operating costs:

- the increment of the RH arrow key is 0.05 USD per vehicle
- the increment of the LH arrow key is 0.01 USD per vehicle (or 0.005 for tranche 4).

## Macroeconomic data

### Currency

The model uses Million USD. The 3 tranches of debt are developed in the same currency. Exchange rate issues are not considered in this financial model.

### Corporate tax

Corporate tax (profit tax) is paid one year in arrears. The amount of tax is calculated by taking whichever sum is the smaller between (i) the gross profit of the year N and (ii) the cumulated gross profit of the year N.

The corporate tax amount is paid in year N+1.

## Other Tax

This rate can be used if VAT is not applied in the user country. Other tax is calculated as a percentage of whole annual toll revenue.

## VAT (Value Added Tax)

This rate has a direct influence on the State's expected revenue as the model assumes that the State's revenue comes from VAT on each category of vehicle, as repaid by the concession company from the toll revenue.

The model assumes that no road users can reclaim VAT on tolls.

## Inflation Rate

The base rate is set at 2% in the model (default value). This rate can be changed by the user.

Corporate tax rate	30.0%	<input type="button" value="▼"/>
Other tax rate	0.0%	<input type="button" value="▼"/>
VAT rate	19.6%	<input type="button" value="▼"/>
Inflation rate at the year of study	2.0%	<input type="button" value="▼"/>

## Financial structure

The financial structure of the Concession Company comprises three sources of financing: equity, investment subsidy and debt.

These sources of financing will be used to finance: construction costs, interim interests payments (which will be capitalized and included in debt service), debt fees corresponding to a percentage (specified by the user) of the debt amounts for each year and concessionaire costs.

## Equity

The equity is provided by the shareholders of the Concession Company. The user can choose the amount of equity, entered as a percentage of the construction costs.

## Investment subsidy

Public Authorities can also provide investment subsidy, also entered as a percentage of construction costs.

## Debt

The amount of debt is calculated by the model to reach 100% of investment cost (Equity + Subsidy + Debt = 100% of investment costs). Investment costs include construction costs, capitalised interests, debt fees and concessionaire costs during construction.

### *Three tranches of debt*

The total debt provided to the Project is split into three tranches. Each tranche has its own maturity and interest rate.

The user can specify the allocation of each tranche in the total debt provided to the Project by entering the respective percentages. A tranche whose allocation is equal to 0% will not be drawn.

### *Interest rates*

Three **fixed** interest rates are available corresponding to the 3 debt tranches.

### *Grace periods for the tranches*

Grace period is the period during which repayment of the **principal** is deferred; it runs from the start of construction. The grace period is adjusted according to the duration of works (construction period) and is greater or equal to the duration of works.

### *Repayment profile for the three tranches*

The repayment profile of each tranche is on a constant **Principal + Interest** basis (except for those years within the grace period where the debt is only serviced by the interest paid).

They are repaid at their respective maturities defined by the user in the *Assumptions* sheet at their respective interest rates.

### *Fees*

The debt fees correspond to a percentage of debt amounts and correspond to the loan management costs.

INVESTMENT SUBSIDY		Study case (default)
Subsidy (between 0 and 100% of the total construction costs, excluding capitalised interests)	0%	
EQUITY		
Equity (between 0 and 100% of the total construction costs, excluding capitalised interests)	10%	
DEBT		
<b>1st tranche</b>		
Maturity in <u>years</u> (including construction period)	20	
Interest rate	4.0%	
Grace period in <u>years</u> (including construction period)	5	
<b>2nd tranche</b>		
Maturity in <u>years</u> (including construction period)	15	
Interest rate	4.5%	
Grace period in <u>years</u> (including construction period)	6	
<b>3rd tranche</b>		
Maturity in <u>years</u> (including construction period)	10	
Interest rate	5.0%	
Grace period in <u>years</u> (including construction period)	6	
Allocation of the funding		
Key allocation <b>1st tranche</b> vs total debt	80%	
Key allocation <b>2nd tranche</b> vs total debt	10%	
Key allocation <b>3rd tranche</b> vs total debt	10%	
FEES		
Fees (% of debt)	1.5%	

## Financing plan

The three tranches of debt are drawn with the equity and investment subsidy according to their respective schedules to finance the construction costs, capitalized interests and fees during the construction period.

Capitalized interests during the construction period are calculated mid-year.

Date Years	2009 1	2010 2	2011 3	2012 4	Sum	%
<b>Sources</b>	<b>74.5</b>	<b>226.5</b>	<b>390.1</b>	<b>105.1</b>	<b>796.2</b>	<b>100.0%</b>
Investment subsidy	0.0	0.0	0.0	0.0	0.0	0.0%
Equity	7.0	21.5	36.5	7.4	72.4	9.1%
Debt - 1st tranche	54.0	163.8	282.4	77.3	577.5	72.5%
Debt - 2nd tranche	6.8	20.6	35.5	10.0	72.9	9.1%
Debt - 3rd tranche	6.8	20.6	35.7	10.4	73.5	9.2%
<b>Uses</b>	<b>74.5</b>	<b>226.5</b>	<b>390.1</b>	<b>105.1</b>	<b>796.2</b>	<b>100.0%</b>
Capitalised Interests	1.4	6.9	18.3	27.5	54.0	6.8%
Construction costs (nominal terms)	70.1	214.6	364.8	74.4	723.9	90.9%
Concessionaire costs	2.0	2.1	2.1	2.2	8.4	1.1%
Fees (% debt)	1.0	2.9	5.0	1.0	9.9	1.2%

Outstanding Debt end of period 1st tranche	<b>54.0</b>	<b>217.8</b>	<b>500.2</b>	<b>577.5</b>
Outstanding Debt end of period 2nd tranche	<b>6.8</b>	<b>27.3</b>	<b>62.8</b>	<b>72.9</b>
Outstanding Debt end of period 3rd tranche	<b>6.8</b>	<b>27.4</b>	<b>63.2</b>	<b>73.5</b>

Amounts in Million USD

## Operating subsidies

If the project's toll revenue is insufficient to cover its annual operating costs and debt service requirements, annual operating subsidies could be provided to the Project, up to the maximum maturity of the three tranches of debt.

Two modes of calculation of subsidies are available in the Assumptions Sheet in a "mode type" section:

- ① In **Mode 1**, subsidies are considered as an **output** of the financial model. They are provided to the Project each year when necessary until the final repayment of the three tranches of debt has been made, in order to meet an Annual Debt Service Cover Ratio (ADSCR) defined by the user (Assumptions Sheet – Financial structure) and in accordance with the following formula:

$$\text{Subsidies} = (\text{ADSCR} \times \text{debt service}) + \text{Operating Expenditure} - \text{Revenue}$$

NB: If the project's annual toll revenue is sufficient, subsidies will be set at 0, since the project will have sufficient funds to be financially viable without requiring subsidies.

- ② In an "**input mode**" (**Mode 2**), the user specifies the **total amount of subsidies to be provided to the project during the operating period**. In this mode, calculations using the financial tool are based on the total amount of subsidies specified by the user. Subsidies are therefore no longer calculated as in Mode 1, but are fixed by the user.

For calculation purposes, the total amount of subsidies is spread equally over the annual operating period.

<input type="radio"/> Mode 1. Calculated from ASDCR	Study case (default)	
Minimum Annual Debt Service Cover Ratio used for calculation	1.3	<input type="button" value="▼"/>
<input checked="" type="radio"/> Mode 2. Fixed amount		
Amount to be each year equally spread over operating period	0	<input type="button" value="▼"/>
USD million in year 2008		

## Accounting

### Distribution of dividends

The amount of distributable reserves in the year N is the sum of retained profits for the year (N-1) and the profit of year N. Whichever is the smallest amount, between the cash balance of the year N and the distributable reserves of year N, is distributed to the shareholders in year N.

The year following the final year of the concession period, all available cash flow for dividends, if any, is distributed between the Concession Company's Sponsors.

### Depreciation

Project assets (i.e. construction costs) as well as capitalized interest during the construction period for the three tranches of debt are depreciated over the operating period. Three types of depreciation are available.

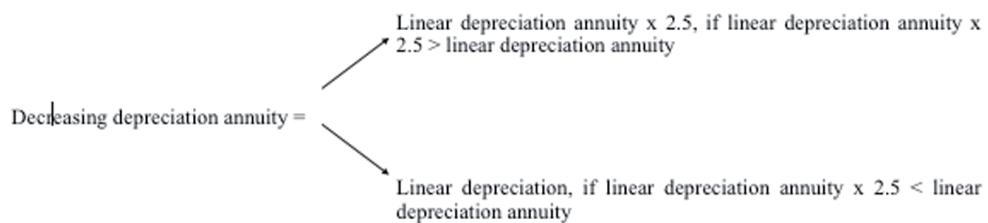
#### *Linear depreciation*

The total amount of assets and capitalized interests at the end of the construction period is depreciated annually by the same amount until the end of the concession period.

#### *Decreasing depreciation*

This type of depreciation is used to benefit the Concession Company in the first years of the concession because the depreciation charge is higher than the linear annuity (the Concession Company therefore pays less corporate tax in the first years of operation if it uses this type of depreciation).

Decreasing depreciation is based on linear depreciation to which a selected factor is applied (2.5 in the financial tool). The calculation is as follows:



### Progressive depreciation

This depreciation can be considered as manual depreciation. The operation period is divided in three periods. The user inputs the limit dates of these periods.

- ① **Period 1:** One coefficient ( $\leq 1$ ) is applied to the linear depreciation
- ② **Period 2:** The coefficient applied to the linear depreciation is automatically calculated. It depends on the durations of periods and on the coefficient of the period 1. This coefficient is superior or equal to 1
- ③ **Period 3:** Linear depreciation is applied.

Assets depreciation type	<input checked="" type="radio"/> Linear	<input type="radio"/> Degressive	<input type="radio"/> Progressive	Study case (default)
<b>Regressive profile</b>				
Coefficient	2.5	<input type="button" value="▼"/>		
<b>Progressive profile</b>				
Coefficients are applying to the linear depreciation				
End of 1st period	2019	<input type="button" value="▼"/>		
End of 2nd period	2032	<input type="button" value="▼"/>		
<b>Coefficients</b>				
From 2013 to 2019	0.8	<input type="button" value="▼"/>		
From 2020 to 2032	1.1	<input type="button" value="▼"/>		
From 2033 to 2058	Linear profile	<input type="button" value="▼"/>		

Depreciation throughout the operating period is assumed in the financial tool. Globally, depreciation is linked to the life cycle of the assets which may be shorter than the operating period.

## Results

The Annual Debt Service Cover Ratio (ADSCR), Loan Life Cover Ratio (LLCR) and Project Life Cover Ratio (PLCR) are determined throughout the operating period.

## Financial ratios

Debt/(Debt+Equity) ratio at the end of construction period	<b>90.91%</b>
Minimum ADSCR (Annual Debt Service Coverage Ratio)	<b>1.30</b>
Minimum LLCR (Loan Life Coverage Ratio)	<b>1.39</b>
Minimum PLCR (Project Life Coverage Ratio)	<b>4.06</b>
Average life of total debt after the end of the construction (yrs)	<b>9.0</b>
Average interest rate during operating period	<b>4.10%</b>

### *Debt/(Debt +Equity) ratio at the end of the construction period*

This ratio is naturally close to the part of debt in the total construction cost.

### *ADSCR (Annual Debt Service Cover Ratio)*

In Mode 1, the ADSCR is used to determine the amount of subsidies in the operating period. In this case, the ADSCR is an input in the model as described in section 9 of this User Guide.

In Mode 2, the ADSCR is a result/output of the model because it is no longer an adjustment variable used to calculate the amount of subsidies required for the Project to be viable. In this mode, subsidies are fixed and the ADSCR will therefore be calculated using the following formula:

$$ADSCR_n = \frac{(CAFDS)_n}{\sum_{i=1}^3 Debt\ Service_{i,n}}$$

where:

i: number of tranches,  $1 \leq i \leq 3$

n: current year

$(Debt\ Service)_{i,n} = Principal_{i,n} + Interest_{i,n}$

$\text{CAFDS} = \text{Cash Available For Debt Service} =$	Operating revenue + Other revenues + Subsidy - Construction costs - Fixed operating costs - Variable operating costs - Corporate tax - Other tax + Drawdowns tranche 1 + Drawdowns tranche 2 + Drawdowns tranche 3 - Fees.
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### *LLCR (Loan Life Cover Ratio)*

The LLCR defined in the financial tool is calculated for the total amount of the debt (i.e. the sum of the three tranches) according to the following formula:

$$LLCR_n = \frac{\text{Present Value} \sum_{j=n+1}^{\text{maximum maturity of the three tranches}} (CAFDS)_j}{\text{Outstanding Debt}_n \text{end of period}}$$

where,

**CAFDS** corresponds to the above element and

**Outstanding debt<sub>n</sub> end of period** to the total amount of the three tranches of debt outstanding at the end of year n.

The Present Value of the Cash Available for Debt Service from year n+1 to the end of the maximum maturity of the three tranches is discounted at an interest rate equal to the weighted average interest rate on the three tranches of debt.

The financial tool provides the user with the minimum LLCR (Results sheet) calculated on the maximum maturity of the three tranches of debt.

### *PLCR (Project Life Cover Ratio)*

The PLCR provided in the model is calculated according to the following formula:

$$PLCR_n = \frac{\text{Present Value} \left( \sum_{j=n+1}^{\text{end of the concession}} (CAFDS)_j \right)}{\text{Outstanding Debt}_n \text{end of period}}$$

The minimum PLCR is available in Results sheet.

### Average life of total debt

The average life of the three tranches of debt is calculated according to the following formula:

$$Average\ life = \frac{\sum_{j=first\ year\ of\ operation}^{maximum\ maturity\ of\ the\ three\ tranches} (Sum\ of\ principal\ repayments\ of\ each\ tranche * j)}{\sum_{j=first\ year\ of\ operation}^{maximum\ maturity\ of\ the\ three\ tranches} Outstanding\ Debt\ of\ each\ tranche\ at\ the\ end\ of\ the\ construction\ period}$$

The average life is calculated from the first year of operation.

### Average interest rate of the debts

This rate is the average rate of the three tranches of debt.

### Shareholder's return

Project IRR after tax (nominal terms) in 2009	<b>9.96%</b>
Project IRR after tax (real terms) in 2009	<b>7.81%</b>
Pay back period (years into operating period)	<b>13</b>
Project NPV (million USD)	<b>-18</b>

Sum Dividends in real terms year 2008 (million USD)	<b>3,677</b>
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Equity IRR (nominal terms) in 2009	<b>24.79%</b>
Equity IRR (real terms) in 2009	<b>22.34%</b>

### Project IRR

The Project IRR is the rate which satisfies the following formula:

$$\sum_{i=first\ year\ of\ construction}^{end\ of\ concession} \frac{(OCFBF)_i}{(1 + IRR)^i} = 0$$

where:

i: number of tranches,  $1 \leq i \leq 3$

$$\text{OCFBF} = \text{Operating Cash-Flows Before Financing} = \left| \begin{array}{l} \text{Operating revenue} \\ + \text{Other revenues} \\ - \text{Construction costs} \\ - \text{Fixed operating costs} \\ - \text{Variable operating costs} \\ - \text{Corporate tax (w/o} \\ \text{interests of debts and} \\ \text{subsidy)} \\ - \text{Other tax.} \end{array} \right.$$

This *OCFBF* does not consider the subsidy and the impact of debt interests and subsidy in the calculation of the corporate tax.

This rate is available in nominal terms and in real terms under the Results Sheet.

### *PAYBACK period*

The payback period is the time taken by a project to recover the initial investment: shorter payback periods are obviously preferable to longer payback periods.

However this method of analysis presents serious limitations because it does not properly account for the time value of money, risk, financing or other important considerations such as the opportunity cost.

### *Project NPV (Net Present Value)*

The operating cash-flows before project financing are discounted at an input discount rate for the state (default value: 8%):

$$\text{Project NPV} = \sum_{i=\text{first year of construction}}^{\text{end of concession}} \frac{(OCBF)_i}{(1+t)^{i-\text{year of study}}}$$

where,

**t** is the Minimum Project IRR depending upon countries and financial markets.

The NPV is calculated for the first year of the construction period.

### *Equity IRR (Internal Rate of Return)*

This ratio measures the return on investment (equity) for the shareholders. It is calculated for the entire concession period and determined in real and nominal terms for the first year of construction.

The following formula is used to calculate the equity IRR:

$$\sum_{i=\text{first year of construction}}^{\text{end of the concession}} \frac{-\text{Equity injected}_i + \text{dividends}_i}{(1+IRR)^i} = 0$$

where,

**Equity injected**, is the equity provided by the sponsors in year i,

**Dividends**, are the dividends distributed to shareholders in year i.

**Equity IRR** is calculated in real terms (through deflated cash flows) and nominal terms (equity - dividends).

Sponsor companies focus on the Equity IRR of the project and compare it to their “**hurdle rate**”. The hurdle rate represents the rate of return a project must achieve in order to meet investors requirements (minimum acceptable Equity IRR). If the project generates returns in excess of the corporate hurdle rate, it is considered to be financially viable.

### Public Authorities financial flows

Sum Subsidies in real terms in 2008 (million USD)	293.4
PV on subsidy at 8 % in real terms 2008 (million USD)	146.9
Sum VAT (& other taxes) in real terms in 2008 (million USD)	1,370.9
PV on the VAT (& other taxes) in real terms 2008 (million USD)	185.2
Sum Corporate Taxes in real terms in 2008 (million USD)	1,583.3
PV on the Taxes in real terms 2008 (million USD)	175.5
Sum state revenues (- Subsidies + VAT + Corporate Tax)	2,660.8
PV on the State revenues in real terms 2008	213.8

### Present Value of subsidies – VAT and Corporate Tax

The total amount of subsidies throughout the concession period is discounted at a real public discount rate defined by the user in the Assumptions sheet.

The PV of the subsidies is calculated for the Project study year using the following formula:

$$PV \text{ of Subsidies} = \sum_{i=\text{first year of operation}}^{\text{end of concession}} \frac{(Subsidy)i}{(1+r+infl)^{i-\text{year of study}}}$$

where,

**Infl** is the inflation rate for the year of study,

**r** is the discount rate for the State in real terms.

### Present Value of VAT

VAT on vehicles will constitute the first source of revenue of the Contracting Authority in the financial tool. The NPV is calculated for the Project study year using the following formula:

$$PV \text{ of VAT} = \sum_{i=\text{first year of operation}}^{\text{end of concession}} \frac{(VAT)i}{(1+r+infl)^{i-\text{year of study}}}$$

where,

**Infl** is the inflation rate for the year of study,  
**r** is the discount rate for the State in real terms.

### *Present Value of Corporate tax*

Corporate tax will constitute the second source of revenue of the Contracting Authority in the financial tool. The NPV is calculated for the Project study year using the following formula:

$$PV \text{ of CorporateTax} = \sum_{i=\text{first year of operation}}^{\text{end of concession}} \frac{(CorporateTax)i}{(1+r+infl)^{i-\text{year of study}}}$$

where,

**Infl** is the inflation rate for the year of study,  
**r** is discount rate for the State in real terms.

### Limits of daily traffic

The results sheet also gives the minimum and maximum “daily traffic” per category of vehicle over the operating period, i.e. until the end of the concession, as calculated from initial daily traffic and traffic growth rate. These limits allow the user to check traffic with respect to highway capacity or other relevant indicators

### Test on Financial Results

Data inputs can be adjusted in real time using the arrow keys.

The following tests are available to the user under the Results sheet to verify the consistency of results. A general test combining all detailed tests is provided for the user in this sheet. If an error occurs in the detailed tests, this test is negative and a message box appears.

### Bankruptcy or financial distress

This test determines whether a Concession Company is bankrupt or in financial distress (terms relate to conditions applicable in beneficiary country).

The test is positive (i.e. company is deemed bankrupt) if the amount of cumulated losses is twice (this coefficient may be modified by the user) the amount of equity. In that case, the year of bankruptcy (or financial distress) is given.

Note: this test relates to conditions applied in France and may not be directly related to the financial strength of a project

### Equity IRR calculated > Hurdle rate

The hurdle rate is fixed at 13% in real terms in the financial model. It is assumed that private companies will only participate in the Project if they can obtain an Equity IRR >13%.

If project simulations do not produce such the required level of Equity IRR, the test is negative.

### Check Balance Sheet

Check whether the uses and sources of each year of the balance sheet are equal.

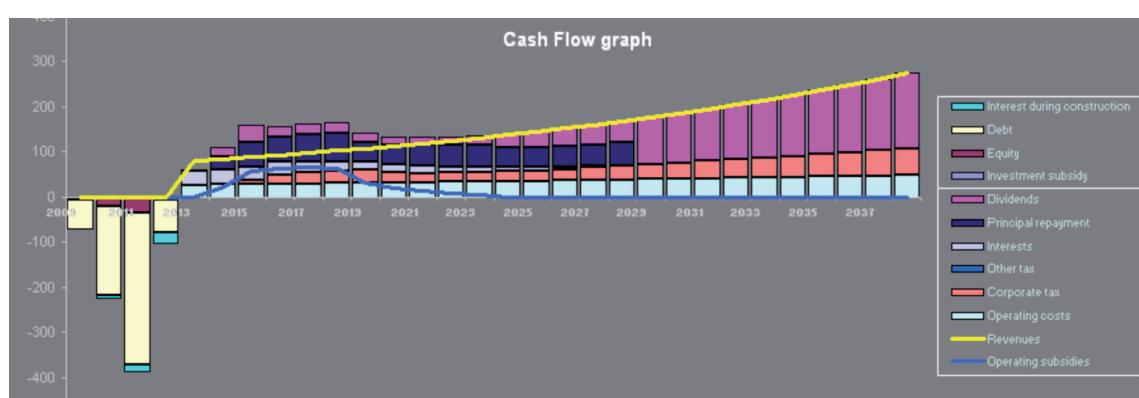
### Graphic simulation tool

A graphic simulation tool has been added to the numeric model to represent the main financial features of the project in graphic form and their sensitivity to a range of key assumptions. The graphs change in real time to a change in project data.

Four graphs are proposed: Cash Flow Graph, Debt graph, Dividend graph, Flux Authority graph.

### Cash Flow graph

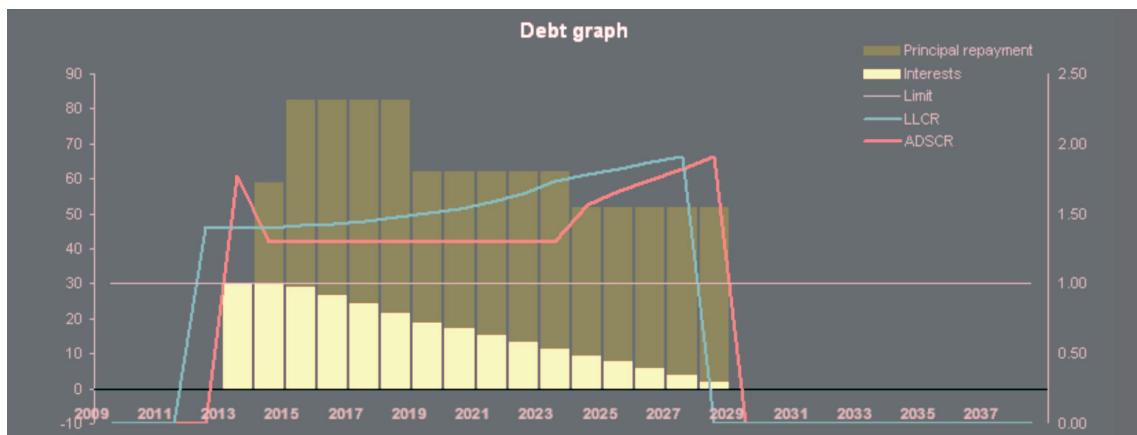
The graph represents all cash flows of the Concession Company during the concession period.



## Debt graph

This graph represents separately on the LH and RH axes:

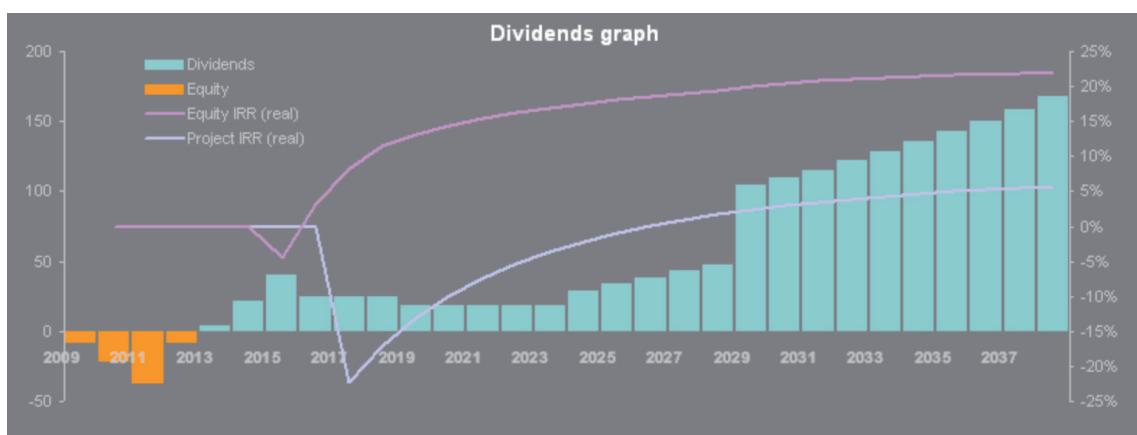
- ① Annual payments of principal and interest during the debt servicing period (grace period + repayment period)
- ② Changes in the two main bank ratios over the repayment period: Annual Debt Service Coverage Ratio (ADSCR) and Loan Life Coverage Ratio (LLCR).



## Dividends graph

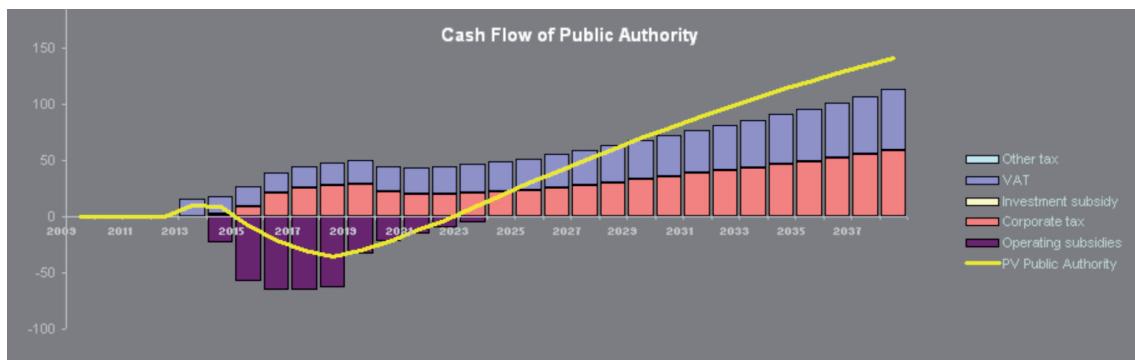
This Graph displays separately on the LH and RH axes:

- ① The equity mobilized by company shareholders during the construction period and the dividends received by them during the concession period.
- ② Changes in the two main investment ratios over the concession: the financial Internal Rate of Return (IRR) of the project and the Equity IRR.



## Public authority cash flow graph

The graph represents all cash flows of the Public Authority during the concession period and the NPV of these cash flows.



## Project indicators & ratios

On each of the four graphs, seven key project indicators / ratios are displayed.

- ① Project indicators independent of the Financing Plan
  - Project IRR for the last year of concession in real terms,
  - Project payback
  - Project NPV
- ② Financing indicators dependent on the Financing Plan
  - Equity IRR for the last year of concession in real terms,
  - Minimum ADSCR
  - Minimum LLCR
- ③ Public Authorities indicator
  - NPV of government cash flows. The government may pay investment and/or operating subsidies and recover taxes and VAT during the operation period. The indicator shows the net present value and the financial balance for the government throughout the concession period.

Project IRR (real/year50) <b>7.81%</b>	Pay back <b>13</b>	Project NPV <b>-18</b>	Equity IRR (real/year50) <b>22.34%</b>	DSCR (min) <b>1.30</b>	LLCR (min) <b>1.39</b>	PV (VAT + Tax-Subsidies) <b>213.794</b>
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## Key project data

Fifteen key assumptions can be modified on each of the three graphs which are automatically adjusted. Ranges of variations have been deliberately limited to realistic values.

Concession life <input type="button" value="50"/>	Variations Construct. Cost <input type="button" value="0%"/>	Operation Cost <input type="button" value="0%"/>	Initial Daily Traffic <input type="button" value="0%"/>	Toll Rate <input type="button" value="0%"/>	Investment subsidy <input type="button" value="0%"/>	Equity <input type="button" value="10%"/>	First tranche Debt Key alloc. 1st tranche <input type="button" value="80%"/>	Debt maturity <input type="button" value="20"/>	Interest Rate <input type="button" value="4.0%"/>	Grace Period <input type="button" value="5"/>	Operating Subsidy <input checked="" type="radio"/> Calculated from ASDCR <input type="radio"/> Fixed amount <input type="button" value="0"/>	Inflation <input type="button" value="2.0%"/>	Toll / Rev. Indexation <input type="button" value="2.0%"/>	Corporate Tax <input type="button" value="30.0%"/>
--	--	---	--	--	---	--	--	--	--	--	---	--	---	---

Two types of modifications are possible:

- ① Enter a new value: concession life, construction period, rate of equity, rate of investment subsidy, first tranche debt, operating subsidy, inflation rate, corporate tax rate
- ② Enter a variation of the original value: construction cost, operation cost, initial, daily traffic and toll rate.

## Summary of project data ranges

The following table describes the lower and upper limits of the main project data.

Project Data	Minimum	Maximum
<b>1. GENERAL AND CONSTRUCTION</b>		
Study year	2000	2050
Beginning of operating period	<b>Study year +1</b>	<b>Study year +10</b>
Concession life	Max (5 years; <b>Construction period +1</b> )	100 years
Construction period	1 year	10 years
Length of highway	1 km	1,000 km
Construction cost / km	0.5 Million USD	200 Million USD
<b>2. TRAFFIC AND TOLL</b>		
Initial daily traffic	0 vehicle per day	120,000 vehicles per day
Yearly traffic increase	0%	100%
Toll	0 USD per km	20 USD per km
<b>3. OPERATING COSTS</b>		
Fixed costs – concessionaire costs	0 Million USD	100 Million USD
Fixed costs – operation costs	0 Million USD	100 Million USD
Fixed costs – highway heavy maintenance	0% of construction cost	20% of construction cost
Fixed costs – highway heavy maintenance (frequency)	1 year	10 years
Fixed costs – Light maintenance	0% of construction cost	5% of construction cost
Variable operation costs (per vehicle) – tr 1	0 USD	2 USD
Variable operation costs (per vehicle) – tr 2	0 USD	2 USD
Variable operation costs (per vehicle) – tr 3	0 USD	2 USD
Variable operation costs (per vehicle) – tr 4	0 USD	2 USD
<b>4. FINANCIAL STRUCTURE</b>		
Equity	0%	100%
Subsidy	0%	90%
Debt maturity	<b>Grace period +1</b>	<b>Concession life</b>
Debt – interest rate	0%	25%
Debt – grace period	<b>Construction period</b>	<b>Debt maturity -1</b>
Debt fees	0%	30%

<b>5. DEPRECIATION</b>		
Regressive depreciation coefficient	1	5
Progressive depreciation coefficient	0.1	1
<b>6. TAXATION &amp; INFLATION</b>		
Corporate tax	0%	100%
Other tax	0%	100%
VAT rate	0%	100%
Inflation rate	0%	100%
<b>7. PRIVATE PARTNER</b>		
Minimum Equity IRR in real terms	8%	50%
Minimum Project IRR in real terms	10%	50%
<b>8. PUBLIC AUTHORITIES</b>		
Discount rate for the State in real terms	2%	15%
<b>9. MODE OF OPERATING SUBSIDIES</b>		
Minimum Annual Debt Service Cover Ratio	1.1	1.4
Fixed amount	0	=Construction_cost/10

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3	PPIAF	Anton Eberhard	Matching Regulatory Design To Country Circumstances, PPIAF Gridlines	2008	doc. URL » www pdf doc. 								✓			
1	PPIAF	Cesar Queiroz, Ada Karina Izaguirre	Worldwide trends in private participation in roads. PPIAF Gridlines. Note n°37.	2008	doc. URL » www pdf doc. 	✓	✓	✓								
3	PPIAF	Apurva Sanghi, Alex Sundakov, and Denzel Hankinson	Designing and using public-private partnership units in infrastructure; Lessons from case studies around the world; PPIAF Gridlines	2007	doc. URL » www pdf doc. 							✓	✓			
3	PPIAF	Jon Stern	Evaluating Regulatory Decisions and Sector Outcomes in Infrastructure Industries Results from Africa and Other Developing Countries. Working Paper N°3	2007	doc. URL » www pdf doc. 								✓			

Module	Publisher	Author	Title	Date	Links	Subjects covered										
						Choice and Type of PPP	Government Policies	Country Developments	Financial	Economic	Contract Award	Laws & Contracts	Institutional	Regulation	Risk Management	Technology
5	PPIAF	A Jadresic	Experts Panels in regulation of Infrastructure in Chile, Working Paper No 2, WB/PPIAF 2007.	2007	  										✓	
3	PPIAF	A. Eberhard	Infrastructure Regulation in Developing Countries, WB Working paper N. 4	2007	  									✓		
3	PPIAF	Tomoko Matsukawa and Odo Habeck	Recent trends in risk mitigation instruments for infrastructure finance; Innovations by providers opening new possibilities. Tomoko Matsukawa and Odo Habeck. PPIAF Gridlines 2007	2007	  				✓					✓		
1	PPIAF	James Leighland and Andrew Roberts	The African project preparation gap. Gridelines note n°18.	2007	  					✓	✓					
4 5	PPIAF	J. Hodges and G. Dellacha	Unsolicited Infrastructure Proposals: How some countries introduce Competition and Transparency. Working Paper No. 1, 2007 WB/PPIAF	2007	  					✓	✓					
5	PPIAF	J Leighland and C Shugart	Is the Public Sector Comparator right for developing countries? PPIAF Gridlines.	2006	  		✓					✓				
1	PPIAF	Bhatia and Gupta	Lifting constraints to PPPs in South Asia: the way toward better infrastructure services	2006	  		✓				✓	✓				
5	PPIAF and World Bank		Toolkit on hiring and managing advisors for Private Participation in Infrastructure (PPI); /WB	2001	  	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1	Project Finance International		League Tables: Financial Report	2008	  					✓						
1	Project Finance International		League Tables: Legal Report	2008	  							✓				
3	Reason Foundation	A T Moore	Raising Gas Taxes Won't Fix Our Bridges	2006	  			✓	✓			✓				
2	SSATP	Mustapha Benmaamar	Financing of Road Maintenance in Sub-Saharan Africa - Reforms and Progress towards Second Generation Road Funds, Discussion Paper No6 - RMF Series	2006	  				✓							
1	SSATP		Road sector performance indicators for African countries. Africa Transport Technical Note n°17	1999	  				✓			✓				
5	Standard and Poor's		Credit Implications of Traffic Risk in Start up Toll Facilities	2002	 			✓	✓					✓		
1	The Economist		Economic Focus, Building BRICs of Growth	2008	  	✓	✓									
2	Transport Policy	Trujillo L.; Quintet E.; Estache A	Dealing with demand forecasting games in transport privatization. Volume 9, Number 4, October 2002 , pp. 325-334(10)	2002	  			✓	✓			✓				
1 3	Transportation Research Record	A. Talvitie	International Experience in Restructuring Road Sector	1996	  								✓			
4	U.S. State of California		California Toll Road Law	1989									✓			
4	U.S. State of Virginia		Public-Private Transportation Act	1989									✓			
3	U.S. Department of Transportation		An introduction to urban travel demand forecasting	1977	 					✓						
1	U.S. Department of Transportation and PB Consult	Perez B. and March J.	Public-Private Partnerships and the Development of Transport Infrastructure: Trends on Both Sides of the Atlantic	2006	  				✓							
1	UN/ECE		Draft Guidelines for Private Public Partnerships for Infrastructure Development. UN/ECE Forum on Public-Private Partnerships for Infrastructure: the Next Steps (PPPs).	2000				✓	✓	✓		✓	✓	✓	✓	✓
4	UNCITRAL - United Nations Commission on		Model Legislative Provisions on Privately Financed Infrastructure Projects	2003	  							✓				

Module	Publisher	Author	Title	Date	Links	Subjects covered	
					doc. URL website URL » pdf doc.	Choice and Type of PPP Government Policies Country Developments Financial Economic Contract Award Laws & Contracts Institutional Regulation Risk Management Technology Maintenance Contracts Monitoring Contract Renegotiation Environment	
④	International Trade Law UNCITRAL - United Nations Commission on International Trade Law		Legislative Guide on Privately Financed Infrastructure Projects	2000	» » www	✓	
④	UNIDO		Sample UNIDO contract provisions for handover, Article 14 to 17.		»	✓	
③	United Nations Economic Commission for Europe		Guidebook on Promoting Good Governance in Public-Private Partnerships	2007	» » www	✓ ✓ ✓	✓ ✓
⑤	World Bank / Infrastructure Commission for Africa / PPIAF	-	Attracting Investors to African Public-Private Partnerships - A Project Preparation Guide	2009	» » www	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓
⑤	World Bank	Eduardo Engel	Route 68 concession, Chile (PVR auction)		NA NA	✓	✓
⑤	World Bank	Cesar Queiroz	Competitive Selection of the Private Partners. Use of Standard Bidding Documents	2008	» » www	✓	✓
⑤	World Bank	Patricia Baquero	Contracts for Public-Private Partnership (PPP) Options	2008	» » www	✓	✓
⑤	World Bank	Sri Kumar Tadimalla	India's PPP Program: World Bank Support	2008	» » www	✓	
③	World Bank	Stéphane Straub, Charles Vellutini, Michael Warlters	Infrastructure And Economic Growth In East Asia. Policy Research Working Paper 4589.	2008	» » www	✓	
③	World Bank	Stéphane Straub	Infrastructure and Growth in Developing Countries: Recent Advances and Research Challenges. Policy Research Working Paper 4460	2008	» » www	✓	
①	World Bank	Natalya Stankevic, Navaid Qureshi, Cesar Queiroz	Resource Guide: Performance-based contracting for preservation and improvement of road assets	2008	» » www	✓	✓
⑤	World Bank		Safe, Clean, and Affordable, Transport for Development. The World Bank Group's Transport Business Strategy for 2008-2012	2008	» » www	✓ ✓	
②	World Bank	Timothy C. Irwin	Government Guarantees: Allocating and Valuing Risk in Privately - Financed Infrastructure Projects	2007	» » www	✓	✓
① ③	World Bank	Foy and Morrison	Infrastructure in Latin America and the Caribbean-Recent Developments and Key Challenges	2007	» » www	✓	✓
⑤	World Bank	César Queiroz	Recent Experience and Lessons Learned with the Use of Performance Based Contracts (PBC) and PPP	2007	» www	✓	✓
③	World Bank	Estache, Juan and Trujillo	Public Private Partnerships in Transport. Policy Research Working Paper 4436.	2007	» » www	✓	✓ ✓
③	World Bank		World Bank Global Road Safety Facility Strategic Plan 2006 – 2015.	2007	» » www	✓	✓
③	World Bank / IFC	-	Environmental, Health + Safety Guidelines for Toll Roads	2007	» » www		✓
① ③	World Bank and PPIAF		Public-private partnership units: lessons for their design and use in infrastructure	2007	» » www	✓	✓ ✓ ✓
②	World Bank and PPIAF	Tomoko Matsukawa Odo Habeck	Review of Risk Mitigation: Instruments for Infrastructure, Financing and Recent Trends and Developments	2007	» » www		✓
⑤	World Bank	Henry Kerali	Public Sector Comparator for Highway PPP Projects	2006	» » www	✓	
①	World Bank	Shweta Bagai and John S. Wilson	What's out there on trade costs and nontariff barriers? Policy Research Working Paper 3899	2006	» » www	✓ ✓ ✓	✓ ✓
③ ④	World Bank	A.C. Brown, J.Stern and B. Tenenbaum	Handbook for Evaluating Infrastructure Regulatory Systems	2006	» » www	✓ ✓	✓ ✓ ✓
⑤	World Bank	Jose Luis Igogoyen	PPP in Highways. Transport Forum	2006	» » www	✓ ✓	

Module	Publisher	Author	Title	Date	Links	Subjects covered											
						Choice and Type of PPP	Governance Policies	Country Developments	Financial	Economic	Contract Awards	Laws & Contracts	Institutional	Regulation	Risk Management	Technology	Maintenance Contracts
5	World Bank	Samuel Zimmerman	2006. Toll Road Revenue Forecast - Quality Assurance/Quality Control	2006	  				✓	✓				✓			
5	World Bank	Ellis Juan	Tools to Mitigate Risks in Highway PPPs	2006	  									✓			
1	World Bank		A Decade of Action in Transport	2005	  			✓	✓	✓			✓				
1 3	World Bank	Cesar Queiroz	Launching PPPs for highways in transition economies	2005	  		✓	✓	✓								
3	World Bank		Guidelines: Procurement Under IBRD Loans and IDA Credits.	2004	  				✓			✓	✓				
2	World Bank		Payment Mechanisms: Issue Paper	2004	  												
1 5	World Bank	Paul Amos	Public and Private Sector Roles in the Supply of Transport Infrastructure Services - Transport Paper TPO	2004	  			✓				✓	✓				
3	World Bank	Antonio Estache and Tomás Serebrisky	Where Do We Stand on Transport Infrastructure Deregulation and Public-Private Partnership? Policy Research Working Paper 3356.	2004	  								✓				
3 4	World Bank Institute	J. Luis Guasch	Granting and Renegotiating Infrastructure Concessions - Doing it Right.	2004	  					✓	✓				✓		
3	World Bank	Timothy Irwin	Public Money for Private Infrastructure Deciding When to Offer Guarantees, Output- Based Subsidies, and Other Fiscal Support - World Bank Working Paper No. 1	2003	  			✓				✓					
3	World Bank	Bakovic, T., B. Tenenbaum, and F. Woolf.	Regulation by contract : a new way to privatize electricity distribution? Working Paper No 14.	2003	  							✓			✓		
1	World Bank	Jeni Klugman	A sourcebook for Poverty Reduction Strategies	2002	  		✓	✓				✓					
3	World Bank		Bank-Financed Procurement Manual [Draft].	2001	  			✓				✓					
2	World Bank		Financial credit with a multilateral "umbrella" (A-loan & B-loan), extract from the World Bank Port Reform Toolkit.	2001	  			✓				✓					
2	World Bank		Financial Implications of port reform, Principles of financial modelling, engineering and analysis	2001	  			✓				✓					
2	World Bank		Financial engineering of the project in terms of "political" risk management, extract from World Bank Port Reform Toolkit	2001	  			✓				✓					
3	World Bank	S. Hinojosa	New Issues in Natural Monopolies Regulation: The Financial Side in Infrastructure Projects though PPP	2001	  							✓					
3	World Bank	S. Hinojosa, M. Almeyda	Revision of State of the Art Contingent Liability Management - Bibliography	2001	  				✓				✓				
2	World Bank		The World Bank Group partial risk guarantee program, extract from the World Bank Port Reform Toolkit	2001	  							✓					
1	World Bank	Gannon-Liu	Assessing Sector Performance: top ten areas	2000	  		✓					✓					
5	World Bank	A. Gomez-Lobo, S. Hinojosa	Broad Roads in a Thin Country - Infrastructure Concessions in Chile	2000	  		✓	✓			✓				✓		
3	World Bank	L. Trujillo, E. Quinet, A. Estache	Forecasting the Demand for Privatized Transport: What economic regulators should know and why	2000	  					✓			✓				
3	World Bank	Gwilliam	Transport Project Appraisal at the World Bank	2000	  					✓			✓				
3	World Bank Institute	A. Estache, G. de Rus	Privatization and Regulation of Transport Infrastructure - Guidelines for Policymakers and Regulators	2000	  								✓				
3	World Bank Sustainable Development Department		Building a Framework for Consultation and Public Participation.	2000					✓								
3	World Bank	A. Estache, J. Alexander, A. Oliveri	A Few Things Transport Regulators Should Know About Risk and the	1999	  				✓	✓			✓				

Module	Publisher	Author	Title	Date	Links	Subjects covered										
						Choice and Type of PPP	Governance Policies	Country Developments	Financial	Economic	Contract Award	Laws & Contracts	Institutional	Regulation	Risk Management	Technology
3	World Bank	PADECO	Cost of Capital Asian Toll Road Development Program, Draft Final Report.	1999	doc. URL » pdf doc. website URL » www PDF	✓ ✓										
3	World Bank Dirección Nacional de Vialidad (Argentina)	G. Cabana, G. Liautaud, A. Faiz	Areawide Performance-Based Rehabilitation and Maintenance Contracts for Low-Volume Roads (7th International Conference on Low-Volume Roads)	1999	» » www PDF											✓
3	World Bank	A. Estache	Privatization and Regulation of Transport Infrastructure	1999	» » www PDF									✓		
3	World Bank Institute	Mansoor Dailami, Ilya Lipkovich, and John Van Dyck	INFRISK: A Computer Simulation Approach to Risk Management in Infrastructure Project Finance Transactions.	1999	» » www PDF				✓					✓		
3	World Bank/MOCJ	PADECO	Seminar on Asian Toll Road Development in an Era of Financial Crisis (Tokyo 1999) - Volume 2	1999	NA » www PDF	✓ ✓								✓		
3	World Bank		Bidding for Private Concessions. The Use of World Bank Guarantees. RMC Discussion Paper Series, no 120.	1998	» » www PDF			✓	✓					✓		
3	World Bank		Colombia - Toll road concession project, The World Bank, project appraisal document	1998	» » www PDF								✓			
1 3 2	World Bank	Ian G. Heggie, Piers Vickers	Commercial Management and Financing of Roads	1998	» » www PDF	✓	✓	✓	✓					✓	✓	
1 3 5	World Bank	Michel Kerf with R. David Gray, Timothy Irwin, Céline Levesque, Robert R. Taylor, Michael Klein	Concessions For Infrastructure; A Guide To Their Design And Award. World Bank Technical Paper No. 399 Finance Private Sector And Infrastructure network	1998	» » www PDF			✓	✓	✓	✓	✓	✓	✓	✓	
5	World Bank		Contingent Liabilities-a threat to stability. World Bank PREM Notes November 1998 No 9.	1998	» » www PDF								✓	✓		
2	World Bank	T. Irwin, M. Klein, G. E. Perry, M. Thobani	Dealing with Public Risk in Private Infrastructure	1998	» » www PDF			✓	✓					✓		
5	World Bank	Armando Ribeiro Araujo	Procurement In Privately Provided Infrastructure (PPI) Projects Financed By The World Bank	1998	NA » www PDF							✓				
3 5	World Bank	P. Belli, J. Anderson, H. Barnum, J. Dixon, J.P. Tan	Handbook on Economic Analysis of Investment Operations	1998	NA » www PDF					✓						
4 5	World Bank	Armando Ribeiro Araujo	Procurement in Privately Provided Infrastructure (PPI) Projects.	1998	NA » www PDF						✓	✓				
3	World Bank	LCSFP	Project Appraisal Document : Colombia - Toll Road Concession Project	1998	NA » www PDF			✓					✓			
3	World Bank	Suthiwart - Narueput	The economic analysis of sector investment programs	1998	» » www PDF				✓				✓	✓		
3	World Bank	C. Crampes, A. Estache	Regulatory Tradeoffs in Designing Concession Contracts for Infrastructure Networks	1997	» » www PDF							✓	✓			
3	World Bank	K. Tsunokawa, C. Hoban	Road and the Environment: a Handbook	1997	» » www PDF											✓
1	World Bank		Sustainable transport- Priorities for policy reforms, Development in practice	1996	» » www PDF			✓	✓							
3 5	World Bank	G. Fishbein, S. Babbar	Private Financing of Toll Roads	1996	NA » www PDF	✓		✓								
1	World Bank	Colin Gannon and Zmarak Shalizi	The use of sectoral and project performance indicators in bank-financed transport operations (Executive summary)	1995	» » www PDF				✓				✓			✓
3	World Bank		Road Maintenance and the Environment	1994	» » www PDF										✓	✓
3	World Bank	S. Miquel, J. Condron	Assessment of Road Maintenance by Contract	1991	» www PDF										✓	
1 3	World Bank	Jean-Marie Lantran	Developing Domestic Contractors for Road Maintenance in Africa	1990	» www PDF										✓	
3	World Bank	M. M. Cernea	Involuntary Resettlement in Development Projects - Policy Guidelines in World Bank Financed Projects	1990	» www PDF											✓
3	Zietlow	Dr. Gunther Zietlow	Cutting Costs and Improving Quality through Performance-Based Road Management and Maintenance Contracts- The Latin	2008	» » www PDF											✓

Module	Publisher	Author	Title	Date	Links	Subjects covered																
						doc. URL	website URL	» pdf doc.	Choice and Type of PPP	Governments	Country Developments	Financial	Economic	Contract Award	Laws & Contracts	Institutional	Regulation	Risk Management	Technology	Maintenance Contracts	Monitoring	Contract Renegotiation
American and OECD Experiences																						
<b>Other references</b>																						
1	International Bridge, Tunnel and Turnpike Association		Tollways: The Learning Issues.	2005	»			✓														
3	International Journal of Transport Economics	Galvez and Jara-Diaz	On the social valuation of travel time savings, Vol. XXV, No. 2	1998	»								✓									
1	Journal of Applied Finance and Investment.	Threadgold	Private financing of infrastructure and other long-term capital projects.	1996				✓				✓		✓								
3	OECD		Environmental Impact Assessment of Roads, Report prepared by an OECD group of scientific experts	1994	»	» www													✓			
1	Ponts et Chaussées (Press)	Xavier Bezançon	2000 years of history of PPPs	2004	»	» www		✓	✓			✓		✓								
Transport Policy	Hensher D and Goodwin	Using values of travel time savings for toll roads: Avoiding some common errors. Vol.11:2, pp. 171-181		2004	»							✓										
3	Transportation Research Board	Neumann, Lance A	Methods for Capital Programming and Project Selection, Synthesis of Highway Practice 243 (NCHRP)	1997	»	» www					✓	✓		✓								
4	UNIDO - United Nations Industrial Development Organization		Guidelines for Infrastructure Development through Build-Operate Transfer Projects	1996	»	» www		✓					✓	✓								
3	Wiley	Ortuzar and Willumsen	Modeling Transport, 3 <sup>rd</sup> edition.	2001	»							✓										

# Key Issues

## Role of PPP

<i>Why is PPP relevant for developing countries?</i>	Module 1 -> Why PPP
<i>What role should PPP play in a road sector development policy?</i>	Module 1 -> Application of PPP
<i>What are the advantages and drawbacks of PPP?</i>	Module 1 -> Advantages of PPP
<i>What is the historical background of PPP?</i>	Module 1 -> Historical context
<i>What relevant examples exist of PPP application worldwide?</i>	Module 6 -> Case Studies
<i>What lessons have been learned from existing PPP programs?</i>	Module 1 -> Lessons learned from existing PPP programs
<i>Who are the key players in PPP?</i>	Module 1 -> Key players and roles

## Enabling Framework for PPP

<i>Why is an enabling environment conducive to PPP implementation?</i>	Module 1 -> Enabling PPPs
<i>How can the PPP framework be adapted to the country context and its constraints?</i>	Module 1 -> Adapting PPP to the country context
<i>What policy frameworks are conducive to successful PPP projects?</i>	Module 3 -> Facilitation of PPPs
<i>Is a legislative framework necessary for PPP?</i>	Module 4 -> Approach -> Enabling framework for PPP
<i>How should legal frameworks be assessed and adjusted?</i>	Module 4 -> Legislation
<i>Relevant case studies</i>	Module 6 -> Case Studies -> Indonesia Module 6 -> Case Studies -> India Module 6 -> Case Studies -> UK

## Competition Process

<i>What is the impact of market capacity on PPP development?</i>	Module 1 -> Defining the partnership -> Drawbacks of PPP
<i>How does the level of competition impact on PPP efficiency?</i>	Module 2 -> Scope -> Influence on Competition
<i>How can government practice favor PPP development?</i>	Module 3 -> Facilitation of PPPs -> Good Governance
<i>What are the advantages/disadvantages of a competitive bidding process?</i>	Module 4 -> Legislation -> Legislative Framework
<i>What are the steps in public procurement for PPP projects?</i>	Module 5 -> Procurement
<i>How should the issue of unsolicited proposals be approached?</i>	Module 4 -> Contracts -> Contract formation
<i>How may unsolicited proposals be assessed?</i>	Module 5 -> Procurement -> Unsolicited Proposals

## Regulation

**What is the role for economic regulation in PPPs?** Module 3 -> PPP Policy Framework -> Legal and Regulatory

**How is a Regulatory Framework set up?** Module 4 -> Legislation -> Regulatory Framework

## Government Support and Fiscal Policy

**What forms of financial support may governments provide for PPP?** Module 2 -> Revenues

**What non-financial support measures are available to governments?** Module 3 -> Facilitation of PPPs -> Financial Framework -> Financial/Fiscal Support, Incentives and Guarantees

**Should financial support be used to attract private investment?** Module 3 -> Facilitation of PPPs -> Financial Framework -> Payments and Revenue

**When and how should the Public Sector Comparator be applied?** Module 5 -> Identification prioritization and selection -> Value for Money and the PSC

**How does government financial support impact the financial evaluation?** Module 5 -> Due Diligence and Feasibility Studies -> Financial Analysis

**Should PPP costs be accounted off budget?** Module 2 -> Public Accounting

## Public Sector Reform

**Why is political will essential for development of PPP?** Module 1-> Enabling PPPs -> Enabling Environment for PPP

**How to find public champions and set up a Project Steering Committee?** Module 5 -> Advisors and Organization -> Organization

**Why is public sector commitment needed as part of an enabling environment for PPP?** Module 1-> Enabling PPPs -> Diagnosis of Enabling Environment for PPP -> Public sector commitment

**How to assess capacity of public sector for PPP?** Module 1-> Enabling PPPs -> Diagnosis of Enabling Environment for PPP -> Capable Public Sector

**How to build capacity for PPP?** Module 3 -> Facilitation of PPPs -> Capacity Building and Training

## Risk Management

**What are the main risks in a PPP? How should they be dealt with?** Module 2 -> Risk

**What are the components of a Risk Management Framework?** Module 3 -> Facilitation of PPPs -> Risk Management Framework

**How should risk management be integrated in feasibility studies?** Module 5 -> Due Diligence and Feasibility Studies -> Risk Management

## Types of PPP

**What are the main types of PPP?** Module 1 -> Defining the partnership -> Main types of PPP

**How to select PPP options to best respond to policy objectives?** Module 2 -> Tailoring appropriate PPPs

**How does the nature of works affect the choice of the PPP option?** Module 2 -> Scope -> Nature of Project

**What are the most relevant contractual clauses for each type of PPP?** Module 4 -> Contracts -> Contract Types

**What PPP modality to choose during project preparation?** Module 5: Implementation and Monitoring > Due Diligence and Feasibility Studies

**What are the main steps for bidding concession contracts?**

**Relevant case studies on concession projects**

Module 5 -> Procurement -> Concessions: Main steps in competitive bidding

Module 6 -> Case Studies -> Croatia

Module 6 -> Case Studies -> Hungary

Module 6 -> Case Studies -> South Africa

Module 6 -> Case Studies -> UK

Module 2 -> Scope -> Brownfield and PBC contracts

**What are the specific issues related to PBC and brownfield projects?**

**What are the main steps for bidding performance-based contracts?**

**Relevant case studies on Performance-Based Contracts**

Module 5 -> Procurement -> Performance-based contracts: Main steps in competitive bidding

Module 6 -> Case Studies -> Zambia

Module 6 -> Case Studies -> Serbia

### Marginal Projects

**How can packaging be used to favor marginal projects?**

Module 2 -> Scope -> Packaging Projects

**Why is economic and financial evaluation and the "viability gap" relevant?**

Module 3 -> Sector Planning and Strategy -> Planning Process

**How can cross-subsidization be provided for in PPP contracts?**

Module 4 -> Contracts -> Contract Provisions -> Cross-Subsidization

**Relevant case studies**

Module 6 -> Case Studies -> Zambia

Module 6 -> Case Studies -> France

### Project Finance

**What are the main sources of finance in a PPP project?**

Module 2 -> Finance

**How can potential sources of revenue be mobilized?**

Module 3 -> Facilitation of PPPs -> Financial Framework

**How should a financial analysis be conducted?**

Module 5 -> Due Diligence and Feasibility Studies -> Financial Analysis

**Is there a tool for a preliminary financial simulation?**

Module 6 -> Financial Models

### Toll revenues and Tariffs

**Why should we be concerned about public acceptance of tolls?**

Module 1 -> PPP strategy -> Adapting PPP to the country context

**What options are available to recover costs of PPP projects?**

Module 2 -> Revenues

**How big a role should road user charges play in funding infrastructure?**

Module 2 -> Revenues -> Road pricing

**How should tariffs be set and adjusted?**

Module 3 -> Facilitation of PPPs -> Financial Framework -> Payments and Revenue

**How should tariffs and other revenue sources be included in the contract?**

Module 4 -> Contracts -> Contract Provisions -> Pricing Formula

**How are the various revenue sources combined in the financial evaluation?**

Module 5 -> Due Diligence and Feasibility Studies -> Financial Analysis

**Is there a tool to simulate tolls and other revenue sources in a financial evaluation?**

Module 6 -> Financial Models

### Consultation & Private Sector Dialogue

**Why is public consultation important?**

Module 3 -> Economic Development and Public Interest -> Public Participation and Consultation

**How can private sector interest for PPP be tested, as well as their ability to assume risks?**      Module 5 -> Dialogue Process

### Contract Renegotiation and Adaptation

**What contractual responses are available for contract renegotiation and adaptation?**

Module 4 -> Contracts -> Contract renegotiation and adaptation

**Why does renegotiation arise and how to deal with it?**

Module 5 -> Renegotiation and Amendments to PPP Contracts

**Relevant case study**

Module 6 -> Case Studies -> Brazil

### OTHER TOOLKITS

**Evaluating Regulatory Systems Toolkit**  
<http://rru.worldbank.org/Toolkits/InfrastructureRegulation/>

The handbook presents detailed, practical guidance on how to conduct quick, mid-level, and in-depth regulatory evaluations of existing national- and state- or province-level regulatory systems through structured case studies. The focus is on economic regulation of commercialized sector enterprises, whether publicly or privately owned.

**Public-Private Dialogue Toolkit**  
<http://rru.worldbank.org/Toolkits/PublicPrivatedialogue/>

This toolkit provides guidance and practical tools to provide for effective public-private dialogue as part of a policy reform process. Dialogue between the public and the private sector, if well managed, can help to respond to the needs of existing businesses and the concerns of wary investors and counter interest groups who benefit from the status quo.

**Concessions Toolkit**  
<http://rru.worldbank.org/Toolkits/InfrastructureConcessions/>

This toolkit aims at helping policymakers and their advisors better understand some of the most important and difficult issues related to the design, award, implementation, monitoring, and financing of concessions.

**Hiring and Managing Advisors Toolkit**  
<http://rru.worldbank.org/Toolkits/HiringManagingAdvisors/>

This toolkit guides governments in hiring and managing advisors, and provides useful insights on how they operate and what they can offer.

**Labor Toolkit**  
<http://rru.worldbank.org/Documents/Toolkits/Labor/index.html>

The Toolkit provides practical tools and information to help policymakers handle labor issues related to public sector reform for PPP. Guidance on conducting labor reforms is provided, starting with the initial concept design stage to monitoring of the reforms.

# Toolkit files

**Toolkit files** allows the download of the complete Toolkit in PDF version and of all Toolkit figures for professional-level outputs for consultation, reports and presentations, as well as of the complete CD-Rom version with CD cover and label.

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(complete edition).  
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# Glossary and Abbreviations



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# Glossary

## A

**Accounting Rate of Interest:** means the ratio of profit before interest and taxation to the percentage of capital employed at the end of a period.

**Administrative law:** refers to the body of law which, in many legal systems belonging to or influenced by the tradition of continental law, regulates a wide range of governmental functions including the provision of public services. Such systems operate under the principle that the Government can exercise its powers and functions either by means of administrative acts or administrative contracts. Administrative law contracts contain unique features that do not exist in private contract law because one of the parties, the public contracting authority acts in the name of the public or represents the public interest. Such systems have often created specific courts, known as administrative courts, to oversee the implementation and interpretation of administrative law. In countries operating

under such a system, agreements entered into for the carrying out of a PPP project, typically project agreements, fall within the category of administrative law contracts, whereas in countries belonging to or influenced by the Common law tradition, project agreements would usually be standard private law contracts.

**After-tax cash flow:** means the total cash generated by an investment annually, defined as profit after-tax plus depreciation, or equivalently operating income after Tax plus the tax rate times depreciation.

**After-tax real rate of return:** means the money after-tax rate of return minus the inflation rate.

**Alignment:** means the projection of a road, especially its center line, on a horizontal plane.

**Alternative Dispute Resolution (ADR):** includes dispute resolution processes and techniques that fall outside of a State judicial process. It is generally classified into at least five sub-types:

partnering, negotiation, conciliation or mediation, dispute review or adjudication boards and arbitration.

**Amortization:** means the gradual reduction of any amount over a period of time which includes various specific practices such as depreciation depiction, write-off or intangibles, prepaid expenses, and deferred charges or gradual reduction of loan principal over time.

**Ancillary services:** refer Secondary Developments.

**Arbitration:** refers to one of the alternative disputes resolution methods in which the parties to an agreement entrust the resolution of their disagreements to an arbitral tribunal composed of one or three arbitrators chosen by them, rather than to a tribunal or court of the State judiciary system. In recent years, arbitration has been used increasingly for settling domestic as well as international disputes including disputes arising under privately financed infrastructure projects. Arbitration, often in a country other than the host country, is

preferred, and in many cases required, by private investors and lenders, in particular foreign ones, since arbitral proceedings may be structured by the parties so as to be less formal than judicial proceedings and better suited to the needs of the parties and to the specific features of the disputes likely to arise under a project agreement. The parties can choose as arbitrator persons who have expert knowledge of the particular type of project. They may choose the place where the arbitral proceedings are to be conducted and the language to be used in the arbitral proceedings. The proceedings and arbitral awards can be kept confidential, while judicial proceedings and decisions usually cannot. The decision rendered by an arbitral tribunal, called an «award», is binding upon the parties as if it were rendered by a State court.

**Annual Debt Service Coverage Ratio (DSCR):** means the ratio of cash flow to debt service obligations and calculated for each year of operation. This shows whether the net income of the project can support or cover, with a margin of comfort, the annual debt service obligations. Usually, the DSCR for each year of operation should be a

minimum of 1.2 and often as much as 1.4, i.e. the minimum cash flow amount should be 1.2 or 1.4 times the amount of the debt service. If the DSCR is less than one, it means that the project will have to dip into reserves or other financial resources to cover debt payments and there is no surplus to provide a return to equity holders.

**Annuity:** means income from capital investment paid in a series of regular interval payments.

**Authority:** means any State, nation or government, or any federal, national, regional, state, provincial, municipal or other political subdivision thereof, any administrative, regulatory, fiscal, judicial or government-owned body, department, commission, authority, tribunal, agency, or other entity, of any such kind exercising executive, legislative, judicial, regulatory or administrative functions of or pertaining to government.

**Authorization:** refers to any consent, registration, filing, agreement, recording, notarization, certificate, license, approval, permit, authorization or exemption from, by or with any government authority, whether given or withheld

by express action or deemed given or withheld by failure to act within any specified time period.

**Availability:** means the period when the facility (or the relevant part thereof) is able to provide the service as required under the project agreement.

**Availability charge:** means the fixed-charge element of a tariff, payable whether or not the product or service is provided, intended to cover debt service and equity return (not normally a separate element in service fees).

## B

**Balance of payments:** means the double-entry book-keeping record of transactions between a country and its trading partners during a particular period of time showing payments coming into the country and payments going out of the country.

**Balance sheet:** means the accounting statement that displays the assets, liabilities and equity of a company.

**Bankable project:** refers to projects which are likely to be considered eligible for bank funding, having an acceptable allocation of risks, a competitive

return on equity for the sponsors and which maintain required minimum debt cover ratios for the lenders.

**Bankruptcy:** means a proceeding by which the State takes possession of the property of a debtor by an officer appointed for the purpose and such property is realized and, subject to certain priorities, distributed rateably amongst the person to whom the debtor owes money or has incurred liabilities.

**Benefit:** means the gain, or positive advantage, arising from a situation or an action. It implies comparison between two specific situations and applies to a specific individual or decision-maker.

Direct benefits are the gains to the user of the improved infrastructure.

Indirect benefits are the knock-on effects of a project on the users of the other roads or transport facilities, on pedestrians, on residents, on the environment, on economic development, on the public administration etc.

**Bid bond:** means an obligation by a third party to guarantee that a party awarded a contract will accept the award and

perform the contract. It is usually a financial guarantee given in support of the obligation of a bidder to sign a contract if he is successful in his bid. Also called bid security.

**Bid price:** means the price offered by a bidder.

**Bidders:** refers, in private infrastructure projects, to private entities which submit a proposal in response to a request formulated by a public authority for the purpose of carrying out an infrastructure project. Such bids or proposals must remain valid undertakings for a given period of time so as to allow the public authority to consider the merits of each proposal made by the various bidders and select the best one according to defined criteria. The words «tender» and «tenderers» are sometimes used instead of the words «bid» and «bidders».

**Binding decision:** refers to a decision made by an authority, administrative, judicial or arbitral, for the settlement of a dispute (judicial decision or arbitral award), or in response to a request or an application for a permission or a licence (administrative), which the parties to the dispute or the applicant must comply with. In certain

cases a binding decision is full and final (such as an arbitral award); in other cases it may be subject to appeal (a judgement by a tribunal of first instance can be referred to a court of appeal, or a decision by an administrative authority may be subject to judicial review).

**Bond:** refers to a negotiable note or certificate which evidences indebtedness. It is a legal contract sold by one party, the issuer, to another, the investor, promising to repay the holder the face value of the bond plus interest at future dates. Bonds are also referred to as notes or debentures. The term note usually implies a shorter maturity than bond. Some bond issues are secured by a mortgage on a specific property, plant, or piece of equipment (also see Debenture.)

**Breach of contract:** refers to the failure by one party to comply with its contractual obligations. It is common practice for the parties to a project agreement to cover the risk of such a breach by the other party and seek guarantees to protect against losses arising from it. In the event of an alleged breach, the party invoking it must also be able to resort to a dispute resolution mechanism

(such as arbitration for example) under the underlying contract and obtain compensation for the losses incurred.

**Brownfield project:** means a project involving refurbishment of an existing facility or building on a site where there previously were major infrastructures.

**Build-operate-transfer (BOT) or Build-own-operate-transfer (BOOT):** these expressions refer to projects where a contracting authority selects a concessionaire for the financing, construction, operation and maintenance of an infrastructure facility, and the said concessionaire is given the right and assumes the obligation to operate the infrastructure facility commercially at its own risks, by collecting fees and other charges from its users, for a given period of time at the end of which the facility is transferred to the contracting authority.

**Build-transfer-operate (BTO):** this expression is sometimes used to emphasize that the infrastructure facility becomes the property of the contracting authority immediately upon its completion, the concessionaire being awarded the right to

operate the facility for a certain period.

**Build-rent-operate-transfer (BROT) or Build-lease-operate-transfer (BLOT):** these are variations of BOT or BTO projects where, in addition to the obligations and other terms usual to BOT projects, the concessionaire rents the physical assets on which the facility is located for the duration of the agreement.

**Build-own-operate (BOO):** this expression refers to projects where the concessionaire owns the facility permanently and is not under an obligation to transfer it back to the contracting authority.

## C

**Capacity building:** refers to the process by which the ability of individuals, organizations or communities to meet their own needs is improved or increased. This includes confidence building, training, and the supply of materials and equipment.

**Capital expenditures:** means long-term expenditures for plant and equipment.

**Capital structure:** refers to the financing mix of

a firm made up of equity and debt. The more debt in relation to equity, the more financial leverage or gearing the firm is said to have.

**Carriageway, travelled way (USA):** means that part of the road or highway constructed for use by vehicular traffic. Auxiliary traffic lanes, passing places, lay-byes and bus bays are included.

**Cash flow:** refers to the measure of a company's liquidity, consisting of net income plus non-cash expenditures (such as depreciation charges). In a credit analysis, cash flow is analyzed to assess the probability that debt commitments can be met without refinancing, that regular dividends will be maintained in the face of falling earnings, or that plant and equipment can be modernised replaced or expanded without increasing the equity or debt capital.

**Central bank:** refers to the official State-owned bank which controls the issue and fluctuations of the State currency.

**Collateral:** means all real, personal and intangible property, assets, contracts, and all rights of the project company related to the project agreement in which a security interest

is or is intended to be created under the project loan.

**Commercial bank:** refers to a bank that both accepts deposits and grants loans and, under certain stipulations in some countries such as the United States, pays interest on checking accounts.

**Commercial risks:** Relate to the possibility that the project cannot generate the expected revenue because of changes in market prices or demand for the goods or services. Such risks may impair the project company to service its debt and may even compromise the financial viability of the project. However these risks vary according to the sector and type of project. Whilst they are minimal where the project company has a monopoly over the service concerned, they may be considerable when projects depend on market based revenues or where there exist alternative facilities such as for toll roads, where commercial risk is strongly linked to the level of traffic from which project revenues are collected.

**Concession:** in countries where public services are government monopolies, the provision of public services by an entity

other than a public authority requires an authorization by which the public authority grants («concedes») a private entity, the right and the obligation to provide a public service at its own risks, such entity being partly or fully responsible for carrying out investments needed to achieve objectives specified by the concession contract, and is granted the right to collect fees from the users of the service or the infrastructure, in the form of toll, fare or other charges for using the facility, in order to recoup its investment and make a profit

**Concessionaire:** refers to the private-sector party to a concession agreement.

Congestion pricing: refers to the policy of charging road users a fee that varies by time of day on a fixed schedule (value pricing) or with the level of traffic (dynamic pricing) on a congested roadway. Congestion pricing is designed to allocate roadway space, a scarce resource, in a more economically feasible manner.

**Consortium:** means a short-term arrangement in which several firms (from the same or different industry sectors

or countries) pool their financial, technical and human resources to undertake a large project that benefits all members of the group.

**Consumer price index (CPI):** means the index measure of inflation equal to the sum prices of a number of assets purchased by consumers weighted by the proportion each represents in a typical consumer's budget.

**Corporation:** refers to an artificial person, as opposed to a natural person, which may be made up of at least one natural person, but most often several natural and possibly artificial persons, which constitute a body separate from that of its members, a body corporate with its own name and place of incorporation, otherwise referred to as a legal entity, entitled to exercise its own rights and capable of contracting obligations, of granting and taking property, of suing and being sued. The nature and extent of such rights and obligations may vary significantly as there is a wide variety of forms that can be used and depending whether it is public or private.

**Cost-benefit analysis:** consists of identifying and quantifying the costs and benefits of a project and,

where possible, ascribing values to them. It is used particularly for non-marketable goods.

**Cost of capital:** refers to the rate a firm must pay to investors in order to induce them to invest in the firm by purchasing the firm's stock and/or bonds.

**Cost overruns:** means all project costs in excess of the costs planned.

**Constitutional law:** refers to the body of law that regulates the powers and duties of the various branches of governments, the executive, the legislative and the judiciary, and often states the duty of the State to ensure the provision of public services. Some countries list the infrastructure and service sectors that come under the responsibility of the State, while in others the task of identifying those sectors is delegated to the legislator. Under some national constitutions, the provision of certain public services is reserved exclusively to the State or to specially created public entities. Other constitutions, however, authorize the State to award concessions to private entities for the development and operation of infrastructure and the provision of public services. In

some countries, there are limitations to the participation of foreigners in certain sectors or requirements that the State should participate in the capital of the companies providing public services.

**Consumers' surplus:** means the difference between the user's perceptive value (individual) for consumption good and what he actually pays i.e. the price of a marketable good.

**Contingent liability:** is a liability which may arise sometime in the future, or may never arise as it is dependent upon some factor, other than the passage of time, to arise or not to arise. Examples of this kind of liability are potential legal rulings against the company. The notes to financial statements should include a description of contingent liabilities.

**Contracting Authority:** refers either to the State, or a subdivision thereof that grants the Concession to and enters into a concession agreement with the project company, also called the grantor.

**Contractors:** refer to the parties that may be engaged by the project company to construct

or operate a project infrastructure. Contractors sometimes form part of the sponsor group.

**Cordon pricing:** means the charge paid by motorists who cross a cordon line or drive in a particular cordon area, usually a city center. Some cordon tolls only apply during peak periods of the weekdays.

**Corporate finance:** refers to a method of financing which is based upon a corporation balance sheet, and therefore constrained by its limits, as opposed to project finance which is sometimes described as «off-balance sheet» financing.

**Covenant:** is an undertaking by a party to a contract to perform certain acts or refrain from performing certain acts such as in a loan agreement to timely provide financial statements, or to refrain from incurring further indebtedness beyond an agreed level.

**Credit Rating:** means an assessment by an independent agency (e.g. Moody's, Standard & Poor's) expressing an opinion of the future ability, legal obligation, and willingness of a bond issuer or other obligor to make full and timely payments on principal and interest due

to investors. The opinion is based on a qualitative and quantitative analysis by the rating agency.

Critical Path Method (CPM) or critical path analysis is a mathematical based algorithm for scheduling a set of project activities which is used as a project management tool.

**Cross-subsidy:** refer to the use of profits from one activity to cover losses from another activity.

**Currency Risk:** means the risk related to either the fluctuation or the transferability of a given currency. the first component is the risk that currency fluctuations between the local currency in which the tolls or other revenues are to be received, and the currency in which the project loan is denominated will make it difficult for the project company to meet its debt service obligations. The second component is the risk that governmental actions in the host country will or would prevent or interfere with the project company's ability to transfer revenues from the project, whether in the form of profits or to service debt.

## D

**Decree:** refers to a subsidiary act of legislation which may be adopted by the executive or the legislative branch of government.

**Debenture:** refers to an obligation secured by the general credit of the issuer rather than being backed by a specific lien on property.

**Debt (liability):** means an obligation to pay cash or other goods or to provide services to another.

Debt capacity: means the total amount of debt a company can prudently support, given its earnings expectations and equity base.

**Debt Service:** means for any period of determination, the sum of (a) all amounts payable by a borrower under a loan agreement in respect of the principal of the Loans during such period plus (b) all amounts payable in respect of interest on the loan for such period plus (c) all fees payable in connection with the loan documents for such period plus (d) all amounts, whether principal, interest or fees to creditors, arrangers or otherwise, payable during such period in respect of any other debt of the borrower.

## Debt Service Coverage

**Ratio:** refers to the amount of cash flow available to meet annual interest and principal payments on debt, including sinking fund payments.

**Debt/capitalisation ratio:** means the ratio of a firm's debt to its capitalisation. The higher this ratio, the greater the financial leverage and the risk.

**Debt/equity ratio:** means the ratio of a firm's debt to its equity. The higher this ratio, the greater the financial leverage of the firm.

**Debtor:** an individual or company that owes debt to another individual or company (the creditor), as a result of borrowing or issuing bonds. Also called obligor.

**Default:** failure to comply with one's contractual obligations such as for example under a loan agreement, the failure to make timely payment of interest or principal on a debt or to otherwise comply with provisions of the loan agreement.

**Depreciation:** means the allocation of an asset's cost, for tax or accounting purposes, over its useful life. It roughly corresponds to normal wear and tear reduction in the value of the asset due to usage,

passage of time, wear and tear, technological outdated or obsolescence, depletion or other such factors.

**Derivatives:** refers to financial arrangements whose returns are linked to, or derived from, some underlying stock, bond, commodity or other asset. They come in two basic types: options and 'forward-type' derivatives, which include forwards, futures and swaps.

**Design-build-finance-operate (DBFO)**  
is sometimes used to emphasize the concessionaire's additional responsibility for designing the facility and financing its construction.

**Design life:** means the period over which the infrastructure (usually road pavement or bridge) is considered to be able to fulfil its function.

**Devaluation:** means the decrease in value of one currency by the reduction of its equivalent value in other currencies. Devaluation can be the result of the supply and demand of that currency on the money market, but also the result of a formal governmental action.

**Developing countries:** refer to those countries with a lower standard

of living with access to fewer goods and services than do most people in high-income countries, comprising low- and middle-income countries, as per classifications of World Bank.

**Disbursement:** is a term used in accounting and finance to indicate the actual paying out of cash.

**Discounted cash flow:** means the present value of a future cash flow discounted by a given discount factor on a compounded basis.

**Discount rate:** a percentage rate representing the rate at which the value of equivalent benefits and costs decrease in the future compared to the present. The rate can be based on the alternative economic return in other uses given up by committing resources to a particular project, or on the preference for consumption benefits today rather than later. The discount rate is used to determine the present value of future benefit and cost streams.

**Dispute settlement:** refers to the various methods by which parties to a contract wish to prevent their disagreements from becoming full fledged disputes and to settle

such disputes when it has not been possible to avoid them. There is a large number of them but the most frequently used methods are early warning systems, partnering, negotiations direct or facilitated, conciliation and mediation, expert appraisal, mini trial, senior executive appraisal, dispute review boards, arbitration, and judicial proceedings. In some countries disputes arising from PPP projects are a matter for the exclusive competence of the judiciary or administrative courts, while in others parties have the choice between judicial proceedings and alternative dispute settlement methods, including arbitration.

**Dividend:** means the return on an investment in stock, usually in the form of cash or stock.

**Divestiture:** means the sale of an equity stake. In the context of PPPs it refers to the stake that a private consortium buys in a state-owned enterprise which may be wholly or partially transferred to the private entity, .

**Domestic bonds:** means bonds issued by a borrower in its country's own domestic bond market.

**EC Directives:** refer to the European Community law that lay down certain objectives that must be achieved in every Member State. National authorities have to adapt their laws to meet these goals, but have some discretion to decide how to achieve the end result. Directives may concern one or more Member States, or all of them. Each directive specifies the date by which the national laws must be adapted - giving national authorities the room for manoeuvre within the deadlines necessary to take account of differing national situations. Directives are used to bring different national laws into line with each other, and are particularly common in matters affecting the operation of the single market.

## E

**Economic evaluation:** means the cost-benefit analysis whose purpose is to help design and select projects that contribute to the welfare of a country. Such evaluation compares the situation «with project» to that «without project» and yields various economic indices, such as, Net Present Value and Economic Internal Rate of Return.

**Economic rate of return:** refers to the internal rate of return indicator resulting from an economic analysis of a road project, whereby all monetary values are «economic» costs (also known as shadow prices), i.e. prices that reflect the real scarcity of resources and which exclude monetary transfers between various agents, such as, taxes and subsidies. In an economic analysis the situation «with project» is compared to the situation «without project».

**Elasticity:** is the ratio of the percent change in one variable to the percent change in another variable. For example, the price elasticity of demand represents the ratio of the change in quantity demanded to a variation in price.

**Electronic toll collection:** means the toll collection system applied automatically to vehicles identified by a tag, an on-board unit or the number plate.

**Enforcement:** refers to the procedure used to give effect to a binding decision under the law of the jurisdiction where the decision is to be given effect, which can either be local host country law, directly or after exequatur proceedings where arbitral

award is concerned, or foreign law where a binding decision need to be given effect in a foreign jurisdiction.

**Environmental Compliance:** refers to the requirement, often found in Concession and Loan documents, which obligates a project company to comply with all national, regional and local environmental laws in the construction and operation of a project. Given that failure to comply with environmental standards is often an event that can give rise to a default and potential termination of a concession agreement and the forfeiture the project, lenders, often include provisions in the loan agreement specifying that failure to comply with environmental standards is also an event of default under the loan.

**Equity:** means the net worth of a company, i.e. its assets minus its liabilities. It is the stockholder's residual ownership position.

**Eurobond:** means any bond in any currency issued outside a borrower's domestic market and sold to international investors by a group of international banks. Eurobonds have no domestic market. A note or bond issued in Europe.

Eurobonds are bearer instruments.

**Eurocurrency:** refers to any currency - European or other - domiciled outside its country of origin.

**European Community law or Community law:** refers to the specific body of law which emanates from the European Union and underpins the main goal of the European Union which is the progressive integration of Member States' economies and the establishment of a single market based on the free movement of goods, persons, and services. To this end, its Member States cede part of their sovereignty under treaties which empower the EU institutions (Council of Ministers, European Commission, European Parliament) to adopt laws. These laws (Regulations, Directives and Decisions) take precedence over national law and are binding on national authorities. EU institutions also issue non-binding instruments, such as recommendations and opinions, as well as rules governing how the EU institutions and programs work.

**European Court of Justice, the «ECJ»:** The Court of Justice of the European Communities is the judicial institution

of the European Union, (the»EU»). It is made up of three courts: the Court of Justice, the Court of First Instance and the Civil Service Tribunal. Their main task is to control the legality of Community measures and ensure the uniform application of Community law by Member States in transposing European law in their national legislation, as well as the uniform interpretation of European law by national courts. Through its case-law, the Court of Justice monitors and sanctions the obligation of Members States Governments and courts to apply Community law in full within their sphere of competence and to protect the rights conferred on citizens by that law (direct application of Community law), and to set aside any conflicting national provision, whether prior or subsequent to the Community provision (primacy of Community law over national law).

**Exchange controls:** refers to the restrictions that are applied by a country's monetary authority, or central bank, to limit the convertibility of the local currency into other specific foreign currencies.

**Exchange rate:** means the price at which one currency trades for another.

**Export credit agencies (ECA) and investment insurance agencies:** are institutions which act as finance companies for private domestic entities who conduct business outside of their own jurisdiction.

**Export-Import Bank of the United States (Eximbank):** means the wholly owned agency of the US government that aids in financing and facilitating US exports. The Eximbank supplements and encourages, but does not compete with, private capital. Its assistance falls into four categories: a medium-term guarantee program, a direct loan and financing guarantee program, a discount loan program and a cooperative financing facility program. The Eximbank guarantees commercial banks and reinsurance the Foreign Credit Insurance Association against all political risks and substantial parts of commercial risks taken on both insurance programs and commercial bank guarantee programs.

**Expropriation:** refers to the right of the State to force the sale and purchase of private property against the will of its owner when such is required in the public interest. National legislations which recognize such a right as well as national and

international tribunals which enforce it have long established that such a right may not be exercised without adequate compensation paid to the owner. Expropriation issues are particularly relevant in PPP projects in road infrastructure which require long stretches of land often privately owned. Short of an outright taking the full ownership of private property, the infringement of or the restriction to property rights has in certain circumstances been equated to expropriation without compensation, and sanctioned as such. Private investors in PPP projects have therefore sought to protect against such a risk by seeking guarantees to cover potential losses in such cases.

**Extraordinary maintenance:** includes all the operations required for restoring a road to its initial state, when damage has been caused either by unforeseeable factors and phenomena or by a lack of routine maintenance.

## F

**Federal Highway Administration (FHWA)** is a part of the U.S. Department of Transportation,

headquartered in Washington D.C. in the USA.

**Financial analysis:** consists in comparing revenue and expenses (investment, maintenance and operation costs) recorded by a project company and in working out the corresponding financial return ratios. Unlike the economic analysis, the financial analysis is only concerned with the cashflows of the implemented project.

**Financial close:** Stage in a financial agreement where conditions have been satisfied or waived, documents executed, and draw-downs become permissible.

**Financial rate of return:** refers to the internal rate of return indicator resulting from a financial analysis of a road project, whereby all monetary values reflect market costs including, taxes, subsidies, etc.

**First year rate of return:** means the ratio of the net benefits arising in the year of opening to the cost of project.

**Fiscal policy:** refers to the use by government of its tax resources and tax policy to influence the economy.

**Fixed currency:** means a currency whose official exchange value in terms of gold or other currencies is maintained by the central bank or monetary authority of the concerned country and does not vary. Most exchange rates are now floating rates.

**Fixed rate loan:** means a loan on which the interest rate paid by the borrower is fixed for the life of the loan.

**Fixed rate of interest:** an interest rate established at the time a loan is made or liability incurred and remains unchanged throughout the term of the loan or liability] Not sure I understand the difference with the previous definition.

**Floating currency:** means a currency whose rate of exchange is allowed to fluctuate according to the forces of supply and demand. All currencies are subject to some degree of central bank intervention to soften the effects of market forces.

**Force Majeure:** refers to any event which prevents, interrupts or delay a party to an agreement from performing its contractual obligations and may excuse that party from complying with such obligations to the extent that the occurrence of such

event was not reasonably foreseeable nor within the control of the party invoking it, and could not be overcome by that party. In certain jurisdictions it is for the courts to appreciate whether the particular circumstances of facts constitute or not an event of force majeure as above defined. In other jurisdictions it is left to the parties to agree what constitutes an event of force majeure, and in such cases the contract would list a series of events which would do so, and could also expressly exclude events which would not constitute a force majeure. Force majeure would typically include such events as war whether declared or not, revolution, armed conflict, riot, insurrection, terrorism, sabotage, radiation or chemical contamination or other serious epidemics, explosion, flood, storm, tempest, earthquake or other similar natural event. Among the events that would often be excluded by the parties as not constituting an event of force majeure would be the strike by the employees of the project company or the contractor.

**Foreign exchange risk:** means the risk that a long or short position in a foreign currency will have to be closed out at a loss, due to an adverse

movement in the relevant exchange rate. Such a long or short position may arise out of a financial or commercial transaction.

**Forward contract:** means a contract between two parties to exchange a currency at a set price on a future date. Such a contract differs from a futures contract in that most forward commitments are not actively traded or standardised and carry the risk of the creditworthiness of the other side of the transaction.

**Forward rate:** means the rate at which forward transactions in some specific maturity are being made; for example, the dollar price at which Euros can be bought for delivery three months hence.

**Franchise:** means the right to operate an existing public infrastructure and collect payments from users of the infrastructure. It differs from a concession because no investment is required by the private sector operator.

**Fungibility:** is the characteristic of a good or a commodity whose individual units are capable of mutual substitution. Fungibility is different from liquidity. A good is liquid and tradable if it can be easily exchanged for money or another different

good. A good is fungible if one unit of the good is substantially equivalent to another unit of the same good of the same quality at the same time and place. Gold and money are good examples of fungible items.

**Future value:** means the value of an initial investment after a specified period of time at a certain rate of interest.

## G

**Generalized cost:** a measure of the cost of the trips between zones based upon a combination of the distance between each zone pair and the time taken for the journey. Additionally, items such as tolls, parking charges and travel time may be included if appropriate.

**Government action / support:** refers to any measure taken by the government to enhance the attractiveness of private investment in infrastructure project in the host country. In a broad sense, any legislation enabling a government to award privately financed infrastructure projects may represent a substantial support to PPP projects. In a narrower sense this expression refers to special

measures, in most cases of financial or economic nature that may be taken by a government to enhance the conditions of execution of a given project or to assist the project company in meeting some of the project risks, above and beyond the scope of the contractual arrangement agreed between the contracting authority and the project company to allocate such risks. These are typically part of a government program to attract private investment for infrastructure projects and include, *inter alia*, public loans and loan guarantees, equity participation, subsidies, sovereign guarantees (either to protect the project company from a breach of obligations assumed by the contracting authority under the project agreement e.g. off-take guarantees or supply guarantees, or to protect the project company from acts of other authorities that are detrimental to the rights of the project company, such guarantees being often referred as «political risk guarantees», e.g. foreign exchange guarantees or guarantees against expropriation without adequate compensation), tax and customs benefits, protection from competition, right to

exploit ancillary revenue sources.

**Grantor:** Refer to Contracting Authority.

**Greenfield project:** refers to a project involving constructing a completely new facility on a site where there have previously been no major infrastructures to support the project.

**Guarantee:** is an accessory contract by which a person (promisor) undertakes to be answerable to the person to whom the promise is given (promisee) for the default of another person's contractual obligations to the promisee. In the context of PPPs it ensures that contract's conditions will be carried out and against any financial or other problems that may arise (e.g. by ensuring the repair or replacement of defective goods and services related to the contract).

## H

**Hard currency:** means a currency considered by the market to be likely to maintain its value against other currencies over a period of time and not likely to be eroded by inflation. Hard currencies are usually freely convertible.

### Highway Development and Management-4

**(HDM4)** refers to version 4 of the model for pavement lifecycle costing and economic evaluation of road construction and maintenance projects and programs. It was developed to meet the needs of highway authorities, particularly in developing countries, and is widely used by international financial institutions, notably the World Bank.

**Hedge:** refers to a method whereby currency exposure (the risk of possible loss due to currency fluctuations) or commodity exposure is covered or offset for a fixed period of time by taking a position in futures equal and opposite to an existing or anticipated cash or commodity position, or by shorting a security similar to one in which a long position has been established.

**Highway agency:** means a government agency

that manages, maintains and improves a country's motorways and trunk roads. It operates a variety of information services, liaises with other government agencies as well as provides staff to deal with incidents on their roads.

**High occupancy vehicle (HOV) lane:** means a motorway lane reserved for the exclusive use by motor vehicles carrying a sufficient number of passengers to qualify to use it (car pooling).

**Host Country:** refers to the country in which a project is to be located. It is the government of the host country that grants the concession.



**International Financial Institutions (IFI)** refers to institutions that range from development banks, such as the International Bank for Reconstruction and Development, the European Bank for Reconstruction and Development and the Asian Development Bank (ADB), to monetary authorities, such as the International Monetary Fund (IMF).

**Impact study:** means the study of the influence

of a project on the environment..

**Income statement:** means the report of a company's revenues, associated expenses and resulting income for a period of time: the profit and loss statement.

**Independent Engineer:** refers to a third-party responsible for reviewing the project works and project costs with respect to whether or not the construction has been completed in accordance with the standards set forth in the project documents. Independent Engineers typically provide a certificate attesting to whether the project has achieved a given milestone which is the «trigger» for a disbursement. This certificate is generally included with the disbursement request.

**Infrastructure funds:** mean specialised funds established by private investment banks which provide funding for infrastructure projects under PPP arrangements.

Intelligent Transportation System refers to efforts to add information and communications technology to transport infrastructure and vehicles in an effort to manage factors that typically are at odds with each other, such

as vehicles, loads, and routes to improve safety and reduce vehicle wear, transportation times and fuel consumption.

**Interest rate swap:** An interest rate swap is a derivative in which one party exchanges a stream of interest payments for another party's stream of cash flows. In an interest rate swap, each party agrees to pay either a fixed or floating rate denominated in a particular currency to the other party. The fixed or floating rate is multiplied by a notional principal amount (say, USD 1 million).

**Internal rate of return:** means the value of the discount rate at which the net present value is equal to zero.

**International law:** may refer either to «Public international law» which is the law governing the relations between States and, in some specific circumstances, the relations between States and foreign investors, under so-called «State contracts», or to «Private international law» which governs or defines the law applicable to the relations between private parties of different nationalities or subject to the law of different jurisdictions.

**Investment bank:** refer to a financial institution engaged in the issue of new securities and private placements including management and underwriting of issues as well as securities trading and distribution. The main function of an investment bank is to locate and collect funds for clients so they can finance new investment projects. Investment banks engage in buying and selling securities, such as stocks, bonds and mortgages. Investment banks also act as intermediaries between the corporation, who requires funds for such improvements as new equipment, new buildings, or plant expansions; and the investor, who wishes to invest his savings. Investment banks may promote a new industry, handle the finances of a corporation for expansion purposes, or act as brokers with other investment banking firms in the flotation of stocks and bonds.

**Internal Revenue Code (of 1986, as amended)** is the main body of domestic statutory tax law of the United States organized topically, including laws covering the income tax, payroll taxes, gift taxes, estate taxes and statutory excise taxes. (It is published as title 26 of the United States Code –USC-,

and is also known as the internal revenue title).

**International Standard organization (ISO):** refers to the network of national standard institutes of 157 countries (one member per country) with a central secretariat in Geneva (Switzerland). ISO is a non-governmental organization that forms a bridge between the public and private sectors.

**ISPA program** is one of the three pre-accession instruments of the European Union along with PHARE and SAPARD programmes. ISPA was established as part of Agenda 2000 of EU and aims at supporting the preparation of the candidate-countries for accession in the Union, in the area of Environment and Transport. Programming on ISPA is performed on the basis of the Accession Partnership and two national strategic documents: ISPA Sector Strategy for Environment and ISPA Sector Strategy for Transport. Under ISPA, more than one billion Euro are annually granted to all candidate-countries participating in the program.

**Joint Venture:** refers to an agreement between two or more parties for the purpose of carrying out a specific PPP project together in sharing the risks and the rewards of such a project. Such an agreement may, but not necessarily, be embodied into a separate legal entity created by the joint venture partners to facilitate the execution of the project and allocate the responsibilities between them for the performance of the project agreement, and specifically their rights and obligations vis a vis each other. However the rights and obligations of the joint venture partners vis a vis the contracting authority under the project agreement would generally be joint and several which means that the default of one partner would have to be made good by the other members of the joint venture.

**Legislative act or legislation:** refers in a domestic context to an act of Parliament, which depending on countries, political systems and circumstances may take various names, such as law, statute, and ordinance. In

European Community law, legislation encompasses Regulations, Directives and Decisions. Legislation frequently plays a central role in promoting private investment in public infrastructure projects. The law typically embodies a political commitment, provides specific legal rights and may represent an important guarantee of stability of the legal and regulatory regime. In most countries, the implementation of privately financed infrastructure projects was in fact preceded by legislative measures setting forth the general rules under which those projects were awarded and executed. Many countries have used legislation to establish the general principles for the organization of infrastructure sectors and the basic policy, institutional and regulatory framework. However, the law may not be the best instrument to set detailed technical and financial requirements. Many countries have preferred to enact subordinate or subsidiary legislation setting forth more detailed rules to implement the general provisions of domestic laws on privately financed infrastructure projects because they are found to be easier to adapt to a change of circumstances.

**Level of service:** with respect to highway infrastructure, means a qualitative measure describing the operational conditions within a traffic stream and their perception by the road users. Such conditions refer to factors such as speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience, and safety. Six levels are defined according to the Highway Capacity Manual method, A to F, with level of service A representing the best operating conditions (free flow) and level of service F the worst (forced or breakdown flow).

**Leverage:** refers to the use of debt to enable a project to be funded with less equity than would be required if the project was funded only with equity (the proportion of a project's financing that is funded by debt also called gearing).

**Liability:** refers to the duty or responsibility of a person to act or to pay a sum of money as a result of an obligation arising under a contract or at law.

**Libor:** means the London Interbank offered Rate of interest on Eurodollar deposits traded between banks. There is a different Libor rate for each deposit maturity. Different

banks may quote slightly different Libor rates because they use different reference banks.

**Limited partnership:** means a partnership consisting of one or more general partners, jointly and severally responsible as ordinary partners, by whom a business is conducted; and one or more limited partners, contributing in cash payments a specific sum as capital and who are not liable jointly and severally with the general partner(s).

**Liquid asset:** refers to an asset that can be converted easily and rapidly into cash without a substantial loss of value.

**Liquidity:** is the ability to convert assets into cash, or a measure of how easily assets can be converted into cash.

**Loan:** refers to that portion of a project financing that comes in the form of debt secured by the collateral.

**Low income countries:** refer to those countries, as classified by the World Bank, with a gross national income (GNI) per capita in 2007 of less than 935 USD . In 2007 there were a total of 49 low-income countries.

## M

**Maintenance management system:** refer to the process of co-ordinating and controlling a set of activities in order to maintain roads so as to make the best possible use of resources available.

**Market value:** means the price at which an item can be sold on the market.

**Mediation:** refers to one of the alternative disputes resolution methods in which a person assists the parties in an independent and impartial manner in their attempt to reach an amicable settlement of their dispute. While the expressions mediation and conciliation are frequently used as synonyms, in some legal systems mediation goes further by allowing the mediator to suggest terms to the parties for the resolution of their dispute.

**Mezzanine financing:** refers to a subordinated debt or preferred equity instrument that represents a claim on a company's assets which is senior only to that of a company's common shareholders. Mezzanine financings can be structured either as debt (typically an unsecured and subordinated note) or preferred stock.

**Middle income countries:** refer to those countries, as classified by the World Bank, with a gross national income (GNI) per capita in 2007 of 936 – 3,705 USD for lower middle-income countries and a GNI per capita in the range of 3,706 – 11,455 USD for upper middle-income countries. In 2007 there were a total of 54 lower middle-income and 41 upper middle-income countries.

**Money market:** means the market for shorter-term securities, generally those with one year or less remaining to maturity, handled by such financial institutions as commercial banks, savings banks, trust companies, insurance companies, stockbrokerage firms, investment banks, investors, or mortgage banks. On the money market, short-term debt instruments (such as bills, commercial paper and bankers' acceptances) are issued and traded.

**Motorway:** means a road with separate carriageways, with access only at a limited number of places, grade-separated interchanges, and some categories of vehicles prohibited.

**Multicurrency bonds:** refer to bonds payable in more than one currency at the discretion of the investor.

**Multinational lending agencies:** refer to a number of trade support organizations are jointly owned by a group of countries and are designed to promote international and regional economic cooperation. In particular, these lending agencies have such goals as aiding the development of productive facilities and furthering social and economic growth in member countries. These include the following major multinational agencies:

*Asian Development Bank;*

*Inter-American Development Bank;*

*International Bank for Reconstruction and Development (The World Bank); and*

*International Finance Corporation (IFC).*

*European Bank for Reconstruction and Development (the EBRD)*

*African Development Bank*

## N

**Net income:** is equal to the income that a firm has after subtracting costs and expenses from the total revenue.

**Net present value (NPV):**

means the difference between the present value of the benefits and the present value of the costs of a project (including capital investment, maintenance and any other costs).

**NIBOR:** means the New York Interbank Rate, which a few bankers promote as a term equivalent to Libor.

**Nominal rate:** In finance and economics nominal interest rate refers to the rate of interest before adjustment for inflation (in contrast with the real interest rate); or, for interest rates «as stated» without adjustment for the full effect of compounding (also referred to as the nominal annual rate). An interest rate is called nominal if the frequency of compounding (e.g. a month) is not identical to the basic time unit (normally a year).

**Non-commercial risk:** refer to such risks as casualty risk (extraordinary events outside the parties' control), political risk such as expropriation a, currency or convertibility restrictions, construction and operation risks such as technology or performance risks. A non-commercial risk can usually be covered by insurance.

**Non-convertible currency:**

refer to those currencies whose circulation is restricted by the local authorities and where the exchange rate is artificially set by those authorities.

**Non-recourse debt:** means debt without recourse to or guarantee from the sponsor of a project. In such a case, lenders look to the project revenues or other interested parties for the repayment of their loan.

## O

**Obligor:** an individual or company that owes debt to another individual or company (the creditor), as a result of borrowing or issuing bonds. Also called debtor.

**Operating cost of vehicles:** mean expenditures of running and maintaining vehicles. The driver's wages and vehicle depreciation may also be included. The «generalized cost» may include other items (time, etc.).

**Operating lease:** means a conditional sale lease in which the lessee guarantees that the lessor will realise a minimum value from the sale of the asset at the end of the lease. If the equipment is not sold for the agreed

residual value, the lessee pays the difference to the lessor. If the equipment is sold for more than the agreed residual value, the lessor pays the excess to the lessee. The lease is called an open-end lease because the lessee does not know the extent of its liability to the lessor until the equipment has been sold at the end of the lease. The lessee's liability is open-ended. The term open-end lease is commonly used in automobile leasing. Individual liability under open-end leases is limited by consumer protection laws.

**Opportunity cost:** means the cost of pursuing one course of action measured in terms of the forgone return offered by the most-attractive alternative investment.

**Opportunity cost of capital:** means the benefits foregone, at the margin, by using a unit of capital in a particular project or use. The benefits foregone might be assessed by looking at particular alternative uses of the capital, or by reference to the general returns achievable in the economy general returns achievable in the economy.

**Option:** means a contract in which the writer of the option grants the buyer

of the option the right, but not the obligation, to purchase from or sell to the writer something at a specified price within a specified period of time (or at a specified date). The writer, also referred to as the seller, grants this right to the buyer in exchange for a certain sum of money, which is called the option price or option premium. The price at which the asset may be bought or sold is called the strike or exercise price. The date after which an option is void is called the expiration date.

## P

**Partnership:** means a contract between two or more persons to place their money, efforts, labor and skill in lawful commerce or business with the understanding that there shall be a proportional sharing of profits and losses between them.

**Pavement:** means the imported road structure from foundation layer to wearing course. Pavements may be either bituminous or concrete.

**Payback period:** means the amount of time required to recover the initial investment in a project.

**Performance Based Contract (PBC)** is a type of contract in which payments for the management and maintenance of road assets are explicitly linked to the contractor successfully meeting or exceeding certain clearly defined minimum performance indicators. PBC is sometimes referred to as output-based or outcome-based contract.

**Periodic maintenance:** consists of predictable repairs, more costly and of a less frequent nature than routine maintenance, which are designed to avoid road deterioration (such as resurfacing, asphalt concrete overlay, etc.).

**Poverty Reduction Strategy (PRS):** refers to a national strategy drawn up by governments of low-income countries that identifies key public action policies, reforms, programs, targets and monitoring indicators, aiming at optimising the allocations of public funding to be spent in the reduction of poverty. The Poverty Reduction Strategy Paper (PRSP) approach began in 1999 as part of the HIPC initiative of the World Bank and the IMF.

**PPI database:** means the project database managed by the World Bank and PPIAF which tracks in

infrastructure projects in developing countries with at least 25% private participation.

**Present value:** means the current equivalent value of cash available immediately for payment or a stream of payments to be received at various times in the future. The present value will vary with the discount interest factor applied to future payments. The current value of a given future cash flow stream, discounted at a given rate.

**Private Financing Initiative (PFI)** is the term used in the UK for government policy of promoting private sector participation in public infrastructure projects

**Private Sector Participation (PSP)**  
In theory, PSP covers a slightly wider range of options than PPPs, for involving the private sector, including BOO and divestiture. However, in practice, PSP is often used synonymously with PPP.

**Privatisation:** means the full transfer of public infrastructure to the private sector, as compared to PPPs where ownership generally remains in the public sector.

**Procurement:** refers to the process applied by an authority for the purpose

of purchasing works, goods or services.

**Program Evaluation and Review Technique (PERT)** is a visual tool that project managers use to schedule, organize and coordinate activities of a project.

**Project:** refers to the implementation and/or operation of a given infrastructure, which comprises some or all of the following tasks: design, financing, construction, rehabilitation, upgrade, operation and maintenance.

**Project Completion:** in the construction context means the accomplishment of both technical completion and financial completion

**Project Cost:** means the totality of expenditure implied by the implementation of a given project. If expenditure is spread over time, it must normally be discounted, which is indicated by using the term «discounted cost». Costs are usually discounted to year zero (the year before expenditure starts). Expenditure added together without taking account of the date is «undiscounted costs». Later road maintenance and operation costs required by investment may, after discounting, be added to the cost. This will

then be known as overall economic cost.

**Project documents:** means, collectively, (a) the Concession Agreement, including the bid documents incorporated therein; (b) the Construction Contract; (c) all material subcontracts entered into by the concessionaire for the operation and maintenance of the Project, including, without limitation, related toll facilities; (d) all necessary authorizations, permits and licenses, including, without limitation, environmental permits pertaining to the project; and (e) any amendments or supplements thereto and any similar agreement entered into by the concessionaire from time to time.

**Project finance:** refer to a financing modality where the lenders look to the project's cash flows to repay the debt and to the project's assets for security. It is also known as structured financing because it requires structuring the debt and equity such that the project's cash flows are adequate to service the debt, and non recourse or limited recourse financing because the lenders cannot turn to the project sponsors balance sheet or

assts as a guarantee for their loan.

**Public-Private Infrastructure Advisory Facility (PPIAF)** is a body of bilateral and multilateral development agencies and international financial institutions built on the World Bank Group's Infrastructure Action Program aiming at helping developing countries to achieve sustainable development through public-private partnerships in infrastructure.

**Public-Private Partnership (PPP)** describes a private sector business venture which provides a public service, traditionally provided by government, which is funded and operated through a partnership of government and one or more private sector companies. PPPs in infrastructure such as transportation can increase efficiency, broaden access, and improve quality of services. Various models exist for PPPs in infrastructure, and from Build-Own-Operate-Transfer (BOOT) transactions to management contracts, the options for private sector participation are many and can be tailored to best suit the needs of governments, the public and investors. PPP contracts can be complex. When well designed, such contracts allocate risks to the party

best able to manage or mitigate them.

**Public funding:** refers to the assistance funded by a State or another regional or local public authority which constitutes one of the Government action/support (see above definition) methods when given to a PPP project.

**Public procurement rules:** refers to the rules applicable to public authorities in their procurement function. Such rules cover the selection of the best offer in the public interest and must therefore ensure the transparency of the procurement process and the non discrimination between the providers of works, goods and services.

## R

**Rating:** is an evaluation given by rating service agencies such as Moody's or Standard & Poor's, as to a company securities' credit worthiness.

**Rating agency:** are institutions that study the financial status of a company and then assign a quality rating to securities issued by that company. For example, Standard & Poor's and Moody's are leading rating agencies that rate project finance debt.

**Real rate.** The real interest rate is approximately the nominal interest rate minus the inflation rate. Since the inflation rate over the course of a loan is not known initially, volatility in inflation represents a risk to both the lender and the borrower.

**Refinancing:** means repaying existing debt and entering into a new loan, typically to meet some corporate objective such as the lengthening of maturity or lowering the interest rate.

**Refurbish-operate-transfer (ROT) or Modernize-operate-transfer (MOT):** in some projects, existing infrastructure facilities are turned over to private entities to be modernized or refurbished, operated and maintained, permanently or for a given period of time.

**Regulations (in EC Law):** a regulation is a legislative act of the European Union which becomes immediately enforceable as law in all member states simultaneously. Regulations can be distinguished from Directives which, at least in principle, need to be transposed into national law.

**Regulatory agency:** refers to the public authority

that is entrusted with the power to issue and enforce rules and regulations governing the operation of an infrastructure. The regulatory agency may be established by statute with the specific purpose of regulating one particular infrastructure sector, but it may also have jurisdiction across several sectors, such as in respect of competition for example.

**Regulatory framework:** refers to the range of institutional mechanisms governing the organization and operation of infrastructure sectors. While there are countries that entrust regulatory functions to organs of the Government (for example, the concerned ministries or departments), other countries have preferred to establish autonomous regulatory agencies, separate from the Government. In a third category, certain countries have elected not to set up a regulator, independent or not, but have opted to subject their infrastructure sectors to detailed contractual provisions between the contracting authority and the public service provider without the intervention of a third party, government department or independent agency. Lately some emerging countries opening up to regulation have opted for a

combination of the above solutions.

**Rehabilitation (of existing pavement):**

refer to work undertaken to restore serviceability and to extend the service life of an existing infrastructure facility.

**Rent holiday:** means a period of time in which a lessee is not required to pay rents. Typically in such cases the rents are capitalised into the remaining lease payments.

**Request for proposals (RFP)** refers to an invitation for suppliers of infrastructure and/or related services, to submit a proposal to construct a specific project and/or provide specific public services. The RFP process brings structure to the procurement decision and allows the risks and benefits to be identified clearly upfront and proposes their allocation between the parties. The RFP can be very specific especially for major highways but for other types of infrastructure can leave all or most of the proposal response to the suppliers' discretion. The vital aspect of the RFP is that it should be based on a thorough feasibility study most of which will be included in the technical background (within the RFP) to the

project. The RFP usually also includes a draft concession contract which bidders are expected to follow.

**Required rate of return:** means the minimum future receipts an investor will accept in choosing an investment.

**Return on assets (ROA):** means the net profits after taxes divided by assets. This ratio helps a firm determine how effectively it generates profits from available assets.

**Return on equity (ROE):** means the net profits after taxes divided by stockholders' equity.

**Return on investment (ROI):** means the net profits after taxes divided by the investment.

**Revenue bond:** refer to long-term borrowing used to fund specific projects, for example a municipal bond issued by the state or local government and secured by revenues from tolls, user charges or rents derived from the facility financed. Municipal revenue bonds are not backed by the tax base or other assets of the municipality.

**Right-of-way:** with respect to the land required for a project, means the area that has been

purchased and reserved for construction purposes which includes the road as such, but also areas which are deemed necessary to ensure the proper functioning of and access to and egress from the road, as well as the public services associated with it.

**Risks or project**

**risks:** refer to those circumstances which in the assessment of the parties, may have a negative effect on the benefit they expect to achieve with the project. Among the main categories of risks, one may distinguish: (i) events that are outside the control of the parties (typically force majeure event), (ii) adverse acts of government (typically political risks), (iii) construction and operation risks (typically completion risks, costs overrun risks, and performance risks), (iv) commercial risks (typically changes in market prices or demand for the goods or services), (v) exchange rate and other financial risks.

**Risk adjusted discount**

**rate:** means a discount rate which includes a premium for risk.

**Risk allocation:** means the process of attributing or transferring risk between the public and the private parties within a PPP contract, generally to the

party best able to manage or support it.

**Risk aversion:** means an unwillingness to either bear any risk or to bear risk without compensation of some form

**Risk-free interest rate:** means the interest rate prevailing on a default-free bond in the absence of inflation.

**Risk premium:** means an additional required rate of return that must be paid to investors who invest in risky investments to compensate for the risk.

**Road Fund:** means a holding of dedicated revenues collected as road user charges (e.g. a levy included in the price of fuel). Usually the funds are used to finance road maintenance and rehabilitation works.

**Routine maintenance:** consists of many different tasks which are frequently necessary to maintain the road in good condition (such as repairing potholes, cleaning drainage systems, sealing cracks, cutting vegetation, etc.).

## S

**Secondary developments:** refers to services not

strictly required by the operation of the infrastructure, but which help to improve users' comfort, such as phone facilities, facilities for procuring fuel and sundry purchases, catering facilities, breakdown services, rest facilities and the provision of information, and procure additional revenues to the Operator

**Secondary market:** means the trading that begins after the initial distribution of bonds or securities. New issue houses usually make a market in bonds or securities which they have co-managed. Other institutions, such as banks, investment banks and securities trading firms generally act as market makers in a wide range of issues and instruments by quoting two-way prices and being prepared to deal at those prices.

**Security agreement:** means an agreement in which title to property of a borrower is held as collateral under a financing agreement, usually by a trustee, as security for the performance of the borrower obligations under the financing agreement.

**Semi-convertible currency:** refer to a currency that can only be bought or sold through a

central bank at specific fixed rates of exchange. Included are many developing countries where transactions are limited to documented commercial deals.

**Senior debt:** means all debts, both short and long-term, which is not subordinated to any other liability. This debt includes obligations to banks (revolving credit lines or term loans), to insurance companies and to other financial institutions. Rentals under leases are senior debt

**Sensitivity analysis:** means the analysis of the impact on an economic plan or forecast of a change in one of the input variables.

**Shadow toll:** means toll based on usage of the facility but payable by the Public Authority, rather than the road users.

**Shareholder or stockholder** is a person, physical or legal (including a corporation) that legally owns one or more shares of stock in a joint stock company.

**Shareholders' equity:** means the book value of the net assets (total assets less total liabilities) is called shareholders' equity, or net worth. Accounts which comprise net worth include preferred stock,

common stock, paid-in capital and earned surplus (retained earnings). Deferred accounts and reserve accounts such as reserve for pensions, while generally not thought of as true liabilities, are not considered equity.

**Short selling:** describes a practice whereby a market participant assumes a short position by selling a commodity or security he does not own.

**Short-term debt:** means an obligation maturing in less than one year.

**Social value:** replaces individual values by integrating together the satisfactions and dissatisfactions felt by people other than the users, as well as the correction factors that the decision making authority applies to individual values so as to express its own system of values. The term «collective value» can also be used.

**Sovereign risk:** the special risk, if any, that attaches to an investment or loan because the borrower's country of residence differs from that of the investor's. Also referred to as country risk.

**Sponsor:** means the entity that owns, at least initially, the project company, and

undertake the securing of the concession and initial structuring of the project. A sponsor may also undertake additional obligations, such as guarantees related to the financing of the project. Sponsors can be either private foreign or domestic corporate entities, or some organ of a regional or national government charged with the maintenance and/or development of toll roads.

**Special purpose vehicle (SPV):** means a body corporate (usually a limited company of some type or, sometimes, a limited partnership) created specifically to implement a PPP project, primarily to isolate financial risk, usually bankruptcy but sometimes a specific taxation or regulatory risk.

**Subordinated debt:** all debt (both short and long-term) which, by agreement, is subordinated to senior debt. It does not include reserve accounts or deferred credits.

**Subsidy:** refer to a form of financial assistance or support from government paid to a business or economic sector used to support businesses that might otherwise fail, or to encourage activities that would otherwise not take place. See the definition

of government action/support.

**Swap agreements:** refers to contracts whereby two parties agree to exchange periodic payments. The dollar amount of the payments exchanged is based on a notional principal amount. There are five main types of swap agreements: currency swaps, interest rate swaps, credit default swaps, commodity swaps and equity swaps.

**Syndicated credit facility:** means an agreement in which a number of banks undertake to provide a loan or other support facility to a customer on a pro rata basis under identical terms and conditions evidenced by a single credit agreement. These facilities are generally floating rate in nature, with or without amortization and the pricing will normally consist of a fixed spread over a short-term base rate (which base rate is adjusted periodically during the life of the loan), with commitment fees, agency fees, management fees, offsetting balances, security, etc., often included as well. Tenors may range from 1-12 years.

**Syndicated loan:** means a commercial banking transaction in which two or more banks participate in

making a loan to a firm or a project company. Interest is typically paid on a floating rate basis linked to short-term interest rates in a particular currency.

**T****Termination**

**Compensation:** refers to those amounts that a Concession Agreement specifies as due when a concession is terminated prematurely.

**Toll:** means the price paid for access to a highway facility.

**Toll road corporations:**

means either public, private or semi-public organizations set up to develop and operate a regional or national road network.

**Toll ways:** refer to a road, bridge or tunnel where motorists are charged a fee to use the facility according to a fixed schedule. Also referred to as turnpikes (USA).

**Tradeoffs:** mean alternative key objectives in a decision, design, or project and their associated benefits and opportunity costs, all of which cannot be attained together. Tradeoffs play a particularly important part in negotiations where the

positions of the opposing parties can be quantified.

**Traffic forecast:** means the expected future traffic flows and patterns resulting from calculations based on past and current traffic figures as well as macro economic data.

Traffic management: means the work aimed at making the best possible use of existing road space.

**Transparency:** A transparent legal framework is characterized by clear and readily accessible rules and by efficient procedures for their application. Transparent laws and administrative procedures enable potential investors to estimate the costs and risks of their investment and thus to offer their most advantageous terms.

Transparent laws and administrative procedures may also foster openness through provisions requiring the publication of administrative decisions, including, when appropriate, an obligation to state the grounds on which they are based and to disclose other information of public relevance. They also help to guard against arbitrary or improper actions or decisions by the contracting authority or its officials and thus help to promote confidence in

a country's infrastructure development program. Transparency of laws and administrative procedures is of particular importance where foreign investment is sought, since foreign companies may be unfamiliar with the country's practices for the award of infrastructure projects.

**Treasury bill:** refer to a non-interest-bearing discount security issued by the US Treasury to finance the national debt. Most bills are issued to mature in three months, six months, or one year.

**Trustee:** means a person, bank or private individual which administers the provisions of a trust agreement. In financing transactions these provisions may relate to a loan.

**U**

**Underwriter:** means a financial firm engaged in the business of underwriting securities issues. Underwriting is one function of an investment banker, which purchases new issues from the issuer and sells them to investors.

**Unsecured loan:** means a loan made on the general credit of a borrower. The

lender relies upon the borrower's balance sheet and the capability of the borrower's management to manage its assets and produce cash flows sufficient to repay the debt, but without any assets being pledged as security for the repayment of such debt.

**Unsolicited proposals:** Most projects are solicited i.e. the government has a program and invites (solicits) bids to implement each project. However, contracting authorities are sometimes approached directly by private companies who submit (uninvited) proposals for the development of projects through a much different, and often not transparent, selection procedure. Unsolicited proposals may often result from the identification by the private sector of an infrastructure need and opportunity that may be met by a privately financed project. Such projects may also involve innovative proposals for infrastructure management and offer the potential for transfer of new technology to the host country. However, often the private sector approaches the authorities with inadequate pre planning and such projects often end up taking a long time to implement, with unforeseen and major fiscal

and political liabilities for governments. They may also often divert public sector financial and human resources from priority projects.

## V

**Value:** maximum price that would be paid to obtain a good. It is generally a function of the quantity of this good already possessed or already consumed.

**Venture capital:** means the risk capital in the form of equity investments or equity related debt securities extended to start-up or small going concerns.

**Variable message sign (VMS):** refer to a road sign for the purpose of displaying one of a number of messages that may be changed or switched as required.

**Vehicle Operating Costs (VOCs):** means one of two types of VOCs. (i) VOCs for modelling and forecasting which refer to transport costs that vary with vehicle usage and affect travel and route decision making. These costs include fuel, tires, maintenance, repairs, and mileage-dependent depreciation. (ii) The other type of VOCs include both usage dependant costs

and time dependent costs i.e. the latter are not dependent on usage (often called vehicle ownership costs) which include insurance costs, time-dependent depreciation, financing, and storage. A project that alters vehicle speeds, vehicle miles traveled, roadway surfaces, or roadway geometry may affect travelers' vehicle operating costs and should thus be evaluated in a cost benefit analysis (CBA).

**Viability Gap Fund (VGF):**

In order to promote a PPP program, a government may decide to subsidise economically viable PPP projects that will not be financially viable if they are constrained to charge affordable user tariffs or unitary payments. The government will make such PPP projects financially viable by dedicating a portion of its fiscal budget to fund the gap between the expected project revenues and the level of revenues that would make the project financially viable. A Viability Gap Fund is set up by governments to provide such dedicated project funding.

**Vignette:** refer to a method of road financing by the licensing of motorway access for some or all vehicle categories. It has been achieved by introducing a lump sum access charge for using

motorways. A windshield sticker called «vignette» is used in Switzerland, Austria, the Czech Republic and the Slovak Republic while another document called «Eurovignette» is mandatory to be carried on board by all heavy goods vehicles above 12 tons using motorways in Germany, Netherlands, Belgium, Luxembourg, Denmark and Sweden.

## W

**Warrant:** refer to an instrument allowing the holder to purchase a given security at a given price for either a set period or for perpetuity.

**Warrant bonds:** give its holder the right to buy something in the future, usually a share or a bond.

**Weighted Average Cost of Capital (WACC):** means the average weighted rate that a company pays for its capital, comprising debt and equity. WACC is the minimum return (or target) that a company must earn on its capital to satisfy its creditors, owners, and other providers of capital. WACC is often used by private companies as a reference for the assessment of investment opportunities. SPVs established for PPP projects will have their

own WACC based on their specific financial structure.

**Whole life evaluation:**

means the process of evaluation over the useful life of an infrastructure and over which time the economic benefits may be estimated.

**Willingness to pay:** means the willingness of road users to pay the tolls or other usage fees required by the concessionaire.

**Working capital**

**replenishment:** means an undertaking by an industrial company sponsor and/or parent to make liquid funds available to a special purpose subsidiary or company to enable such a company to keep its working capital at levels sufficient to service debt and meet operating expenses.

## Y

**Yield:** means the rate of return on a loan, expressed as a percent and annualised.

**Yield curve:** means the relationship between yield and current maturity, depicted in graphic form as a yield curve. This curve plots yield on the vertical axis and maturity on the horizontal axis. A normal yield curve slopes upward

from left to right, from short maturities to long maturities.

## Z

**Zero-coupon bonds:**

means a bond which does not pay interest. The security is sold at a discount and its yield interest rate is determined by a rise in value per unit of time.

**Zero-coupon convertible:**

means a zero coupon bond with option to convert to common stock or other security

# Abbreviations

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## A

<b>AAA</b>	American Arbitration Association
<b>ADB</b>	Asian Development Bank
<b>ADR</b>	Alternative Dispute Resolution
<b>ADSCR</b>	Annual Debt Service Coverage Ratio
<b>AFIDB</b>	African Development Bank
<b>(either ADB or AfDB)</b>	
<b>AHP</b>	Analytical Hierarchy Process
<b>ARI</b>	Accounting Rate of Interest
<b>ATP</b>	Ability to Pay

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## B

<b>BAFO</b>	Best and Final Offer
<b>BBO</b>	Buy, Build, Operate
<b>BCIE</b>	Central American Bank for Economic Integration
<b>BDO</b>	Build, Develop, Operate
<b>BLT</b>	Build, Lease, Transfer
<b>BOAD</b>	Banque Ouest Africaine de Développement (West African Development Bank)
<b>BOO</b>	Build, Own, Operate
<b>BOOT</b>	Build, Own, Operate, Transfer
<b>BOT</b>	Build, Own, Transfer
<b>BROT</b>	Build, Rehabilitate, Operate, Transfer
<b>BTO</b>	Build, Transfer, Operate

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## C

<b>CA</b>	Contracting Agencies
<b>CAF</b>	Corporacion Andina de Fomento (Andean Development Bank)
<b>CAPM</b>	Capital Asset Pricing Model
<b>CBA</b>	Cost Benefit Analysis
<b>CDA</b>	Comprehensive Development Agreements (US)
<b>CMU</b>	Contract Management Unit
<b>CPI</b>	Consumer Price Index
<b>CPM</b>	Critical Path Method



**COFACE** Compagnie Française d'Assurance pour le Commerce Extérieur (French Export Credit Agency)

**CVISN** Commercial Vehicle Information Systems Networks

## D

<b>DBFO</b>	Design, Build, Finance, Operate
<b>DBO</b>	Design, Build, Operate
<b>DFID</b>	Department for International Development (UK)
<b>DRB</b>	Dispute Review Board
<b>DSRC</b>	Dedicated Short Range Communication
<b>DSCR</b>	Debt Service Cover Ratio

## E

<b>EBIT</b>	Earnings before interest and taxes
<b>EBITDA</b>	Earnings before interest and taxes, depreciation and amortization
<b>EBRD</b>	European Bank for Reconstruction and Development
<b>EC</b>	European Community
<b>ECA</b>	Export Credit Agency
<b>ECICS</b>	Export Credit Insurance Corporation of Singapore
<b>ECJ</b>	European Court of Justice
<b>ECGD</b>	Exports Credits Guarantee Department of the United Kingdom
<b>EDC</b>	Export Development Corporation (Canadian Export Credit Agency)
<b>EDF</b>	European Development Fund
<b>EFF</b>	Economic Financial Equilibrium
<b>EIA</b>	Environmental Impact Assessment
<b>EIB</b>	European Investment Bank
<b>EIC</b>	Economic Investment Cost
<b>EIRR</b>	Economic Internal Rate of Return
<b>EIS</b>	Environmental Impact Statement
<b>EKN</b>	Exportkreditnamden (Swedish trade finance agency)
<b>EPC</b>	Engineering Procurement and Construction
<b>ERG</b>	ERG Geschaftsstelle fur die Exportrisikogarantie. (Export Credit Agency in Switzerland)
<b>ESCAP</b>	United Nations Economic and Social Commission for Asia and the Pacific
<b>ETC</b>	Electronic Toll Collection

**EU** European Union

**F**

<b>FHWA</b>	Federal Highway Administration (US)
<b>FIC</b>	Financial Investment Cost
<b>FIDIC</b>	Fédération Internationale des Ingénieurs Conseils
<b>FIRR</b>	Financial Internal Rate of Return
<b>FOREX</b>	Foreign Exchange
<b>FS</b>	Feasibility Study

**G**

<b>GDP</b>	Gross Domestic Product
<b>GNI</b>	Gross National Income
<b>GOI</b>	Government of Indonesia
<b>GPS</b>	Global Positioning System

**H**

<b>HA</b>	Highway Authority
<b>HDM</b>	Highway Development and Management
<b>HOV</b>	High Occupancy Vehicle (lane)
<b>HRD</b>	Human Resource Development
<b>HTF</b>	Highway Trust Fund (US)

**I**

<b>IADB</b>	Inter-American Development Bank
<b>IBRD</b>	International Bank for Reconstruction and Development
<b>ICC</b>	International Chamber of Commerce
<b>ICSIC</b>	International Centre for Settlement of Investment Disputes
<b>IDB</b>	Islamic Development Bank
<b>IEE</b>	Initial Environmental Examination
<b>IFC</b>	International Finance Corporation (World Bank Group)
<b>IFI</b>	International Financial Institutions
<b>IIC</b>	Inter-American Investment Corporation
<b>IIFCL</b>	India Infrastructure Financing Company limited
<b>IMF</b>	International Monetary Fund
<b>IPR</b>	Intellectual Property Rights
<b>IRAP</b>	International Road Assessment Programme
<b>IRF</b>	International Road Federation

<b>IRC</b>	Internal Revenue Code.
<b>IRMS</b>	Indonesian Road Management System
<b>IRR</b>	Internal Rate of Return.
<b>ISO</b>	International Standard Organization
<b>ISOHDM</b>	International Study of Highway Development and Management
<b>ISPA</b>	Instrument for Structural Policies for Pre-Accession
<b>ITS</b>	Intelligent Transport system
<b>ITT</b>	Invitation to tender (see also RFP)

## J

<b>JBIC</b>	Japan Bank for International Cooperation
<b>JV</b>	Joint Venture

## K

<b>KHC</b>	Korea Highway Corporation
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## L

<b>LGTT</b>	Loan Guarantee for TEN-Transport
<b>LLC</b>	Limited Liability Company
<b>LLC</b>	Local Labor Company
<b>LLCR</b>	Loan Life Coverage Ratio
<b>LOI</b>	Letter of Invitation
<b>LOS</b>	Level of Service

## M

<b>MCA</b>	Model Concession Agreement
<b>MCA</b>	Multi Criteria Analysis
<b>MF</b>	Model Firm
<b>MIGA</b>	Multilateral Investment Guarantee Agency
<b>MOF</b>	Ministry of Finance
<b>MOT</b>	Ministry of Transport
<b>MPW</b>	Ministry of Public Works
<b>MRG</b>	Minimum Revenue Guarantee
<b>MRL</b>	Maximizing Revenue Level

## N

<b>NAO</b>	National Audit Office (UK)
<b>NHAI</b>	National Highway Authority of India
<b>NHDP</b>	National Highway Development Program

<b>NIBOR</b>	New York Interbank Rate (equivalent to Libor)
<b>NMT</b>	Non-Motorized Transport
<b>NPV</b>	Net Present Value

## O

<b>OBU</b>	On Board Unit
<b>OCC</b>	Opportunity Cost of Capital
<b>OECD or OCDE</b>	Organization of Economic Cooperation and Development
<b>OCR</b>	Optical Character Recognition
<b>OD or O-D</b>	Origin Destination
<b>OLC</b>	Other non-Labor Local Component
<b>O&amp;M</b>	Operation and Maintenance
<b>OPRC</b>	Output and Performance based road contracts

## P

<b>PBC</b>	Performance Based Contract
<b>PERT</b>	Program Evaluation and Review Technique
<b>PFI</b>	Private Financing Investment/ Private Finance Initiative
<b>PFP</b>	Privately Financed projects
<b>PIARC (AIPRC)</b>	World Road Association
<b>PICKO</b>	Private Infrastructure Investment Centre of Korea (which is become PIMAC)
<b>PLCR</b>	Project Life Cover Ratio
<b>PMMR</b>	Performance-based Maintenance and Management Road
<b>PMS</b>	Pavement Monitoring System
<b>PPIAF</b>	Public-Private Infrastructure Advisory Facility (World Bank Group)
<b>PPI</b>	Private Participation in Infrastructure
<b>PPP</b>	Public-Private Partnership
<b>PPPAC</b>	Public-Private Partnership Appraisal Committee
<b>PSC</b>	Public Sector Comparator
<b>PSP</b>	Private Sector Participation
<b>PRS</b>	Poverty Reduction Strategy
<b>PV</b>	Present Value

## R

<b>RF</b>	Real Firm
<b>RFP</b>	Request for Proposals

<b>RFQ</b>	Request for Qualifications
<b>RIA</b>	Regulatory Impact Assessment
<b>RLT</b>	Rehabilitate, Lease, Transfer
<b>RMA</b>	Regional Mobility Authorities (US)
<b>RMI</b>	Road Maintenance Initiative
<b>RMU</b>	Risk Management Unit
<b>ROA</b>	Return on assets.
<b>ROE</b>	Return on equity.
<b>ROI</b>	Return on investment.
<b>ROT</b>	Rehabilitate, Operate, Transfer
<b>RPI</b>	Retail Price Index

## S

<b>SAL</b>	Socially Acceptable Level
<b>SCBA</b>	Social Cost Benefit Analysis
<b>SCF</b>	Standard Conversion Factors
<b>SPC</b>	Special Purpose Company
<b>SPV</b>	Special Project Vehicle
<b>SSATP</b>	Sub-Saharan Africa Transport Policy Program
<b>SWR</b>	Shadow Wage Rate

## T

<b>TA</b>	Technical Assistance
<b>TC</b>	Tax Component
<b>TP</b>	Transport Paper

## U

<b>UNCITRAL</b>	United Nations Commission on International Trade Law
<b>UNIDO</b>	United Nations Industrial Development Organization

## V

<b>VAR</b>	Value at Risk
<b>VAT</b>	Value Added tax
<b>VFM</b>	Value for Money
<b>VGF</b>	Viability Gap Fund
<b>VOC</b>	Vehicle Operating Costs

## W

<b>WAAC or WACC</b>	Weighted Average Cost of Capital
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<b>WB</b>	World Bank
<b>WBS</b>	Work Breakdown Structure
<b>WHD</b>	Western High speed Diameter
<b>WP</b>	Working Paper
<b>WTP</b>	Willingness to Pay