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Liberalising Network Infrastructure Services and the GATS

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LIBERALISING NETWORK INFRASTRUCTURE SERVICES AND THE GATS

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ABSTRACT

This study reviews key issues in liberalising network infrastructure services — including telecommunications, postal/courier, energy, water and sewage — in the national and multilateral contexts. The economic and social significance of these services means that they are high on the list of development priorities in many countries. Enhanced trade and investment in network infrastructure services can help achieve these development goals. Liberalisation, however, is no easy task and requires sound regulation and effective institutions to address market failures and ensure public policy objectives. If appropriately designed, bound liberalisation under the GATS can contribute to the advancement of national objectives by improving investor's confidence when countries decide to allow private sector participation in these services. The WTO services agreement can affect the regulatory conduct of governments in some areas of network infrastructure services, particularly when specific commitments are made. This is intensified by the fact that the GATS is a relatively young agreement and some of its provisions remain to be tested in practice. It is thus crucial to carefully examine its provisions and tailor-specific commitments to national policy objectives.

Keywords: Network, infrastructure, public services, liberalisation, regulation, GATS.

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EXECUTIVE SUMMARY

Part I of the study investigates how regulatory objectives can be achieved in liberalised markets by exploring experience with competition in several services sectors previously provided solely by governments. In recent years, trade in network infrastructure services — including telecommunications, postal/courier, energy, water and sewage — has increased, following changes in their provision leading to stronger competition. In developing countries, in particular, liberalisation is seen as a way to increase investment and improve infrastructure performance. Due to lack of domestic capacity and finance, when developing country governments decide to open these services to competition, it usually includes a decision to accept foreign participation. Technological innovation has also expanded the scope for competition in sectors such as telecommunications and postal/courier and, to a lesser extent, energy. Even where competition *in* the market may not be feasible due to features of scale and *natural monopoly* associated with these services, competition *for* the market has been introduced through various contractual arrangements between the public and private sectors. These have emerged as alternatives to privatisation.

While liberalisation can confer significant benefits in terms of increased efficiency, access and affordability of services, it must be appropriately designed and supported by a strong regulatory framework. Governments have at their disposal a variety of regulatory tools and approaches to address market failures and meet public policy objectives in the new environment.

First, governments retain a major role in *regulating tariffs* in liberalised markets. The challenge is to set rates that strike a socially acceptable balance between the interests of investors and consumers, attracting needed capital while ensuring that prices are just and reasonable. Second, governments put in place policies to *ensure access and affordability of services* to poor or unserved populations. In some cases (e.g. telecommunications) liberalisation itself can increase access as competition lowers prices; in other cases, specific measures are necessary, such as network expansion obligations or subsidies targeted at poor consumers or at providers. Third, governments maintain responsibility for *setting standards* for the service, either specifying outcomes (e.g. service quality and reliability) or inputs (e.g. materials and design to be used by operators). Approaches to induce companies to meet standards range from mandatory service obligations to market-based instruments. Standards should be sufficiently flexible to enable operators to seek creative approaches to expand service provision, without compromising service quality.

Furthermore, strong and genuinely independent *regulatory agencies and competition authorities*, with the capacity to put in place appropriate regulation and competition policy as well as ensure enforcement are critical. The essential tasks performed by these institutions require considerable expertise in appraising the structure and performance of markets. Development of regulatory capacity in developing countries is likely to require substantial technical and financial assistance. *Transparency* in regulatory decision-making and in activities between suppliers is also key to ensure accountability and the political acceptability of reform. Evidence suggests that consumers are prepared to accept higher prices where service quality is improved and the basis for the tariffs is transparent. Making information available to consumers can in turn assist in mobilising them to play a role in monitoring the performance of service suppliers and the enforcement of regulation.

There is, of course, no universally appropriate model for reform. Every liberalisation programme must take account of each sector's economic attributes and technological conditions, as well as the country's

economic, social, geographical, institutional and political characteristics. Against this backdrop, Part I of the report presents concrete examples from both OECD and non-OECD countries of experiences by governments with various regulatory instruments to ensure public policy objectives.

Part II of the study complements Part I by linking the discussion of the liberalisation of network infrastructure services at the national level with the GATS. It explores the main issues related to these services in current GATS negotiations in terms of new possibilities for progress in light of real liberalisation taking place in many countries and of important considerations specific to these services.

Enhanced GATS commitments in network infrastructure services can create momentum for further domestic reform, and can anchor these reforms within an international legal framework. GATS commitments can also provide a credible signal that the government is committed to sector reform and has taken the necessary legal and regulatory measures to allow for investment, including FDI. WTO commitments can thus contribute to improve the investment climate, helping to attract needed capital as well as technical and managerial expertise. Preparedness to make GATS commitments can additionally enhance leverage for commitments from trading partners both in services and in other areas of the WTO agenda.

Notwithstanding these benefits, with the exception of telecommunication services, progress on committing network infrastructure services under the GATS has been limited. This partly reflects the fact that these services were mostly provided by public monopoly operators at the time of the Uruguay Round. Nevertheless, significant reforms to introduce competition have since been undertaken which have changed the market characteristics of these services in many countries. So there seems to be scope now to achieve more progress at the multilateral level and the Doha Round offers WTO Members an opportunity for anchoring recent policy reforms, giving them more permanency in a flexible and progressive manner. Yet so far only relatively few Members have tabled new or improved offers in these services and developing countries' participation remains limited.

Part of the reason explaining this lack of progress relates to the main classification instruments used by WTO Members in making commitments in network infrastructure services. Clarifying and modernising the current GATS classifications is viewed by some countries as key to improve commitments in these services. Several proposals have thus been submitted by a number of WTO Members suggesting alternative or more specific definitions, some of which have already been adopted in the requests and offers of a few Members. While in light of divergent views it may be difficult in the short-term to agree on new classification instruments, WTO Members are not required to use any particular classification and the Members concerned are free to modify the classifications contained in their schedules of commitments (as long as consistency with previous commitments is maintained). By the same token, those Members that consider that the current GATS classifications remain a valid framework to schedule commitments in the relevant sectors can simply maintain them in their schedules. WTO Members have also been discussing ways to ensure that any commitments in these services are not undermined by lack of commitments in other (related) sectors.

Perhaps more importantly, concerns have been raised about the potential effect of the GATS on the ability of governments to ensure adequate provision of network infrastructure services to the public. In practice, this refers to the possible impact of the Agreement on governments' ability to maintain their traditional public service responsibilities either through monopoly public utilities, exclusive rights to provide services or appropriately regulated competition. In light of the importance of these services for society and their highly regulated nature, governments have been cautious about agreeing to subject these sectors to binding commitments on competitive supply. The GATS, like other legally bound undertakings in the WTO (or other international treaties), can affect the regulatory conduct of governments. At the same time, the Agreement affords WTO Members considerable flexibility in this regard.

In the absence of scheduled commitments, the GATS imposes only limited obligations, which do not limit governments' ability to retain control over network infrastructure services. When a country makes a commitment, other more significant obligations kick-in, especially concerning market access and national treatment. These may have more significant implications on autonomous policy making in these services, intensified by the fact that the GATS is a relatively young agreement and some of its provisions remain to be tested in practice. Scheduling commitments on network infrastructure services thus raises questions in relation to their nature. At the same time, the flexibility imbedded in the Agreement allows countries to schedule limitations to avoid these concerns and facilitate the assumption of commitments in these services. This is reflected in the Uruguay Round schedules of some WTO Members and explored in Part II of the study.

Once commitments in a particular sector have been made, additional disciplines on regulatory measures apply, in particular those contained in Article VI. A closer look at these provisions reveals that they do not seem to impinge on governments' ability to regulate network infrastructure services. In addition, current discussions under the Article VI:4 mandate indicate that any new disciplines in this area will be broad enough to allow regulation for the protection of a wide range of public policy objectives. This is confirmed by the Accountancy Disciplines, the one area where negotiations have been concluded under the mandate. Another important example of GATS disciplines and the scope for autonomous policy making in network infrastructure services is the Reference Paper on Basic Telecommunications. The Reference Paper, which attains legal status only to the extent that WTO Members have incorporated it in their commitments, consists of a set of pro-competitive regulatory principles for basic telecommunication services akin to international best practice. The Reference Paper, in line with the Preamble of the GATS, recognises governments' right to regulate the sector to ensure public policy objectives. A case in point is universal service requirements; the Reference Paper explicitly confirms the right of Members to establish such measures.

PART I: REGULATING FOR PUBLIC POLICY OBJECTIVES

I. Introduction

1. This part of the study investigates how regulatory objectives can be achieved in liberalised markets by exploring experience with competition in several services sectors previously provided solely by governments. The aim is not to advocate particular solutions, but to provide policy makers with information to feed into, and adapt to the specificities of, their own economic and political situations, if and when they decide to liberalise.

2. The study presents concrete examples from both OECD and non-OECD countries of how governments have used various regulatory instruments to achieve public policy objectives. The focus is on telecommunication, postal/courier, energy and environmental infrastructure services given their network characteristics.

3. The report also includes examples where experience was not positive, with the aim of providing some guidance on the pitfalls to be avoided if the benefits of liberalisation are to be realised and sustained. A number of cases provide examples of both negative and positive experiences, with initial, less successful reforms being adjusted in light of experience and new regulatory solutions adopted. These cases underline both the extent of experimentation undertaken in service sector reform in recent years and the need for regulatory approaches to be adapted to local circumstances.

4. Examples of regulation of domestic private participants, i.e. where there is no trade, are included where there is no apparent reason that the same regulatory measure could not be applied to a foreign entrant. Examples of regulatory mechanisms involving publicly-owned companies are incorporated as well when they are relevant for any type of operator (public or private). Reforms have at times been progressive with the former public monopoly still being the main (or only) service provider, while the new regulatory framework is designed. In these cases, the reforms have already been tailored to prepare for the introduction of competition.

5. The next section of this part of the study reviews opportunities and challenges of introducing competition in network infrastructure services. Section III then identifies a number of key regulatory objectives that governments seek to achieve in liberalised markets to address market failures and meet public policy objectives, and describes some of the regulatory approaches that can be used to achieve these objectives. The last section presents the country examples in the chosen sectors.

II. Opening to competition

6. Historically, trade in network infrastructure services — including telecommunications, postal/courier, energy, water and sewage — has been limited because they were mainly provided by governments. Government provision was seen as necessary to ensure equitable access to these services and because of their *natural monopoly* characteristics. The scope for competition in several network infrastructure services has traditionally been limited given that the existing infrastructure — e.g. transmission media in telecommunications, electricity grid and water and sewage pipes — is often prohibitively expensive to duplicate.

7. Nevertheless, in recent years trade in network infrastructure services has increased, following changes in the provision of these services leading to stronger presence of the private sector. In emerging economies and developing countries, in particular, the underlying driver of decisions to liberalise is to attract resources for the financing of investment and to improve infrastructure performance. Liberalisation of these services is seen as a way to increase investment and service coverage, foster competition where feasible and import technology and know-how. Due to lack of domestic capacity and finance, when developing country governments decide to liberalise, it usually includes a decision to accept foreign participation.

8. Competition in network utilities has also been facilitated by technological innovation. Changes in production and technological advances have had especially dramatic effects on the market structure of the telecommunication, energy and increasingly postal industries. In telecommunications, technological change has almost eliminated natural monopoly in interexchange markets (e.g. long-distance services). The rapid growth of cellular telephones, which increasingly substitute for wireline services, has played a big role in reducing the importance of scale and natural monopoly associated with conventional local loops (World Bank, 2004). Internet-based services are undergoing similar dramatic growth.

9. In recent years, what once was a relatively clear cut divide between the monopoly provision of postal services and competitive provision of courier services has become increasingly blurred. In a few cases, this has occurred through market reforms which have formally reduced or terminated the scope of monopoly rights, but for most countries this has been through the expansion of private sector operators into areas once the exclusive preserve of the public service postal providers. Equally, many postal administrations have moved beyond the confines of providing traditional postal services in reserved sectors into new areas in competition with the private sector. This process of increased competition has accelerated with new technological developments in postal services, with the range of possibilities opened up considerably through electronic mail and the Internet.

10. In the electricity industry reforms involved unbundling of its four main components — generation, transmission, distribution and retail — which led to different forms of competition (see Box 1). New technologies have also facilitated the introduction of competition in generation (although there is debate on whether the production of energy constitutes a service or a good). Low-cost, small-scale generation units allow electric power to be produced closer to end users, reducing reliance on transmission and distribution networks, which constitute services, and contributing to undermine their natural monopoly characteristics.

Box 1. Options for restructuring electricity markets

Electricity markets can be structured in four ways, reflecting varying competition and customer choice:

- *Monopoly* — the traditional status quo, where a single entity generates all electricity and delivers it over a transmission network to distribution companies or costumers.
- *Single buyer* — where a single agency buys electricity from competing generators, has a monopoly on transmission, and sells electricity to distributors and large power users without competition from other suppliers.
- *Wholesale competition* — where multiple distributors buy electricity from competing generators, use the transmission network to deliver it to their service areas under open access arrangements, and maintain monopolies on sales in their service areas.
- *Retail competition* — where customers have access to competing generators, directly or through a retailer of their choice, and transmission and distribution networks operate under open access arrangements. However, retail competition may not involve all customers but may be limited to industrial customers.

Source: World Bank, 2004.

11. But even when competition *in* the market may not be feasible — e.g. local networks of water pipes and sewers — it is possible to introduce competition *for* the market through monopoly franchises. Many countries have used innovative strategies to facilitate private participation in these services. Contractual arrangements between the private and public sectors, such as concessions, management contracts or build operate transfer contracts have emerged as alternatives to privatisation — where ownership is transferred through outright divesture.[1] A concession contract, for example, grants a private company, typically through competitive bidding, the exclusive right to provide a service for a specified period by using existing facilities and developing new ones. Thus, a concession agreement entails only a temporary transfer of the infrastructure assets (such as water pipes) to the private sector. At the end of the concession period the assets are transferred back to the public authority (World Bank, 2004).

12. These changes are having the effect of gradually bringing network infrastructure services into the realm of the market and exposing them to international trade. However, although the benefits of liberalisation can be very important both in terms of increased efficiency and of service access and affordability, past experience has shown that reforms must be appropriately designed and supported by a strong regulatory framework.

13. If a government decides to introduce competition in services previously provided solely by the public sector, it needs to shift from being the manager of these services to being their regulator. In light of the characteristics of these services, to achieve public policy objectives in the new environment, new regulatory tools and approaches are required, including with respect to pricing, universal access (both in terms of availability and affordability) and service standards.

14. Another important dimension is the establishment of strong and genuinely independent regulatory agencies and competition authorities, with the capacity to put in place appropriate regulation and ensure enforcement. When these exist, private participation can lead to improvements in attaining public policy objectives, because, for instance, government agencies may be reluctant to monitor and fine (other) government providers — a classic conflict of interests. Transparency about government choices (and reasons underlying them) and in activities between suppliers is also key, as is the introduction of instruments to enhance consumers' involvement in monitoring and evaluating the improvement of services and the achievement of public policy objectives.

15. Experience has shown that there is no universally appropriate model for reform. Every liberalisation programme must take account of each sector's features, including its economic attributes and technological conditions, as well as the country's economic, social, geographical, institutional and political characteristics (World Bank, 2004). Furthermore, the elaboration of adequate regulatory instruments and the establishment of institutions can be costly and may require sophisticated skills, and thus present challenges that are likely to be most acute in emerging economies and developing countries. Provision of technical assistance and capacity building to support liberalisation are thus particularly important for these countries.

III. Regulatory goals and approaches

Regulating tariffs

16. Unlike for telecommunication services where trade liberalisation, coupled with technological advances, has led to significant price decreases, private-sector involvement in water, sewage, electricity and postal services can lead to increases in existing fees for service supplied by the government. This is

[1] There is debate among WTO Members on to what extent such contracts represent a form government procurement, see Part II.

because often the price fixed under government monopoly does not even cover the cost of providing the service. User-fees are one of the most controversial aspects of liberalisation, especially in environmental network services and electricity. Network infrastructure services are capital-intensive services and wherever that capital investment comes from, somebody has to pay for it: if not users then taxpayers or aid donors. Providing water and sewage services "free" to end users, for example, ignores the huge costs of collecting, storing and distributing water, as well as treating waste water. Cost-reflective tariffs are needed to bring about the investment necessary to maintain, replace, modernise and expand the facilities and services. User fees for water, and for water-waste management, are also crucial to the promotion of conservation principles in user households and commercial enterprises (OECD, 2001).

17. A decision to liberalise these services does not of course mean the end of regulation in this fundamental regulatory sphere — governments retain a key role in regulating tariffs. The key challenge relates to setting rates that strike a socially acceptable balance between the interests of investors and consumers, attracting needed capital and ensuring that tariffs are just and reasonable, and contribute to universal service objectives. These goals are difficult to achieve simultaneously. Practical regulation may entail trade-offs among them and lead to different incentives for economic actors. The optimal choice of regulatory mechanisms depends on several factors related to the stage of national development, including the sector's investment requirements, the availability of technical expertise and the quality of accounting and auditing systems (see Box 2).

Box 2. Mechanisms for regulating tariffs

Two alternative mechanisms for tariff regulation are *cost-plus* and *price caps.*[2] Under *cost-plus* regulation, the operator submits a bill for its operating expenses and capital costs (depreciation plus an after-tax return on its investment that equals or exceeds its cost of capital) and the regulator passes on these costs in the prices charged to consumers. One of the attractions of *cost-plus* regulation is that it is likely to attract investment to a regulated sector because investors know they will recover their operating and investment costs. However, *cost-plus* systems may create incentives to engage in accounting contrivances and to inflate costs to convince the regulator to approve higher prices. Equally, these systems may distort firms' incentives to minimise costs because firms are not rewarded for reducing them.

Under *price caps* the regulator defines a set of prices that the operator will be allowed to charge. The utility is free to price at or below these ceilings, and thus has a strong incentive to pursue cost-reducing innovation, use the lowest-cost technology and operate with no waste. At the same time, consumers are protected because prices do not vary with the firm's reported costs. However, a disadvantage of *price cap*s is the risk of under capitalisation that may lead to quality concerns. In addition, it is hard to assess future developments in the utility's productivity and there is therefore a risk of excessive profits or losses. It is thus standard for a *price cap* mechanism to be reviewed, which may lead to price adjustments if the rate of return falls outside a given range.

In practice, most schemes have tended to be hybrid schemes, with the aim of sharing benefits and burdens between the utility and its customers. For example, under some profit sharing mechanisms the firm is allowed to keep all profits as long as the rate of return (revenue) falls within a specified range, thereby retaining incentives to achieve cost efficiency. But if the rate of return falls outside this range, consumers receive a portion of the gains (or loss).

Source: World Bank, 2004; and Reineke and Schmitz, 2000.

18. It is important to note that often poor consumers are simply left out of network services, including in the case of services being provided by a government monopoly. This typically results in the poor paying much more for these services than the better off. In the water supply sector, for example, the cost per litre of drinking water in Nairobi is 10 times more for customers of vendors than it is for those who are connected to a network. The ratios are similar in Latin America or even higher in the Caribbean region. Paradoxically, this gives some ground for optimism. The regrettable fact that the urban poor are

[2] It should be noted that in some sectors, such as telecommunications, regulated prices are often asymmetrical as they only apply to incumbents or major suppliers.

used to pay very high unit prices suggests that there are resources available in the current expenditure of poor consumers that could be channelled more efficiently (Simpson, forthcoming).

Regulating to achieve universal access

19. In addition to introducing cost-reflective tariffs necessary to attract needed investment, governments should put in place policies that help to meet the needs of those parts of the population, often in poor periurban or geographically remote areas, who cannot afford to pay for network infrastructure services. Allowing entry — particularly in sectors or segments where product competition is feasible, e.g. telecommunication services — can itself increase services for the poor or unserved populations, as competition introduces a range of price and quality options making service possible in outlying regions and to populations at lower income levels. The introduction of competition in mobile telephones has significantly reduced the universal access problem for the urban poor in many developing countries and has also had a considerable impact on low-income users in rural areas (ITU, 2003). Similarly, the expansion of private sector operators into areas previously reserved to the public postal monopoly has considerably improved mail and parcel delivery in several countries.

20. In general, though, private companies must invest responsibly and therefore cannot alone be expected to meet the needs of the poor or unserved population. Private actors, if free to choose, would naturally seek profitable networks and most likely invest in utilities serving the cities and large urban areas. However, meeting unmet needs should be a priority for governments — indeed, attracting the needed resources is often the key motivation for introducing competition in the first place — so tools for inducing the private sector to invest in coverage in low-income areas should be an integral part of any reform programme. A common measure to extend access to service is to include network expansion obligations in contracts with private providers (Gleick *et al.,* 2002). As for pricing, the incentives for investors and consumers have to be right, and contracts need to encourage flexible and innovative approaches to meet service targets.

21. Governments also have used various forms of subsidies and other support to protect poorer or unserved groups within society. With the introduction of competition, direct (non-tariff) subsidies to poor consumers have often replaced cross-subsidies.[3] Rather than providing blanket subsidies to hold tariffs down, a policy that generally benefits the middle classes who are connected to the network, governments have established mechanisms to direct the subsidies to poor neighbourhoods and unserved populations. Other mechanisms have been used to promote sustainable use of natural resources while fostering service access by the poor. In the water sector, these schemes consist in providing a basic minimum quantity of water free or at low cost, but imposing higher charges for greater consumption. A key challenge, however, is to target poor people accurately. Thus, these mechanisms require strong administrative capacity.

22. Direct subsidies can additionally be targeted at operators in order to create incentives to extend access into otherwise unprofitable areas. In telecommunication services, for example, so-called *universality funds* have been established to collect revenues from various sources, including government budgets, charges on international connecting services or levies on all telecommunication service operators. Universality funds are generally used to finance specific and targeted high cost areas or low income subscribers. They provide subsidies to create incentives for private sector telecommunication operators to serve areas that otherwise would be unprofitable (Intven and Tétrault, 2000).

[3] Cross-subsidisation occurs when, for example, the utility charges high-income and low-cost customers prices above costs to finance services to low-income and high-cost consumers, who pay prices below costs. For example, in telecommunications the provider charges low rates for local calls and higher rates for domestic and international long-distance calls.

Regulating to meet service standards

23. Government responsibility extends beyond ensuring availability of service at an affordable price. Service standards in network infrastructure services have emerged as a major regulatory issue, not least because many functions of modern society critically depend on these services. Standards may specify *outcomes*, including with respect to service quality, service reliability and continuity, environmental effects and customer relations. In the water supply sector, quality standards are crucial to address long-term (chronic) health problems associated with high levels of pollutants. In the postal/courier sector, service quality in terms of on-time delivery of letters and parcels and reliability (ensuring that letters are indeed delivered) are very important. In electricity (as in water and telecommunications), continuity of service (avoiding blackouts and brownouts) is a main issue. The need to address environmental effects caused by market externalities, e.g. controlling energy and water resources, is also critical. Customer relations, e.g. flexibility in payment methods, is an important aspect for all network infrastructure services, and can contribute to meeting universal access objectives. Standards may also specify *inputs,* including with respect to materials and design to be used by operators, and procedures (e.g. documents required from the operator and users for service connection applications) (Komives, 1999).

24. Private operators may have few economic incentives to ensure appropriate service standards. Therefore, service standards need to be incorporated in the regulation of the utilities. There exist a number of approaches to induce companies to meet standards, ranging from mandatory service obligations to market-based instruments. Under mandatory service obligations, the regulator sets standards that the operators must meet or otherwise face fines or even the cancellation of the contract. These schemes entail broader social benefits by ensuring that consumers are protected through guaranteed standards of performance.

25. Market-based instruments, on the other hand, aim at providing incentives to companies to meet targets through improvements in efficiency. One case in point is the so called *quality-incorporated benchmarking*. For example, under *price cap* regulation, a company that delivers increased quality relative to its peers would be allowed to raise its price, while a corresponding price reduction would be imposed on under-performing companies. Moreover, these schemes aim to introduce the dynamic benefits of competition to quality provision. By using benchmarking, regulated firms effectively compete against each other to deliver at an optimal mix of cost and service quality. Thus, in addition to static gains maximisation (through improving the quality of service above a certain threshold), firms face an incentive to pursue long-term investments that reduce the cost of quality provision (Giannakis, Jamasb, and Pollitt, 2003).

26. Particularly in developing countries where large shares of the population do not have access to services, countries are introducing flexible regulation that provides the strongest incentives for the operator to seek creative approaches to meet service standards, while ensuring that important public policy objectives, e.g. water quality, are not compromised (World Bank, 2004).

Effective regulatory agencies and competition authorities

27. The establishment of appropriate regulatory agencies and competition authorities designed to signal government's commitment to potential private investors and protect consumers from exploitation are essential to the reform process. In a natural monopoly situation, as is generally the case for water and sewage, private participation does not for the most part lead to a competitive market, but to the replacement of a public monopoly with a private one. Regulatory agencies and competition authorities thus need to ensure that the interests of consumers are defended against potential abuses from a private enterprise operating in a non-competitive environment. The crucial tasks performed by these institutions — e.g. setting tariffs and quality standards, as well as ensuring enforcement — require considerable expertise in appraising the structure and performance of markets.

28. Another key issue relates to ensuring access to bottleneck facilities, e.g. the local loop in telecommunication services and the transmission grid in electricity. These facilities are essential in delivering final products and are often too costly to duplicate. Regulatory agencies and competition authorities have the difficult task of designing appropriate access rules, without which entry in these industries will not materialise. Access prices for interconnection need to be high enough to compensate for the use of the network, yet not so high as to preclude efficient operations by entrants. The goal of access policy should be that competition in final service markets is efficient and does not favour owners of bottleneck facilities or their rivals (World Bank, 2004).

29. Furthermore, particularly in sectors that feature competitive segments, such as telecommunication, energy and postal/courier services, regulatory agencies and competition authorities need to develop the capacity to identify abuses of market power and provide remedies that help to retain competition as the main governor of industry performance. This includes prohibiting anti-competitive behaviour, such as price fixing or tactics that hinder third-party access to essential facilities, as well as blocking or conditioning mergers and acquisitions deemed damaging to competition.

30. Performing all these tasks effectively also requires that regulatory agencies and competition authorities be largely independent from political influence. At the same time, it is important to ensure that regulators do not become corrupt or inefficient. Citizens and firms should be able to find out who makes regulatory decisions and what guides them, and to voice their concerns. In addition, affected parties should be able to obtain redress if a regulator acts arbitrarily or incompetently (World Bank, 2004).

31. Many transition economies and developing countries still lack adequate regulatory agencies and competition authorities, which can be costly and require sophisticated skills. Some have yet to implement the basic elements of competition law, let alone complex issues such as fair access rules. Development of regulatory capacity in these countries thus requires substantial technical and financial assistance.

Transparency and users' involvement

32. There is evidence that even people with low incomes are willing to pay for network infrastructure services when the services are reliable and the cost of delivering them is reasonably transparent and understandable. Experience also suggests that people and businesses will pay more when they receive new or improved services. In the context of reform, this suggests that dissemination of detailed information about the improvement in services, and the capital investment needed to create these improvements, is essential for public acceptance of increases in overall prices. The new or improved services need to be clearly described and rate changes need to be phased in, together with strong education and information programmes describing the changes and their reasons. Phasing in price increases allows people and businesses to adjust to price changes if the schedule of change is communicated in advance and people believe that it will actually be implemented (Gleick *et al.,* 2002).

33. Making information available to consumers can in turn assist in mobilising them to play a role in monitoring the performance of service suppliers and the enforcement of regulation. A number of instruments have been introduced to enhance consumers' participation in regulation. So-called *citizen report cards* have been used to survey the opinion of consumers in relation to service provision and their interaction with the relevant public agencies. Citizens can provide useful feedback on the quality, efficiency and adequacy of services and the problems they face in their interaction with service providers (Paul, 2004). Other measures include community-based monitoring and evaluation, designed either by the community groups themselves or by government agencies.

34. Ensuring availability of information is also key with respect to activities between suppliers. In the telecommunications sector, for example, transparency is important in relation to public licensing criteria,

universal service obligations, the allocation of scarce resources, interconnection rates, reference interconnection offers and interconnection agreements.

IV. Examples of regulatory approaches and outcomes in liberalised markets

Regulating tariffs

Pricing of electricity distribution in the UK

35. The UK electricity sector has more than a decade of experience with incentive-based mechanisms governing its electricity utilities. In 1990, the former publicly-owned monopoly on electricity distribution was divided in 12 Regional Electric Companies (REC). The RECs held a local monopoly on distribution and were allowed to generate up to 15% of their power (and purchase the rest from generating companies). The RECs also collectively owned the National Grid, a company in charge of transmission. An Office of Electricity Regulation (OFFER) was in parallel established and one of its missions was to implement a price cap regulation based on the RPI-X formula.[4]

36. The main cost categories used by the regulator to set the price cap are the operating expenditures (Opex), which cover the costs of network operation, and the capital expenditures (Capex), which refer to spending on long-term assets (e.g. lines and transformers). The incentive-based mechanism determines efficiency levels of Opex by benchmarking the utilities' operating costs (deducing some non-controllable costs such as transmission system charges and asset depreciation) with respect to a combination of factors comprising customer numbers, units of energy delivered and network length. Capex is regulated by using forecasts of expenditure for quality improvement for customers and other factors. Inefficient firms are required to reduce costs to meet set targets. These mechanisms contributed to a fall of operating costs in real terms by nearly 30% between 1990 and 2002, encouraged new investment in the network, and increased network reliability.

37. Nevertheless, for the first three years, tariffs for distribution operations were loosely capped in order to let companies generate capital to improve their facilities. The result was high profits for the RECs, which at the beginning achieved the fund raising objective for the improvement of the network. However, at a subsequent stage these profits, and the resulting high prices for consumers, became increasingly controversial, particularly in light of decreasing costs for operators. To address these concerns, OFFER required significant price reductions averaging at 14% for 1995/96 and 12% for 1996/97, and readjusted the price cap for the following years. Recent research also points to the rising concentration of the industry, which may raise competition policy concerns.

Source: Giannakis, Jamasb and Pollitt, 2003; Kwoka, 1997; and Thomas, 2004.

Selected aspects of the California electricity crisis

38. In June 2000, California's electricity prices experienced an unprecedented level of volatility and price increases, driven by the threat of supply shortages and a series of "rolling black-outs" that affected millions of users. The situation led to bankruptcy of one distribution utility as well as considerable political turmoil. Among the reasons commonly associated with the California electricity crisis, the particular process of restructuring the California electricity sector has been identified as being a key factor. This crisis underlines the need for the objectives and constraints of any reform effort to be clearly identified.

[4] The RPI-X formula means that the price cap can increase each year by the Retail Price Index (RPI) minus a certain percentage X which reflects the productivity gains expected from the operators. The higher is X, the greater the incentive for utilities to reduce costs and be more efficient and the lower the price for consumers.

39. For instance, any transition from a vertically integrated utility to an unbundled structure introduces price risks between generators and distributors that previously did not exist. High wholesale prices for generators gives profits that are matched by losses of distributors who have to buy at these high prices and sell at predetermined retail prices. The transition to an unbundled industry therefore needs contracts and hedging instruments to insure against possible unexpected events that can have dramatic effects on wholesale prices. In California, when approximately 20,000 MW of generation capacity were sold to five new entrants, commitments were not required from the generators to sell a large fraction of the expected annual output as a long-term contract to the three main utility distributors.

40. Further, tight demand with low spare capacity (and inelastic supply) may lead to volatile markets and high prices even if there is competition among generators. As demand tightens relative to supply in the face of inelastic and unresponsive demand[5], large price rises have little effect on demand. At the same time, each generator has increasing market power. The relatively large price increase caused by any single company withdrawing a small amount of capacity is more than sufficient to compensate for the loss of profit on that volume of sales, making such withdrawals highly profitable.

41. The case also shows the importance of establishing strong regulatory agencies with broad powers to intervene, and which are not fragmented among jurisdictions. The responsibilities of these agencies would include resource planning, oversight of competitive generation markets, distribution and transmission prices, network access and service standards.

Source: Wolak and Nordhaus 2001; Wolak, 2003; and Institute of International Education, 2002.

Difficulties to establish sound regulation to electricity tariff-setting in Zimbabwe

42. In 1991, the Government of Zimbabwe introduced a reform programme of the electricity sector. This included a performance improvement programme (PIP) for the national state utility responsible for the bulk of electricity generation, transmission and distribution — the Zimbabwe Electricity Supply Authority (ZESA). It also initiated a legal and regulatory reform framework for the electricity sector in general. The Government and the Board of ZESA initiated the PIP with the appointment of a new Chief Executive in December 1992, placing the latter and all senior managers on a performance contract. Concurrently, Electricité de France (EDF) was engaged to work with the new management team to develop a programme to improve the performance of the organisation in the key areas of technical operations, customer service, financial performance and human resources management. Subsequently, several programmes were developed between 1993 and 2000 which set performance targets, including with respect to profitability to enhance investment, quality standards and customer satisfaction.

43. Profitability objectives were crucial to bring about much need investment and extend electricity access to rural areas. One of the key strategies to improve revenues was to seek Government approval for cost-reflective tariffs. However, a lack of policy commitment and often change of Ministers for Energy — e.g. between early 2000 and 2002 there were three Ministers for Energy — resulted in a failure to implement the legal and regulatory framework to underpin the reform. Indeed, the reluctance of the Government to establish sound regulation to progressively raise tariffs to cost-recovery levels meant that cash flow and profitability remained below targets. Tariffs were only adjusted in response to an actual financial crisis, which was reflected in the constant liquidity problems, which ZESA faced over the years. Financial deficits were funded through short-term borrowings. When tariff increases were granted, profitability recovered almost overnight but for the cash flows it took several months to recover because of the heavy short-term debts. With this ad hoc tariff setting approach, getting approvals for tariffs that reflect

[5] If consumers face prices unrelated to wholesale prices, they will not reduce demand even if wholesale prices increase dramatically.

prospective investment costs proved impossible. ZESA, therefore, failed to expand generation, negatively impacting the rural electrification expansion programme.

Source: Mangwengwende, 2002.

Tariff policy in the Chilean water and sewage sectors

44. Chile introduced a new tariff formula in its water and sewage sectors gradually from 1990 to 1995, when it reformed its publicly-owned Santiago Metropolitan Sanitary Works Enterprise (Empresa Metropolitana de Obras Sanitarias, or EMOS) by means of a regulatory framework mimicking the design of a concession with a private utility. EMOS was still a state-owned company but started to operate under private law (privatisation ultimately occurred in 1999) and under the supervision of an independent regulatory agency.

45. The tariff policy was designed both to signal to potential private investors that the government was committed to not expropriating their return-on-capital through under-pricing and to curtail the chance of monopoly rents. Tariffs are calculated every five years to cover the long run marginal cost[6] of a "model" or benchmark company, and then readjusted to permit a "reasonable" return on assets (allowing at least a seven percent return on capital). The water tariff is also indexed to a price index. To reduce the risk of monopoly rents, the construction of the model company was a black box in order to make it harder for the company to manipulate the information. The tariff has thus incentive properties similar to a *price cap*. If EMOS can be more efficient than the model, it earns additional profits, giving the company an incentive to maximise its efficiency. At the end of the period, tariffs may be adjusted downward to force the company to share its gains with consumers.

46. The reforms led to significant gains to the government through taxes and dividends, while consumers benefited from almost 100% coverage of expanding demand, better water pressure and fewer interruptions of services. Consumers also had to pay higher prices, but the effects were ameliorated by direct subsidies (see below). Employees gained from wages closer to market wages.

Source: Shirley, Xu and Zuluaga, 2000.

High tariffs in two water and sewage concessions in Argentina[7]

47. In 1995 private participation was introduced in the water and sewage sector in the province of Tucuman, Argentina. A 30 year concession contract was awarded to a consortium composed of Compagnie Générale des Eaux and a local investor. Aggressive investment targets were set in the contract. These had a major impact on prices, which rose by up to 68%. In addition, this rise was spread across all consumers equally, with serious implications for affordability by low income households. These concerns had not been foreseen and were not addressed early on in the reform process. The new tariff became very unpopular and public disapproval turned to resentment after outbreaks of turbid water. A non-payment campaign was organised and an anti-privatisation local government was elected. The financial situation of the concessionaire further deteriorated and several attempts to renegotiate the contract failed. A social tariff was then proposed but public confidence had been lost and the case ended in international arbitration.

[6] The marginal cost is the change in total costs per unit change in output. Long run marginal cost (LRMC) is estimated over the "long run", i.e. that time period over which all costs are variable. It therefore comprises changes in both capital and operating costs.

[7] The effects of Argentina's financial crisis, while important, are beyond the scope of this study.

48. In May 1993, a 30 year concession contract was awarded to a private company to operate the water and sewage services in Buenos Aires. Those consumers who were already connected to the system initially benefited from a significant drop in tariffs and an improvement in the quality and reliability of service. Expansion targets set by geographical area, with poor areas prioritised, resulted in large numbers of new households being connected. However, an unpopular decision to pass the cost of system expansion on to new consumers in the form of a hefty infrastructure charge was one of the issues that lead to public unrest and early contract renegotiation. This very high connection charge, unaffordable for the poor, was replaced by a bimonthly Universal Service and Environmental Improvement fee (SUMA), which was levied on all customers regardless of when they connected to the network. Connection charges were reduced to US$ 120 for water or sewage, repayable over five-years in interest-free instalments averaging US$ 4 per month. Despite the fact that the changes resulted in a decrease in average bills in poor areas of 74%, from US$61 to US$16, even at this level the rates remained unaffordable for the poor. In addition, the renegotiation saw a reduction in some of the targets for expansion, again to the detriment of the poor who are the primary residents of the unserved areas.

Source: Estache, Gomez-Lobo and Leipziger, 2000; Haselip, 2004; and Zerah, Graham-Harrison and Brocklehurst, 2001.

Regulating to achieve universal access

Universal access through a competitive mobile phone market and umbrella people in Nigeria

49. Nigeria is Africa's most populated nation with some 124 million inhabitants in 2002. Until August 2001, Nigeria had one of the lowest teledensity rates in the world. In February 2001, the government awarded three 15-year mobile cellular GSM licences for USD 285 million and the rise in the number of mobile subscribers has been very significant. By December 2001, there were close to 400 000 GSM subscribers. The mobile operators managed to provide access to almost as many telephone subscribers in four months than had been installed via fixed lines in 40 years since independence (there were some 540 000 fixed lines at the end of December 2001). Growth has been relentless, reaching two million subscribers by March 2003. Mobile coverage was initially limited to Lagos, the largest city, and has now spread to 219 out of 550 local government areas.

50. Although handsets and prepaid cards are expensive, service is being extended to those who cannot afford a mobile handset and prepaid card through "umbrella people". These are resellers of GSM wireless service — most of them young women who have settled into the business of selling phone calls, earning a high level of financial independence in the process. Almost every Nigerian street is now decorated with umbrellas marking the stands operated by makeshift GSM resellers — thus giving these entrepreneurs their nickname. Critics of GSM services in Nigeria have pointed to high tariffs and sub-standard services rendered by operators. At the same time, it is generally accepted that GSM has assumed an important role in providing universal access in Nigeria, while also appearing to give low-income Nigerians an avenue for gainful entrepreneurship.

Source: ITU, 2003.

Extending Chilean public telecommunication service to rural areas through market-based mechanisms

51. Although the Chilean telecommunications sector was the first in Latin America to be privatised and opened to competition, a significant part of the population was still unserved in the mid-1990s. The government created a Telecommunications Development Fund in 1994 financed by the national budget to encourage private investment in areas with low income and low telephone density. A council selected projects eligible for subsidies and granted licenses to private operators through competitive bidding. The bidder requiring the lowest one-time subsidy was awarded the license. Rural localities needing public

telephones were grouped into projects according to geographical proximity and technical solutions likely to be cost-effective, and the winning bidder had to commit to provide at least one public telephone in each locality, available everyday and twenty-four hours a day.

52. The Fund was very successful. Between 1995 and 2000 it supported the provision of payphone service to more than 6,000 rural localities with about 2.2 million inhabitants, thereby reducing the proportion of Chile's population living in places without access to basic voice communication from 15% in 1994 to 1% in 2002. In addition, some 25,000 individual rural telephone lines were provided. The subsidies awarded cost the government less than 0.3% of total telecommunications sector revenue during the funding period, making it one of the most cost-effective telecommunications support programme world-wide, and Fund administration cost about 3% of the subsidies granted.

Source: Intven, Oliver and Sepúlveda, 2000; and Wellenius, 2001.

Extending access to telecommunication services to rural Peru

53. As part of the reforms which led to the introduction of competition in its telecommunications sector in the 1990s, Peru has established a subsidy programme, known as the Telecommunications Investment Fund (FITEL), to finance investment in telecommunication services in rural areas. (A rural area is mainly defined as a territory enclosing rural settlements of less than 100 housing units together or more than 100 dispersed or scattered units.) The Supervisory Authority for Private Investment in Telecommunications (OSIPTEL), the regulatory body for the sector, administers the fund and selects projects to be implemented, while the Ministry for Transport and Communications is responsible for approving them. The fund's assets come from a levy of 1 per cent on the turnover of companies.

54. The first stage of the programme involved a pilot project for installation of public telephones in the Frontera Norte (north frontier) area. The main objective of this pilot project was to gather knowledge of possible drawbacks that might arise with the launch of larger scale projects. The company Gilat To Home Perú S.A. (GTH) won the tender to offer the service in the 213 populated centres selected for the project. The licensing and financing contracts for the project were signed at the end of 1998, which opened the way to the full network installation by end 1999, the agreed delivery date. By mid-2001, the operator was providing a normal service. The first assessment of the project revealed that it was a success with regard to the use of public funds for the development of rural telephony, bringing services to the local populations which had previously been either non-existent or of difficult access. Public investment or subsidy per inhabitant came to USD 11, covering a total population of 144 522 inhabitants on the basis of an average investment per populated centre of USD 8 609. Nevertheless, the first assessment also highlighted some problems for local people, including with respect to non-availability in villages of pre-paid cards or long periods without service after equipment failure. A subsequent inspection revealed improvements carried out by GTH in response to comments made in the first report.

Source: ITU, 2001a.

Achieving universal access through competition and a universal service fund in the Guatemalan telecommunications sector

55. Until 1996, telecommunication services in Guatemala were provided by the state-owned monopoly, GUATEL. By the mid-1990s, there was growing dissatisfaction with the performance of GUATEL. Not only was the company comparatively inefficient (around 60 mainlines per 1,000 employees), but it was failing to satisfy mounting demand for telecommunication services. In 1996, Guatemala had one of the lowest teledensity ratios in Latin America with only 4.2 (fixed plus cellular) lines per 100 inhabitants. With only 350,000 fixed telephone lines in the country, unsatisfied demand was estimated at 1,000,000 lines.

56. The Telecommunications Law of 1996 (Decreto 94-96) paved the way for one of the most radical market liberalisations witnessed in the region, removing all barriers to competition. The 1996 law also created a new regulatory agency, the Superintendencia de Telecomunicaciones (SIT). The reform involved privatisation of GUATEL, which was transformed into a new company TELGUA, of which 95% stakes were sold to the private sector via auction awarded to TELMEX — the Mexican leading telecommunications company which was formerly owned by the state and privatised in 1990. There are now more than 250 companies involved in providing the full range of telecommunication services in Guatemala. These include a number of major international investors such as Bell South, Telefónica, TELMEX and Millicom International. Although the local telephony market continues to be dominated by TELGUA, with 95% of all fixed line subscribers, sixteen other companies have entered the market.

57. An important consequence of liberalisation has been the need to rebalance call charges, to remove the cross-subsidy that previously existed from long distance to local calls. As a result, local call charges increased from $0.51 per month (for the basic subscription including 200 free minutes; equivalent to $0.003 per minute), to $5.64 per month (equivalent to $0.028 per minute). Even this, though, falls below the estimated economic cost of around $0.030 to $0.033 per minute. Competition for long distance services has been more vigorous, with fourteen players, of which four major ones. The combination of tariff-rebalancing and competition has led to dramatic reductions in long distance charges, from US$1.50 per minute to the United States in 1996, to around US$0.30 per minute in 1998. More recently, charges have fallen to around US$0.15 per minute as a result of the introduction of the possibility of tele-selection of the long distance operator.

58. Mobile telephony service was also introduced through the awarding of four licenses. Calls are charged at around $0.14 per minute, with some calling plans costing less than $10 per month. Aided by the rapid expansion of cellular telephony, the overall teledensity index for Guatemala has risen almost fivefold from 4.2 to 19.7 over the period 1997/01. Although about half of the new cellular subscriptions are second telephones for the richest 20% of the population, they are also playing an important role in rural areas where they have become as common as fixed line telephones and have begun to be used to provide informal public telephone services.

59. The proceeds of the spectrum auctions held for mobile telephony services (up to an annual ceiling of US$5 million) were allocated to a special fund (FONDETEL) designed to support the expansion of public telephones in rural areas. In line with best practice in a number of other Latin American countries, FONDETEL bid out the construction and operation of public telephones to the private operator requesting the minimum subsidy. Between 1998/99, FONDETEL disbursed US$7.5 million of subsidies for the installation of some 1,600 public telephones. Each US$1 of subsidy leveraged between US$2-4 of private investment, so that the total subsidy cost per town was US$4,400. The network of formal public telephones in rural areas has increased by 80% and, as result, 50% of rural households now have a public telephone in their community, and 80% of rural households live within 6 kilometres (or about half an hour) of a public telephone. However, unfortunately, the revenues from spectrum auctions have recently been exhausted and no additional funding source has been identified for FONDETEL.

Source: Foster and Araujo, 2004.

Universal access through cellular phones in rural areas of Bangladesh

60. Bangladesh is one of the world's most densely populated and poorest countries. The country has one of the least developed telecommunication systems, with a teledensity rate of 2-3 fixed phone lines per 1,000 people in 2000. The Bangladesh Telegraph and Telecom Board (BTTB) was the state monopoly providing telephone services until the country embarked in reforms of the sector at the beginning of the

90s. The reform programme opened the market to competition and awarded new licenses to private companies, including operating in the cellular phone market in 1996.

61. A pilot project by GrameenPhone, a cellular operator with a national license that is building and operating a rural phone network, is enabling rural village woman to resell cellular phone services within their villages in order to extend access to telecommunications to rural areas at affordable prices. The project is carried out by the not-for profit company Grameen Telecom and supported by its parent company Grameen Bank, a successful for-profit micro credit bank which is widely established in Bangladesh. GrameenPhone is a joint venture of Grameen Telecom (35 %), Norway's telephone company Telenor (51 %) and other stakeholders. The programme began operating in March 1997 and by November 1999 there were 950 village phones providing telephone access to more than 65,000 people. The micro credit bank provides village woman entrepreneurs with credit in form of a lease to buy digital GSM cell phones from Grameen Telecom. The women re-sell phone calls and provide services for incoming and outgoing calls in their stores, at home, in the local market or elsewhere. The income of the woman operators consists of the difference between charges paid by customers and the amount billed to the operators by Grameen Telecom.

62. Early findings suggest that the programme has had considerable development benefits. It has reduced the cost of communications relative to other services such as transportation. It has boosted producers' returns by enabling village pay phone users to compare rural prices with city market prices, increasing their bargaining power. It also facilitated the flow of income between oversees workers or workers in urban cities and their families in rural villages. Finally, the programme has enabled the village pay phone entrepreneurs, poor by most standards but among the better-off in their villages, to turn a profit. Still, Grameen Telecom's rural development programme lags behind the targets. Its initial target was 40,000 village pay phones installed by 2002, an average of 8,000 a year. But by the end of January 2000 it had installed only about 1,700.

Source: Lawson and Meyenn, 2000; and Richardson, Ramirez and Haq, 2000.

Universal access in postal and courier services in Guatemala through competition and private sector participation

63. Guatemala maintained a state monopoly for postal services until 1997. These services were provided by the Directorate of Post and Telegraph Services (DGCT), which operated under the Ministry of Communications, Transportation, and Public Works. The sector was characterised by poor and unreliable service, highly subsidised tariffs, under-paid staff and financial looses of US $2 million per year. In addition, DGCT was not able to ensure service to the geographically remote areas. Nevertheless, service roll-out was partly achieved by private companies. Indeed, despite the legally protected monopoly, private firms had been operating in the postal and courier market informally since the 1970s. These companies, ranging from very small to large international firms, like DHL, engaged in a variety of activities, including in-city messenger, in-country delivery, international courier, and international remittance transport. Most of the companies in the in-country market were operating regionally and for national coverage they were subcontracting each other, especially for coverage in remote areas. The private service companies were more expensive than DGCT (although competition helped bringing down prices), yet they reached remote villages in the country.

64. The competition (and better performance) by private companies lead the Government to proceed with plans to modernise and introduce private-sector participation in the public operator. In 1997, a five year management contract was awarded to International Post Services (IPS), a subsidiary of Canada Post, to improve postal service and ensure an acceptable level of universal service for the entire country. The programme included a Government subsidy paid to the operator to keep tariffs down and ensure universal

service. The programme resulted in an increase of the number of access points and there were also significant improvements in service quality, including in terms of reductions in mail processing, transit and delivery times. The subsidy was still high, but lower than before the management contract. The resulting enhanced sector performance has provided an incentive for the Government to award a ten year concession contract for service provision to IPS.

Source: De Rodriguez, 1998; and World Bank, 2003.

Subsidies for power benefiting the non-poor in Guatemala

65. In 1996, Guatemala reformed its energy sector and unbundled the generation, transmission and distribution of electricity. The project included the privatisation of state-owned assets and regulated concessions for distribution companies. A social tariff was created to subsidise the consumption of electricity for poor households. In 2000, tariffs were capped at USD 0.08 per kWh for all customers consuming less than 300kWh per month. As 90% of domestic consumers were under this threshold, the cost of subsidies — USD 50 millions — was mostly transferred to commercial and industrial customers. However, only 40% of poor households have access to electricity in Guatemala. The consequence was that about 90% of the value of subsidies went to the non-poor.

66. An important issue in this cross-subsidisation programme is that the level of the threshold to benefit from the social tariff was too high (300kWh per month) — meaning that it was targeted to almost all consumers rather than only the poor. But the case also highlights the importance of the connection to the network which is often a more important obstacle to universal access than the cost of the service. Guatemalan families without a connection to the power grid have to pay significantly more for their electricity. For example, by relying on candles they pay the equivalent of USD 5.00 per kWh instead of USD 0.08.

Source: Estache, Foster, and Wodon, 2001.

Providing incentives to extend water services in Senegal

67. After different reform efforts had failed to improve water and sewage services in Senegal, the government decided in 1996 to introduce private participation in the sector. A state-owned holding company, SONES (*Société Nationale des Eaux du Sénégal*), was established to own the assets, carry out investments and regulate the water sector. SONES signed an “enhanced” affermage contract with the private company Sénégalaise des Eaux (SDE, a subsidiary of the French water company SAUR) to operate water utilities. Under a traditional affermage contract, the private company bills all consumers and collects the revenue at the tariff set by the government. The company then receives a fixed fee (covering costs and a regulated profit) for the total volume of water sold and remits the difference between the revenues collected and the fee to the government. This mechanism does not create any disincentives to serve poor households as the company receives the same remuneration for all kinds of consumers (that is the affermage fee is the same for each cubic meter of water sold). The contract between SONES and SDE is said to be an "enhanced" affermage contract in the sense that it incorporates some investment requirements as well as incentives in the fee formula to meet targets on leakage and bill collection.

68. A social connection programme was designed to expand service among low-income households. SDE receives an additional fee for each new connection in eligible poor households, through a fund financed by the government and donors. There is a profit included in this fee to give incentives to the company to install social connections. This programme was also consistent with the social tariff established as part of the affermage contract which, as seen earlier, is a contract that does not create disincentives to serve poor households. Additionally, the government financed with the help of donors and

NGOs the construction of "standpoints" (public water points) for low-income areas with no private connection.

69. Eight years later, this reform has resulted in significantly better services. There has been a 20% increase in the amount of water supplied, and the number of customers connected has increased by 35%. Exceeding its target requirements, SDE has installed a cumulative total of 89,000 new connections, among which 76% are social connections provided at low cost to poor households. According to the last Senegalese Household Survey (2001), drinking water is available (less than 15 minutes away) to more than 70% of the households (almost 90% in Dakar).

Source: PPIAF and WSP, 2001; and Brocklehurst and Janssens, 2004.

Chilean household subsidy programme for water and sewage

70. In 1989 Chile created a system of subsidies for water and sewage, which took effect in 1990. Anyone who holds a social classification card (CAS), has a household water connection and is not more than three months late in paying their water bill is eligible for the subsidy. The CAS has been in effect since 1980 and establishes eligibility for a number of targeted subsidies in addition to water and sewage, including a flat-rate family allowance, minimum pensions, and housing assistance. Households applying for a CAS are visited by a municipal official who allocates points to the family based on the size and composition of the household, the occupation and education of the household head, the assets (car, refrigerator, land, etc.) and per capita income of the family, and the characteristics of the dwelling (e.g. location, number of rooms, exterior and interior materials used for construction, and whether it has a water or electrical connection). Households with less than a maximum number of points are then issued a CAS and those with lower points receive higher priority for getting subsidies. The yearly allotments for the water and sewage subsidy are based on bi-annual surveys of family income by region. The allotments are allocated so as to ensure that no family in the region pays more than five percent of its income for water and sewage. The subsidy is paid directly to the water supplier, who subtracts the appropriate amount from each household's water bill and collects the remainder of the bill directly from the customer. On average the subsidy covers 60% of the water bill of eligible households, although in regions with high tariffs, up to 85% may be covered.

71. The number of Chilean households covered by the subsidy has gone from 5% of those eligible in 1990 to 95% in 1996. The expansion in coverage was largely the result of a public education campaign by the water companies to convince eligible consumers to apply, although an easing of the conditions for eligibility also helped. Nevertheless, recent research also shows that some amount of the subsidy has leaked to higher income groups. In addition, the administrative costs of implementing the regime are high. In 2002, the Government decided to redistribute a substantial number of water subsidies based on an evaluation which showed that the subsidies were not reaching the target population precisely enough. Subsidies are normally given for a three year period; however the conditions of a household can change during that time and therefore lower the effectiveness of the programme.

Source: Shirley, Xu and Zuluaga, 2000; Estache, Gomez-Lobo and Leipziger, 2000; and Gomez-Lobo and Contreras, 2003.

Problems with a geographic targeting system for water subsidies in Colombia

72. Colombia adopted a programme of cross subsidies for poor households laid out in the Public Residential Services Law of 1994. The objective of the reform was to unify criteria for the application of cross-subsidies across utility industries and to guarantee consistent application of the scheme across the country. A geographic targeting system is used to classify locations into different levels of lower and higher socioeconomic groups to determine which customers are eligible to receive a subsidy from the tariff

structure. In each municipality dwellings with homogenous characteristics are classified into six socioeconomic categories. The criteria are set up by the National Planning Department – a government entity developing strategic plans for the country to promote development and economic growth which origins date back to 1936. Households of the first, the lowest category, receive a subsidy of up to 50% of the average service costs, those that belong to the second category receive up to 40%, and the ones belonging to the third are given a subsidy to up to 15%. The subsidies are funded through a cross subsidy, meaning that a surcharge has to be paid by customers of the highest household categories and by industrial and commercial customers. The surcharges cannot exceed 20% of the water and sewage bill, and if these are not sufficient to pay for the subsidies of the first three categories, the difference can be financed from general tax revenues (national and provincial budgets).

73. Almost 83% of households are classified in the first three categories, which makes the subsidy programme very costly and difficult to finance through the surcharges. Moreover, studies show that errors of inclusion are large, with subsidies often leaking to higher income segments of society.

Source: Gomez-Lobo and Contreras, 2003.

Regulating to meet service standards

Ensuring quality of service in the Brazilian telecommunications sector

74. Quality of service is one of the pillars of the Brazilian telecommunication reform model, and a high priority for the Agência Nacional de Telecomunicações (Anatel), Brazil's recently-created independent regulatory agency of the sector. The General Plan of Quality of Service Goals for Fixed Switched Telephone Service was issued by Resolution 30 of Anatel's Board of Directors on 29 June 1998 shortly following Anatel's creation and before Telebrás, the monopoly telecommunications provider, was privatised. There are 36 quality of service indicators including goals for response to request for repairs, response to requests for change of address, response time by telephone, quality of service for public telephones, information regarding provider selection codes for the consumer, emission levels and network modernisation. Anatel can impose fines of up to R$ 40 million and has already fined a number of carriers for not reaching their quality of service indicators. Anatel became the first telecommunications agency in the world to receive an ISO-9001 certification, passing rigorous review concerning a series of requirements ranging from development of systemic procedures to internal quality audits.

Source: ITU, 2001b.

Ensuring service standards through a performance contract in the Tanzanian postal sector

75. Telecommunication and postal services were provided in Tanzania until 1994 by the same public operator, the Tanzanian Post and Telecommunication Corporation (TPTC). The postal sector was characterised by weak financial and operational performance, little commercial orientation and under-paid staff. Although a monopoly for letter and other basic services existed, it was not appropriately enforced, leading to growing unregulated competition from private providers of letter and parcel delivery services. In the early 1990s, a reform process was initiated which led to the separation of the telecommunications and postal public entities in 1994. The Tanzania Communications Act and the Tanzania Posts Corporation Act established the Tanzania Telecommunications Company and the Tanzania Postal Corporation (TPC). The reform also led to the creation of the Tanzania Communications Commission (TCC), an institution charged to regulate postal and telecommunication tariffs, monitor quality of service, oversee competition and safeguard network coverage and access. In 2003, the TCC merged with the Tanzania Broadcasting Commission, establishing the Tanzania Communications Regulatory Authority (TCRA). The reforms also led to the introduction of competition in the courier sector. Licences were granted to TPC and several courier companies to provide express services.

76. A *performance contract* between the Government and TPC was signed in 1997 with the aim of measuring performance targets. The contract was set for three years and extended in 1999 for a further three years. It includes clear and measurable targets and procedures for monitoring performance with respect to quality of service, business growth, customer satisfaction, security, and profitability. The board of directors and TPC management have financial incentives to perform calculated as a percentage of salaries and also significant penalties for under-achievement. This includes the dismissal of the Postmaster General in a situation where targets are missed by more than 50%. Thus, the design of the contract provides an explicit incentive to reach the set targets. The contract is audited annually by independent consultants, including from foreign countries (New Zealand Post International Limited — now Transend Worldwide Limited — undertook the second audit). The first audit results indicated that the targets were met only in two areas, speed of service and security; however, the second audit results showed that targets were met in all parameters expect business growth.

Source: Ianni and Lohmeyer, 2001; and Guislain, 2004; and UPU, 2004; and Walsh, 2001.

Improving postal services standards through a management contract in Trinidad and Tobago

77. Until 1999, postal services in Trinidad and Tobago were provided by a division of the Ministry of Public Utilities. It was characterised by poor financial performance, low investment and decreasing mail volumes. The per capita mail volume stood at 12.6 pieces annually — low for an upper-middle-income developing country — and overall mail volumes dropped by 20 % between 1995 and 1999. The quality of service was poor with mail frequently taking seven to ten days to be delivered, and universal service reached only 50% of households. There was a great deal of unregulated competition for regular mail services, much based on "self-delivery" by utility companies.

78. In 1999, the government initiated a reform to modernise the postal industry. It introduced the Postal Act, which transformed the postal operator from a government department to a public postal entity, with commercial orientation — the Trinidad and Tobago Postal Corporation (TTPost). The TTPost was granted more management autonomy and commercial flexibility; a reserved area was maintained for letters with the understanding that over time this would be subject to gradual liberalisation.

79. The reform process started with a five-year management contract to improve efficiency, service quality, extend universal network coverage and gradually reduce government support. The contract was awarded through competitive bidding to New Zealand Post International Limited (now Transend Worldwide Limited), which is not a private sector company but has established experience in reform processes. Transend has the responsibility to manage TTPost in line with international best practice that would be measured by annual quality of service and revenue targets. It has a strong financial interest in seeing that the project succeeds, given that the contract entails a compensation package that includes a management fee for the day-to-day service provision and for the completion of special agreed upon projects. This compensation is enhanced with an incentive mechanism for exceeding certain performance targets, coupled with possible fee reduction if one or more of the performance targets are not achieved. The management operator will also share profits as TTPost's financial performance improves. The contract involves five performance indicators, namely customer satisfaction, expanded reach of universal delivery, standards for transit time, growth of revenue, and net income. The progress achieved is monitored and measured by independent third-party organisations.

80. The postal service in Trinidad and Tobago has shown improvements such as the expansion of home delivery to rural, isolated, and economically disadvantaged areas, enhanced customer satisfaction, and improved reliability and security of mail delivery. The percentage of population having mail delivered at home increased from 53% in 1998 to about 85% in 2003. Very small communities that had no postal services before are being included in the delivery network.

Source: Ianni and Lohmeyer, 2001; Guislain, 2004; UPU, 2003; and Walsh, 2001.

Quality of service in the UK electricity distribution utilities

81. Since the reform of the electricity industry in 1990, the UK has adopted different approaches to the regulation of service quality. Until the late 90s, quality of supply in the UK was regulated through guaranteed standards of performance, which entitled consumers to compensation if the regulated firm breaches them, and overall standards, which refer to system-level performance. Overall standards were set for each distribution utility. In 1999, the regulator and the companies supported the introduction of an incentive-based regime for service quality regulation. Since the necessary foundation work had not been carried out, it was proposed that the incentive mechanisms should be developed as part of a work programme, known as the Information and Incentives Project (IIP). The IIP is divided in two parts. The first part defined output measures for service quality, set guidelines for improving the accuracy of their measurement, and constructed a framework for reporting and monitoring. The second part of the IIP focused on designing an incentive scheme for service quality regulation. This scheme, which is similar to a quality-incorporated benchmarking system, links the quality performance of the utilities to their allowed revenue. It consists of mechanisms that penalise companies for not meeting their quality of supply targets and reward companies that exceed them, including by guaranteeing less strict standards for the next control period.

82. The reform of the UK electricity industry led to a noticeable improvement of service quality. Between 1995 and 2000, both the number and duration of interruptions have decreased. The average time lost per connected customer due to planned outages has dropped from 16.3 minutes to 9.4 minutes. The duration of the fault-related interruptions has also declined, albeit to a lesser extent.

Source: Giannakis, Jamasb and Pollitt, 2003.

Improving access to electricity in rural Chile through alternative technologies

83. In 1994 Chile launched a subsidy programme to extend access to electricity in rural areas. Most of the projects have involved extension of the grid, a solution that usually means a lower cost per connected dwelling and a higher quality of service. But several projects have relied on alternative technologies, primarily one-house photovoltaic systems. These systems have been installed in isolated areas in the northern part of the country (for nearly 1,000 dwellings), which has some of the strongest solar radiation in the world. These non-conventional technologies generally provide electricity at a higher cost and poorer quality (lower voltage, fewer hours of service). But they have been an attractive alternative where extending the grid is too costly because of the distance from the existing grid or the high dispersion of dwellings, both of which have increased the marginal cost of rural electrification in Chile. In 1995 the average state subsidy per dwelling amounted to US$1,080; in 1999 it reached US$1,510. This outcome is nevertheless consistent with the programme's goal of maximising rural electricity coverage within budget constraints. At the same time, it allows a growing role for non-conventional technologies in rural electrification projects, as improvements in these technologies can reduce their costs and make them increasingly competitive with conventional solutions.

Source: Jadresic, 2000.

Expanding access to electricity in rural Kenya through alternative technologies

84. The 1997 Kenya Electric Power Act liberalised the power sector in the country and privatised the main power company, Kenya Power and Light — though the government still owns a controlling share. Kenya Power and Light now buys electricity from three new independent power producers, and more independent producers are preparing to enter the market. While Kenya Power and Light retains a monopoly on distribution, privatisation has forced the utility to carefully scrutinise programmes that are not cost-effective, including its rural areas. It has limited generation capacity, about 800 megawatts in 1999, and has made urban and industrial customers a priority. During the same year, less than two percent of the rural population had access to grid electricity, and efforts of the utility to extend access failed, partly because of the sparse rural population.

85. As result, some rural households started to use photovoltaic systems to supply electricity provided by private companies. The process began in the early 80s when upper-middle class households, NGOs and donors of aid projects installed photovoltaic systems in off-grid areas. Since the 90s large numbers of rural households started to buy small photovoltaic panels and batteries. About 120,000 solar photovoltaic systems for household use were sold in Kenya and between 1992 and 1998 the market grew by more than 20% a year. Although early on the process was benefiting mostly upper-middle class households, technological innovation made it possible to supply smaller and cheaper products. Competition also contributed to lowering the retail price for a photovoltaic system from about US$100 in 1990 to US$65 in 1998. Furthermore, the introduction of finance agencies has allowed lower-income households to buy photovoltaic systems on credit.

86. The introduction of photovoltaic systems through private entrepreneurs has shown to be successful in extending electricity access to the rural population. Since 1990, more than 2.5 megawatts of photovoltaic capacity have been sold in Kenya. The rural electrification programme of the utility connected fewer than 21,000 households between 1995 and 1999, while during the same period more than 80,000 households bought solar systems. By 1999, 3 to 4 % of the rural population had acquired a photovoltaic system.

Source: Hankins, 2000.

Adapting service standards to permit extensions of low-cost water supply and sewage in El Alto

87. In 1997, the then recently-established independent Bolivian regulator (Superintendencia de Aguas) approved a Suez-led concession contract for Aguas del Illimani to provide water and sewage services in La Paz and El Alto. The contract contained explicit targets for connecting poor households but did not provide adequate financial incentives for the company to do so. Moreover, the government did not provide targeted subsidies to ease affordability. The concession contract stated that metered, in-house water and sewer connections were the only acceptable technology, which put service out of reach of poor households and essentially guaranteed that the company would fail to meet its ambitious target of universal water coverage within four years. Recognising this dilemma, the regulator and the company agreed to experiment with cheaper technology for providing connections. Most notably, the regulator approved the establishment of lower-cost condominial sewer and water connections. These systems provide in-house connections at lower cost by using smaller pipe diameters and burying pipes in shallow trenches in yards or under sidewalks. The technology was found to be acceptable to the unserved population, and has allowed affordable service to be extended in the poor neighbourhoods of El Alto and La Paz. In 2001 the condominial technology was recognised by the Bolivian Institute for Technical Norms and Standards.

Source: PPIAF and WSP, 2001; and Komives, 1999.

Adapting standards to expand access to water and sewage to the poor in Manila

88. Manila introduced private participation in its water and sewage network in 1997 under two separate concessions. The two concessionaires have been encouraged to use innovative technology and third-party provision by contracts which do not contain strict standards for what constitutes a connection, do not disallow third-party provision and allow the concessionaire to add households served through means other than conventional utility connections to the covered population for the calculation of compliance with coverage targets.

89. Responding to the need for alternatives for reaching the poor, one of the concessionaires has developed a system known as Bayan-Tubig (Water for the Community), for water delivery in densely-populated, hard-to-reach slum areas. An underground water line carries water to the perimeter of a slum neighbourhood, and is then extended above ground, partially covered, attached to a wall, or lying on the surface. The line connects to a battery of meters from where each homeowner makes their own plastic connection, using small diameter pipes running from the main to households on the surface or along walls. Maintenance responsibility for the plastic pipes lies with the customers. Community-based organisations and NGOs play a role in intermediation and mapping of the network.

90. Estimates suggest that the Bayan-Tubig connections have reduced water connection costs for poor families by up to 25%. As even these reduced costs are sometimes a challenge, the concessionaire has also introduced interest-free repayment schemes over 6 to 24 month periods. Introduced in early 1999, the programme had provided water connections to 19,000 poor households by the end of that year, and as of 2001 the figure had risen to over 50,000. The other concessionaire was equally unconventional in serving the poor, arranging to sell bulk water to a steel tank manufacturing company which then installed small networks to serve poor communities.

Source: PPIAF, 2002. Information drawn from Rosenthal, 2002.

Effective regulatory agencies and competition authorities

Effective regulation for the interconnection of telecommunication networks in Morocco

91. Morocco's National Telecommunication Regulatory Agency (ANRT) has broad responsibilities regarding the technical regulation of interconnection in the country.[8] It is charged with approving the technical and tariff conditions offered by operators, and particularly by Maroc Télécom, the incumbent operator, also provider of mobile telephone and value-added services. ANRT also revises interconnection agreements where necessary and settles disputes in regard to interconnection if required to do so by one of the parties to the agreement (in conformity with the law). ANRT lets the parties negotiate interconnection charges freely, even though the interconnection agreement must include a number of technical, administrative and financial conditions. Where a given operator has more than 20% of the market, it is mandatory for it to offer a technical and tariff quotation, which must receive prior approval from ANRT (dominant operators must maintain separate accounts for their interconnection activities).

92. A number of disputes concerning interconnection and abuse of dominant position have already been referred to ANRT. A recent one involved Médi Télécom, the second licensed mobile operator, and Maroc Télécom. At the beginning of 2001, Maroc Télécom decided to offer a ten percent discount to all its

8 The concept of interconnection refers mainly to reciprocal services offered by operators of networks that are open to the public, which allow all users to communicate freely with one another, regardless of the network to which they are attached or the services that they use. It also includes services offered by the operator of a network that is open to the public to a provider of telephone service that is open to the public.

customers calling from a fixed station to a Maroc Télécom mobile station. Médi Télécom viewed this as anti-competitive. It alleged that the same discount should apply to all calls in either direction between fixed and mobile stations for its customers as well. The Agency reviewed the case at the request of Médi Télécom, and decided that the application of discounts for Maroc Télécom customers only was discriminatory and constituted an abuse of Maroc Télécom's dominant position with respect to the fixed network. An initial injunction was therefore issued at the end of February 2001, in which ANRT reviewed the facts of the case and instructed Maroc Télécom to adhere strictly to the conditions set out in its terms of reference. Since Maroc Télécom did not respond within the allotted 30-day period for doing so, ANRT placed Maroc Télécom on notice, giving it 30 days to remedy the situation or otherwise face penalties up to permanent withdrawal of the license. Subsequently, Maroc Télécom complied with the regulator's decision.

Source: ITU, 2001c.

Peruvian Court for consumer dispute resolution in the telecommunications sector

93. The Peruvian Administrative Court for consumer dispute resolution (TRASU) was created in 1995 by the regulator, OSIPTEL. TRASU decisions are made on behalf of OSIPTEL, but its decisions are taken independently from OSIPTEL's Board of Directors and administration. TRASU intervenes only once the consumer appeals the operator's response to a claim. Conciliation between the operator and the consumer may be possible during the process. TRASU is a six-member collegiate body, supported by a technical secretariat. OSIPTEL's Board of Directors appoints members to TRASU for an undefined term. Members are professionals of high standing who serve on a part-time basis. The technical secretariat is staffed with competent professionals that support the administrative court decisions. TRASU issues guidelines on how it analyses complaints, which are based on previous cases and signal to consumers and operators the likely outcome of future decisions. TRASU also rules on the proof needed to resolve claims, and which party bears the burden of proof. In case of complaints regarding fixed line local calls, TRASU is authorised to ask for the following as evidence: reports on faulty service; records of technical inspection; average and variable measured local service usage; itemised call reports; and call investigation information.

94. TRASU has the power to interpret and solve claims regarding all telecommunication services, which are related to infringements of consumer rights, including billing, installation, and quality of service. It can also impose fines if the operator fails to abide by its decisions. TRASU can also rule on procedural grounds, e.g. imposing a default judgment in favour of the consumer if the operator fails to meet a court-imposed deadline to resolve the consumer's case. Although TRASU's decisions may be appealed to the courts, few are. Parties are not charged for TRASU´s services, unless there is a clear case of misuse of the claim procedure. About 48% of the 35,000 claims handled by TRASU during 1995-2001 were resolved in favour of consumers. An on-line consultation service available on the OSIPTEL Website enables users to track the status of their claim.

Source: Apoyo Consultoria, 2002.

Failure to ensure independence of the telecommunications regulator in Ghana

95. The performance of telecommunication services operators in Ghana, following the liberalisation of the sector in the 1990s, has been viewed by the government and the general public as unsatisfactory. One of the factors that led to this poor performance relates to the fact that the independence of the National Communication Authority (NCA), the sectoral regulatory body established in 1996, has not been appropriately safeguarded by the law.

96. There are three main reasons for this. The first is that the President appoints all members of the NCA Board. Thus, the Board can be removed at any time by the President for "stated reasons", leaving the appointment of the Board open to possible political interference. Further, the formation of the Board was delayed — there was no Director-General and the Acting Director was changed three times in the first three years. The Board was finally named in 2000 just before the parliamentary elections, but after these elections, won by the opposition, a new Board was appointed. Second, the law subjects the NCA's functions to the directions of the Minister of Communications who, since 2000, also serves as the Chairman of the Board. For instance, according to the law, "(the Minister) may give to the Authority such directions of a general character as appear to him to be required in the public interest relating to the discharge of the functions of the Authority". Thus, the functions of the NCA could also be open to political interference. Third, the financial autonomy of the NCA has been seen as excessive. The law empowers it to generate funds by requiring payment of a fixed percentage of the total turnover of fixed and mobile phone operators. The NCA also collects a further one percent of operators' turnover for the Ghana Investment Fund for Telecommunications (GIFTEL) to promote rural telephony in particular and development of telecommunications in general. The use of these funds by the NCA has, however, not been specified in the law apart from the annual report that the Board must present to the President through the sectoral Minister.

Source: Ahortor, 2003; and Haggarty, Shirley and Wallsten, 2002.

Difficulties in establishing effective regulatory bodies in the Indian telecommunications sector

97. India started a gradual liberalisation of its telecommunications sector in 1985. The decision to open the wireless telephone market to private companies was taken in 1991 and was implemented in 1994. The government's licenses plan divided the Nation into four large metropolitan areas. Auctions were organised to select private companies, from which State-Owned Enterprises (SOEs) in charge of fixed lines were barred from participating. Licenses were awarded in the four cities in November 1994 and the companies began their operations in 1997. However, competition with incumbent SOEs was weakened when the Department of Telecommunications (DoT) allowed SOEs into wireless service in 1996 without paying the license fee (or the interconnection charges paid by the private companies). The DoT also decided to increase the interconnection charge, further weakening competition.

98. In 1997, a new independent regulator was established, the Telecommunications Regulatory Agency of India (TRAI). From its inception, TRAI sought to increase the level of competition among operators. It asserted its authority on interconnection prices and asked the government to renounce the increase in the interconnection charge. DoT sued TRAI and the High Court ruled that the regulator lacked the authority to ask for the rate change. A second conflict occurred over TRAI's attempt to introduce "calling party pays" for interconnections from fixed to wireless telephones (to discourage people from not answering their mobile phones and calling back from their fixed line), which TRAI again lost. The next battle was between DoT and wireless carriers who where unable to pay their license fees. From the government's point of view, this was the result of over-bidding and poor business decisions, whereas operators argued that the government's inadequate pricing rules prevented them from being commercially viable. Unpaid license fees soared and the DoT started to withdraw interconnection from operators unable to pay. By early 1999, the Indian telecommunications reform was under significant pressure, with a regulator without authority over prices and entry decisions, and many private entrants almost bankrupt and unable to compete with SOEs.

99. In March 1999, in an attempt to solve these problems, a new policy was adopted which gave TRAI the authority to regulate prices and to adjudicate disputes between SOEs and private entrants. Following further controversies, the reform was appealed and a new ruling of the High Court vacated the authority of TRAI over the DoT. In January 2000, the government adopted an ordnance that removed authority over telecommunications from the High Court and created a Telecommunications Dispute

Settlement Appellate Tribunal. New changes were agreed between TRAI and the government to level the playing field between SOEs and private wireless companies. The reform is now considered a success, leading to a rapid growth of reliable and affordable wireless services over the last years.

Source: Noll and Wallsten, 2004.

Difficulties to implement a regulatory framework for postal services in Argentina

100. Until 1993, postal services in Argentina were provided by the state owned postal operator ENCOTEL (Empresa Nacional de Correos y Telégrafos), which had a statutory monopoly on postal service provision. ENCOTEL was providing a universal service consisting of the collection and delivery of ordinary mail items up to 20 grams, the handling of standard telegrams up to 20 words and giro checks up to ARS1000 ($1). The state-owned operator was characterised by poor service, low productivity, limited management information and losses of over $150 millions per annum. The monopoly, though, already started to weaken in the 70s with the Postal Law allowing private companies to obtain "permissions" to service the market. By 1994, about 300 private sector companies were operating in the market with a share of 50%, though only 4 were of significant size.

101. In 1992, the Government of Argentina introduced a decree that established a new regulator for the sector, the National Post and Telegraph Commission (CNCT), clearly separating the regulatory and operating functions. At the same time, ENCOTEL started to operate under private law and became the National Post and Telegraph Company (ENCOTESA). One year later, in 1993, the postal monopoly was abolished and the market was officially opened to private participation.

102. In 1997 the Government decided to introduce private sector participation in ENCOTESA through a 30 year concession contract. The competitive tendering process was awarded to the Macri Group, a local consortium, with technical expertise provided by the British Post Office. ENCOTESA was to provide basic universal service set at pre-concession levels. Tariffs for these services were also fixed at pre-concession levels whereas ENCOTESA was free to set prices for the other services. The concession holder was further obliged to invest US $250 million over the first ten years to improve outlets and service provision. It was also required to pay a fee for the rights to the concession of USD 104 million per annum in two six-monthly tranches. At the same time, an effective regulatory framework was not put in place in the case of the other private operators of postal services. No license was required for private companies to access the postal market, except for a subscription in the Public Register of the Suppliers of Postal Services and the payment of an annual sum of US $5000. In addition, there were no requisites for quality standards and private companies were also excluded from requirements of universal postal service.

103. The concession initially led to several improvements, including with respect to efficiency through *inter alia* automation of administrative functions and installation of telecommunication networks integrating the first 500 of the mail's 1,500 branches, thereby offering new services. Financial losses were increasingly reduced and reached USD 20 million in 1999. However, the lack of a sound regulatory framework to underpin liberalisation coupled with large financial demands on ENCOTESA (fee payments plus investment requirements) meant that this process came to a halt. While there has been no contraction of services in rural areas neither has there been any significant roll-out of new addresses or postal outlets in the country-side. Similarly, limited efforts were made to improve quality of service.

104. In March 2001, new regulations were established to bring change from a completely free market to a market of licensed competition, including with respect to quality and universal service obligations. All the private operators are required to obtain ISO 9000 approval as a condition to retain their licenses and Article 48 provides for warnings, fines, and temporary or permanent withdrawal of operating rights for infringing the regulations.

Source: Fontdevila and Jensen, 2003; and Walsh, 2001.

Effective regulation to ensure competition in the postal services in Sweden

105. In 1993, the Swedish postal monopoly was abolished and the postal operator was transformed from a government agency to a limited liability company owned by the state, Sweden Post. Since then, there are no reserved areas maintained in the postal market and a regulatory authority was established, the National Post and Telecom Agency (PTS). PTS is an independent regulator monitoring the liberalised postal market, including with respect to pricing, quality of service, and competition in the sector. Additionally, during the same period, the Swedish Competition Authority was established charged to implement the general competition law in Sweden. The letter mail market is dominated by Sweden Post, with a market share of 93% in 2003. Its biggest competitor, CityMail, had a market share of 6.5% during the same year while the remaining 0.5% of the letter mail market is handled by 26 local postal operators.

106. Competition rules have been an effective instrument to deal with anti-competitive behaviour in the Swedish postal market. Since 1993, the Swedish Competition Authority has had more than a hundred cases concerning Sweden Post. In one case, Sweden Post had exclusive agreement conditions tying customers into buying from it all or the majority of their distribution needs. The Competition Authority considered these practices an abuse of Sweden Post's dominant position and the Stockholm City Court ordered Sweden Post to pay a fine of SEK 3.8 million for infringing the law. In another case, Sweden Post applied a zonal pricing scheme for bulk mail postal services. The pricing structure meant that a lower rate would be applied to distribution in 19 places/areas, which were then further subdivided into 3 zones. The lowest rate was in the area that covered the three largest urban regions — Stockholm, Göteborg and Malmö. The Authority considered that Sweden Post's pricing did not reflect the way individual customers purchased postal distribution services, and that they were designed to make it difficult for other companies to compete. The practice was thus considered an abuse of Sweden Post's dominant position and the company was ordered under penalty of a fine not to apply zonal pricing. In yet another case, Sweden Post applied a "cream skimming'' clause. This meant that customers could anticipate a price increase if they purchased a part of their distributional needs from CityMail. The Competition Authority ruled that this was a violation of the law, particularly as this practice did not entail any provision of information to customers on the price consequences of not purchasing all their needs from Sweden Post.

Source: Jonsson, 2004; King, 2001; PTS, 1999; and Svensson, 1998.

An independent regulatory agency in the Chilean water supply sector

107. The Chilean reform of the water supply sector greatly strengthened monitoring, by replacing a hands-on government agency with an independent, arms-length regulator. Before reform, the Santiago Metropolitan Sanitary Works Enterprise (EMOS) was under the supervision of SENDOS (Servicio Nacional de Obras Sanitarias), an arm of the Ministry of Public Works. The reform created an independent regulatory agency, the Superintendency of Sanitary Services (SSS), designed to signal government's commitment to potential private investors and avoid consumer exploitation.

108. The organisational design of the SSS was detailed in a law that mandated a small, professional staff with above average civil service salaries. The SSS's maximum professional staff cannot exceed 45 according to the law, while SENDOS had over 300 staff when it was dissolved in 1990. Although the staff

of both agencies were civil servants, the salaries for SSS professionals are similar to those of bank or stock market regulators, and hence higher than those which SENDOS could pay. All SSS professional staff have completed at least four years of higher education, which was not true in SENDOS, and most are engineers. Unlike SENDOS, the SSS has no management responsibilities. Its focus is on measuring cost and efficiency in the context of tariff adjustments and on assuring compliance with quality standards and investment plans. In addition, the new regulatory contract for EMOS signals government commitment to reform by including specific provisions related to enforcement against government reneging of the contract. Any water company can appeal a dispute over tariffs to the SSS within 30 days. If the SSS and the company fail to reach agreement, a panel of three arbitrators — one appointed by the company, one by the government and one jointly agreed — has 37 days to reach a decision that both sides must accept. Decisions can also be appealed to the courts. The fact that utilities can appeal the decision of the regulator increases the credibility of the contract.

Source: Shirley, Xu and Zuluaga, 2000.

Transparency and users' involvement

Citizen Report Cards in Bangalore

109. The Public Affairs Centre (PAC) in Bangalore, India, has done pioneering work on Citizen Report Cards over the past decade. The first report card on Bangalore's public agencies in 1994 covered municipal services, water supply, electricity, telecom and transport. Since then, PAC has brought out report cards on several other cities, rural services and also on social services such as health care. The findings of the first CRC on Bangalore were most striking. Almost all the public service providers received low ratings from the people. Agencies were rated and compared in terms of public satisfaction, corruption and responsiveness. The media publicity that the findings received, and the public discussions that followed, brought the issue of public services out in the open. Civil society groups began to organise themselves to voice their demands for better performance. Some of the public agencies responded to these demands and took steps to improve their services. The inter-agency comparisons and the associated public glare seem to have contributed to this outcome. When the second report card on Bangalore came out in 1999, these improvements were reflected in the somewhat better ratings that the agencies received. Still several agencies remained indifferent and corruption levels continued to be high. The third CRC on Bangalore, in 2003, has shown a surprising turnaround in the city's services. It noted a remarkable rise in the citizen ratings of almost all the agencies. Not only did public satisfaction improve across the board, but problem incidence and corruption seem to have declined perceptibly in the routine transactions between the public and the agencies. It is clear that more decisive steps have been taken by the agencies to improve services between 1999 and 2003.

Source: Paul, 2004; and Ravindra, 2004.

Transparency in Peru's telecommunications regulator

110. OSIPTEL, Peru's regulatory body for the telecommunications sector, has established several mechanisms to generate a greater level of transparency in its daily activities and especially in its decision making. These include:

- Advance publication of any standard of general application, with inputs received from operating companies and consumers analysed, evaluated and taken into account in the proposed measures.

- Public hearings providing an exchange of views on specific topics, to create a direct relationship between OSIPTEL and operators, consumers and other interested parties.

- Consultations to solve disputes between public telecommunication service operators or between an operating company and consumers via conciliation and agreement between the parties.

- Establishment of independent, ad hoc collegiate bodies of multidisciplinary experts to resolve disputes.

111. Other activities aimed at adding transparency to OSIPTEL's regulatory decisions include the holding of seminars, the preparation of publications and allowing access to the general public to its Information and Documentation Services, which hold the technical studies underlying OSIPTEL's regulatory decisions, as well as the regulatory policies applied in other countries.

112. In 2002, following increasing demand from consumers for information, OSIPTEL began experimenting with a mobile unit called MoviAyuda which travels throughout Lima, the capital city, especially to high-complaint locations and areas with high pedestrian traffic. MoviAyuda brings the regulator to the consumer, facilitates access to information, and reduces consumer costs and efforts in obtaining relevant information. MoviAyuda also provides valuable feedback on the main problems between operators and their customers, enabling the regulator to identify issues requiring policy action. MoviAyuda doubled OSIPTEL's contacts with consumers in the initial two months of its launch — including calls to its call centre (FonoAyuda) and visits to the regulator's offices. OSIPTEL has furthermore set up temporary kiosks in highly-populated locations — such as business centres, public squares and universities — staffed by personnel that can provide information or take complaints.

Source: ITU, 2001a; and Apoyo Consultoria, 2002.

The Australian Consumer Consultative Forum

113. The Australian Communications Authority (ACA) — the telecommunications regulatory agency responsible for licensing, technical regulation and consumer protection — has a legislative obligation to provide information to consumers on telecommunication issues, with the goal of creating a community that is informed about the rights and options available to them in Australia's market. The Consumer Consultative Forum (CCF) was established in 1997 in accordance with the Australian Communications Authority Act 1997. The forum meets twice a year and provides the ACA with a formal mechanism for consulting consumer representatives on a wide range of telecommunication issues. Members of the CCF include organisations that represent consumer interests from a variety of perspectives, relevant government agencies and industry bodies. The terms of reference for the CCF are to: a) assist the ACA with consumer consultation on matters relating to its telecommunication functions; b) ensure that consumer interests are adequately considered in ACA's decision-making; and c) assist in informing the community about telecommunication service issues and matters relating to the industry. Issues put forward for consultation include access to services, quality of service, impact of new technologies on consumers, including those with special interests and needs, and comprehensive consumer impact statements.

Source: Apoyo Consultoria, 2002.

PART II: NETWORK INFRASTRUCTURE SERVICES AND THE GATS

I. Introduction

114. The aim of this part of the study is to complement Part I by linking the discussion of the liberalisation of network infrastructure services at the national level with the GATS. It explores the main issues related to these services in current GATS negotiations in terms of new possibilities for progress in light of real liberalisation taking place in many countries and of important considerations specific to these services.

115. More precisely, this part of the study starts from the premise that to date, with the exception of telecommunication services, progress on bound liberalisation of network infrastructure services under the GATS has been limited. This notwithstanding the potential gains that can be derived by making GATS commitments in these services. It thus reviews some of the key concerns potentially influencing WTO Members' decisions not to enter commitments in these services and attempts to address them.

116. In particular, it reviews problems raised in relation to the main classification instruments used by WTO Members in making commitments in network infrastructure services and what options are available to countries in this regard. It then examines key GATS provisions that may be relevant for the provision of these services to the public. The discussion in Part I shows that there is a strong public service aspect to the provision of network infrastructure services and that they require an appropriate regulatory framework to ensure social objectives, such as availability, quality and affordability of service. The aim here is to address concerns raised in relation to the potential impact of the GATS on governments' control over the provision of these services and explore how its framework can accommodate and support the objectives of national polices.

117. Like other international treaties, GATS disciplines can put regulatory constraints on Member governments. Yet countries accept such disciplines because they deem them necessary to reaping the full benefits from international cooperation in a rules-based system. The underlying thread throughout this part of the study is that the GATS affords wide flexibility for Members to tailor obligations to their national policy objectives.

118. The next section reviews the benefits that may arise from enhanced GATS commitments in network infrastructure services. Section III then discusses the limited progress achieved so far on liberalising these services under the GATS. Section IV presents the main issues related to the classification of network infrastructure services in the context of the GATS. The remaining sections assess whether main GATS disciplines may lead to a loss of government ability to ensure adequate provision of these services to the public.

II. Benefits of improved GATS commitments

119. It is important to recall the economic case that underpins bound liberalisation of network infrastructure services under the GATS. Enhanced GATS commitments in these services can create momentum for further domestic sector reform and much needed investment capital, and can anchor these reforms within an international legal framework. GATS commitments can also provide a credible signal

that the government is committed to sector reform and has taken the necessary legal and regulatory measures to allow for such investment (Bressie et al., 2004).

120. In particular, GATS commitments send a signal to WTO Member governments and, in turn, their investors, that there will be a rules-based, transparent, predictable and non-discriminatory regime in place. In addition, the dispute settlement system provides an avenue of recourse should a country's implementation of sector reforms fail to satisfy that country's GATS commitments. Investors who may have questioned the government's commitment to sector reform can rest assured that there is an international process for settling these disputes (through their governments) where a WTO Member has undertaken GATS commitments in that sector. Without such commitments, investors would have to rely solely on domestic legal remedies or international arbitration, if such recourse is available. WTO commitments can thus contribute to improve the investment climate and increase the likelihood of new investment in the sector.

121. This new investment can in turn provide capital, as well as technical and managerial expertise, to build and expand the networks and services. This can be particularly important for network infrastructure services which, as seen in Part I, require huge amounts of capital investment.

122. Another dimension of GATS commitments relates to the mercantilist nature of trade negotiations. While considerable unilateral liberalisation of trade in services has taken place, it has been uneven, especially in areas of export interest to developing countries. However, in trade negotiations, some leverage for obtaining commitments from trading partners can be generated if a Member signals a willingness to make GATS commitments in sectors or modes of export interest or in other parts of the WTO agenda.

III. Uneven and limited progress to date

123. Notwithstanding these benefits, with the exception of telecommunication services, progress on committing these services under the GATS has been limited. The telecommunications sector is one of the most committed sectors overall. 105 WTO Members (counting EC Member States individually) have made specific commitments concerning some aspect of the telecommunications sector. In basic telecommunications, commitments have been made by 104 governments, 90 of whom committed during or since the negotiations on basic telecommunications that took place after the end of the Uruguay Round. Their suppliers account for well in excess of 90% of the world's total telecommunications revenues. In the area of value-added telecommunication services, 89 governments have made commitments. It should be recognised, however, that commitments may imply very different levels of access depending on the limitations scheduled.

124. Nevertheless, the situation is quite different in the case of the other sectors. Including the post-Uruguay Round accession countries, few WTO Members have made commitments in postal services, although more Members have committed to courier services (10 and 49 respectively). About 17 commitments were made on energy distribution, and 56 commitments (counting EC Member States individually) were made on waste water management services. No commitments have been made on water distribution services.

125. This varied situation is due to a combination of factors. First, introduction of competition in the telecommunications sector, which has been more widely embraced than in other infrastructure sectors, has lead to significant price decreases and improved service world-wide. The working group established during the Uruguay Round succeeded in producing a substantive sectoral Annex for the sector. The Annex on Telecommunications sets out guarantees of reasonable access to and use of basic telecommunication services provided by public operators. In addition, unlike the other sectors, telecommunication services

were negotiated by WTO Members as a separate negotiation dedicated to the sector following the Uruguay Round. The Reference Paper on Basic Telecommunications (hereafter the "Reference Paper") also emerged in the separate negotiations. The Reference Paper consists of a set of obligations for a pro-competitive regulatory framework for basic telecommunications that become legally binding obligations when a Member adds these to its schedule of commitments. To date, 78 Members have committed to the Reference Paper in whole or with few, if any departures.

126. Conversely, as seen in Part I, the introduction of competition has been more gradual or difficult in the other sectors. Nevertheless, since the Uruguay Round significant reforms to introduce competition have been undertaken which have changed the market characteristics of these services in many countries. So there seems to be scope now to achieve more progress at the multilateral level and the Doha Round offers WTO Members an opportunity for anchoring recent policy reforms, giving them more permanency in a flexible and progressive manner.

127. Yet so far, with the possible exception of telecommunications, only relatively few Members have tabled new or improved offers in these services and developing countries' participation remains limited. To date, only a few Members have offered new commitments or improved upon or clarified existing commitments in the relevant network infrastructure services: telecommunications (36), postal services and courier services (15) energy services (14) and waste water treatment services (13).

IV. Classification of network infrastructure services

128. Part of the reason explaining this lack of progress relates to classification issues. Two main instruments are used in the WTO for this purpose: the GATS Services Sectoral Classification List (commonly referred to as W/120) and the United Nations Provisional Central Product Classification (Provisional CPC). W/120 lists 12 services sectors, disaggregated in about 160 sub-sectors, indicating for each of them the corresponding Provisional CPC number. The GATS does not oblige Members to use any specific classification instruments, though once included in a schedule of commitments the corresponding classification becomes legally binding.

129. For the most part, the concerns seem to reflect the way in which network infrastructure services were provided at the time the classifications were developed. For instance, energy services are not classified as a separate section under W/120. The few GATS commitments on energy services are scheduled under pipeline transportation of fuels under transport services and as several entries such as technical testing and analysis, and services incidental to mining and energy distribution under *other business services*. This is largely due to the fact that energy markets were characterised at the time of the Uruguay Round by vertically-integrated, state-owned monopolies, operating mainly in national markets, especially in the case of electricity companies. Moreover, it had been a traditional practice in the energy sector not to draw clear lines of distinction between goods and services. This was inconsistent with the rationale of the Round, which was based on the clear and precise identification of trade-related services.

130. Similar issues also arise in the case of postal/courier and environmental services. The Provisional CPC classifies postal services as the relevant delivery services carried out exclusively by national postal administrations and courier services as essentially the same delivery services performed by private companies. In reality, public postal administrations and private companies compete not only in a number of services traditionally open, such as parcel and express delivery, but also in services once more commonly reserved to public postal administrations. Several countries are also of the view that W/120 and the Provisional CPC — which comprise sewage services, refuse-disposal services, sanitation and similar services and other services — are outdated and do not reflect commercial realities in environmental services as they focus mainly on waste management and pollution control.

131. Furthermore, one important feature of the GATS classification (and of most classifications) is that services sectors are broken down into segments, which in reality are often bundled with other activities, such as transportation, engineering, construction and financial services. For example, one characteristic of postal and courier services is that they typically own their own fleets of trucks and even airplanes. They are thus also dependent on commitments in air and road transport services that are identified as sectors in their own right in W/120. Road transport may be a significant means of delivery for parcels and other items within geographic regions or contiguous countries, and air transport is the predominant means of delivery among distant locations. This can have important implications for the value of commitments when, for example, different levels of market access are extended to different activities that as a practical matter are inter-dependent or supplied in a bundled manner.

Options available to WTO Members in current negotiations

132. These definitional issues are important because they define the extent to which specific commitments apply to a given market. WTO Members have thus been discussing ways to modernise the classifications under W/120 and ideas have been put forward to address the related concerns. While in light of divergent views it may be difficult in the short-term to agree on new classification instruments, as noted earlier, WTO Members are not required to use any particular classification and the Members concerned are free to modify the classifications contained in their schedules of commitments (as long as consistency with previous commitments is maintained). By the same token, those Members that consider that W/120 remains a valid framework to schedule commitments in the relevant sectors can simply maintain it in their schedules.

133. For example, in the case of energy several proposals have been tabled by some WTO Members concerning the organisation of W/120, with the aim of creating a definition of the sector to facilitate the scheduling of commitments. Most of the negotiating proposals define the scope of the energy services sector as covering the whole chain of energy activities (from resource identification to transmission and distribution). They suggest new classifications or "scheduling guides" that can be used to make commitments under the existing classification structure (from recent discussions it seems that these WTO Members have abandoned the idea to introduce a new entry for energy in W/120). Some countries (Norway and the US) have then presented offers that include a separate energy-related section in the schedule. Meanwhile, other Members have made offers containing energy-related commitments under other related categories such as transport and business services.

134. For postal and courier services the main issue relates to the integration of courier services into postal services, given that the original premise for having separate classifications no longer applies. Most submissions thus propose removal of the distinction between postal and courier services. In environmental services, several Members have proposed revised classifications of the sector, they felt better reflect the commercial realities of the sector. Here again, while some Members have made offers which have *de facto* adopted a new classification for environmental services, other Members have simply retained W/120. The most ambitious of the proposals has been submitted by the EC and suggests the creation of seven sub-sectors based on the environmental media (air, water, soil, waste, noise and so forth).[9] The EC submission includes a category for "Services related to the collection, purification and distribution of water", which is not classified in either W/120 or in the services part of the Provisional CPC, but which is technically often closely associated with environmental services as seen in Part I.

135. WTO Members have also been discussing ways to ensure that any commitments in network infrastructure services are not undermined by lack of commitments in other sectors. One potential solution

[9] The EC classification proposal closely resembles a similar classification previously developed by the OECD and Eurostat (see OECD/Eurostat, 1999 for details).

could be the establishment of a list or guide similar to the one proposed by some Members for energy services. This list (in addition to the identification of "core" services) would comprise services which are not telecommunication, postal/courier or environmental *per se*, but which are related or important to their provision. These related services would be subject to a "cluster" or "check-list", which could be used as an *aide-mémoire* during the negotiations. The resulting candidates for commitments would then be scheduled in the relevant GATS sectors.

V. The GATS and policy control

136. Perhaps more importantly, particularly in the case of environmental network and energy services, concerns have been raised about the potential effect of the GATS on the ability of governments to ensure adequate provision of these services to the public. In practice, this refers to the possible impact of the Agreement on governments' ability to maintain their traditional public service responsibilities either through monopoly public utilities, exclusive rights to provide services or appropriately regulated competition. These problems are intensified by the fact that the GATS is a relatively young agreement and some of its provisions remain to be tested in practice. In light of the importance of these services for society and their highly regulated nature, governments have been cautious about agreeing to subject these sectors to binding commitments on competitive supply. The GATS, like other legally bound undertakings in the WTO (or other international treaties), can affect the regulatory conduct of governments. At the same time, the Agreement affords WTO Members considerable flexibility in this regard.

137. The GATS applies to any service in any sector, with two main exclusions, the most important of which in the context of network infrastructure services is the exclusion of services supplied in the exercise of governmental authority.[10] It defines trade in services by reference to four modes of supply. The traditional concept of trade in goods is imbedded in "cross border supply" (mode 1), which refers to the supply of a service from the territory of one Member into the territory another Member. "Consumption abroad" (mode 2) involves the supply of a service in the territory of one Member to a service consumer of another Member. Network infrastructure services are for the most part supplied through the establishment of a "commercial presence" (mode 3), possibly accompanied by the "presence of a natural person(s)" (mode 4).

138. The Agreement explicitly recognises in its Preamble "the right of Members to regulate the supply of services within their territory in order to meet national policy objectives". Market access (Article XVI) and national treatment (Article XVII) need to be granted only in sectors which a Member lists in its schedule of specific commitments. Members have also significant flexibility in scheduling as they are free to choose and define the sectors, and select the modes of supply for which they are ready to undertake specific commitments. Commitments can additionally be qualified with various types of relevant limitations, thus allowing Members to tailor them to specific national policy objectives.

139. In the absence of specific commitments, the GATS imposes only limited obligations. The most important of these is the most-favoured-nation (MFN) treatment, a prohibition to discriminate among foreign providers supplying the same service. Each member had the opportunity to seek exemption from the MFN obligation at the date of entry into force of the Agreement (an opportunity also afforded to subsequent acceding countries). Even for committed services, many regulatory practices and objectives not relevant to listing within the schedule itself are currently subject to fairly minimal disciplines on domestic regulation (see below).

[10] The other exclusion relates to measures affecting air traffic rights or services directly related to the exercise of traffic rights.

140. Regulations may also breach obligations and commitments under the GATS and still be allowed under the provisions of Article XIV on exceptions. These provisions can be invoked to protect major public interests, including safety, human, plant or animal life or health, national security, public morals and public order. They can also be invoked to deal with the effects of a default in services contracts. The measures should not, however, be applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where like conditions prevail or a disguised restriction on trade in services.

The carve-out for "services in the exercise of governmental authority"

141. As noted, the GATS applies in principle to all services, except those provided in the exercise of governmental authority. GATS Article I.3 (b) states that, for the purpose of the GATS, "services" include "any service in any sector except services supplied in the exercise of governmental authority". This exception is further defined in Article I.3 (c), which specifies that "a service supplied in the exercise of governmental authority" means "any service, which is supplied neither on a commercial basis, nor in competition with one or more service suppliers". As such, supply of services by a monopoly (whether publicly or privately owned) is not alone sufficient to exempt such services from coverage, if they are sold to the public on a commercial basis.

142. In practice, since there is no single model of governmental provision of these services within WTO membership, as the concept varies according to different sectors or segments, national traditions and legal conditions, the coverage of the carve-out will vary depending on the country and service concerned. However, uncertainties remain about its exact scope (see Krawjeski, 2003; Cossy, 2005; and Adlung, 2005). This definition does not provide for a clear determination of whether and under what circumstances network infrastructure services provided on a monopoly basis by public utilities of particular Members would fall outside the coverage of "services".

143. This uncertainty stems mainly form the lack of clear definitions or guidelines. For example, regarding services supplied on a non-commercial basis, while services provided for free would be likely to fulfil this condition, it is less clear whether the same could be said in the case of cost-recovery fees. Even equating commercial with profit-seeking would still leave some questions unanswered as to what concepts of profit would be relevant. Similar questions arise with respect to the precise meaning of "nor in competition with one or more service suppliers", coupled with the fact that some network infrastructure services, e.g. environmental network services, remain for the most part natural monopolies, meaning there may only be one supplier in a given market.

Network infrastructure services and government procurement

144. Another important issue concerning the scope of the GATS relates to government procurement. Government procurement of services — defined as the "procurement by governmental agencies of services purchased for governmental purposes and not with a view to commercial resale or with a view to use in the supply of services for commercial resale" — is exempted from the MFN, market access and national treatment obligations (Article XIII:1). Since the conclusion of the Uruguay Round, WTO Members have been negotiating the possibility to develop disciplines for procurement of services. For the time being, the only comprehensive WTO disciplines in this area are contained in the plurilateral Agreement on Government Procurement (GPA).

145. A key question that arises in the context of government procurement of services is to what extent contractual arrangements, such as concessions or build-operate-transfers (BOTs), fall under the Article XIII definition of government procurement. It is unclear under what circumstances and what types of arrangements would fall outside the scope of these three central GATS provisions. As seen in Part I,

concessionary arrangements play a major role in the supply of network infrastructure services. Recent discussions show that WTO Members have different views in this regard and that even the definition of different kinds of arrangements varies among countries. Some stress that the arrangements providing for a contractee to sell commercial services to the public, rather than to sell such services to the government for its own use, would not be covered by the definition of government procurement. However, this view is not commonly agreed.

146. Cossy (2005) has provided some initial insight into the complex question of contractual arrangements and government procurement of services. In the case of concession contracts, she argues that for the most part they could not be considered a form of government procurement. This is because they typically do not entail a purchase of service by the government and the service is not for the direct consumption of the government but is supplied to consumers. For other forms of contracts such as management contracts, the case for government procurement appears to be stronger, since the government more clearly purchases and consumes the service for its own use. The state of BOT contracts remains to be clarified, given that they combine elements of procurement (construction of a public facility) with concessional regimes (granting of an exclusive right to provide a service to the public). This situation is compounded by the fact that in practice contractual arrangements between a public authority and a private supplier may combine different elements. In a few cases, however, WTO Members have scheduled specific commitments on concessional arrangements, presumably as limitation on the conditions under which foreign suppliers may participate in the market for the services concerned. This would imply a view that such arrangements fall within the scope of existing disciplines.

Implications of misinterpreting the scope of the GATS

147. These uncertainties have tended to cloud discussions on the impact of the GATS on network infrastructure services, possibly affecting WTO Members' decisions to schedule commitments in these services. However, as pointed out by Adlung (2005), a key question that results from uncertainties on the interpretation of the scope of GATS provisions, is the extent to which GATS obligations and commitments could lead to a loss of policy control over the provision of these services. As seen earlier, if commitments have not been made in a particular sector, only limited disciplines apply, the most important of which is the MFN principle (provided that countries have not included the sector in question in their lists of MFN exemptions). MFN treatment does not seem to impinge on governments' ability to retain regulatory controls over network infrastructure services, given that governments retain the right to exclude any foreign participation in the services concerned.

148. Even if a country has made a commitment, Members retain a wide degree of flexibility and latitude with respect to regulatory measures, although other more significant GATS obligations apply especially in relation to market access and national treatment. While commitments involve different levels of access depending on the limitations entered in the schedules, misinterpretation of GATS provisions may in such case have important implications. As a last resort, if a country were to introduce new monopoly rights in an area in which it had previously made commitments to competitive supply, it would be necessary to follow the procedures on modification and withdrawal of commitments contained in GATS Article XXI. This would entail the negotiation of commercial equivalent compensatory adjustments to the schedule of commitments. If trading partners are not satisfied that such adjustments are made, they can ultimately be authorised to take retaliatory measures of commercially equivalent effect.

149. Uncertainties could also arise with respect to national treatment commitments. It is unclear, for example, whether national treatment would apply to certain types of treatment or privileges extended to public facilities (e.g. postal administrations), in a manner that could require equal treatment of foreign services and service suppliers supplying similar services. Such questions can arise with respect to financial benefits such as subsidies or "bail outs", discriminatory pricing controls, or preferences extended to the

services or suppliers concerned. As seen in Part I, subsidies and other incentives are frequently used to meet universal access objectives in network infrastructure services. It is possible that where such commitments are made these incentives may need to be offered on a non-discriminatory basis to all suppliers (domestic and foreign) willing to contribute to universal service objectives.

150. Implications for commitments could also arise if in the future certain kinds of contractual arrangements between the public and private sectors were interpreted as falling outside the scope of government procurement. If relevant commitments are or were to be taken, a Member concerned would need to grant foreigners the right to bid for contracts in the relevant sector and treat their offer like that of other national suppliers. Although it is difficult to see how foreign providers would be less suited than their domestic counterparts to meet the relevant sector objectives or to bid for contracts to provide service, governments should be aware of unintended consequences.

151. Scheduling commitments on network infrastructure services thus raises a number of important questions. At the same time, not committing may come at a cost. As seen earlier, GATS commitments in these services could bring about gains in terms of increased investment via private sector participation and wider availability of services, and thus can make a positive contribution to the fulfilment of the universal service objectives laid out by many governments. Moreover, in competitive telecommunication environments, for example, the concept of "universal" service has been nearly entirely delinked from the notions of governmental or exclusive supply, such that competitive private sector market participants can be assigned to assume these requirements consistently with GATS obligations or commitments.

Limitations on network infrastructure services commitments

152. Pending a clarification of GATS provisions by the WTO membership, one option to avoid some of these concerns and facilitate the assumption of GATS commitments may involve careful delineation of the activities listed as open to competition and considerable thought given to relevant limitations to be inscribed in network infrastructure services. As shown in Table 1 below, WTO Members have wide flexibility in this regard. It is possible to confine the scope of commitments to clearly defined and circumscribed segments or activities of a sector, for example excluding public monopolies or confining specific commitments to the private sector.

153. A great degree of flexibility with respect to scheduling can accommodate governments that so wish to gradually move from monopoly service provision to the introduction of competition and private sector participation. This includes the use of staged or phased-in commitments to end monopoly or exclusive rights provision of certain of these services at a future date. WTO Members made extensive use of phased-in commitments in the telecommunications sector during the Uruguay Round. 47 of the 105 Members that have made commitments on telecommunication services made use of such phase-ins, giving them breathing room to institute the necessary legislative and regulatory frameworks for the introduction of competition.

154. At the same time, it is important to recognise that the GATS cannot solve the issue of universal access to network infrastructure services. It can only play a role in complementing policy decisions by enhancing investor’s confidence when countries decide to introduce competition and allow private sector participation in these services. Domestic factors including the state and feature of the different sectors, and the country’s economic, social and political characteristics remain central. There are plenty of examples of countries that have made full GATS commitments during the Uruguay Round which have had no impact on their network infrastructure services.

Table 1. Examples of limitations in WTO Members' commitments*

Member	Mode	Limitation ***	Sector	Horizontal and sectoral limitations
Turkey	3	Market Access	Horizontal	"The following sectors are closed to private investments because of public monopolies: postal services and telecommunications, railways; administration of harbour and quay; lotteries in cash, football pools and public utilities"
Switzerland	1,2,3,4	Footnote	Waste water treatment	"Nothing in this commitment should be construed to include public work function whether owned and operated by municipalities, cantons or federal government or contracted out by them"
United States	1,2,3,4	Note	Waste water treatment	Commitment pertains to services "contracted by private industry"
China**	1,2,3,4	Note	Postal/courier	"Except for currently specifically reserved to Chinese postal authorities by law"
Uruguay	1,2,3,4	Note	Postal/courier	Commitment pertains to "private mail and courier services"
Albania**	1,3	Market Access	Telecoms	"Albanian Telekom (AT) has exclusive rights for fixed telephony except in rural areas. No limitations from 1 January 2003"
Canada	3	Market Access	Telecoms	"On March 1, 2000, Telesat Canada will no longer be authorised to be the sole operator in Canada of fixed satellite space segment facilities used to provide national and Canada-U.S. fixed satellite services"
Finland (EC schedule)	1,2,3,4	Note	Telecoms	"The setting up and the operation of telecommunication networks as well as the provision of voice telephone, telegraph and telex services are excluded (public monopoly)"

Notes: *The limitations include only those that define the scope of commitments as discussed in this section of the study. **Post-Uruguay Round accession country. ***Limitation: Market Access: Limitation imbedded in the market access section of the schedule; Footnote: Footnote attached to the sector or sub-sector classification; Note: Note included under the sector or sub-sector classification.

VII. Additional disciplines on regulatory measures

155. Once commitments in a particular sector have been made, in addition to the market access and national treatment obligations (subject to scheduled limitations), other disciplines apply. The most significant of such disciplines relate to regulatory measures and are contained in Article VI, in particular paragraphs 1 and 5. The question arises whether these disciplines can limit governments' ability to regulate network infrastructure services.

156. Article VI:1 requires Members to ensure that regulatory measures are "administered in a reasonable, objective and impartial manner". Article VI:5 aims at ensuring that licensing, qualification requirements and technical standards are *inter alia* "based on objective and transparent criteria" (examples given are competence and the ability to supply the service) and "not more burdensome than necessary to ensure the quality of the service". These criteria are based on Article VI.4, which provides for a negotiating mandate to develop strengthened disciplines on these measures. The application of Article VI:5 is subject to two limitations, that the measures in question nullify or impair specific commitments and could not reasonably have been expected when commitments were made.

157. As noted by Adlung (2005), it is difficult to see how the provisions of Article VI:1 may impinge on governments' right to regulate given that they only relate to the "administration" of the measures and not their substantive aspects. Article VI:5 may have a wider impact on regulatory capacity since as seen above does contain substantive obligations. In this context, concerns have been raised about the fact that the not more burdensome than necessary test of Article VI:4 is linked only to the quality of service (see also Trachtman, 2003). A narrow interpretation of the objective "quality of service" may leave out measures relating to other important objectives seen in Part I. In practice, however, the effects of Article VI:5 are likely to be limited given that its application is subject to the two limitations seen earlier. In addition, current discussions under the Article VI:4 mandate show that any disciplines in this area will be broad enough to accommodate a wide range of national objectives. In the Accountancy Disciplines[11], the one area where negotiations have been concluded under the mandate, the narrower quality objective has been replaced with a broader set of objectives, including protection of consumers, the quality of service, professional competence and the integrity of the profession.

158. It is also important to recall that even if a Member breaches its obligations under Article VI.5 (or other GATS provisions such as the ones to be developed under the Article VI:4 mandate), its regulation might still be permitted under the provisions of Article XIV on exceptions.

The Reference Paper on Basic Telecommunications

159. Another important example of GATS disciplines and the scope for autonomous policy making in network infrastructure services is the Reference Paper. The document is a tool for negotiating additional commitments on basic telecommunication services under GATS Article XVIII (i.e. beyond those on market access and national treatment). Unlike the Annex on Telecommunications, the Reference Paper obtains legal status only to the extent that WTO Members have incorporated it in their schedules of commitments.

160. The Reference Paper supplements other GATS disciplines, particularly the Annex on Telecommunications and Article VIII of the GATS. Its objective is to ensure effective market access by

[11] The Accountancy Disciplines were adopted in December 1998 and are due to be integrated into the GATS at the conclusion of the current negotiations. They are applicable only if a Member has made a commitment in the accountancy sector and their scope is confined to measures not falling under Articles XVI and XVII.

means of additional commitments to put in place a set of pro-competitive regulatory principles akin to international best practice. As seen in Part I, ensuring the development of a genuinely competitive market can be important because the particular characteristics of telecommunication services (and of other network infrastructure services), make it unrealistic to change from monopoly to open, unregulated markets, and expect the full benefits to be realised and sustained. Rather, a regulatory environment that complements and supports the decision to permit competition is needed.

161. The Reference Paper, like the Annex on Telecommunications, represents a transfer of know-how from countries with significant years of experience with reform of their telecommunication service sector to other countries and has been used to promote policy reforms and FDI. It has also inspired considerable debate on whether its elements can be transferred to other network services, such as postal/courier and energy services. The argument is that, given the changing market structure and gradual opening of these sectors to competition, regulatory authorities are likely to face issues that are similar to those encountered in the liberalisation of the telecommunications sector. Attention, though, should be paid to the differences between telecommunications and the other sectors, including with respect to the stronger difficulties encountered in conducting liberalisation in the other sectors (as seen in Part I).

162. Specific competition-related disciplines in the Reference Paper include a requirement to prevent major suppliers from engaging in anti-competitive cross-subsidisation and an obligation to establish an independent regulator. At the same time, the Reference Paper, in line with the Preamble of the GATS, recognises governments' right to regulate the sector to ensure public policy objectives. A case in point is universal service requirements; the Reference Paper explicitly confirms the right of Members to establish these measures. Similarly, it allows considerable scope for each country on how to implement liberalisation and regulatory reform. For example, the requirement for an independent regulator is without prejudice as to whether the regulator should be separate from the ministry that makes telecommunication policy or whether it should be a sector-specific regulator of telecommunication services or a regulator operating under the general competition laws.

CONCLUSION

163. The economic and social significance of network infrastructure services means that they are high on the list of development priorities of many countries. Part II of the report suggests that, if appropriately designed, bound liberalisation under the GATS can contribute to the advancement of these development goals. By creating a more transparent and predictable legal framework, the GATS can contribute to improve the investment climate and help attract FDI in these sectors. This can in turn provide needed capital and technical and managerial expertise to build and expand the networks and services.

164. The WTO services agreement can place regulatory constraints on Member governments, particularly when specific commitments are made. This is intensified by the fact that the GATS is a relatively young agreement and some of its provisions remain to be tested in practice. At the same time, the Agreement allows considerable scope through its flexibility to accommodate national policies. It is therefore crucial to carefully examine its provisions and tailor specific commitments to national policy objectives.

165. The liberalisation of network infrastructure services is no easy task and requires the establishment of a strong regulatory framework. To achieve public policy objectives and ensure competition in the new environment, new regulatory instruments and approaches are required, which need to be adapted to the specificities of different sectors and countries. This is shown in the range of positive as well as problem-ridden examples provided in Part I of the study of national experience in liberalising network infrastructure services. Sound regulation and effective institutions are thus needed to ensure a positive and sustainable outcome from the current round of GATS negotiations.

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