



Project Finance Module



NATIONAL STOCK EXCHANGE OF INDIA LIMITED

Test Details:

Sr. No.	Name of Module	Fees (Rs.)	Test Duration (in minutes)	No. of Questions	Maximum Marks	Pass Marks (%)	Certificate Validity
1	Financial Markets: A Beginners' Module *	1686	120	60	100	50	5
2	Mutual Funds : A Beginners' Module	1686	120	60	100	50	5
3	Currency Derivatives: A Beginner's Module	1686	120	60	100	50	5
4	Equity Derivatives: A Beginner's Module	1686	120	60	100	50	5
5	Interest Rate Derivatives: A Beginner's Module	1686	120	60	100	50	5
6	Commercial Banking in India: A Beginner's Module	1686	120	60	100	50	5
7	Securities Market (Basic) Module	1686	120	60	100	60	5
8	Capital Market (Dealers) Module *	1686	105	60	100	50	5
9	Derivatives Market (Dealers) Module *	1686	120	60	100	60	3
10	FIMMDA-NSE Debt Market (Basic) Module	1686	120	60	100	60	5
11	Investment Analysis and Portfolio Management Module	1686	120	60	100	60	5
12	Fundamental Analysis Module	1686	120	60	100	60	5
13	Financial Markets (Advanced) Module	1686	120	60	100	60	5
14	Securities Markets (Advanced) Module	1686	120	60	100	60	5
15	Mutual Funds (Advanced) Module	1686	120	60	100	60	5
16	Banking Sector Module	1686	120	60	100	60	5
17	Insurance Module	1686	120	60	100	60	5
18	Macroeconomics for Financial Markets Module	1686	120	60	100	60	5
19	Mergers and Acquisitions Module	1686	120	60	100	60	5
20	Back Office Operations Module	1686	120	60	100	60	5
21	NISM-Series-I: Currency Derivatives Certification Examination	1000	120	100	100	60	3
22	NISM-Series-II-A: Registrars to an Issue and Share Transfer Agents – Corporate Certification Examination	1000	120	100	100	50	3
23	NISM-Series-II-B: Registrars to an Issue and Share Transfer Agents – Mutual Fund Certification Examination	1000	120	100	100	50	3
24	NISM-Series-IV: Interest Rate Derivatives Certification Examination	1000	120	100	100	60	3
25	NISM-Series-V-A: Mutual Fund Distributors Certification Examination *	1000	120	100	100	50	3
26	NISM-Series-VI: Depository Operations Certification Examination	1000	120	100	100	60	3
27	NISM Series VII: Securities Operations and Risk Management Certification Examination	1000	120	100	100	50	3
28	Certified Personal Financial Advisor (CPFA) Examination	4495	120	80	100	60	3
29	NSDL-Depository Operations Module	1686	75	60	100	60 #	5
30	Commodities Market Module	2022	120	60	100	50	3
31	Surveillance in Stock Exchanges Module	1686	120	50	100	60	5
32	Corporate Governance Module	1686	90	100	100	60	5
33	Compliance Officers (Brokers) Module	1686	120	60	100	60	5
34	Compliance Officers (Corporates) Module	1686	120	60	100	60	5
35	Information Security Auditors Module (Part-1)	2528	120	90	100	60	2
	Information Security Auditors Module (Part-2)	2528	120	90	100	60	
36	Options Trading Strategies Module	1686	120	60	100	60	5
37	Options Trading (Advanced) Module	1686	120	35	100	60	5
38	FPSB India Exam 1 to 4**	2247 per exam	120	75	140	60	NA
39	Examination 5/Advanced Financial Planning **	5618	240	30	100	50	NA
40	Equity Research Module ##	1686	120	65	100	55	2
41	Issue Management Module ##	1686	120	80	100	55	2
42	Market Risk Module ##	1686	120	50	100	55	2
43	Financial Modeling Module ###	1123	120	30	100	50	NA
44	Financial Services Foundation Module ###	1123	120	45	100	50	NA

* Candidates have the option to take the tests in English, Gujarati or Hindi languages.

Candidates securing 80% or more marks in NSDL-Depository Operations Module ONLY will be certified as 'Trainers'.

** Following are the modules of Financial Planning Standards Board India (Certified Financial Planner Certification)

- FPSB India Exam 1 to 4 i.e. (i) Risk Analysis & Insurance Planning (ii) Retirement Planning & Employee Benefits (iii) Investment Planning and (iv) Tax Planning & Estate Planning
- Examination 5/Advanced Financial Planning

Modules of Finitatives Learning India Pvt. Ltd. (FLIP)

Module of IMS Proschool

The curriculum for each of the modules (except Modules of Financial Planning Standards Board India, Finitatives Learning India Pvt. Ltd. and IMS Proschool) is available on our website: www.nseindia.com > Education > Certifications.

Background

Developing countries like India have a significant demand for projects. Yet capital is scarce. There is a need to channel the capital into the most deserving of projects. Further, the pool of capital has to be widened through involvement of private sector.

Growth of the entire country can be propelled through better infrastructure. Yet, some special needs need to be addressed, before a wider non-government involvement can be expected in building infrastructure for the country.

This module addresses such commercial and policy issues related to setting up commercial projects and national infrastructure.

Learning Objectives

- To be aware of how project finance has evolved in the country and the various kinds of projects and their implications
- To understand how the market is to be analysed before deciding to proceed with a project
- To appreciate the role of business models, competencies and promoters in setting up successful projects
- To understand how to estimate the cost of a project and know the various tools that are used to assess feasibility of projects
- To gain insights on projecting the financials of a project, apply the various tools for assessing financial feasibility and appreciate the benefits of sensitivity analysis and scenario analysis
- To know the various sources of project finance and typical issues that come up while mobilising project finance
- To understand the formats in which private sector can get involved in infrastructure projects
- To understand the newer structures of infrastructure financing
- To know the role of taxation and incentives in projects
- To appreciate the kinds of risks that projects are exposed to, and understand how to mitigate them.

CONTENTS

Acronyms	5
CHAPTER 1 PROJECT FINANCE BACKGROUND	9
1.1 Evolution of Project Finance	9
1.2 Project Types	10
1.3 Critical Steps in a Project.....	12
Self-Assessment Questions	13
CHAPTER 2 MARKET ANALYSIS	15
2.1 Background	15
2.2 Market Sizing	17
2.2.1 Demand function estimation	17
2.2.2 Rule of Thumb	18
2.2.3 Experts' Poll	18
2.3 Consumer, Customer and Influencer.....	19
2.4 Market Insight Areas.....	19
2.5 Market Research Approaches.....	20
2.6 Data Cleaning and Analysis	22
Self-Assessment Questions	23
CHAPTER 3 BUSINESS MODEL, COMPETENCIES & PROMOTER ANALYSIS	25
3.1 Business Model.....	25
3.2 Competencies	26
3.2.1 Core Competency.....	26
3.2.2 Competency Match.....	26
3.3 Promoter Analysis.....	27
3.3.1 Track Record	27
3.3.2 Financial Standing.....	27
3.3.3 Integrity	28
Self-Assessment Questions	28

CHAPTER 4 ESTIMATING COST OF PROJECT	30
4.1 Project Specifications	30
4.2 Estimating Fixed Capital Investment in Project	31
4.3 Estimating Working Capital Investment in the Project	31
Self-Assessment Questions	34
CHAPTER 5 PROJECT FEASIBILITY ANALYSIS	35
5.1 Background	35
5.2 NPV	35
5.3 Profit v/s Cash Flow	37
5.4 Discount Rate	37
5.5 Tax-Shield on Interest	39
5.6 Tax-Shield on Depreciation	39
5.7 IRR	39
5.8 XIRR	41
5.9 MIRR	41
5.10 Project IRR & Equity IRR	42
5.11 Payback Period	44
5.12 Discounted Payback Period	45
5.13 Economic IRR	46
Self-Assessment Questions	47
CHAPTER 6 FINANCIAL PROJECTIONS	48
6.1 Background	48
6.2 Assumptions	48
6.3 Cost of Project & Means of Financing	48
6.4 Projected Profit & Loss Account	50
6.5 Projected Balance Sheet	50
6.6 Projected Funds Flow	51
6.7 Project IRR	54
6.8 Equity IRR	54

6.9	Loan Servicing Capability	55
6.9.1	Interest Coverage Ratio (ICR)	55
6.9.2	Debt Service Coverage Ratio (DSCR)	56
6.9.3	Long Term Debt Service Coverage Ratio (LDR)	56
6.10	Sensitivity Analysis	57
6.11	Building Scenarios	58
	Self-Assessment Questions	59
	CHAPTER 7 PROJECT FINANCE AND THEIR SOURCES	60
7.1	Prudence in Mix of Long Term and Short Term Finance	60
7.2	Forms of Long Term Project Finance	62
7.3	Forms of Short Term Project Finance	66
7.4	Lease	66
7.5	Role of Non-Banking Finance Companies (NBFC)	67
7.6	Loan Documentation	68
	Self-Assessment Questions	69
	CHAPTER 8 INFRASTRUCTURE & PUBLIC PRIVATE PARTNERSHIPS	71
8.1	Background	71
8.2	PPP Models	71
8.3	Parties to a PPP Model	73
8.4	PPP Process	74
8.5	Model Concession Agreements (MCA)	76
8.5.1	Highways	76
8.5.2	Greenfield Airports	78
8.5.3	Transmission of Electricity	80
	Self-Assessment Questions	83
	CHAPTER 9 NOVEL STRUCTURES IN INFRASTRUCTURE FINANCE	85
9.1	Background	85
9.2	Take-out Financing	85

9.3	Securitisation	89
9.4	Viability Gap Financing (VGF)	91
9.5	Infrastructure Debt Fund	96
9.6	High Level Committee on Financing of Infrastructure	99
	Self-Assessment Questions	101
CHAPTER 10 TAXATION & INCENTIVES		102
10.1	Taxation	102
10.1.1	Depreciation.....	102
10.1.2	Amortisation of Preliminary Expenses	103
10.1.3	Amortisation of Telecom License Fees	103
10.1.4	Interest on borrowed capital.....	103
10.1.5	Disallowances under the Act	104
10.1.6	Expenses, in General.....	105
10.1.7	Compulsory Audit.....	105
10.2	Incentives	105
10.3	Maharashtra Package Scheme of Incentives	106
	Self-Assessment Questions	107
CHAPTER 11 PROJECT RISKS & THEIR MITIGATION		109
11.1	Background	109
11.2	Project Conceptualisation Risk	109
11.3	Financial Closure Risk.....	110
11.4	Project Construction Risk	111
11.5	Political Risk	111
11.6	Market Risk	111
11.7	Supply Chain Risk.....	112
11.8	Policy Risk	112
11.9	Exchange Risk.....	112
11.10	Environmental Risk	113
11.11	Force Majeure	113
	Self-Assessment Questions	113
	References	114

Acronyms

ADB	Asian Development Bank
BLT	Build Lease Transfer
BOT	Build Operate Transfer
BOLT	Build Operate Lease Transfer
BOST	Build Operate Share Transfer
BROT	Build Rehabilitate Operate Transfer
BT	Build Transfer
BTO	Build Transfer Operate
CASA	Current Account Savings Account
CCI	Controller of Capital Issues
CD	Certificate of Deposit
CERC	Central Electricity Regulatory Commission
COD	Commercial Operation Date
CPM	Critical Path Method
CSR	Corporate Social Responsibility
DBFO	Design Build Finance Operate
DBFOT	Design Build Finance Operate Transfer
DCM	Design Construct Maintain
DIC	District Industry Centres
DPR	Detailed Project Report
DSCR	Debt Service Coverage Ratio
EBIDTA	Earnings before Interest, Depreciation, Tax and Amortisation
EBIT	Earnings before Interest & Tax
ECB	External Commercial Borrowings
ECGC	Export Credit & Guarantee Corporation
EOU	Export Oriented Unit
EPC	Engineering Procurement Construction
EXIM	Export-Import Bank of India
FDI	Foreign Direct Investment
GATT	General Agreement on Tariffs & Trade
GDP	Gross Domestic Product
GIGO	Garbage In Garbage Out
ICICI	Industrial Credit & Investment Corporation of India
ICR	Interest Coverage Ratio

IDBI	Industrial Development Bank of India
IDFC	Infrastructure Development Finance Company Ltd
IFC	International Finance Corporation
IFCI	Industrial Finance Corporation of India
IIFCL	India Infrastructure Finance Company Ltd
IL&FS	Infrastructure Leasing & Financial Services Pvt Ltd
IRBI	Industrial Re-construction Bank of India
IRR	Internal Rate of Return
LIC	Life Insurance Corporation of India
MCA	Model Concession Agreement
MSFC	Maharashtra State Finance Corporation
MTA	Model Transmission Agreement
MTDC	Maharashtra Tourism Development Corporation
NBFC	Non-Banking Finance Company
NGO	Non-Government Organisation
NPV	Net Present Value
NRI	Non-Resident Indian
O&M	Operations & Maintenance
PAT	Profit after Tax
PBT	Profit before Tax
PERT	Program Evaluation & Review Technique
PPA	Power Purchase Agreement
PPP	Public Private Partnership
RBI	Reserve Bank of India
SCICI	Shipping Credit & Investment Corporation of India
SBI	State Bank of India
SEB	State Electricity Board
SEBI	Securities & Exchange Board of India
SEZ	Special Economic Zone
SPV	Special Purpose Vehicle
TAMP	Tariff Authority for Major Projects
TRAI	Telecom Regulatory Authority of India
UTI	Unit Trust of India
VGF	Viability Gap Financing

Distribution of weights of the Project Finance Module Curriculum

Chapter No.	Title	Weights (%)
1	Project Finance Background	5
2	Market Analysis	11
3	Business Model, Competencies & Promoter Analysis	14
4	Estimating Cost of Project	11
5	Project Feasibility Analysis	20
6	Financial Projections	4
7	Project Finance and their Sources	11
8	Infrastructure and Public Private Partnership	9
9	Novel Structures in Infrastructure Finance	4
10	Taxation and Incentives	7
11	Project Risk & their Mitigation	4

Note: Candidates are advised to refer to NSE's website: www.nseindia.com, click on 'Education' link and then go to 'Updates & Announcements' link, regarding revisions/updates in NCFM modules or launch of new modules, if any.

This book has been developed for NSE by Mr. Sundar Sankaran, Director, Finberry Academy Pvt. Ltd.

Copyright © 2012 by National Stock Exchange of India Ltd. (NSE)
Exchange Plaza, Bandra Kurla Complex,
Bandra (East), Mumbai 400 051 INDIA

All content included in this book, such as text, graphics, logos, images, data compilation etc. are the property of NSE. This book or any part thereof should not be copied, reproduced, duplicated, sold, resold or exploited for any commercial purposes. Furthermore, the book in its entirety or any part cannot be stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise.

Chapter 1 Project Finance Background

1.1 Evolution of Project Finance

Soon after independence, most projects were conceptualised and executed by the Government. The Five-Year Plans outlined the focus areas for the government.

In order to broaden the base, the government promoted Industrial Finance Corporation of India (IFCI) to provide long term capital to industry. Reserve Bank of India (RBI) promoted Industrial Development Bank of India (IDBI) for the same purpose. Besides, Industrial Credit and Investment Corporation of India (ICICI) was incorporated in the private sector. These three institutions were to lend money for project finance, while banks would support the working capital needs of industry.

In the next phase of growth, specialised institutions were created, such as, Export Credit & Guarantee Corporation (ECGC) for guaranteeing export receivables of Indian industry, Shipping Credit and Investment Corporation of India (SCICI) for addressing the financial needs of shipping industry and Export-Import Bank of India (EXIM) for financing the international business of Indian companies. In order to address the revival needs of industry, Industrial Re-construction Bank of India (IRBI) was created.

Unit Trust of India (UTI) was promoted, among other reasons, to mobilise money from the public by issuing mutual fund units. Life Insurance Corporation (LIC) was created to cover the lives of Indians. These two institutions had access to long term money collected from Indians, which were made available for lending to Indian industry. They largely invested in bonds and debentures issued by companies that needed the money.

Companies were also permitted mobilise money from the public by accepting fixed deposits of upto 3 years. A few large companies and financial institutions also managed to issue bonds and debentures to the public. In the mid-1970s, when government policy forced foreign companies to issue shares to Indian investors at low prices, retail investors got interested in the equity market. Thus, money was available from banks, financial institutions and retail investors, through a mix of debt and equity.

Until the early 1990s, all interest rates in the India economy were determined by the Government or RBI. Similarly, equity shares had to be issued at a price determined by the Controller of Capital Issues (CCI).

Several brokers and sub-brokers were active in mobilising money from retail investors. Issues of securities to the public were handled by Merchant Bankers.

Gradually, as part of liberalisation, interest rates were freed. Currently, RBI only controls a few short term interest rates. Besides, with the creation of Securities and Exchange Board

of India (SEBI), a regulatory framework was created for companies to decide the premium at which they would issue shares.

A phase of consolidation followed, and the phenomenon of universal banking was introduced. Some of the institutions mentioned above changed form or were merged into other institutions. Universal banks started offering a range of retail and wholesale banking services, including provision of working capital and long term finance.

Merchant banks have morphed into investment banks, that are prepared to invest in the companies with whom they do business. There is a fairly active primary and secondary market in equity.

The sources of funds for industry have grown from domestic to international. Over the last few years, Indian companies have also become active in setting up projects outside the country.

Another development since the turn of the century is the willingness of Government to work with the private sector in the infrastructure space. More and more sectors are being thrown up for Indian private sector to set up and operate. Even foreign direct investment (FDI) upto 100% is permitted in some sectors such as power, roads and highways.

Thus the canvas of project finance is ever-changing and developing into a specialised area in the financial sector.

1.2 Project Types

Different types of projects have varied implications.

- A *green-field* project is set up in virgin land. Everything needs to be set up from scratch including roads, power lines etc. These take longer to implement and are costlier. The risk in green-field projects is therefore high.
- A *brown-field* project is one that is set up in an area which is already being used for other commercial purposes. Since basic support systems would exist, it is easier and cheaper to set up brown-field projects.
- In a *new entrepreneur project*, the promoter does not have prior experience as a promoter. He may have been employed earlier, because of which general business experience may exist, but not as an entrepreneur. The skill sets required and challenges to face in entrepreneurship are quite different from those in employment. Therefore, it can get very risky.
- In a *diversification*, the company that is implementing the project is already engaged in some business. So entrepreneurial ability is not in question. However, it does not

have prior experience in the goods or services or market it proposes to enter. There is a risk that when the project is set up, the customers may not want the product or the company may not be able to cater to them satisfactorily. The business and skill requirements can be different from what is required for their current business. Therefore, diversification projects are risky.

A difference is often made between *related diversification* and *unrelated diversification*. A related diversification, for example, is an iron ore mining company getting into mining for cobalt. Since the company already has mining experience, the risks are lower.

Often, a related diversification is a *forward integration* or a *backward integration*. In a forward integration, the company goes forward in the value chain. For example, an iron ore mining company goes into manufacture of steel products; or a company that supplies to businesses and malls starts its own retail outlets.

A backward integration takes the company to an earlier stage in the value chain. For example, a trader or retailer goes into manufacture.

Risk in a related diversification depends on the extent to which prior skills can be carried forward to the new project. Greater the need for newer skills, more risky the project.

An unrelated diversification calls for a completely different set of skills from the promoters. Therefore, the risk is very high.

- In an *expansion* project, a company is already in a particular business that has a market. The company wants to expand the scale of its operations. Since the company is already serving customers for the relevant goods and services, it would know the market. The risk in an expansion project is relatively lower, as compared to a diversification project. Expansion projects may be implemented in a green-field location or a brown-field location.
- A *modernisation* project is aimed at improving the equipment or other capacity that is used to manufacture the product or render the service. The intention is not to increase the capacity, though in most modernisation projects, some increase in capacity does happen.
- In a *replacement*, some machinery is replaced with a similar machinery. As in the case of modernisation, increase in capacity is not an objective of replacement. Companies keep replacing the equipment they use. There are no serious risks associated with replacement, unless there is a difference in the technology used (which may make it a modernisation project). When several pieces of equipment are replaced at the same time, it may be more in the nature of a larger modernisation project.

- A *privatisation* project is one where the government decides to associate with the private sector. The business already exists – only ownership changes hands. Often, privatisation is structured as a divestment of government's equity investment in the company, in favour of a private sector buyer. This may be done through an Offer for Sale process. Investors will pay the government the value of the shares transferred. The business that has changed hands does not receive any money in an Offer for Sale. As part of the Offer for Sale process, the company may choose to make a primary issue of new shares to the public in order to mobilise some money in the company.

1.3 Critical Steps in a Project

Projects go through many phases from conceptualisation to implementation. In the case of infrastructure projects, the responsibility often extends to operation and maintenance over several decades.

As the project progresses through various phases, there are several changes in the economic environment, competition, supply chain and customer preferences. A project that is well conceptualised is more likely to live up to these challenges. It will have adequate flexibilities built in to change trajectory as per needs, without having to go back to the drawing board.

The market study is the foundation on which the project is based. A sound business model ensures that the market opportunity is addressed in an optimal manner. The business model determines the cost of the project, which is the most important element to influence project viability calculations. Longer the time period for implementation, greater the contingencies to provide in the project cost.

While assessing project viability, financial projections are made. These are highly subjective, and extremely susceptible to change in a dynamic environment. Therefore, an experienced analyst reviews the sensitivity of financial results to various parameters, and focuses on the parameters that are most critical.

Project implementation is always a challenge. Various agencies need to get together and multiple approvals have to be taken. These need to be done in a time-bound manner. Every delay leads to rise in project cost. On the one hand inflation pushes up the cost of inputs, on the other hand, interest cost on moneys already invested goes up. Therefore, project planning and implementation hold key to the final project cost.

Project planners use various techniques and software to support the implementation. Program Evaluation and Review Technique (PERT) and Critical Path Method (CPM) are commonly used. Project schedules are often shown in bar charts that are called Gantt Charts. These can also include information on dependencies between activities and the percentage completion of each activity.

When various activities that go into a project are chalked out, including time and money requirements and sequencing of the activities, it is possible to anticipate how long the entire project will take to complete.

Some activities have a buffer i.e. delay in these activities will not affect the final outcome, upto an extent. Some activities do not have a buffer i.e. they are critical. Delay in critical activities will delay the project. Once the buffer in a non-critical activity is used up by delay, then even that activity will become critical. All critical activities together form the critical path. Focus on the critical path facilitates time completion of projects. Software programs like MS Projects provide various utilities to support project planning and execution, while managing the resources that go into the project.

At times, project planners over-invest in certain critical resources. The excess cost of the additional resources can get recovered through faster project completion, earlier delivery of products and services to customers and consequently, quicker revenues from the project.

Infrastructure projects face unique challenges. The policy environment in the domain is evolving. However, the sector has huge scope for growth and profitability. The future shape of India's economy depends on how we are able to address bottlenecks in infrastructure.

Every activity that goes into projects and their financing is discussed in the Chapters that follow.

Self-Assessment Questions

- ❖ _____ was promoted specially to cater to financial needs of shipping industry
 - ECGC
 - **SCICI**
 - STC
 - SBI
- ❖ Interest rates for project finance are fixed by RBI
 - True
 - **False**
- ❖ FDI limit in the power sector is
 - 26%
 - 51%
 - 74%
 - **100%**

- ❖ Which of the following has the highest risk?
 - **Greenfield project by new entrepreneur**
 - Brownfield project by new entrepreneur
 - Expansion
 - Diversification

- ❖ A paper mill buying a forest is an example of
 - **Backward integration**
 - Forward integration
 - Unrelated diversification
 - Expansion

- ❖ _____ Charts show the project schedule pictorially
 - GANT
 - **GANTT**
 - GRANT
 - GATT

Chapter 2 Market Analysis

2.1 *Background*

Once a promoter is excited about a project, he is tempted to jump into it, unmindful of its limitations and risks. It is advisable to perform a market analysis – an exercise to get a 360° view of the market – before committing resources to a project, or even committing to a plan of action.

Either the promoter, himself, can do the market analysis, or he can get it done by a professional. The benefits of the promoter or promoting organisation doing it by himself / itself are:

- The market analysis gets cheaper. They do not need to pay fees for someone else to do the job.
- In the process of doing the market analysis, the promoter gains insights, contacts etc., that will be useful if he chooses to implement the project.
- The promoter, who has been thinking over the project for some time, will have better domain knowledge than an outsider who is not exposed to the industry.

However, there are limitations to this approach:

- The excitement about the project may rub off on the analysis. This can affect the objectivity of the exercise. The promoter may fall into the trap of *selective acceptance of reality* viz. be more receptive to factors that go in favour of the project, while discounting warning signals. This can be costly, because the promoter may implement a project which is not viable or otherwise not advisable.
- If the promoter is already involved full-time in some other job or profession, then the market analysis will take longer to complete. This will delay the project. Any short-cuts in the market analysis to save on time can lead to compromise in the analytical rigour, and prove costly in the long run.
- Within organisations, the person who performed the market analysis can get blamed if the project fails, even if the failure was on account of factors which were beyond the control or anticipation of the person. This can affect the person's career prospects within the organisation.

The limitations are addressed by engaging a professional for the market analysis. At times, people engage an expert who is in the family or immediate circle of relationships, to save on costs. Appointing someone who is incapable of doing the job is dangerous. Even where the analyst has the expertise, he can get biased by other factors. For instance, a family

member may not want the promoter to take the risk, for reasons that are not connected to the project itself. Or, a colleague may see enhanced career prospects for himself, if the promoter quits to set-up the project. Or a service provider for the organisation may see scope for enhanced business if the organisation chooses to implement the project.

Therefore, the person engaged for doing the market analysis should not only be an expert but also independent. Benefits of engaging an independent professional are:

- The market analysis is objective. This is a key requirement for taking a balanced call on the project.
- The professional may be able to gather information from sources that are not available with the promoter.
- Depending on the nature of relationship with the professional, and the sharing of information, the promoter's network of relationship can get strengthened by the professional's relationships.

The problems associated with engaging a professional are:

- The good ones are costly. The cost can be difficult to justify to oneself and to the organisation, especially when the market analysis suggests that the project should not be implemented.
- Some service providers make it simpler for themselves by passing off data they generate in their office, as market data. Such unethical service providers can give completely wrong market analysis reports that lead to costly mistakes in the decision.
- Some service providers re-package their old work and give it to clients. This again can lead to wrong decisions by the promoter in project implementation. Therefore, the project specifications should not be left to the service provider; they should be defined by the promoter. Clearly defined market analysis specifications have nuances that are captured properly only when the exercise is customised.
- Professionals too, have their favourite concepts – something they may have come across in the last book they read or website they visited. This can lead them to the problem of selective acceptance of reality. Therefore, the promoter has to grill the professional on various sources of data and their alternate analyses frameworks that lead to the market recommendations.
- At times, data may be gathered through unethical means. The promoter cannot completely wash his hands off the problem, on the grounds that he did not approve of the misconduct. An aggrieved party can approach court to prevent, or at least delay the promoter's plans for the project. Therefore, the promoter should be sure of the ethical

construct of the professional engaged, and insist on suitable protective conditions in the professional services contract that is executed with the professional.

Considering these factors, the promoter should not view independent market analysis as a completely hands-off exercise. There has to be continuous engagement with the professional engaged for the market analysis. During these discussions, the promoter needs to assure himself that the market analysis exercise is being performed with the objectivity, thoroughness and ethical conduct that he expects.

2.2 *Market Sizing*

The entrepreneur needs to have an estimate of the industry potential for the proposed product / service. How big can the industry size get? What does it depend on? These have a bearing on the capacity planning for the project.

2.2.1 Demand function estimation

Demand function estimation is an approach that is used to assess industry size. This is particularly done, in the case of industries that are closely linked to macro-economic factors. Many basic industries, such as cement, steel, petro-chemicals etc. fall in this category.

The demand function estimation is an intense statistical exercise. It is done by identifying various factors that affect the demand for the product under consideration. The nature of the association between the underlying factors (independent variables) and the demand for the proposed product or service (dependent variable), in the past is studied. This is a pointer to what would be the nature of the demand function in future. Statistical tools such as regression analysis and factor analysis help in demand function estimation.

For example, suppose demand for petrochemicals in India is a function of oil prices (independent variable A), global GDP (independent variable B), Indian GDP (independent variable C) and India's industry growth rate (independent variable D). Based on historical analysis, suppose that the demand function is derived as follows:

$$\text{Petrochemical demand} = 5,000,000 A + 0.005 B + \{0.05 C \times (1 + D)\}$$

The statistical tools also provide measures of the strength of the relation captured by the demand function. For instance, R-squared value of 70% indicates that 70% of the petrochemical demand is captured by the function. Higher the R-square value, more reliable the demand function. Where the consequences of failure are severe, the promoter has to ensure that the estimated demand function has a high R-square value.

Besides, back-testing is done to assess the reliability of the demand function derived. For this purpose, the same demand function is applied to some past period data to estimate

the petrochemical demand for that period. The estimate is then compared with the actual petrochemical demand for the same period. The variance between the estimate and the actual is an indication of the reliability of the petrochemical demand estimation through the function.

It is considered a good practice to do the back-testing on data that has not been used for the demand function estimation. For example, demand function estimation may be done based on historical data from 1990 to 2005, and then back-testing may be done based on historical data for the years starting 2006.

Although demand function estimation is a statistical exercise, someone who understands the domain needs to be associated with the exercise. This is important to draw meaningful interpretations from the results.

2.2.2 Rule of Thumb

Rule of thumb estimates is an alternate approach. For example, the rule of thumb may be that the number of telecom connections is likely to be 1 for every 1.5 of population drawing income above Rs. 1,000 per month. Accordingly, based on size of population meeting the income criteria, the potential size of telecom demand can be estimated for the future.

2.2.3 Experts' Poll

In an Experts' poll, the views of experts are taken. Suppose that three experts estimate the demand for a product at 100,000 units, 200,000 units and 60,000 units. The industry size estimate may be taken at the average of the three views i.e. $(100,000 + 200,000 + 60,000) \div 3$ i.e. 120,000 units.

If adequate number of experts is available, then extreme views may be kept out of the average. For instance, the largest and smallest two estimates may be kept out. This ensures that the average is not affected by extreme views of a few parties.

In a *Delphi approach*, the results of the initial survey are shared with the experts, and each expert is given an opportunity to revise his earlier estimate. Thus, the industry size estimate gets fine-tuned through several iterations.

In the case of high investment or high risk projects, more than one approach may be adopted for estimating industry size. The most conservative estimate may be used for the capacity planning.

Longer the time to set up a project, more would be the number of years into the future for which industry size is estimated. The estimated size of demand is compared with the capacity that already exists and projects that are likely to come up during the period. A good environment scanning exercise is required to anticipate the capacity that is likely to

be created by competitors. As a strategy, large players in some industries make a public announcement of their proposed projects. This is a signal for the others to be careful in setting up new capacity in that industry.

If industry size estimate is higher than current capacity and capacity of projects under execution, then there is a supply gap. In that case, a new project is likely to find the market.

If the supply gap does not exist, then the project is risky from the market point of view. A person setting up a new project should be sure that he has something unique to offer, that would make customers switch from other suppliers to him. If not, he should consider the possibility of acquiring a current industry participant instead of setting up new capacity.

2.3 *Consumer, Customer and Influencer*

The *consumer* is the one who will use the product; the *customer* is the one who will buy the product from the project; anyone who influences the buying decision is the *influencer*.

For instance, in the case of a toy, the child may be the consumer and influencer; the parents are the customers, for a toy-manufacturer. For a motor insurance company, the owner of the car is the customer and consumer; the vehicle dealership is an influencer. For a pharmaceutical company, the distributor is a customer, the patient is the consumer and doctor / chemist is influencer.

Even if the industry has potential, ability of a project to sell its goods depends on deep insights into the role of these parties and their behaviour. Many organisations engage market research agencies for understanding this. Success of marketing and sales promotion strategies depends on sound identification of these parties and their profiles and roles.

2.4 *Market Insight Areas*

The areas for insight depend on the nature of product / service proposed to be offered, and the organisation that is looking for the insights. Some of these are:

- Who is the consumer?
- Who is the customer?
- Who are the influencers?
- Besides the main utility, what other utilities / services do the buyers expect? E.g. home delivery or credit for bulky and high value purchases respectively.
- What are the typical concerns of the buyer? E.g. wastage while buying floor tiles; melting while buying ice cream in take-away packs

- What is the preferred quantity / value for each purchase transaction?
- At various price points, what is the likely purchase quantity?
- How frequently do buyers buy the product?
- Where do buyers buy the product?
- What else do buyers purchase, along with the product under consideration e.g. commodes and bathroom tiles
- How do buyers view competing products in the market?
- What media are the buyers exposed to? Which do they trust more?
- What are the normal distribution channels for the product? What is the commission structure in the industry? What are the credit terms?
- What challenges do the buyers face while buying a product? E.g. embarrassment while buying sanitary napkins.
- What are the buyers' other concerns? E.g. service network for a consumer durable, certification or jobs in the case of higher education students / parents.

2.5 *Market Research Approaches*

Broadly, research can be *primary* or *secondary*. Primary research entails actual gathering of data for the specific research topic. For example, respondents may be asked questions that relate to their buying habits. Secondary research looks for data that has already been gathered by some other agency for some other purpose. For example, some other published research may show that people with income above a particular level have two televisions in their house.

A lot of economic data is gathered through secondary research. Similarly, industry data may be available through industry associations. Primary research is costly. Therefore, it is taken up after all possible data is gathered from secondary sources. The secondary data also helps in designing the primary research study.

There are various approaches to gathering data for primary market research. Some of these are:

- *Questionnaire administered physically*

This approach is commonly followed, especially in surveys of retail consumers.

The questionnaire should not be too long – yet it should be able to provide the requisite inputs for decision-making. Some questionnaires are meant to be administered by a data-gatherer, while others are designed for self-use by the respondent. The latter are

more challenging to design, because the respondent's interest in the exercise needs to be sustained till the end.

Preparing an effective questionnaire is an art. Each question needs to be worded in a manner that elicits a response. Yet the question should not be loaded in a manner where the respondent is forced to give a specific response. For example, 'don't you think all politicians are corrupt?' is a loaded question that prompts an answer in the affirmative.

If many respondents are not able to understand a question, or do not want to respond, then it is better to reword that question.

Questions should also flow smoothly through the questionnaire, in line with the flow of thoughts of the typical respondent. If the flow is not smooth, then there is a risk that the respondent may choose to prematurely end the responses.

Responses need to be captured in a manner that facilitates subsequent analysis. Open-ended questions with subjective answers like 'how would you describe your buyer behaviour' are difficult to tabulate and consolidate. On the other hand, a question like 'how often do you buy shampoos?' with options that read once a quarter, once a month etc. is easier to handle.

If the purpose of the exercise is to generate new ideas for product design, then open-end questions will be required. But the number of respondents needs to be kept adequately small, to ensure that a senior resource is able to review the responses in each questionnaire and draw the appropriate insights. Normally, a professional reads all the questionnaires to filter the insightful responses, which are shared with the senior resource.

It is a good practice to test the questionnaire on a few target respondents, before finalising it for a larger survey in the market.

The questionnaire should also have trick questions that are pointers to obvious fudging of data or unreliable responses. For instance, if the respondent answers '5' to a question on 'How many times have you travelled abroad' and then answers 'never' to a question on 'when did you travel abroad last?', then the respondent's data is obviously unreliable.

The reliability of questionnaires can be enhanced by providing some benefit to the respondent, which calls for further exchange of data with an agency not connected with the market research exercise. For example, respondents may be given a 10% discount on their next air travel. Availing of the offer is a validation of the questionnaire of that respondent.

- *Telephonic Interview*

This approach is commonly followed, especially when only a few respondents from geographically dispersed areas need to be reviewed. The telephonic interview may be based on either a structured questionnaire or entirely unstructured.

Some respondents find telephone calls intrusive. Telephonic interviews work best when the respondent's permission is sought in advance, and he is informed about the likely duration of the call. The data should be gathered at a time and on a telephone number that the respondent is most comfortable with. Further, the person gathering the data needs to be comfortable with the language as well as the domain. Else, there is a high risk of the respondent disconnecting the call in the midst of the exercise.

- *Focus group*

Here, a group of respondents is called to a venue at a specific time for the survey. They may be incentivised through lunch, gift or other freebies. A moderator manages the proceedings, after the respondents are made comfortable.

This approach is adopted when there is a need to study how respondents behave as a group, or respond to specific stimuli or if the nature of study requires discussion between respondents.

In order to avoid subjectivity, a group of observers may observe the discussions. It would be better for them to be in the background, so that the respondents air their views freely.

Focus groups are costlier than simple administration of questionnaire or telephonic interviews. Further, as in any group discussion, there is the possibility of a few respondents seeking to corner the limelight. The moderator should be able to handle the respondents tactfully and ensure that the focus group adds the value to justify the cost.

2.6 Data Cleaning and Analysis

Data entry needs to be checked on a sample basis. If the sample shows too many errors, then a more complete checking may be required. Critical surveys call for complete checking of data entry, before the statistical analysis. Else the market analysis will lead to GIGO problem (Garbage In – Garbage Out).

Data gathered, especially in large surveys, have a lot of *noise* i.e. distortions. Data cleaning utilities are available for removing the noise.

Before getting into detailed statistical analysis, some broad review of the data helps. For instance, if the data in a survey of middle class respondents shows the average number of cars per family is 3 or above, then there is clearly a problem.

Various statistical packages are available for analysing the data. Paid packages like SPSS and Matlab are used by professional research organisations. Free packages like 'R' are available too. Even MS Excel offers various statistical tools.

Ideally, the analysis framework should be finalised along with the draft questionnaire. This ensures that the final questionnaire supports the analysis required. Else, there is a risk that the questionnaire does not support some of the analysis, and the data gathering exercise needs to be repeated.

While a statistician may perform the statistical analysis, a domain expert needs to do the interpretation. A domain expert with some understanding of the statistical aspect can identify potential flaws in the analysis framework or the application of the framework.

Entrepreneurs setting up projects should think along these lines about the market. Project financiers and other investors in projects should ask for the market analysis reports. They need to be sure that the promoter has a deep understanding of the relevant market.

Self-Assessment Questions

- ❖ Market analysis is a _____ view of the market
 - restricted
 - promoter's
 - **360°**
 - consultant's
- ❖ Which of the following can be used for sizing the market?
 - Delphi poll
 - Demand function estimation
 - Rule of thumb
 - **All the above**
- ❖ Consumer and customer are the same for all products.
 - True
 - **False**
- ❖ Primary data gathering is costlier than secondary data
 - **True**
 - False

- ❖ Respondents' interactivity can be gauged through
 - Questionnaire
 - Telephonic interview
 - **Focus group**
 - None of the above
- ❖ GIGO stands for
 - **Garbage In Garbage Out**
 - Goods in Goods Out
 - Growing India Group Operations
 - Growth In Growth Out

Chapter 3 **Business Model, Competencies & Promoter Analysis**

3.1 *Business Model*

The market analysis shows potential business opportunities. But the same opportunity can be tapped in multiple ways. The approach that is proposed for tapping the opportunity including the configuration of resources is the *business model*.

For instance, the business opportunity may be in providing food at economical rates. Each of the following is an approach for tapping the same opportunity:

- Setting up owned food stalls outside all railway stations in Mumbai which will sell a limited range of ready-to-eat hot food.
- Setting up a mix of own and franchised restaurants all over India to offer *a la carte* menu of food items at a low cost.
- Offer tiffin service across a city, where food will be prepared in area-wise hubs and supplied to homes / offices on monthly purchase basis.
- Offer tiffin delivery service that will pick up food from the homes of customers and delivery to offices / education institutions for a monthly fee.
- Tie up with Self Help Groups in various locations to prepare food which will be distributed to homes / offices on advance purchase basis.
- Set up a manufacturing facility to manufacture ready-to-cook food and distribute in cities through shopping malls and other retail outlets.

Each of the above represents a business model targeted at the business opportunity of providing value-for-money food. Every business model entails a configuration of resources that will ensure that the product or service is delivered cost-effectively at an acceptable risk.

For example, a business model that adopts the franchise route would entail lower investment and facilitate faster roll out. However, it might come with lower control over quality and customer, as compared to owned facilities.

The manufacturing facility comes with significant investment requirement, which increases the risk. However, it offers the opportunity of greater economies of scale, strong brand creation possibilities and more robust growth opportunities.

Choice of business model is often the main driver of business success or failure. Closer the business models, more intense would be the competition within the industry.

3.2 Competencies

The promoter/s is / are the main persons behind the project. The match between their competencies and the needs of the project need to be examined. This is important for the promoter as well as the people lending money to or investing in the project

3.2.1 Core Competency

Every promoter or promoting company has a core competency. For instance, the Taj or Oberoi or ITC¹ group of hotels has the ability to set up and run premium hotel chains. ITC group (through its food division) has also demonstrated an ability to supply ready-to-cook food through malls and retail outlets.

It is important to differentiate between product / service and competency. For instance, the competency of the Reliance group is not the petrochemicals that it sells, but its ability to conceive large projects and implement them. Similarly, a company like Unilever has competencies in branding and distribution.

Competency is a set of strengths that a company possesses, which become a platform for the company to roll out multiple products or services.

3.2.2 Competency Match

While every promoter has his competencies, every business model has its competency requirements. The match between the two is critical.

For example:

- The tiffin delivery service described above calls for the competency to run a high-quality delivery service, but competency in food preparation is not required.

A person who has managed operations in a courier company is likely to possess the skills for running the delivery operation.

- Running a chain of restaurants will require among other competencies, skills in managing food preparation and branding.

Food preparation skills are acquired by working in restaurants, while a person who has handled marketing function in a fast-moving consumer goods company would have the branding skills.

- The ready-to-cook manufacturing facility will require project management skills, skills in sourcing food ingredients and skills in forging alliances.

¹ The examples given in this book are only for illustration. They do not represent a recommendation of any entity or its business practices by NCFM or the author.

Anyone who has set up projects of a similar nature can implement the project. Employment in the procurement department of a food products company enhances the relevant sourcing skills. Someone who has performed roles in institutional marketing / business development may possess the alliance management skills.

3.3 *Promoter Analysis*

Lenders to and investors in the project, need to consider not only the competency match, but also the credentials of the promoter.

3.3.1 Track Record

There are two kinds of promoters – those who have a track-record in business, and those who don't. The success or failure of businesses that the promoter has been associated with, are a useful source of information about the promoter. Even if the promoter does not have a track-record in business, his track-record in employment can be verified.

Past successes and failures of the promoter give an indication of what is likely to work for the promoter, and what may not work. The successes might show strengths, while failures might reveal weaknesses of the promoter.

Even if the promoter has been successful in terms of top-line and bottom-line, his approach to business needs to be checked in the market. Some people achieve short-term success by squeezing the counter-parties or taking other short-cuts that may come in the way of building a long term sustainable business. The promoter's reputation for fairness in business and other dealings with various stake-holders need to be checked.

Failures do not necessarily mean that the promoter is incapable of doing business. It may just be a case where the promoter chose a business, where he did not have the requisite strengths. Or there may have been a regulatory change or other unexpected problem that killed the business. Learning from the failed business will be useful in some other business that is identified based on the promoter's strengths.

The promoter can also take psychometric tests that will highlight his strengths and weaknesses. These will provide an unbiased view about the individual.

3.3.2 Financial Standing

Different businesses have varying requirements of financial strength. For instance, a small trading operation is easier to sustain a medium-sized manufacturing business, which in turn is easier than capital-intensive businesses like airlines and other infrastructure projects.

The balance sheet of the promoting companies can be studied. The promoter can also be requested to facilitate a discussion with the statutory auditors or other auditors who know the company. It is normal to call for a personal wealth statement of the promoter.

The relationship of the promoter / promoting companies with lenders is a good pointer to the financial standing. Repeated instances of defaults in equated monthly instalments (EMIs) and high cost borrowings such as revolving credit from credit card issuers are indicator of financial stress. Study of bank statements for 6 months will provide several useful insights.

The financial standing assessment ensures that moneys are given for a project that is in synch with the financial standing of the promoters.

3.3.3 Integrity

Management research suggests that businesses run by people with strong value systems are more likely to be sustainable in the long term. The integrity of the individual can be assessed through reference checks with past employers, business associates, relatives and friends. Discreet enquiries should be made with people beyond the referees that are mentioned by the promoter.

The notes to the accounts of promoting companies, as well as the prospectus of group companies that have gone in for a public issue will reveal the approach of the promoters towards legal compliances and litigation. Clients who have a high propensity to go for litigation are likely to create problems to the lender.

Assessment of the efficacy of the business model, the competency match between the project and the promoters, and a thorough analysis of the promoter's conduct and position are pre-requisites before lending to or investing in a project.

Self-Assessment Questions

- ❖ Business model shows the approach to tapping the business opportunity.
 - **True**
 - False
- ❖ Core competency of a company is
 - Products and services it sells
 - The location from which it does business
 - **Set of strengths it possesses**
 - The market and customers it caters to
- ❖ Money should not be lent to promoters whose business has failed in the past.
 - True
 - **False**

- ❖ Promoter analysis can be done through inputs from
 - Customers
 - Business associates
 - Friends and relatives
 - **All the above**
- ❖ A project financier should be more concerned about the project, because promoter integrity is not of relevance.
 - True
 - **False**
- ❖ Which of the following is / are source/s of information for promoter analysis?
 - Balance sheets
 - Personal net worth statement
 - Offer documents of group companies
 - **All the above**

Chapter 4 Estimating Cost of Project

4.1 *Project Specifications*

The business model drives the resource configuration that would be required for the project. For example, if the project will have more of own facilities, then the initial investment and/or rental costs would be higher; in an alliance format, responsibility for some of these investments and costs can be passed on to the alliance partner.

The project specifications should also provide for growth. However, more the growth that is provided for, greater the resource commitment and moneys that get blocked in the project. This will push up the risk and the financing needs for the project. Thus, provision for scale-up and the risk need to be balanced.

For example, a school may start with KG and Standard 1, and keep adding a standard each year. In such a scale-up model, it will take 10 years for the school to offer the complete range of classes. However, it is not feasible or sensible for the school to keep buying land every year to meet the requirement for additional class rooms.

In such a situation, the school will be planned for the full strength. Space requirements for class room and other facilities will be drawn up on that basis. The Floor to Space Index (FSI) policies of the local authorities will thus drive the land requirement. For instance, if the floor area requirement is 100,000 sq feet, and the maximum FSI in that area is 1.33, then the school will need $100,000 \div 1.33$ i.e. 75,188 sq feet of land. The school regulations regarding minimum land requirements including for play-ground and other outdoor facilities too need to be considered. Accordingly land will be procured – but construction of building may be spread over the 10 years.

A more aggressive approach to land would be to buy in excess of requirement. As the value of land in the area appreciates, the land becomes a resource that can be sold to generate the resources for further investment in the school.

While buying equipment, higher the capacity, more would be the investment in absolute terms – but the investment per unit of throughput would decline as the capacity increases. For instance, if the capacity of the paint booth purchased in an auto manufacturing unit is doubled, the investment requirement will grow, but not double. Thus, the investment in paint booth per vehicle goes down, as the capacity of the paint booth purchased is enhanced.

The economic order size for each kind of process that goes into the manufacture of the product would be different. As a strategy, an overall decision is taken for the capacity to plan – say, 1,000 vehicles per day. Thereafter, depending on the economics of capital equipment cost, and the economics of leaving idle capacity for some processes, the capacity is planned for each process.

For instance, the heat treatment capacity may be planned for 1000 vehicles per day, while the paint booth may be planned for 5000 vehicles per day. The surplus capacity in the paint booth may be used a few years into the future.

In this manner, the project specifications will include a plan for every resource required for each process that goes into manufacture and delivery of the product or rendering of the service.

4.2 *Estimating Fixed Capital Investment in Project*

The project specifications lead to a detailed plan for every fixed asset. Alternate locations will be considered, and the resulting land cost evaluated. The most likely location, where land is available, is taken as a base for estimating the land cost for the project.

Potential vendors are identified for every piece of equipment or other asset and quotations are sought. The quotations form the basis for estimating the investment requirement.

Cost of imported equipment would depend on the exchange rate at the time of payment. Even the cost of equipment that is locally procured may change with exchange rates, if the raw materials that go into its manufacture need to be imported. In such cases, on a conservative basis, a certain percentage of weakening of the rupee is assumed, for the cost estimation.

Spare parts for equipment have to be planned for. More critical the equipment and weaker the spare parts delivery system, more has to be the spare parts inventory that the project plans for.

Thus, an asset-wise list of project requirement and an associated cost is available. The total cost of all these assets becomes the estimated fixed capital investment in the project.

4.3 *Estimating Working Capital Investment in the Project*

This is estimated based on standard trade terms in the industry. Any radical change proposed by the project for strategic reasons is also factored in. For instance, the project may plan to use long credit terms to attract customers. In that case, it may offer 3 months credit to customers, in an industry where 1 month credit is the norm.

Suppose that the annual sales projection for a company is Rs. 5 crore; cost of production is Rs. 3 crores. The company needs to give 3 months credit to its customers and keep 2 months of inventory. It expects to get 1 month credit from its suppliers.

The working capital requirement can be calculated as follows:

Debtors Rs. 5 crore X 3 ÷ 12 i.e. Rs. 1.25 crore

Add Inventory Rs. 3 crore X 2 ÷ 12 i.e. Rs. 0.50 crore

Less Credit from suppliers Rs. 3 crore X 1 ÷ 12 i.e. Rs. 0.25 crore

The working capital requirement is therefore Rs. 1.25 crore + Rs. 0.5 crore – Rs. 0.25 crore i.e. Rs. 1.50 crore.

If it is a cyclical industry, then the calculation will have to be done separately for the peak season and slack season. The higher of the two is the working capital to plan for.

The total cost of the project is the sum of the estimated fixed capital investment and estimated working capital investment. A further provision of 10 – 15% is made for contingencies.

A simplified example of Project Cost Estimation is given in Annexures 4.1, 4.2 and 4.3.

Annexure 4.1

Estimation of Fixed Capital Investment in Project

<i>Throughput Plan (Numbers per day)</i>			
Processes 1, 5, 6	5,000		
Process 2	1,000		
Process 3, 4	4,000		
Initial Plant Capacity	1,000 (minimum of above)		
		<i>Rate</i>	<i>Value (Rs. Crore)</i>
Land	50,000 sq ft	1,00,000	500
Building	20,000 sq ft	5,000	10
(Backed by complete drawings and floor layout)			
Equipment			
(Backed by list of major equipment, including spares)			
Indigenous			200
	USD mn	FX (Rs. Per USD)	
Imported	10	55	55
			255
Furniture & Fixtures			50
(Major items to be listed)			
Electric Fittings			10
			825
Provision for Contingencies	12%		100
Total			925

Annexure 4.2

Estimation of Working Capital Investment in Project

(at full capacity of 1,000 units per day)

			<i>Value (Rs. Crore)</i>
Debtors	Sales per day 12	No. of days 15	180
Inventory (split into raw material, work in progress and finished goods)	Daily Production 7	No. of days 30	210
Creditors	Daily Purchases 5	No. of days 45	-225
Total			165

Annexure 4.3

Estimation Total Project Cost

(at full capacity of 1,000 units per day)

	<i>Value (Rs. Crore)</i>
Fixed Capital Investment	925
Working Capital Investment	165
Total	1,090

Self-Assessment Questions

- ❖ Business model drives the resource configuration for the project
 - True
 - **False**
- ❖ Which of the following affect/s fixed cost of project
 - Business model
 - Capacity
 - Economic order size of equipment
 - **All the above**
- ❖ All the processes in a project will have the same maximum capacity
 - True
 - **False**
- ❖ A company expects to give 2 months credit to its customers. If annual sales is targeted at Rs. 600 crore, then the financing plan should provide for debtors of _____
 - **Rs. 100 crore**
 - Rs. 120 crore
 - Rs. 300 crore
 - Rs. 50 crore
- ❖ If the financial plan indicates inventory of Rs. 50 crore, debtors of Rs. 120 crore and creditors of Rs. 30 crore, the working capital requirement is _____
 - Rs. 200 crore
 - **Rs. 140 crore**
 - – Rs. 40 crore
 - Rs. 100 crore
- ❖ Projects should not plan for spares for equipment, since they will be available in the market in any case.
 - True
 - **False**

Chapter 5 Project Feasibility Analysis

5.1 *Background*

Having determined the cost of the project, its financial viability needs to be assessed. Private sector companies generally choose to implement a project only when it is financially viable. Exceptions may be made in specific situations, such as:

- At times, the government or other regulator may insist on something. For example, a new law may impose stricter norms regarding emission control. In that case, the affected companies need to invest in new equipment or processes, even if it does not yield any commercial returns.
- Investment may be strategic in nature. Much of the investment in research and development is of a kind where the returns may not be clearly visible. But businesses need to invest in various projects of this nature, with the hope that some of them will yield good returns that will make up for failed efforts in other projects.
- A project may not yield a direct benefit, but it may provide an indirect benefit. In that case, the indirect benefit is quantified and used for the feasibility analysis.
- Companies take up certain activities as part of their Corporate Social Responsibility (CSR). For instance, setting up a school or hospital, for the benefit of families of employees or customers. Being social in nature, financial viability may not be the basis for the investment.

Net present value (NPV) and internal rate of return (IRR) are commonly used in assessing the financial viability of projects. There are intricacies involved in calculating them, which are discussed in the following sections.

5.2 *NPV*

NPV is the net benefit that a project will yield, in terms of today's money value.

Rs. 100 in hand today, is worth Rs. 110 a year down the line, if it is possible to earn a 10% return during the period, on the initial amount. In the example, Rs. 100 is the present value (PV); Rs. 110 is the future value (FV); 10% is the discount rate (r); and the time period (t) is 1 year. Their relation is defined by the following equation:

$$PV = FV \div (1 + r)^t$$

In the given example, the expression in the right can be substituted as

$$110 \div (1 + 10\%)^1$$

$$\text{i.e. } 110 \div (1 + 0.10)^1$$

$$\text{i.e. } 110 \div (1.10)^1$$

$$\text{i.e. } 100$$

Suppose a project is expected to give a benefit of Rs. 110 at the end of year 1 and Rs. 242 at the end of year 2.

We know that the PV of a FV of Rs. 110 in 1 year is Rs. 100.

The PV of a FV of Rs. 242 in 2 years can be calculated as

$$242 \div (1 + 10\%)^2$$

$$\text{i.e. } 242 \div (1 + 0.10)^2$$

$$\text{i.e. } 242 \div (1.10)^2$$

$$\text{i.e. } 242 \div (1.21)$$

$$\text{i.e. } 200$$

The PV of future cash flows from the project viz. gross benefit from the project, is Rs. 100 + Rs. 200 i.e. Rs. 300.

Suppose, the cost of this project viz. the amount to be invested today to set up the project, is Rs. 75.

The net benefit from the project viz. NPV is Rs. 300 – Rs. 75 i.e. Rs. 225.

Thus, NPV calculations involve the following stages:

- Evaluate the cash flows that a project is likely to yield at various points of time in future.
- Decide on a discount factor. There are various ways of arriving at this number. This is discussed later in this Chapter.
- Discount each cash flow by the discount factor to arrive at its present value.
- The total of the present values of each cash flow during the life of the project is the gross present value of the project.
- Gross present value less Project Cost is the NPV.

5.3 Profit v/s Cash Flow

Suppose a company's financials are as shown in Table 5.1.

Table 5.1

Financials of Company ABC

Earnings before Interest, Depreciation, Tax & Amortisation (EBIDTA)	Rs. 9,000
Less Interest	Rs. 1,500
Less Depreciation & Amortisation	Rs. 5,000
Profit before Tax	Rs. 2,500
Tax at 30%	Rs. 750
Profit after Tax	Rs. 1,750

Although the Profit after Tax is Rs. 1,750, Depreciation and Amortisation did not involve a cash outflow.

If company has invested Rs. 50,000 in plant and machinery, and depreciation rate is 10%, then the company will write off Rs. 5,000 as depreciation.

The company does not pay the depreciation. It is only an accounting entry. The cash flow would have happened when the company paid Rs. 50,000 when it bought the equipment.

In Table 5.1, Profit after Tax of Rs. 1,750 has been calculated after reducing depreciation of Rs. 5,000, which did not entail a cash outflow. The depreciation can be added back to the profit, to determine how much cash flow was generated by the company from its operations. Thus, cash flow is Rs. 1,750 + Rs. 5,000 i.e. Rs. 6,750.

The net present value calculations are based on discounting cash flows – not profits.

5.4 Discount Rate

Some companies have a policy of taking up a project only if it yields a return higher than a certain number, which is called *hurdle rate*. In that case, the hurdle rate, say 12%, becomes the discount factor.

An alternate approach is to decide on a discount rate based on inherent risk in the project. For example, an investor may be comfortable with a 9% return on a fixed deposit with a top-rated commercial bank, but will expect something higher if it is a co-operative bank with weaker financials. Similarly, investors expect higher return from their equity investments that entail greater risk than bank deposits.

On the same lines, companies may be comfortable with a lower return in the case of a

project with lower risk; and may expect a higher return for high-risk projects. This is like having multiple hurdle rates based on inherent risk in the project.

A third approach is to use the *weighted average cost of capital* of the company, as the discount rate. Suppose, a company is able to mobilise debt funds at 15%, and its cost of equity – the return that investors in its equity shares expect – is 24%. If the company operates with a target debt-equity ratio of 2:1, then its weighted average cost of capital can be calculated as

$$\{(2 \times 15\%) + (1 \times 24\%)\} \div (2+1)$$

$$\text{i.e. } (30\% + 24\%) \div 3$$

$$\text{i.e. } 18\%$$

The return that investors expect from a company's equity shares again is a function of the inherent risk in the company, the level of transparency with which it operates, its overall corporate governance standards etc. Investors are comfortable with a lower return from equity shares of companies that do not take much risk, are very transparent in their operations and maintain high corporate governance standards.

Cost of equity can also be measured as follows:

$$R_f + \beta (R_m - R_f)$$

Where,

R_f is the risk-free return;

β denotes the beta of the company's shares²;

R_m is the market return from a diversified equity index;

Suppose the risk-free return is 6%, beta of a company's shares is 1.1 and the return on a diversified equity index is 20%.

$$\text{Cost of equity can be calculated as } 6\% + \{1.1 \times (20\% - 6\%)\}$$

$$\text{i.e. } 6\% + (1.1 \times 14\%)$$

$$\text{i.e. } 21.4\%$$

² The concept of Beta is explained NCFM's Financial Markets (Advanced) Module

5.5 Tax-Shield on Interest

Suppose a company reported Earnings before Interest & Tax (EBIT) of Rs. 500. If its tax rate is 30%, then it will pay tax of Rs. $500 \times 30\%$ i.e. Rs. 150. The profit after tax would thus be Rs. $500 - \text{Rs. } 150$ i.e. Rs. 350, assuming it had no borrowings.

If the company had borrowings of Rs. 2,000, on which it pays interest at 15%, the interest it would pay is Rs. $2,000 \times 15\%$ i.e. Rs. 300. The taxable profit is EBIT – Interest i.e. Rs. $500 - \text{Rs. } 300$ i.e. Rs. 200. The tax at 30% would amount to Rs. $200 \times 30\%$ i.e. Rs. 60. The profit after tax (PAT) thus becomes Rs. $200 - \text{Rs. } 60$ i.e. Rs. 140.

The interest of Rs. 300 brought down the PAT by only Rs. $350 - \text{Rs. } 140$ i.e. Rs. 210. This lower impact on PAT is because the interest cost offered a tax shield – it brought down the taxable profits, thus reducing the tax liability. The effective borrowing cost was therefore $15\% \times (1 - 30\%)$ i.e. 10.50%. This is the post-tax borrowing cost.

Post-tax borrowing cost = Pre-tax borrowing cost $\times (1 - \text{tax rate})$

Multiplying the borrowing of Rs. 2,000 by the 10.50% post-tax interest cost gives Rs. 210, which is the amount by which profit after tax declined on account of the interest payment.

The company enjoyed a tax shield on interest, amounting to the interest cost of Rs. 300 multiplied by the tax rate of 30% i.e. Rs. 90.

Interest – Tax Shield = Post-tax Interest Cost

i.e. Rs. $300 - \text{Rs. } 90 = \text{Rs. } 210$.

5.6 Tax-Shield on Depreciation

In the context of a project, depreciation is another major item that offers a tax shield. Unlike interest, which entails a cash outflow, depreciation does not even entail a cash outflow. Yet it offers a tax-shield.

Continuing with the example in Table 5.1, in the absence of depreciation, the taxable profit of the company would have been Rs. $2,500 + \text{Rs. } 5,000$ i.e. Rs. 7,500. If the income tax rate were 30%, the company would have paid tax of Rs. $7,500 \times 30\%$ i.e. Rs. 2,250.

Depreciation helped the company lower its tax liability to Rs. 750. Thus, depreciation offered the company a tax shield of Rs. $2,250 - \text{Rs. } 750$ i.e. Rs. 1,500. This can also be calculated as Depreciation \times Tax Rate i.e. Rs. $5,000 \times 30\%$ i.e. Rs. 1,500.

5.7 IRR

IRR is the discount rate at which NPV becomes zero i.e. PV of gross cash flows is equal to the Project Cost.

In pre-computer days, IRR had to be determined by trial and error. NPV would be calculated at some rate of discount. If discounting at that rate lead to a positive NPV, then the discount rate would be increased; else it would be reduced. Thus, by trying different discount rates, the IRR would be determined where NPV would become zero.

However, MS Excel allows the use of IRR function for the calculation. Suppose the cost of a project is Rs. 500. It is likely to yield cash flows during the project life of Rs. 100, Rs. 300 and Rs. 600 during the three years.

The calculations are shown in Table 5.3.

Table 5.3

Calculation of IRR

C8		fx =IRR(C6:F6)				
	A	B	C	D	E	F
4						
5			Year 0	Year 1	Year 2	Year 3
6	Cash Flows		-500	100	300	600
7						
8	Internal Rate of Return		33%			

Since the above calculation is based on annual cash flows, the calculated value is annual IRR. If monthly cash flows are available, then the calculated value would be monthly IRR. This can be annualised by multiplying by 12, to determine annual IRR. Similarly, quarterly IRR has to be multiplied by 4 to arrive at annual IRR.

A benefit of IRR as compared to NPV is that no discount rate needs to be assumed. Further, the IRR can be easily compared to the hurdle rate or the borrowing cost to assess whether the project is worth selecting. If Project IRR is greater than hurdle rate / borrowing cost, then the project will add value to the company.

Unfortunately, IRR does not inform how much value will be added to the company in rupees. NPV is the value that a project will add to the company.

If two projects, A and B had IRR of 12% and 15% respectively, a decision may be made to go for B. However, if A is a small project with investment of Rs. 5 crore, while B is a large project with investment of Rs. 500 crore, then the latter will add a lot more value to the balance sheet of the company.

NPV of two projects can be added to assess how much value the two put together will add to the company. However, IRR of the two projects cannot be added.

Further, IRR can be reliably determined only if there is only one change of sign in the cash

flows. In Table 5.3 it changed in Year 1 from negative to positive. Thereafter it remained positive. If there was one more change of sign – for instance, if Year 4 cash flow were negative – then IRR calculations can be misleading. A mathematical technicality is that in such situations of multiple changes of sign, more than one IRR is possible.

On account of these limitations of IRR, NPV is often viewed as a superior tool for project evaluation. However, it is normal for project reports to provide the calculated value of both NPV and IRR.

5.8 XIRR

The calculated IRR value is the IRR for a period, which in the above example was 1 year. This period needs to be constant. For instance, IRR function should not be used, if the third inflow related to Year 3 and Year 4 combined.

Where the time periods are irregular, then the calculations should be done based on entering the actual year-end dates against each cash flow, and using the XIRR function. Unlike IRR function which only uses the cash flows as inputs, XIRR function also requires the respective dates. This is illustrated in Table 5.4, assuming the third inflow related to two years.

Table 5.4

Calculation of XIRR

C9		fx		=XIRR(C7:F7,C6:F6)		
	A	B	C	D	E	F
4						
5			Year 0	Year 1	Year 2	Years 3 & 4
6	Yar-end Date		31-Mar-12	31-Mar-13	31-Mar-14	31-Mar-16
7	Cash Flows		-500	100	300	600
8						
9	Internal Rate of Return		27%			

5.9 MIRR

An inherent assumption in IRR calculations is that the intermediate cash flows can be re-invested at the IRR. In the example in Table 5.3, the assumption is that Rs. 100 received at the end of Year 1 can be re-invested at 33% for 2 years; similarly, Rs. 300 received at the end of Year 2 can be re-invested at 33% for a year. Such re-investment is not always possible. Therefore high IRRs give a more optimistic picture than reality; low IRRs give a more pessimistic picture.

Similarly, the project may be financed through a loan that may be at a different rate.

These differences in rates are addressed by calculated a modified IRR, using the MIRR

function. This function accepts financing rate and re-investment rate as additional inputs. The calculation for the numbers in Table 5.3 is shown in Table 5.5, taking financing rate as 15% and re-investment rate as 12%.

Table 5.5

Calculation of MIRR

C12		fx		=MIRR(C6:F6,C8,C10)		
	A	B	C	D	E	F
4						
5			Year 0	Year 1	Year 2	Year 3
6	Cash Flows		-500	100	300	600
7						
8	Finance Rate		15%			
9						
10	Re-investment Rate		12%			
11						
12	Internal Rate of Return		29%			

Since re-investment has been taken at 15%, instead of 33% in Table 5.3, the IRR has come down to 29%.

5.10 Project IRR & Equity IRR

A good principle to follow is to separate the project decision from the financing decision i.e. the project should be viable on a standalone basis, independent of the financing mix.

Therefore, initially IRR is determined at the project level, without considering cash flows related to financing. In this computation of *project IRR*, interest and debt-service payments are kept out.

As a separate exercise, debt-service payments are introduced in the calculations and IRR is re-worked. Since the cash flows after debt-service payments belong to equity shareholders, this re-worked IRR is essentially the *return on equity* invested in the project i.e. *Equity IRR*.

Suppose that a project entails an investment of Rs. 600 crore. It is expected to generating operating cash flow of Rs. 100 crore in Year 1, going up by 30% each year for the following 3 years. At the end of Year 4, the project will have a salvage value of Rs. 300 crore. It is proposed to finance the project with a 2:1 debt-equity ratio. Given the company's credit rating, it will be possible to borrow money for the project at 12% p.a., payable annually.

The project IRR calculations are shown in Table 5.6.

Table 5.6**Calculation of Project IRR**

D17		fx		=IRR(D15:H15)				
	A	B	C	D	E	F	G	H
4								<i>Rs. Crore</i>
5								
6				Year 0	Year 1	Year 2	Year 3	Year 4
7								
8	Initial Investment			-600				
9								
10	Operating Cashflow				100	130	169	220
11	Growth					30%	30%	30%
12								
13	Salvage Value							300
14								
15	Total			-600	100	130	169	520
16								
17	IRR			14.6%				

The Equity IRR calculations are shown in Table 5.7. Since the project IRR of 14.6% is higher than the loan interest of 12%, the Equity IRR is higher at 17.1%.

Had the loan interest rate been higher, at say, 15%, Project IRR would be the same at 14.6%. However, Equity IRR will be lower at 14.2%, as seen in Table 5.8.

Project IRR needs to be higher than loan interest rate to justify the higher risk taken by the equity investor.

Table 5.7**Calculation of Equity IRR (Lower interest rate)**

<i>Rs. Crore</i>					
	Year 0	Year 1	Year 2	Year 3	Year 4
Cost of Project	-600				
Loan Mobilised	400				
Equity Invested	-200				
Operating Cashflow		100	130	169	220
Growth			30%	30%	30%
Loan Servicing					
Principal Repaid		-100	-100	-100	-100
Interest		-48	-36	-24	-12
Salvage Value					300
Total	-200	-48	-6	45	408
IRR	17.1%				

Table 5.8**Calculation of Equity IRR** (Higher interest rate)*Rs. Crore*

	Year 0	Year 1	Year 2	Year 3	Year 4
Cost of Project	-600				
Loan Mobilised	400				
Equity Invested	-200				
Operating Cashflow		100	130	169	220
Growth			30%	30%	30%
Loan Servicing					
Principal Repaid		-100	-100	-100	-100
Interest		-60	-45	-30	-15
Salvage Value					300
Total	-200	-60	-15	39	405
IRR	14.2%				

5.11 Payback Period

NPV and IRR give an idea about the viability of the project over its lifetime. However, they do not reveal when the investment in the project will be paid back. Payback period provides that information.

The calculations are shown in Table 5.9.

Table 5.9**Calculation of Payback Period***Rs. Crore*

	Year 0	Year 1	Year 2	Year 3	Year 4
Investment	-300				
Cashflow		75	100	150	200
Salvage Value					25
Total	-300	75	100	150	225

In the first two years of the project, the cash flows amount to Rs. 75 crore + Rs. 100 crore i.e. Rs. 175 crore – still not adequate to payback the investment of Rs. 300 crore. However, the addition of the Year 3 cash flow of Rs. 150 crore takes the total cash flow of Rs. 325 crore, which is more than the original investment. Thus, the investment of Rs. 300 crore is paid back sometime in Year 3.

The moment cash flow in Year 3 reaches Rs. 125 crore, the project investment is paid back (Rs. 75 crore + Rs. 100 crore + Rs. 125 crore). Since the total cash flow in Year 3 is Rs. 150 crore, the figure of Rs. 125 crore amounts to Rs. 125 crore ÷ Rs. 150 crore i.e. 83% of the Year 3 cash flow. 83% of 12 months is 10 months. Thus, the project is paid back in 2 years and 10 months.

5.12 Discounted Payback Period

The earlier payback period calculations do not account for time value of money. The Rs. 300 crore of investment will get paid back through cash flows in 2 years and 10 months. However, future cash flows are less valuable than today's money that is invested in the project.

Discounted payback period calculations entail discounting each cash flow to its present value. The calculations are shown in Table 5.10.

Table 5.10

Calculation of Discounted Payback Period

	<i>Rs. Crore</i>				
	Year 0	Year 1	Year 2	Year 3	Year 4
Investment	-300				
Cashflow		75	100	150	200
Discount Factor	12%	0.892857	0.797194	0.71178	0.635518
Present Value		66.96	79.72	106.77	127.10
Cumulative Present Value		66.96	146.68	253.45	380.55

In the above table, discount factors are worked out as $1 \div (1+12\%)^n$

Cash flow for each year multiplied by the discount factor for that year gives the present value of each cash flow.

The present value of cash flow for each year is totalled sequentially, to arrive at the cumulative present value.

Sometime in Year 4 is when the cumulative present value touches Rs. 300 crore. Cumulative present value upto Year 2 is Rs. 253.45 crore. So discounted payback occurs when Rs. 300 crore – Rs. 253.45 crore i.e. Rs. 46.55 crore is earned in Year 4. This represents 12.23% of the present value of cash flow in Year 4. 12.23% of 12 months is 1.47 months. Therefore, the project is paid back in 3 years and 1.47 months.

5.13 *Economic IRR*

The analysis so far focused on project evaluation from the private sector perspective. It is also possible to do a Social Cost Benefit Analysis to evaluate the project from the perspective of the overall economy. Some of the factors that apply differently in the Social Cost Benefit Analysis are as follows:

- The project may entail some costs e.g. pollution, that a financial IRR calculation will not consider. But, while calculating Economic IRR, a cost is attributed to the pollution that the project causes.
- Similarly, the project may yield benefits that are not captured in the financial IRR. For instance, as per government policy, users may be charged a certain toll. But, they may be prepared to pay a higher toll. The difference between what they are prepared to pay, and what they will be charged, is obviously a benefit from the point of view of the people and the economy.
- Similarly, some tax concessions may be treated as a positive in calculating the financial IRR. But such concessions are paid for by the economy. So, such benefits need to be reversed while calculating the economic IRR. The economic IRR will be lower than the project IRR on account of this adjustment.

Some of the variables and their values considered in economic IRR calculations are extremely subjective. Therefore, multiple views may have to be taken for these parameters. When a government is evaluating a project, the economic IRR is more relevant than the financial IRR.

Companies first evaluate each project in isolation to assess its viability. Some projects make better sense when combined with some other projects. In that case, the combination of projects is evaluated as one unit. Finally, depending on the investment budget available, strategic considerations of the company, regulatory compulsions and viability of the projects, some of them are selected for implementation. This entire process of screening projects before selecting some is called *Capital Budgeting*.

Self-Assessment Questions

- ❖ CSR projects may be taken up even if they are not financially viable.
 - **True**
 - False
- ❖ Net benefit that a project will yield in terms of today's money value is
 - **NPV**
 - IRR
 - Payback
 - Discounted Payback
- ❖ In NPV calculations with investment in a single period, which of the following are discounted?
 - Investment
 - Profit
 - **Cash flow**
 - All the above
- ❖ Which of the following may be used as discount rate in NPV calculations?
 - Cost of capital
 - Cost of equity
 - Hurdle rate
 - **Any of the above**
- ❖ The problem of different rates for borrowing and re-investment is addressed by using the _____ function in MS Excel.
 - IRR
 - XIRR
 - **MIRR**
 - NPV
- ❖ Project IRR and Equity IRR are different terms for the same figure.
 - True
 - **False**

Chapter 6 Financial Projections

6.1 *Background*

Cash flows used for the project evaluation come from the detailed financial projections that are made. Three financial statements are prepared – Profit and Loss Account, Balance Sheet and Funds Flow.

Projections for most projects are made for 3 to 5 years. However, when it comes to infrastructure projects, the financial projections are extremely long term – even extending beyond 25 years.

The projections are made in constant rupee terms as well as inflation adjusted terms. The key to interpreting financial projections submitted by the borrower is to understand the assumptions. With over-optimistic assumptions, it would be possible to justify any borrowing. The project financier reviews the assumptions and ensures they are realistic, before getting on to a serious review of the financial projections.

While the borrower presents the projections as part of the loan application, prudent project financiers make their own projections. This not only helps them validate the numbers presented by the borrower, but also gives them the flexibility to explore alternate scenarios.

6.2 *Assumptions*

The entire operations underlying the project, including the cost structure and scale-up plan are captured in the statement of assumptions. A sample is shown in Table 6.1.

6.3 *Cost of Project & Means of Financing*

Based on the assumptions, the Project Cost and Means of Financing can be calculated.

As seen in Chapter [4], cost of project should also include the investment in working capital. As operations expand, working capital investment keeps going up, unless the management does something proactive to control it. For example, it can improve the supply chain and reduce the inventory, adopt Just in Time (JIT) practices or negotiate better credit terms with suppliers and customers.

Cost of Project is estimated on the basis of first year's working capital requirement or the working capital requirement when operations have reached a stable level.

Table 6.1 envisages that the cost of project will be financed through a debt-equity ratio of 2:1. Accordingly, the cost of project of Rs. 105 crore is financed through a mix of Rs. 35 crore of equity and Rs. 70 crore of debt. The details are given in Table 6.2.

Table 6.1**Assumptions**

Sales Volume		
Year 1	5,00,000 units	
Annual growth	25%	
Selling Price (Rs. Per unit)		
Year 1	2,500	
Annual Increase	10%	
Material Cost (Rs. Per unit)		
Year 1	1,200	
Annual Increase	12%	
Number of Workers		
Year 1	1500	
Annual Increase	15%	
Average Wage Cost (Rs. Per Worker)		
Year 1	10,000 p.m.	
Annual Increase	15%	
Managerial Cost & other overheads (Rs. Cr.)		
Year 1	25 p.a	
Annual Increase	20%	
Fixed Capital Investment in project (Rs. Cr.)	100	
Credit to customers	months	1
Credit from suppliers	months	2
Raw Material Inventory	months	1
Work in Progress and Finished Goods Inventory will be negligible.		
Debt-equity Ratio		2 times
Interest cost for debt		13%
Loan Tenor	years	5
EMI (per Rs. 1,000 of loan, annual reduction)	Rs. 23.69	
Depreciation on Fixed Capital Investments	10% p.a. (WDV)	
Salvage Value after 5 years (Rs. Cr.)	15	
Ignore interest income on surplus cash balances. Tax rate 30%		

Table 6.2**Cost of Project & Means of Financing**

					<i>Rs. Crore</i>	<i>Rs. Crore</i>
<i>Fixed Capital Investment</i>						100
<i>Working Capital Investment</i> (based on Year 1 operations)						
Debtors		(c X d ÷ 12)			10	
a	Sales Volume	units	5,00,000			
b	Selling Price	Rs. Per unit	2,500			
c	Annual Sales	(a X b) Rs. Cr.	125			
d	Credit to customers	months	1			
Inventory		(c X d ÷ 12)			5	
a	Sales Volume	units	5,00,000			
b	Raw Material Cost	Rs. Per unit	1,200			
c	Annual Matl Cost	(a X b) Rs. Cr.	60			
d	Material holding	months	1			
Creditors		(a X b ÷ 12)			-10	
a	Annual Matl Cost	Rs. Cr.	60			
b	Credit from suppliers	months	2			
						5
Total Cost of Project						105
Means of Financing						
Debt-equity Ratio		2	times			
Debt						70
Equity						35
Total Financing						105

6.4 Projected Profit & Loss Account

The various income and expenditure items are listed in the Profit & Loss account (Table 6.3). Details of the calculated numbers are given in the Workings in Table 6.6.

6.5 Projected Balance Sheet

The year-end position of assets and liabilities of the project are given in the Balance Sheet (Table 6.4).

6.6 Projected Funds Flow

The various sources and application of funds during each year are mentioned in this statement (Table 6.5). The total of all sources of funds minus the total of all applications of funds for each year is the change in Cash and Bank position during the year. In Table 6.5, applications of funds are shown with a negative sign. Therefore, the column total gives the change in Cash and Bank position during the year.

When the EMI paid is add back to the cash flows, we get the project cash flows.

Table 6.3

Projected Profit & Loss Account

	Working Note	1	2	3	4	5
Sales Value	3	125	172	236	325	447
Less Cost of Production (CoP)						
Material	4	60	84	118	165	230
Labour	5	18	24	31	42	55
Other Expenses	6	25	30	36	43	52
		103	138	185	250	337
EBIDTA	Sales - CoP	22	34	51	75	110
Depreciation	7	10	9	8	7	7
EBIT	EBIDTA - Dep	12	25	43	68	103
Interest	8	9	8	6	4	2
Profit before Tax	EBIT - Int	3	17	37	64	101
Tax	30%	1	5	11	19	30
Profit after Tax	PBT - Tax	2	12	26	45	71
Cashflow	PAT + Dep	12	21	34	52	78

Table 6.4**Projected Balance Sheet**

Working Note		1	2	3	4	5
Fixed Assets (FA)	7	90	81	73	66	59
Current Assets (CA)						
Cash & Bank	9	1	8	25	58	114
Debtors	10	10	14	20	27	37
Inventory	11	5	7	10	14	19
		16	29	55	99	170
Less Current Liabilities (CL)						
Creditors	12	10	14	20	28	38
Working Capital (WC)	CA - CL	6	15	35	71	132
Total Assets	FA + WC	96	96	108	137	191
Equity	13	37	49	75	120	191
Loan	8	59	47	33	17	0
Total Liabilities	Equity + Loan	96	96	108	137	191

Table 6.5**Projected Fund Flow Statement**

		Rs. Crore				
Source		1	2	3	4	5
Equity mobilised	Financing	35				
Loan availed	Financing	70				
Invested in Fixed Assets	Cost of Project	-100				
Invested in Working Capital	Cost of Project	-5				
Increase in debtors	Balance Sheet		-4	-6	-7	-10
Increase in inventory	Balance Sheet		-2	-3	-4	-5
Increase in creditors	Balance Sheet		4	6	8	10
Loan repaid during year	Balance Sheet	-11	-12	-14	-16	-18
Cashflow during year	Profit & Loss	12	21	34	52	78
Change during year		1	7	17	33	56
Add EMI Paid during year	Working Note 8	20	20	20	20	20
Project cash flows during year		21	27	37	53	76

Table 6.6**Working Notes**

(all numbers rounded off)		Rs. Crore				
		1	2	3	4	5
1	Sales Volume (units) growth	5,00,000	6,25,000 25% 0	7,81,250 25%	9,76,563 25%	12,20,704 25%
2	Selling Price (Rs. Per Unit) Increase	2,500	2,750 10%	3,025 10%	3,328 10%	3,661 10%
3	Sales Value (Rs. Cr) $a \times b \div 10,000,000$	125	172	236	325	447
a	Sales Volume (units)	5,00,000	6,25,000	7,81,250	9,76,563	12,20,704
b	Selling Price (Rs. Per Unit)	2,500	2,750	3,025	3,328	3,661
4	Material Cost (Rs. Cr) $a \times b \div 10,000,000$	60	84	118	165	230
a	Sales Volume (units)	5,00,000	6,25,000	7,81,250	9,76,563	12,20,704
b	Material Cost (Rs. Per unit)	1,200	1,344	1,505	1,686	1,888
5	Labour (Rs. Cr) $a \times b \times 12 \div 10,000,000$	18	24	31	42	55
a	Number of Workers	1500	1,725	1,984	2,282	2,624
b	Average Wage Cost (Rs. Per Worker)	10,000	11,500	13,225	15,209	17,490
6	Expenses (Rs. Cr)	25	30	36	43	52
7	Depreciation (Rs. Cr)					
	Fixed Capital Opening Balance	100	90	81	73	66
	Depreciation 10%	10	9	8	7	7
	Fixed Capital Closing Balance	90	81	73	66	59
8	Loan (Rs. Cr)					
	Loan Opening Balance	70	59	47	33	17
	Interest 13%	9	8	6	4	2
	EM Paid Rs. 23.69 / 1000 pm	20	20	20	20	20
	Loan Closing Balance	59	47	33	17	-0
	Loan repaid during year (Op - Cl)	11	12	14	16	18
9	Cash & Bank (Rs. Cr)					
	Opening Balance		1	8	25	58
	Change during Year Funds Flow	1	7	17	33	56
	Closing Balance	1	8	25	58	114
10	Debtors (Rs. Cr) $a \times b \div 12$	10	14	20	27	37
a	Sales (Rs. Cr.)	125	172	236	325	447
b	Credit to customers months	1	1	1	1	1
11	Inventory (Rs. Cr) $a \times b \div 12$	5	7	10	14	19
a	Material (Rs. Cr.)	60	84	118	165	230
b	Raw Material Inventory months	1	1	1	1	1

Table 6.6**Working Notes** (cont'd)

(all numbers rounded off)		Rs. Crore				
		1	2	3	4	5
12 Creditors (Rs. Cr)	a X b ÷ 12	10	14	20	28	38
a Material (Rs. Cr.)		60	84	118	165	230
b Credit from suppliers	months	2	2	2	2	2
13 Equity + Reserves (Rs. Cr)						
Opening Balance		35	37	49	75	120
Profit during year (from P&L)		2	12	26	45	71
Closing Balance		37	49	75	120	191

6.7 Project IRR

As seen in Table 6.7, the project yielded an IRR of 35.5%. Since cash flows are post-tax, the calculated IRR too is post-tax.

Table 6.7**Project IRR**

(all numbers rounded off)		Rs. Crore				
		1	2	3	4	5
Cost of Project		-105				
Project Cash Flows (from Fund Flow)		21	27	37	53	76
Total Cash Flow		-84	27	37	53	76
IRR	35.5%					

6.8 Equity IRR

The return for equity investors is 53%, as seen in Table 6.8. Since the project IRR (35.5%) is much higher than the cost of debt (13%), the equity IRR is very attractive.

Table 6.8**Equity IRR**

(all numbers rounded off)	Rs. Crore				
	1	2	3	4	5
Cost of Project	-105				
Loan	70				
Equity Investment	-35				
Project Cash Flows (from Fund Flow)	21	27	37	53	76
EMI Paid	-20	-20	-20	-20	-20
Terminal Value					15
Total Cash Flow	-34	7	17	33	71
IRR	53.0%				

6.9 Loan Servicing Capability

Loan servicing ability is assessed through certain ratios:

6.9.1 Interest Coverage Ratio (ICR)

This is calculated as $EBIT \div \text{Interest}$ as shown in Table 6.9.

Table 6.9**Interest Coverage Ratio**

(all numbers rounded off)	Rs. Crore				
	1	2	3	4	5
EBIT	12	25	43	68	103
Interest	9	8	6	4	2
ICR (EBIT \div Interest)	1.33	3.13	7.17	17	51.5

Interest coverage of 1.33 in year 1 means that even if the profits (EBIT) of the company were to go down by $(1.33 - 1) \div 1.33$ i.e. 25%, it will have adequate profits to pay interest. (The legal position is that the company has to service its debts even if the company does not earn profits)

6.9.2 Debt Service Coverage Ratio (DSCR)

There are two elements of debt servicing – interest and principal. Debt Service Coverage Ratio compares the debt servicing requirements with the cash flows (EBIT + Depreciation) of the project, as shown in Table 6.10.

Table 6.10

Debt Service Coverage Ratio

(all numbers rounded off)	Rs. Crore				
	1	2	3	4	5
EBIT	12	25	43	68	103
Depreciation	10	9	8	7	7
Cash Flows for Debt Servicing	22	34	51	75	110
Interest & Principal Paid (EMI)	20	20	20	20	20
DSCR (Cashflow ÷ EM)	1.10	1.70	2.55	3.75	5.50

DSCR of 1.1 in year 1 means that even if the cash flows (EBIT + Depreciation) of the company were to go down by $(1.1 - 1) \div 1.1$ i.e. 9.1%, it will have adequate cash flows to service the debt. (The legal position is that the company has to service its debts even if the company does not have cash flows)

6.9.3 Long Term Debt Service Coverage Ratio (LDR)

The DSCR is different for each year. In the case of LDR, the total position over the life of the loan / project is considered.

For example, from Table 6.10, it can be seen that the total cash flow for debt servicing over the 5 years is $22+34+51+75+110$ i.e. Rs. 292 crore. Debt servicing payments during the period amount to Rs. 100 crore.

LDR is $\text{Rs. 292 crore} \div \text{Rs. 100 crore}$ i.e. 2.92.

LDR is particularly useful in infrastructure projects. Lenders seek to ensure that LDR is at least 1.0 over the loan period, which would be a few years shorter than the project life. The cash flows during the project life after the loan period are a cushion to ensure that the lenders are repaid.

Project lenders need to focus on the loan servicing ability of the project, while lending to new projects by new entrepreneurs. Lenders protect themselves by obtaining a personal guarantee of the promoter. Thus, even if the company is unable to pay, the promoter is liable to pay from his personal assets.

When an existing company promotes a new company for implementing a project, the primary

risk is on the new company's balance sheet. But the promoter company too may have balance sheet strength. Lenders can protect themselves by seeking a corporate guarantee from the promoter company. Besides, personal guarantee of the promoters (individuals) too may be taken.

A third situation is when existing company takes up an expansion or diversification project without creating a new company. In such cases, loan servicing can come from the project itself or the other operations of the company. Assuming other operations are profitable, this is much safer for the project lender.

6.10 Sensitivity Analysis

Financial analysts assess how the financial numbers change with respect to changes in assumptions and identify the parameters that are most sensitive. Then they create a sensitivity table that shows what would be the value of a financial number for different combinations of assumptions (maximum of 2 parameters at a time).

Table 6.11 shows the sensitivity of PAT (Year 1) to changes in sales volume and selling price.

Table 6.11

Sensitivity: PAT (Year 1) with Sales Volume & Sales Price

(all numbers rounded off)

Rs. Crore

		Selling Price				
		2,000	2,250	2,500	2,750	3,000
Sales Volume	4,00,000	-21	-14	-7	0	7
	4,50,000	-18	-10	-2	6	13
	5,00,000	-15	-8	2	11	20
	5,50,000	-13	-3	7	16	26
	6,00,000	-10	1	11	22	32

The base case PAT of Rs. 2 crore, with sales volume of 500,000 units and selling price of Rs. 2,500 per unit is shown in bold.

While sensitivity analysis is a powerful tool, each table can only show one financial number (PAT of Year 1 in the above table), and its sensitivity to a maximum of 2 parameters (Sales volume and Selling Price in the above table).

Alternately, any number of financial numbers can be included in the sensitivity table, however, sensitivity to only one parameter can be taken in a single table. For example, one can have financial numbers such as Sales revenue, EBIT, PBT, PAT and Cash Flow in different rows, while each column will show the values for one Selling Price level (or Sales volume or other parameter).

The impact of change in multiple parameters on various financial numbers can be shown by building scenarios.

6.11 Building Scenarios

Each scenario represents one combination of assumptions. Any number of assumptions can be used in the scenario e.g. selling price, sales volume, material cost, labour rate, inflation etc.

In order to focus management attention, each scenario is given a name e.g. Optimistic, Pessimistic and Average; or No competition, Some competition and Severe competition.

For every scenario, any number of financial figures can be shown. Only the key figures that impact management decision making are shown in the scenarios. A sample of scenarios is shown in Table 6.12.

Table 6.12

Scenarios

	<i>Optimistic</i>	<i>Average</i>	<i>Pessimistic</i>
Assumptions:			
1 Sales Volume			
2 Selling Price			
3 Material Cost per Unit			
4 Wage Rate			
5 Annual Growth in Wage Rate			
Results:			
1 Sales			
Yr 1			
Yr 3			
Yr 5			
2 EBIDTA			
Yr 1			
Yr 3			
Yr 5			
3 EBIT			
Yr 1			
Yr 3			
Yr 5			
4 PAT			
Yr 1			
Yr 3			
Yr 5			

Self-Assessment Questions

- ❖ Which of the following financial statements are used for project analysis?
 - Profit & Loss account
 - Balance Sheet
 - Funds Flow
 - **All the above**
- ❖ Working capital estimate for cost of project is taken as
 - Working capital in Year 1
 - Working capital when operations stabilise
 - **Either of the above**
 - None of the above
- ❖ Total of Sources minus application of funds for each year is –
 - **Change in cash and bank during year**
 - Change in cash during year
 - Annual NPV
 - Annual profit
- ❖ Equity IRR is always higher than project IRR
 - True
 - **False**
- ❖ Debt servicing over the life of the project is assessed through the following single number:
 - ICR
 - DSCR
 - **LDR**
 - IRR
- ❖ Which of the following is used to show multiple assumptions and multiple financial figures in a single statement?
 - Balance Sheet
 - Fund flow statement
 - Sensitivity analysis
 - **Scenarios**

Chapter 7 Project Finance and their Sources

As part of the capital budgeting exercise, the company also decides on its preferred capital structure viz. mix of debt and equity. The financial projections discussed in the previous chapter are prepared assuming this capital structure. The capital can be long term or short term.

7.1 Prudence in Mix of Long Term and Short Term Finance

The golden rule is to ensure that long term assets (*fixed assets* such as land, building, plant and machinery etc.) are not financed out of short term capital. If this rule is violated, the business runs the risk of not being able to fulfil its short term commitments and falling into a liquidity trap.

Equity is a source of long term funds. Loans repayable beyond a year are considered long term. Current liabilities (advances from customers, dues to suppliers i.e. sundry creditors) are those that are to be repaid within a year. Similarly, current assets (inventory, dues from customers i.e. sundry debtors etc.) are those that are expected to be realised (converted into cash) within a year. Cash and bank is also a current asset.

The difference between current assets and current liabilities is called *Net Working Capital*.

Consider the balance sheet of a Company ABC given in Table 7.1.

Table 7.1

Balance Sheet of Company ABC (Values in Rupees)

Sources of Funds

Equity	10
Long Term Loans	90
Current Liabilities	150
Total	250

Application of Funds

Fixed Assets	175
Current Assets	75
Total	250

The company has financed its fixed assets of Rs. 175 through a mix of equity of Rs. 10, long term loans of Rs. 90 and current liabilities of Rs. 75 (the balance). This is risky because the

short term funds may come up for repayment before the fixed assets start generating cash flows for the repayment. This is reflected in the negative working capital of Rs. 75 – Rs. 150 i.e. –Rs. 75.

Norms of banks and financial institutions call for even part of the current assets to be met out of long term sources of funds. This provides the cushion for the business to handle any short term business problems.

Consider the revised balance sheet of a Company ABC given in Table 7.2.

Table 7.2

Balance Sheet of Company ABC (Values in Rupees)

Sources of Funds

Equity	10
Long Term Loans	190
Current Liabilities	50
Total	250

Application of Funds

Fixed Assets	175
Current Assets	75
Total	250

It is clear that the company has arranged for equity of Rs. 10 and long term loans of Rs. 190 as against the fixed assets of Rs. 175. The surplus Rs. 25 of long term funds is financing some current assets. The surplus long term funds can handle problems in current assets such as slowdown in sales, delays in collection from debtors etc. The comfort can be seen in the positive working capital of Rs. 75 – Rs. 50 i.e. Rs. 25. This puts less pressure on the company's day to day finances.

Some progressive companies do manage their business on *negative working capital* basis. This is achieved by limiting the moneys that are locked in stock and debtors, while availing of more credit from suppliers. The lower investment in current assets minimises the interest cost, while supplier finance does not entail an interest cost. Thus, negative working capital helps these companies improve their profitability.

The danger comes when the negative working capital leads to the use of current liabilities for financing fixed assets. If the excess current liabilities are deployed in safe and liquid debt investments, then there is no problem.

7.2 *Forms of Long Term Project Finance*

Long term project finance can take the following forms:

7.2.1 *Equity*

This is the longest term finance, because, in general, equity is not returned by the company. Investor recovers his moneys by selling the equity shares in the stock exchange or otherwise finding a counter-party to buy his shares. The company does not repay him.

Occasionally, when companies have more cash than they need, they may choose to buy-back shares from investors. Since a buyback offer is left to the discretion of the company, it is done only when the company has the financial strength.

Although equity offers the benefit of not requiring servicing if the company fails, it is considered to be the costliest source of funds.

7.2.2 *Loans*

Project loans are available for long tenors – at times even beyond 7 years. Lenders typically are banks and financial institutions like IDBI Bank, ICICI Bank, IFCI, SIDBI and State Bank of India. IIFCL, IDFC and IL&FS focus more on infrastructure projects including soft infrastructure such as education and health services. Exim Bank assists borrowers whose businesses are international in nature.

Project lenders insist on security in the form of a charge on the assets of the borrower. This may be a general charge on all assets of the company, or a specific charge on identified assets. The benefit of a specific charge is that those assets are specifically available for repaying the dues of the lender. The assets specifically charged will become available to other lenders only after clearing the dues of lenders who hold a specific charge.

A hierarchy of charges can be created by creating *first charge*, *second charge*, *third charge* and so on. The lenders holding first charge have priority over lenders holding second charge, who in turn have priority over lenders holding third charge.

Consider a situation where an asset has a realisable value of Rs. 100 crore. The dues to charge-holders on that asset are as follows:

First charge lenders Rs. 60 crore

Second charge lenders Rs. 50 crore

Third charge lenders Rs. 40 crore.

If the borrower defaults in servicing the debt, the first charge holders can recover their dues of Rs. 60 crore by selling the asset for Rs. 100 crore. The amount that remains viz. Rs. 100 crore – Rs. 60 crore i.e. Rs. 40 crore will take care of part of the dues to second charge-

holders. They will thus get back only 80% of their dues, through sale of the charged asset. The third charge-holders will get nothing from the sale of the charged asset.

If the company has other assets beyond those charged, the charge holders who are not repaid in full can recover their dues through sale of those assets. But they will fall in the same category as other unsecured lenders of the company.

At times, more than one lender may share a *pari passu* charge on the borrower's assets. This means that if the borrower defaults, each lender is entitled to a proportion of the assets, based on the outstanding to it, as compared to the outstanding to other similar lenders.

In the previous example if there were two second charge holders whose dues in total amounted to Rs. 50 crore, then each lender will get back 80% of its dues.

A new *pari passu* charge can be created only with the permission of prior charge-holders. For example, if PQR has a first charge on certain assets. A few years later, the borrower wants to create a charge on the same assets in favour of STU. If the charge in favour of STU is also first charge, then it becomes a *pari passu* charge for PQR and STU. It cannot be created without the permission of PQR, the prior charge holder. If PQR objects, then only a second charge in favour of STU would be possible.

Charge on current assets is created as a *floating* charge. This means that the borrower keeps doing its business in the normal course, as part of which the current assets keep changing in form and value. If the borrower defaults, then the lender will invoke its right to the assets; at that stage the charge becomes fixed.

Generally, charge on fixed assets is created through a *mortgage*, while floating assets are *hypothecated*. If the borrower is a company, then the charge needs to be registered with the Registrar of Companies for it to be effective.

Escrow is another form of protection for lenders. In an escrow arrangement, customers of the borrower deposit their dues in a specific bank account over which the lender has a charge. Thus, the receipts from customers become available for servicing the debt. The escrow is specifically used when the borrower has a weak balance sheet.

Repayment of the loan is through monthly or quarterly instalments that cover principal and interest. The interest may be at a *fixed rate* or a *floating rate*. In the latter case, the interest will float with some base, such as the lender's base rate of interest or fixed deposit rate of interest or market yields on government securities of specific maturity.

In some cases, the borrower is granted a moratorium for an initial period, where either principal or the entire instalment is not payable. Moratorium does not mean free money for the period. It only offers a cash flow benefit for the borrower. Most lenders charge interest for the moratorium period, which is recovered through higher re-payments by the borrower in the post-moratorium phase.

Documentation related to loans is covered in a separate section of this Chapter.

7.2.3 Debentures

Debenture, like a loan, is a form of debt finance for the borrower. Debentures may be secured or unsecured, and may carry interest (also called *coupon*) at a fixed rate or floating rate.

The interest may be *cumulative*, in which case no interest is payable until maturity. Alternatively, it is a regular return debenture, paying interest at regular intervals (generally, half-yearly). They may also be issued as *discount* instruments. For example, a debenture of face value Rs. 100 may be issued at Rs. 80. The investor will invest Rs. 80 and receive Rs. 100 on maturity. The difference of Rs. 20 is essentially interest for the tenor of the debenture.

Debentures may be *convertible* or *non-convertible*; if convertible, it may be compulsorily convertible or either party may have the option to convert – if they do not convert, then it is repayable as any debt. The terms of conversion viz. the price at which equity shares will be issued is either fixed in rupees at the time of issue, or is fixed as a percentage of the market price at the time of conversion.

For example, a debenture of face value Rs. 100 may be convertible into 2 equity shares, which means that each share will be issued at Rs. 50; or it may be convertible at 10% discount to the prevailing market price. In the latter case, if at the time of conversion, the shares of the company are trading at Rs. 90, each debenture will be converted into 1 share at Rs. 90 less 10% i.e. Rs. 81. The remaining amount, Rs. 100 – Rs. 81 i.e. Rs. 19 will be repaid as debt.

Non-convertible debentures are debt. Convertible debentures can be viewed as debt or equity depending on how they are structured. For instance, debentures that are compulsorily convertible into equity are, for all practical purposes, equity.

In some cases, the borrower appoints a trustee who has to perform the role of protecting debenture-holders. As per SEBI Regulations, appointment of trustee is compulsory if the debentures are issued to the general public. The trustee ensures that the borrower creates the charge, uses the money and services the debentures, as promised.

A loan is a contract between two parties, lender and borrower, evidenced by a loan agreement. The loan agreement is not transferable, though, subject to the terms of the loan contract, it is possible to substitute parties.

Unlike a loan, debentures are transferable. The borrower issues debentures to the investor in confirmation of the borrowing. The investor can sell or otherwise transfer the debentures to any party. The borrower will fulfil its repayment obligations to the registered owner of those debentures on the payment date.

7.2.4 Senior Debt, Junior / Subordinate Debt and Mezzanine Capital

The obligation of the borrower to the lender can be structured in various ways. Senior debt has priority in terms of payment over junior / subordinate debt. Thus, depending on the assets available with the borrower in case of default, the senior debt-holder may be paid his dues, fully or partly, while the junior debt may not be repaid.

On account of the higher risk, investors in subordinate debt expect a higher rate of interest as compared to senior debt. The benefit of such subordinate debt is that it minimises the equity required for the project.

Various of forms of financing between equity and senior debt are called mezzanine capital. This can take various forms such as junior / subordinate debt, debt with warrants, convertible debt etc.

7.2.5 Preference Shares

Like debentures, preference shares too are issued on the basis of a fixed return e.g. 8% Preference Shares. However, the return in the case of preference shares is in the form of dividend, unlike debentures that yield interest.

Interest is payable on debt even if the company does not earn a profit. However, dividend on preference shares is payable only if the company has adequate profits. Thus, the preference share-holder takes an additional risk as compared a debenture-holder.

Preference shares can also be issued as *participating*. This means that they are entitled to a higher dividend, depending on the company's profits.

As seen in Chapter [5], there is a tax-shield on interest payments. Dividends do not give a tax-shield, because they are paid out of post-tax profits.

The dividend in a preference share may be *cumulative* or *non-cumulative*. In a cumulative preference share, dividends not paid in a particular year will need to be paid in future years. Dividend not paid in any year on a non-cumulative preference share is lost forever.

Preference share-holders have a right to vote on resolutions that affect them. Their voting rights are enhanced, under the Companies Act, 1956, if dividend is not paid for 2 years.

Preference shares too can be convertible, like debentures.

In India, preference shares are viewed as equity. Equity Share Capital, Preference Share Capital and Reserves are clubbed together as Share-holders' Funds / Net Worth.

7.3 Forms of Short Term Project Finance

Banks provide short-term project finance for meeting working capital needs like stock and debtors. Large companies make arrangements for working capital finance with more than one bank. The lending banks may operate as a *consortium*, with the main lender performing the role of lead banker. Alternatively, the borrower may go for *multiple banking*, with each bank separately.

The working capital finance can be structured in various ways:

7.3.1 Cash credit

The borrower is given a limit, which is split into *fund-based* and *non-fund based* sub-limits.

- Fund-based is the amount upto which the bank will lend money i.e. take credit exposure on the borrower.
- Non-fund based is the amount upto which the bank will pay money to third parties on behalf of the borrower. This could be by issuing letters of credit, accepting bills or giving guarantees.

Cash credit gives flexibility to the borrower to vary the borrowing from the bank on a day to day basis, based on business exigencies. Interest is payable to the lender only on the actual borrowing, though *commitment charges* are levied on the limit sanctioned.

7.3.2 Working Capital Loans

This is a loan to finance working capital. Interest would be payable for the tenor of the loan, irrespective of whether or not the borrower needs the money.

The loan may be structured as *working capital term loan* (where the borrower can be assured of the funds for the loan period) or *working capital demand loan* (where the lender can ask for repayment any time).

If the borrowing of a company exceeds the limits that are possible based on bank norms, the excess may be converted into a working capital demand loan carrying a higher rate of interest.

7.4 Lease

Lease is an arrangement where the project is able to use assets that it does not own. The *lessor* owns the asset and *leases* it to the lessee (the project). The lessee pays a lease rent to the lessor for the lease period.

The lessor gets the depreciation tax shield on the asset. The lessee gets a tax shield on the lease rent.

Leases are structured as *financial lease* or *operating lease*.

- A financial lease is a pure financing arrangement. The lessor has no use for the asset e.g. plant and machinery used in the project. So he ensures that he is paid back during the lease period. The lessee's right to stop the lease early is curtailed. The lessee is given an option to buy the asset at the end of the lease period for a nominal amount.
- Many car leasing arrangements are structured as operating leases. The lessor may be in the car lease business and may not have an interest in selling the car at the end of the lease period. On account of longer term interest in the asset, the lessor in an operating lease bears many more costs related to the asset (e.g. insurance, repairs) than in the case of financial lease. The operating lease rental is kept at a level where the lessor is able to recover these costs from the lessee.

Some of the benefits of lease are:

- The lessee is able to minimise the loan in its books. It becomes a form of off-balance sheet lending. If it had acquired the property with a loan, then that would have reflected as a borrowing in the balance sheet.
- The lessor and lessee are able to work out lease rent schedules that optimise on the tax for both parties.

A point to consider is that valued added tax (VAT) is applicable on the lease rentals. Similarly, service tax too may be applicable. While comparing leasing with borrowing, the total cost of both options should be considered.

7.5 Role of Non-Banking Finance Companies (NBFC)

Lease is offered predominantly by NBFCs. They also give loans in other forms to the lender. For instance, there are occasions where the banks, financial institutions or regulators insist on a certain level of *promoter's contribution*. When the promoter is unable to meet this requirement, he approaches the NBFC for assistance. The NBFC then offers *promoter funding*.

Some companies do not have the balance sheet strength to seek finance from banks and financial institutions. Else, they may be looking for funding lines beyond what the traditional lenders are prepared to give. In all these cases, NBFCs step in.

Besides a greater appetite to take risks, NBFC funds can come in quicker. However, the cost of funds from NBFCs is generally higher than what is possible from public sector banks.

7.6 *Loan Documentation*

When the lender is comfortable with the borrower's requirement, he issues a *sanction letter*. This only indicates the preparedness to lend, and the terms on which the lender is prepared to lend. The lender lends the money only after all the documentation is in place.

The terms of arrangement between the lender and borrower are set out in the loan agreement. Lenders have their standard formats, though terms can be negotiated.

Besides the interest rate, tenor and moratorium, some of the issues that come up for discussion between the lender and borrower are as follows:

- **Promoter's Personal Guarantee**

The loan agreement may be between the lender and the borrowing company. Since companies operate on the basis of limited liability, if a company is unable to pay, then the lender loses the money.

As a protective measure, and a means of tying the promoter to the project, lenders insist on personal guarantee from the promoters and an audited statement of their personal wealth.

The implication of this guarantee is that if the company is unable to pay, the lender can recover the money from the personal wealth of the promoter.

- **Restrictions on certain corporate actions**

Loan agreements restrict the company from taking certain action without the lender's permission. These may include, additional borrowing, issuing capital, taking up expansion or diversification projects, acquiring companies, paying dividend beyond a specified rate or changing the management of the company.

- **Restrictions on certain promoter actions**

The restricted actions include selling the company or any of its divisions and changing the capital structure of the company.

- **Pledge of Promoter's Shares**

This goes beyond restricting the promoter from selling the business. The shares themselves are pledged with the lender. In specified events of default, the lender would have the right to sell the shares, change the management etc.

- **Corporate Guarantee or Letter of Comfort**

There are occasions where the borrowing entity does not have the balance sheet strength. However, some other entity in the group may be strong. The lender may then insist on a corporate guarantee from the strong group company. The effect of this guarantee is that if the borrowing entity is unable to repay, the stronger group entity will repay the dues.

Depending on the relationship, the lender may dilute the corporate guarantee requirement to a *letter of comfort*. This does not amount to a guarantee. Therefore, the group entity does not need to pay the dues of the borrower in case of default. However, the group entity gives the comfort to the lender that they will make best efforts to ensure that the loan is repaid.

- Events of default

Loan agreements give a wide definition to such events. Besides non-payment of dues, events of default may include non-creation of charge, non-submission of periodic returns, non-intimation of specified information to the lender and debt-equity ratio of the company going beyond a particular level.

Generally, there is a provision for the lender to give notice of default to the borrower with a direction to rectify the same within a time frame defined in the loan agreement.

If it is not rectified, then consequent actions envisaged in the loan agreement follow, including penal rate of interest and other penalties. The penal rate of interest is applied not only on the amount in default, but on the entire loan outstanding. Further, in specified situations, the lender can ask the borrower to repay the entire amount instantly.

As with any negotiation, time availability is the issue. If the promoter is under pressure for the money, then he may agree to any terms. However, if time is available, then the promoter can go through extended negotiation processes, including involving competing lenders. The saving in cost as well as flexibility in loan terms is worth the negotiation time invested, especially in large projects.

Self-Assessment Questions

- ❖ Fixed assets should be financed through long term capital.
 - **True**
 - False
- ❖ The difference between current assets and current liabilities is
 - Cash
 - Bank borrowing
 - **Net working capital**
 - Gross working capital

- ❖ Which of the following is the costliest source of funds?
 - **Equity**
 - Debt
 - Convertible debentures
 - Subordinate debt

- ❖ Which of the following is / are example/s of mezzanine finance?
 - Convertible debt
 - Subordinate debt
 - Debentures with warrants
 - **All the above**

- ❖ Lease is a form of off-balance sheet financing.
 - **True**
 - False

- ❖ _____ allows borrowers to change their borrowing on a daily basis
 - Multiple banking
 - Consortium
 - Working capital term loan
 - **Cashcredit**

Chapter 8 Infrastructure & Public Private Partnerships

8.1 **Background**

The country is weak in infrastructure. The economy can get a boost through better infrastructure. The implementation of infrastructure projects itself provides jobs and supports economic development.

Unfortunately, the government's finances are stretched. It cannot finance all the infrastructure projects that the country needs. Similar problem is faced by governments in most developing countries. This has led to implementation of projects on Public-Private Partnership (PPP) basis. In such project models, the government and the private sector work together in setting up infrastructure projects and running them.

Various incentives are available for private sector involvement in infrastructure projects. For instance, 100% FDI is permitted under the approval route in many sectors within infrastructure. Further, income tax exemption is available on the profits for 10 years.

Highways, Rails, Ports, Airports, Power and Telecom are infrastructure sectors that the government has been trying to boost. The Cabinet Committee on Infrastructure, under the chairmanship of the Prime Minister, approves and reviews policies, programs and projects in the infrastructure space.

Secretariat for Infrastructure, in the Planning Commission, works on strengthening the policy framework for infrastructure projects in general, enhancing the role of PPP, and monitoring key infrastructure projects.

Besides, each sector has its regulator e.g. Central Electricity Regulatory Commission (CERC), Telecom Regulatory Authority of India and Tariff Authority for Major Projects (TAMP).

8.2 **PPP Models**

Several PPP models exist. Some of these are:

- *Build Transfer (BT)* is the most basic model, where a party is given the contract to build the project. The party ensures the requisite financing and builds the project. Once the project is completed, it is transferred to the government, which pays the party as per an agreed schedule. The payments cover the party for the money invested and a return.
- *Build Lease Transfer (BLT)* is one where the party builds the infrastructure facility and leases it to the government for a specified period, after which it is transferred to the government.

- In a *Build Operate Transfer (BOT)* model, the party that is awarded the contract builds the project, arranges for the financing, operates the project and recovers money through a toll or other arrangement for a specified number of years or until the targeted return on investment is achieved. Thereafter, it needs to transfer the project to the government.

BOT projects are awarded on the basis of bids, where the parties indicate their return expectations. The party that bids for the lowest return wins the contract, subject to technical considerations. The winning party is called a *concessionaire*.

Some projects are offered on the basis that the Government will bear a part of the project cost. In such cases, the party that bids for the lowest contribution from the government wins the contract.

- In a *Build Operate Lease Transfer (BOLT)* model, the party that is awarded the contract builds the project, arranges for the financing, operates the project and recovers money through lease rentals as per an agreed schedule. Thereafter, it needs to transfer the project to the government.
- In *Build Transfer Operate (BTO)*, the asset is transferred when complete, but the concessionaire continues to operate it for the concession period.
- *Design Construct Maintain (DCM)* is one where the concessionaire designs and constructs the project; thereafter, it has to maintain it. However, operation of the facility and recovery of toll or other revenue is not in the hands of the concessionaire.
- *Design Build Finance and Operate (DBFO)* is another model. Here, the concessionaire does not need to transfer the project at the end; however it is responsible to operate the project as per specifications stipulated by the government.
- PPP contracts can also be structured as *Design Build Finance Operate Transfer (DBFOT)*, where the project is transferred to the government at the end of the concession period.
- In a *Build Operate Share Transfer (BOST)* model, the concessionaire shares a part of its revenue with the government, even as it operates it. At the end of the concession period, it transfers the facility to the government.
- *Build Rehabilitate Operate Transfer (BROT)* models pass on the rehabilitation role also to the concessionaire.

8.3 *Parties to a PPP Model*

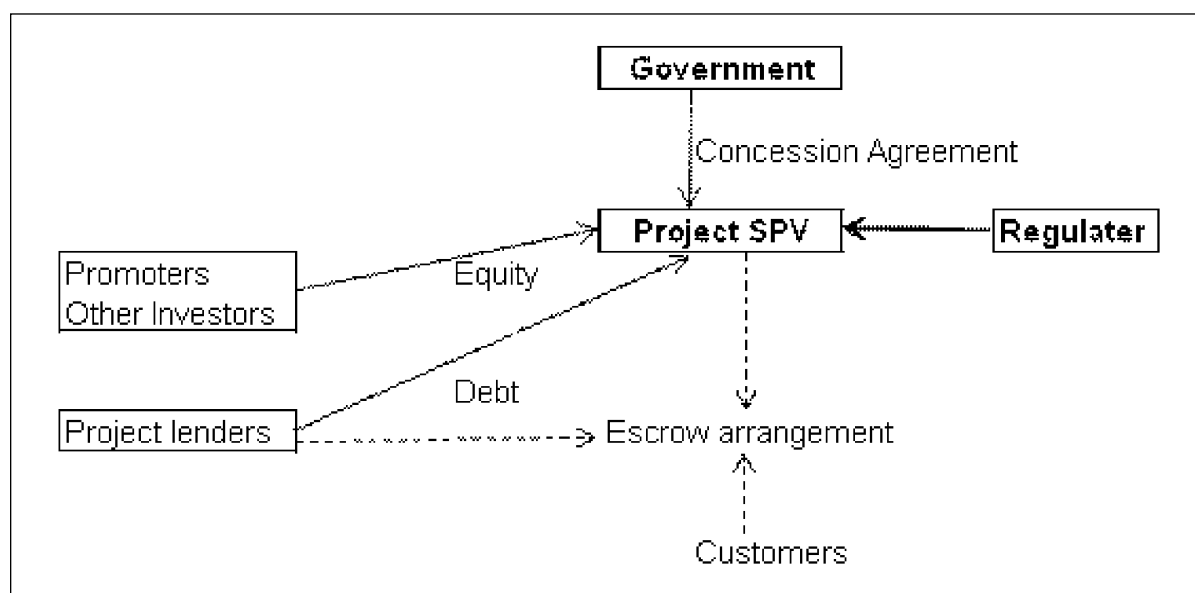
It is normal to promote a Special Purpose Vehicle (SPV) for every PPP project. The benefits of a separate SPV are:

- The parties can protect themselves by making various conditions of the contract, a part of the incorporating documents of the SPV (such as, memorandum of association and articles of association). For example, the number of directorships representing each party, and the limitations on the powers of the company can be incorporated in the articles.
- The SPVs are restricted from taking up any other commercial activities. Thus, the financials of the SPV would be a complete reflection of the project activities. This ensures transparency in operating as per the terms of the concession.
- Since the SPV will have its own capital structure, the promoter who has won the concession does not expose his other activities directly to the risks in the new project.

While every project is different, most PPP models involve the parties mentioned in Figure 8.1.

Figure 8.1

Parties in a PPP Contract



8.4 PPP Process

Normally the government identifies a project to implement as PPP. Besides, any party can conceptualise a project and approach the government. In some countries, the party that conceptualised the project is given bonus points in a competitive bid scenario.

Most projects are finalised through competitive bidding. This ensures transparency and is a protection against potential litigation on the award of the contract. As discussed in the previous chapter, the bids may be evaluated on the basis of the return that the concessionaire expects from the project or the capital support that is sought from the government or some other such parameter that is announced in advance.

The competitive bids are invited through a Request for Proposal (RFP) which is advertised in various media. A bid document that has all the details is made available to anyone against payment of a nominal fee. The bid document is a legal document. It is therefore finalised with the requisite advice from legal experts.

A consultant may also be appointed as a transaction adviser. The job of the adviser is to provide inputs on the bid document, and assist in handling the entire process as laid down in the document. The bid document also mentions the parameters for selection of parties, including weightage for each parameter, and grounds on which applications can be rejected.

Bids are received from interested parties as two separate documents – technical bid and financial bid. There is also an earnest money requirement to keep out non-serious bidders.

The technical bid is evaluated first, to ensure that the bidder fulfils the technical requirements specified in the bid document. For example, number of years in business, experience of handling similar projects, turnover and net worth requirement and foreign collaboration arrangements.

At the stage of screening technical bids, some parties may get weeded out. Financial bids are opened only for the parties that have qualified in the technical screening. Parties are selected based on their scoring on the various parameters mentioned in the bid document.

A letter of intent is issued to the party that has won the bid. This indicates the willingness of the government to award the contract to the party, subject to fulfilment of various follow-on conditions within a prescribed time-frame. These conditions are also mentioned in the Letter of Intent. Many of them would have been mentioned in the bid document itself.

Based on the letter of intent, the successful party creates the SPV and goes about fulfilling the conditions prescribed. One of the conditions may be to achieve financial closure viz. obtain commitments from lenders and investors to finance the project.

When all the conditions are fulfilled, the successful party approaches the government for signing the concession agreement. This agreement, signed between the government and the SPV (the concessionaire), includes the relative responsibilities of each party and the sharing of risk and returns in the project.

After the concession agreement is signed, the concessionaire goes about signing the project implementation contract with the technical partner / Engineering Procurement Construction (EPC) Contractor, resource mobilisation agreement with the investors and lenders etc. The loans themselves will be backed by specific corporate guarantee or letter of comfort or escrow structures.

Corporate guarantee, if any, would be from the promoter or other company in the promoting group that has strong financials. Letter of comfort is weaker than a guarantee from the point of view of protection from lenders. But the borrowing group prefers letter of comfort to a guarantee, because the latter needs to be disclosed in the financial statements of the guarantor; there is no such requirement for a letter of comfort.

Escrows are commitments to deposit receipts in a specific bank account, over which the lenders have a lien. Where the customers of the borrower are few and large, tri-partite agreements are executed between the borrower, lender and the customer, where the customer commits to deposit its dues to the borrower in the specified bank account. For example, this would be the case for a power plant that mainly supplies to institutional buyers. The general norm is the the State Electricity Board (SEB) enters into a Power Purchase Agreement (PPA) with the SPV. Further, there may be an escrow arrangement covering receipts from the SEB's customers.

Such tri-partite agreements are not possible in the case of toll payments by users of a highway. In such cases, lenders go by the commitment of the promoters to deposit their cash collections in the specified bank account.

The benefit of an escrow arrangement for the lender is that it is protected against any balance sheet risk of the borrower or its counter party. However weak the balance sheet may be, so long as the business continues to serve its customers, the customer receipts will become available for repayments to the lender. Thus, the lenders get priority over other payments that the borrower may have to make to other parties.

In some cases, after the project is set up, a further audit of the project may be conducted by the government before permitting it to start its operations.

8.5 Model Concession Agreements (MCA)

Each infrastructure project has its uniqueness. The government has come out with model concession agreements that highlight the kind of terms that will be applicable in various sectors. The key MCA clauses in three diverse sectors are given below:

8.5.1 Highways

- The ministry has been exploring DBFOT model for upgrade and maintenance of highways.
- The four critical elements that determine the financial viability of a highway project are traffic volumes, user fee, concession period and capital costs.
- Technical specifications are more output oriented, because that is what determines the service level for the user. Therefore, only the core requirements of design, construction, operation and maintenance of the Project Highway are specified by the government. The Concessionaire has enough scope to innovate and add value.
- The concession period depends on the volume of present and proposed traffic using the project. Toll-users cannot be expected to pay for congested roads. Therefore, the toll will stop when full capacity is reached, unless the concessionaire expands the capacity.
- Concession period is typically 15 years. Construction period of two years is included in the concession period. This is an incentive for the concessionaire to construct quickly and start earning revenue faster.
- The bid documents that are floated by the government would include key project parameters such as concession period, toll rates and price indexation. Therefore, the bidder only mentions the grant expected from the government or the revenue proposed to be shared with the government.
- Maximum upfront capital grant from the government is 20% of the project cost. If this grant is not adequate to make the project viable, a further grant of 20% of the project cost may be provided for operations and maintenance-support during the period after the highway is commissioned.
- The commission fee payable is fixed at Rs. 1 per annum. Where the concessionaire agrees to share revenue, the percentage can go up by 1 per cent for each year after the initial year.
- The commercial and technical risks relating to construction, operation and maintenance are the responsibility of the concessionaire. Thus, risks such as traffic volume and growth belong to the concessionaire. However, there is a provision to increase the

concession period if traffic growth is inadequate, or reduce the concession period if the traffic growth is better.

- Direct and indirect political risk is taken up by the National Highway Authority of India (NHAI).
- A time limit of 180 days is given to achieve financial closure. This can be extended by 120 days on payment of a penalty. Beyond that, the bid security deposit will be forfeited.
- The user fee (toll) is linked to Whole-sale price index to the extent of 40%.
- If no alternate road is available, local users should be able to use the highway for free. Frequent users should be able to avail of discounted toll charges.
- NHAI has to make at least 80% of the land available and obtain environmental clearances before financial closure.
- Lenders will be entitled to substitution and assignment rights, if the Concessionaire is unable to fulfil its commitments, and another Concessionaire is appointed.
- Payments in the event of termination of the agreement, including to project lenders, are quantified, to avoid future subjectivity.

If the commissionaire fails to commission the project, then no termination payment will be made by NHAI. If termination is on account of any other default by the concessionaire, then 90% of the debt would be covered. 90% of the debt not covered by insurance will be covered by NHAI, if termination is on account of non-political force majeure conditions (conditions beyond the control of either party, such as act of god).

- NHAI will support debt-service payments in the event of revenue shortfall arising out of political force majeure conditions or a default by NHAI.
- NHAI also guarantees that no competing road will be built. Additional toll ways may be permitted only after the concessionaire is compensated with extended concession period.
- Monitoring and supervision of construction, operation and maintenance is undertaken through an Independent Engineer (a qualified firm) that is selected by NHAI through a transparent process.
- Besides a mechanism for appointing reputed statutory auditors, NHAI has the right to appoint additional or concurrent auditors.
- All financial inflows and outflows are to be routed through an escrow account.

8.5.2 Greenfield Airports

- The MCA covers DBFOT model for setting up greenfield airports.
- The four critical elements driving financial viability of airports are concession period, traffic volume, user fees & other revenues, and capital costs.
- Given the capital intensive nature of projects, the concession period is 50 to 60 years. The time required for construction of the airport (about two to three years) is included in the concession period so as to incentivise early completion.
- Traffic volume projections are likely to be conservative for greenfield airports, as it takes time for traffic to build up. Further, user fees need to be kept at an affordable level. Therefore, financial viability cannot be based only on user fees. Non-aeronautical sources and real estate development will have to subsidise user fees.
- If other parameters are frozen, capital cost determines the viability of the project. Phasing the capital cost can improve profitability. Where non-aeronautical and real estate development revenues are inadequate (for example, in remote areas), cost-efficient design and a capital subsidy from government may be required to meet the targeted return on investment.
- Only the core requirements of design, construction, operation and maintenance of the airport are to be specified by the government. There will be scope for the concessionaire to innovate and add value.
- The concessionaire has to not only procure civil works and equipment but also provide passenger related services and cargo handling. The MCA identifies the key performance indicators relating to operation of the aeronautical assets, terminal building, cargo terminal etc., and specifies penalties for failure to achieve the requisite levels of performance, especially in relation to user services.

The MCA provides for a *Passenger Charter*. The concessionaire has to publish it, and implement it for the benefit of users.

- The concessionaire is selected through open competitive bidding. All project parameters such as the concession period, user fees, price indexation, real estate development and technical parameters will be clearly stated upfront. Short-listed bidders need to specify the concession fee they will share with the government. The bidder who offers the highest concession fee will win the bid.

Where the bidders ask for a capital grant, the one that asks for the lowest grant will win the bid.

- The concession fee will be a fixed amount of Re. 1 per annum for the concession period. The concessionaire has to pay a premium of 1% of the total realisable fee in the 20th year of the concession period. Thereafter, the premium has to increase by 1% of the total realisable fee every year.
- Where no capital subsidy is sought, the bidder can offer a higher premium, subject to a ceiling of 40% of the total realisable fee. Beyond this, the bidder can pay an upfront premium to the government, if the project is that attractive.
- The commercial and technical risks relating to construction, operation and maintenance shall lie with the concessionaire. This includes risks related to growth of traffic.

Since economic growth, which influences the traffic, is not under the control of the concessionaire, the concession period will be extended (by upto 20%) if traffic growth is lower; and curtailed (by upto 10%) if traffic grows faster.

- All direct and indirect political risks will be handled by the government.
- A time limit of 180 days is given to achieve financial closure. This can be extended by 120 days on payment of a penalty. Beyond that, the bid security deposit will be forfeited.
- The user fee rates will be specified by the government before the bids. The tariffs will be inflation-indexed to WPI to the extent of 60%.
- The government has to handover possession of at least 90% of the required land and secure environmental clearances before financial closure.
- Any costs beyond the scope originally envisaged for the project have to be borne by the Government.
- The Master Plan for the airport needs to specify land use and other restrictions on development of the project. Vacant land for future expansion of the airport too needs to be identified.
- Some services at any airport need to be provided by government agencies. The concessionaire is bound to allow the relevant agencies to offer the services.
- Lenders will be entitled to substitution and assignment rights, if the Concessionaire is unable to fulfil its commitments, and another Concessionaire is appointed.
- Payments in the event of termination of the agreement, including to project lenders, are quantified, to avoid future subjectivity.
- If the commissionaire fails to commission the project, then no termination payment will be made by the government. If termination is on account of any other default by the concessionaire, then 90% of the debt would be covered. 90% of the debt not covered

by insurance will be covered by the government, if termination is on account of non-political force majeure conditions (conditions beyond the control of either party, such as act of god).

- The valuation method to be adopted for real estate in case of termination too is provided.
- Monitoring and supervision of construction, operation and maintenance will be undertaken through an Independent Engineer (a qualified firm) that will be selected by the Government through a transparent process.
- Besides a mechanism for appointing reputed statutory auditors, the Government has the right to appoint additional or concurrent auditors.
- The concessionaire will be protected for a limited period against construction of a competing airport that will affect the revenues.
- In order to benefit from real estate, the concessionaire is permitted to sub-license the land. However, it has to revert to the government at the end of the concession period.
- The concessionaire can exploit the commercial space in the airport, subject to limits and restrictions specified to prevent over-commercialisation.
- With some modifications, the same MCA can be used for implementing in PPP format, brownfield airport projects (upgrade and development of existing airports).

8.5.3 Transmission of Electricity

- A Model Transmission Agreement (MTA) lays down the policy framework for building and operating electricity transmission system through PPP on DBFOT basis.
- Financial viability of transmission projects is driven by three factors – concession period, unitary charge and capital costs.
- The Electricity Act, 2003 stipulates a maximum period of 25 years for a transmission license. However the MTA provides for a further period of 10 years subject to regulatory approvals.
- The unitary charge needs to be broadly in line with the prevailing transmission tariffs.
- If the other two parameters are taken as given, capital cost becomes a key determinant of financial viability of transmission projects.
- Cost-effective specifications are required to reduce capital cost and ensure financial viability. Despite this, capital grant / subsidy may be required to make the project viable.

- In projects that are financially viable, where no capital grant / subsidy is required, the concessionaire can quote a premium in the form of a reduction in the unitary charge.
- The methodology for determining unitary charge is specified in MTA. It considers the extant transmission tariffs, proposed capacity of the transmission system, total project costs and the estimated cost of the associated upstream and downstream transmission capacity. It recommends that the unitary charge should not be fixed at a level lower than 75 per cent of the amount likely to be required for servicing the project costs.
- The unitary charge subsequent to the first year of operation is to be determined by reducing it to the extent of a pre-determined percentage in the band of 1 to 2 per cent per annum. The reduction is meant to cover the depreciation in the value of fixed assets.
- The unitary charge is indexed to inflation to the extent of 30% of WPI.
- The commissionaire is permitted to create additional capacity and appropriate the transmission tariff from users of that capacity.

The concessionaire is permitted to treat the unutilised capacity of the project authority as the unutilised capacity. Revenues from such unutilised capacity are to be shared between the concessionaire and the project authority in a specified ratio.

- Besides capital subsidy, development rights over real estate can be used as additional revenue stream to make the project viable. Thus, the concessionaire can grant licences for use of the project assets. However, 25 per cent of the revenue from real estate development and other businesses like advertisement is to be shared with the project authority.
- The Concessionaire will not only construct the transmission system but also transmit the electricity. Key performance indicators relating to operation of the transmission system have been identified. Failure to meet performance level would attract penalties.
- Availability of system capacity has to be ensured at pre-determined normative levels. Number of forced outages in a year is capped to ensure system reliability. Transmission losses of the transformers too need to be within the normative levels.
- In the event that transmission system operates below the specified system capacity, the concessionaire needs to declare the actual availability. Unitary charge is to be computed accordingly. Non-declaration of defect or deficiency in capacity will attract penalties.
- The concessionaire has to maintain the requisite ISO certifications for the transmission system.

- Selection of concessionaire is based on open competitive bidding. All project parameters such as the concession period, unitary charge, technical parameters and performance standards will be clearly stated upfront.

Short-listed bidders have to state their financial offers. The bidder seeking the lowest grant or offering the highest premium will win the contract.

- The commercial and technical risks relating to construction, operation and maintenance are to be borne by the concessionaire.
- The direct and indirect political risks are to be borne by the project authority.
- The concessionaire can be compensated for specified events through an extension of the concession period. Else, a pre-determined monetary compensation may be paid to the concessionaire.
- A time limit of 180 days is given to achieve financial closure. This can be extended by 120 days on payment of a penalty. Beyond that, the bid security deposit will be forfeited.
- The project authority needs to hand over possession of the land required for construction of sub-stations and obtain environmental clearance before financial closure.
- Procurement of the transmission licence and obtaining other permits is the responsibility of the concessionaire. However, the project authority has to provide all possible support and assistance for this.
- The concessionaire has to procure and maintain the right of way for the transmission system in line with the provisions of the Electricity Act. The related costs are to be borne by the concessionaire and included in the cost of the project. The project authority has to provide the requisite documents and authorisation for the purpose.
- The cost of additional works beyond the scope of the project is to be borne by the project authority.
- Lenders will be entitled to substitution and assignment rights, if the Concessionaire is unable to fulfil its commitments, and another Concessionaire is appointed.
- The concessionaire will be protected against political actions that may have a material adverse impact on the project.
- Payments in the event of termination of the agreement, including to project lenders, are quantified, to avoid future subjectivity.
- If termination is on account of any default by the concessionaire, then 90% of the debt would be covered. 90% of the debt not covered insurance will be covered by the government, if termination is on account of non-political force majeure conditions (conditions beyond the control of either party, such as act of god).

- On expiry of the specified concession period of 25 years, the Concessionaire is entitled to a termination payment equal to 40 times the monthly unitary charge. However, the Concessionaire has the right to seek an extension of 10 years in the concession period. In that case, no termination payment is payable after expiry of the extended period.
- Monitoring and supervision of construction, operation and maintenance will be undertaken through an Independent Engineer (a qualified firm) that will be selected by the project authority through a transparent process.
- Besides a mechanism for appointing reputed statutory auditors, the project authority has the right to appoint additional or concurrent auditors.
- All financial inflows and outflows are to be routed through an escrow account.
- The project authority will provide loan assistance for supporting debt service obligations in the event of revenue shortfall on account of political force majeure or default by the project authority.
- The accountability for providing a safe and reliable transmission system ultimately rests with the project authority. Therefore, the Concessionaire must conform to the Manual of Specification and Standards.

The manual is a key document for safeguarding user interest. By reference, it forms a part of the concession agreement, and is binding on the concessionaire.

Self-Assessment Questions

- ❖ The Cabinet Committee on Infrastructure is headed by
 - **Prime Minister**
 - Minister for Infrastructure
 - Deputy Chairman of Planning Commission
 - Minister for Roads and Surface Transport
- ❖ BLT stands for
 - Build Leverage Transfer
 - **Build Lease Transfer**
 - Build Lease Transmit
 - Build Leverage Transport

- ❖ It is normal for SPVs to be created for infrastructure projects.
 - **True**
 - False
- ❖ Escrow arrangement is a feature of borrowers with weak balance sheets
 - **True**
 - False
- ❖ Which of the following determine/s viability of highway projects?
 - Traffic volume
 - User fee
 - Concession Period
 - **All the above**
- ❖ As per MCA, the concession period for greenfield airports is
 - **50 – 60 years**
 - 5 – 10 years
 - 20 – 25 years
 - 30 – 40 years

Chapter 9 Novel Structures in Infrastructure Finance

9.1 **Background**

Investment in infrastructure in the 11th five year plan is estimated to be 7.22 per cent of Gross Domestic Product (GDP) [up from 5.02 per cent during the 10th five year plan]. The share of private investment in the 11th five year plan is in the range of 37.53 per cent (up from 22.04 per cent in the 10th five year plan). The Government proposes to spend \$1 trillion during the 12th five year plan (2012-17) [Source: Interim Report of the High Level Committee on Financing of Infrastructure].

Financing of this order is not possible without novel financing structures. Some of these are discussed in this Chapter.

9.2 **Take-out Financing**

Deposits from the public in the form of current and savings accounts (CASA) are the lowest cost source of funds for banks. Customers can withdraw the moneys from their deposit accounts any time. Banks also issue Certificates of Deposits (CD) and Bonds. Most of these bonds are issued for a tenor of about 5 years.

Backed by such funding, banks provide project finance for various commercial projects for tenor of 5 – 10 years. Lending for 10 years against resources mobilised for 5 years creates an asset-liability mismatch in bank balance sheets.

Infrastructure projects entail investments of high value. Most of them have a long project construction period, followed by a long gestation period before they start earning a surplus. Financing long term infrastructure assets with shorter term funds exposes the banks to extreme asset-liability mismatch. This leads to liquidity and re-financing risks.

- The *liquidity risk* is that the bank will have to repay its lenders, before its borrowers start repaying. This can pose liquidity pressures for the bank.
- Banks, to some extent take asset-liability mismatches to improve their profitability. They hope to re-finance their loans in order to address the liquidity risk. But, re-financing will happen at interest rates prevailing at the time of re-finance. Any tightness in the debt market at that stage will push up their cost of re-finance and hurt profitability. Thus, there is a *re-financing risk*.

It is on account of these issues that focused infrastructure financing institutions were created, such as Infrastructure Leasing & Financial Services Ltd (IL&FS), Infrastructure Development Finance Company Ltd (IDFC) and India Infrastructure Finance Company Ltd (IIFCL).

The liability structure of insurers and pension fund managers is long term. They need to pay their customers only on the demise or retirement of policy-holders. Therefore, Life Insurance Corporation of India (LIC) is another institution that is in a position to provide long-term finance. Pension fund industry in the private sector being new in the country, it does not have a significant corpus to invest.

Every lending institution adopts risk management policies that limit the exposure they can take to a single project or borrower or group or sector. Even regulatory authorities stipulate such credit limits and sectoral limits.

India has very large requirements of finance for infrastructure. With so few long term lenders, their credit limits can become a constraint to infrastructure creation in the country. Various structures have been explored to make it possible for banks and other traditional lenders to finance infrastructure. *Take-out financing* is one such structure. Take-out financing involves three parties:

- Borrower (say, ABC Project Ltd.)
- Original lender (say, XYZ Bank)
- Take-out Financier (say, RST Infrastructure Finance Ltd)

XYZ lends money (say, Rs. 100crore @ 11% p.a.) to ABC for the project. The project requires, say, 12 – year finance. XYZ lends on the premise that a take-out financier (like RST) will take the loan out of its books within 5 years, subject to the project meeting specific milestones. Such re-financing of XYZ by RST is normally linked to a Commercial Operation Date (COD) for the project.

If the take-out finance transaction works out, XYZ will not have to keep the loan on its books for more than 5 years. When RST buys out the loan, XYZ's credit limits to ABC or its group and sectoral limits get released.

Some of the issues in the structure are:

- If the take-out finance is to operate after COD, then the bank is taking a project construction risk.
- The take-out financier expects a fee in order to commit itself for the future outlay of funds.
- On commencement of commercial operation, the risk in a project goes down. Selling off the loan at that stage may not be financially prudent. (This issue has been addressed by some take-out financiers by making the borrower pay the original lender a percentage of any reduction in interest cost arising out of the take-out finance.)

In the earlier illustration, the original Rs. 100 crore loan would have meant EMI payments of Rs. 15.403 crore for 12 years, as shown in Table 9.1.

Table 9.1

Original Loan from XYZ to ABC

<i>Rs. Cr.</i>				
Interest	11%	Tenor (Years):		12
<i>Year</i>	<i>Opening</i>	<i>Interest</i>	<i>Repaid</i>	<i>Closing</i>
0				100.000
1	100.000	11.000	-15.403	95.597
2	95.597	10.516	-15.403	90.710
3	90.710	9.978	-15.403	85.286
4	85.286	9.381	-15.403	79.264
5	79.264	8.719	-15.403	72.581
6	72.581	7.984	-15.403	65.162
7	65.162	7.168	-15.403	56.927
8	56.927	6.262	-15.403	47.786
9	47.786	5.257	-15.403	37.640
10	37.640	4.140	-15.403	26.378
11	26.378	2.902	-15.403	13.877
12	13.877	1.526	-15.403	0.001 *

* Will be zero if the figures are not rounded off

Suppose RST provides the take-out finance at the end of 5-years, on account of which the borrower's interest rate goes down to 10%. The take-out finance would have been to the extent of Rs. 72.581 crore, which is the amount outstanding on the original loan at the end of 5 years.

When RST pays Rs. 72.581 crore to XYZ, the loan account of ABC will be cleared from the books of ABC. The loan re-payment schedule of ABC to RST for the remaining 7 years is shown in Table 9.2.

Thus, ABC has to now pay EMI of only Rs. 14.909 crore per year, a saving of Rs. 0.494 crore every year. Over 7 years, ABC will save Rs. 3.456 crore. It would be more appropriate to consider the NPV of the saving. At a discount rate of 10%, the NPV of savings is Rs. 2.404 crore, as shown in Table 9.3.

Table 9.2**Revised Obligation of ABC to RST***Rs. Cr.*

Interest	10%	Tenor (Years):		7
Year	Opening	Interest	Repaid	Closing
0				100.000
1	100.000	11.000	-15.403	95.597
2	95.597	10.516	-15.403	90.710
3	90.710	9.978	-15.403	85.286
4	85.286	9.381	-15.403	79.264
5	79.264	8.719	-15.403	72.581
6	72.581	7.258	-14.909	64.930
7	64.930	6.493	-14.909	56.515
8	56.515	5.651	-14.909	47.258
9	47.258	4.726	-14.909	37.075
10	37.075	3.708	-14.909	25.874
11	25.874	2.587	-14.909	13.553
12	13.553	1.355	-14.909	0.000

Original loan servicing at 11%

Revised loan at 10%

Original loan servicing
at 11%Revised
loan at
10%**Table 9.3****Interest Saving for ABC through Take-Over Finance***Rs. Cr.*

Year	Original EMI	Revised EMI	Saving
6	15.403	14.909	0.494
7	15.403	14.909	0.494
8	15.403	14.909	0.494
9	15.403	14.909	0.494
10	15.403	14.909	0.494
11	15.403	14.909	0.494
12	15.403	14.909	0.494

NPV of savings**2.404**

If the take-out financing structure provides that the borrower has to share 30% of the savings with the original lender, then ABC will pay XYZ Rs. 2.404 cr X 30% i.e. Rs. 0.721 crore. This is an incentive for ABC to opt for the take-out financing facility provided by RST.

In the normal course, RBI does not permit re-financing of rupee loans through External Commercial Borrowings (ECB). Given the limited institutional ability to provide take-out financing facility within India, RBI has allowed take-out financing through the ECB route. This arrangement, which helps international institutions to finance Indian projects without taking project construction risk, is governed by the following conditions:

- The ECB is subject to approval by RBI.
- The ECB is permitted for refinancing of rupee loans availed of from the domestic banks by eligible borrowers in sea ports, airports, roads including bridges, and power sectors for the development of new projects.
- The corporate developing the infrastructure project should have a tripartite agreement with domestic banks and overseas recognized lenders for either a conditional or unconditional take-out of the loan within three years of the scheduled Commercial Operation Date (COD). The scheduled date of occurrence of the take-out should be clearly mentioned in the agreement.
- The loan should have a minimum average maturity period of seven years.
- The domestic bank financing the infrastructure project should comply with prudential norms relating to take-out financing.
- The fee payable, if any, to the overseas lender until the take-out shall not exceed 100 bps per annum.
- On take-out, the residual loan agreed to be taken-out by the overseas lender would be considered as ECB and the loan should be designated in a convertible foreign currency and all norms relating to ECB should be complied with.
- Domestic banks / Financial Institutions are not permitted to guarantee the take-out finance.
- The domestic bank is not allowed to carry any obligation on its balance sheet after the occurrence of the take-out event.
- Reporting arrangement as prescribed under the ECB policy should be adhered to.

9.3 *Securitisation*

Securitisation is a structure where illiquid loans can be taken out of the books of a lender and converted into tradable debt securities. Trading in those securities facilitates price discovery and enhances the vibrancy of the bond market. The original lender benefits through re-pricing of the loan portfolio and release of lending capacity for further loans.

Suppose Bank XYZ has a loan of Rs. 100 crore on its books, on which it earns 12% p.a. interest. The EMI amounts to Rs. 21.91 crore p.a. The balance tenure of the loan is 7 years.

The loan has been given to Project ABC, whose credit worthiness has improved as the project progressed. The market is now comfortable with 11% p.a. yield from the borrower for 7 year funding.

One approach for Bank XYZ to take the loan out of its books and benefit from the credit improvement is through take-out financing. Securitisation is another approach to achieve a similar result.

The present value of a series of coupon payments at 12% p.a. (the original coupon) discounted at 11% (the prevailing market yield) on a loan of Rs. 100 crores, amounts to Rs. 103.23 crore, as shown in Table 9.4.

Table 9.4

Present Value of 12% Series, Discounted at 11%

E24		fx		=SUM(E17:E23)		
	A	B	C	D	E	F
4						
5	Loan (Rs. Cr.)		100			
6						
7	Tenure		7 years			
8						
9	Coupon		12% p.a.			
10						
11	EMI (annual)		21.91			
12						
13	Market Yield		11% p.a.			
14						
15	Year	EMI	Discount Factor ^A	PV of EMI #		
16	0			1		
17	1	21.91	0.900900901		19.74	
18	2	21.91	0.811622433		17.78	
19	3	21.91	0.731191381		16.02	
20	4	21.91	0.658730974		14.43	
21	5	21.91	0.593451328		13.00	
22	6	21.91	0.534640836		11.71	
23	7	21.91	0.481658411		10.55	
24	Present Value at 11%				103.23	
25						
26	^A Discount factor is calculated as $1 \div (1 + 11\%)^n$					
27	where, 'n' is the year in which the cash flow is expected.					
28						
29	# Present Value for each cash flow is calculated as EMI X Discount Factor					
30						

A SPV that is created will buy out the loan from Bank XYZ at Rs. 103.23 crore (transaction costs and margins are ignored for simplicity). The figure can also be calculated by using the PV function in MS Excel, with the parameters as market yield, number of annual payments and the annual payment value [=pv(11%,7,21.91)].

By selling the loan account to the SPV at Rs. 103.23 crore, Bank XYZ will book a profit of Rs. 103.23 minus Rs. 100 i.e. Rs. 3.23 crore.

Where will the SPV get the money to pay Bank XYZ? It will issue securities that are backed by the EMI receivable from Project ABC. As shown in Table 9.5, if the SPV were to collect Rs. 103.23 crore from investors and pay them the EMI that is collected from Project ABC every year, the investors will earn yield of 11%, which is in line with their expectations.

Table 9.5

Yield for Investors in Securities Issued by SPV

Year	Opening	Interest	EMI	Closing
0				103.23
1	103.23	11.36	-21.91	92.68
2	92.68	10.19	-21.91	80.96
3	80.96	8.91	-21.91	67.96
4	67.96	7.48	-21.91	53.53
5	53.53	5.89	-21.91	37.51
6	37.51	4.13	-21.91	19.73
7	19.73	2.17	-21.91	-0.01 [^]

[^] Will be zero if the numbers are not rounded off to 2 decimals

(Interest in the above table is calculated as Opening Balance multiplied by interest at 11%).

The transfer of loan from Bank XYZ can be *with recourse* or *without recourse*. If it is with recourse, then in the event that Project ABC does not pay the EMI, Bank XYZ will pay the SPV. In such a structure, the contingent liability remains with Bank XYZ and therefore, it cannot book the entire profit of Rs. 3.24 crore shown above.

The bank will prefer a transfer without recourse, for which it may have to transfer the loan at a slightly lower value than Rs. 103.24 crore. Accordingly, its profits will be lower.

9.4 Viability Gap Financing (VGF)

Certain infrastructure projects are inherently unviable in financial terms. An example was given in the previous chapter, of airports in new locations. The traffic will take several years to build up, while the capital investment requirement is large. Therefore, the IRR of such projects can be very low, or even negative.

In the normal course, private sector may not take up such projects. Yet, the project may be important from the point of view of the economy or society at large. In such situations, the government incentivises the private sector through a capital grant. This inflow from the government helps the private sector earn a reasonable IRR as seen in Table 9.6.

Table 9.6

Viability Gap Financing

	<i>Values in Rs. Crore</i>						
Year->	1	2	3	4	5	6	7
Net Cash Flows (without VGF)	-450	-50	88	106	127	152	182
IRR (no VGF)	6.6%						
VGF of 20%	90						
Net Cash Flows (with VGF)	-360	-50	88	106	127	152	182
IRR (with VGF)	12.0%						

Without VGF, the project gave an IRR of 6.6%. No private sector entity is likely to be interested in such a project.

VGF of 20% of the cost of project of Rs. 450 crore has helped to take' the IRR to 12%. At this level, private sector can get interested.

The VGF amount can be calculated in MS Excel using the 'goal seek' utility. The variable would be the VGF amount, while the target would be to make IRR (with VGF) equal to 12% (or whatever the government decides as a cut-off).

Since the capital grant helps in bridging the viability gap, it is called *Viability Gap Financing*. The Ministry of Finance, in consultation with the Planning Commission and other stakeholders, has formulated a Scheme for Support to Public Private Partnerships in Infrastructure. The scheme lays down the policy and process for grant of VGF. Salient features of the scheme are as follows:

- The scheme is applicable only for infrastructure projects, where the private sector sponsor has been selected through competitive bidding. This ensures transparent price discovery for the project.
- The lowest bid for capital subsidy will be the VGF, subject to a cap of 20% of the total project cost.

- The capital grant may be one-time or deferred.
- If the sponsoring Ministry/ State Government/ statutory entity propose to provide any assistance over and above the said VGF, it is restricted to a further 20% of the total project cost.
- Total Project Cost means the lower of the total capital cost of the PPP Project:
 - o as estimated by the government/statutory entity that owns the project,
 - o as sanctioned by the Lead Financial Institution, and
 - o as actually expended.

It does not in any case include the cost of land incurred by the government/statutory entity.

- The project authority should be central ministries, state governments or statutory authorities that own the underlying assets.
- The concession agreement should have been signed between a government or statutory entity on the one hand, and a private sector company on the other hand. The concession should be in favour of a private sector company where 51 per cent or more of the subscribed and paid up equity is owned and controlled by a private entity.

Exception is made in the case of railway projects, where there are restrictions on operations by a private sector company.

- Under the agreement, the private company should be responsible for financing, construction, maintenance and operation of the project during the concession period.
- The project should entail provision of a service against a pre-determined tariff or user charge.
- The concerned government or statutory entity need to certify, with reasons, that
 - o the tariff/user charge cannot be increased to eliminate or reduce the viability gap of the PPP;
 - o the Project Term cannot be increased for reducing the viability gap; and
 - o the capital costs are reasonable and based on the standards and specifications normally applicable to such projects and that the capital costs cannot be further restricted for reducing the viability gap.
- Within three months from the date of award of concession, or such extended period as may be permitted, the lead financial institution should present its appraisal of the project.

- Projects in the following sectors are eligible for VGF:
 - o Roads and bridges, railways, seaports, airports, inland waterways;
 - o Power;
 - o Urban transport, water supply, sewerage, solid waste management and other physical infrastructure in urban areas;
 - o Infrastructure projects in Special Economic Zones; and
 - o International convention centres and other tourism infrastructure projects.
- The scheme provides for two sanctioning authorities – Empowered Institution and Empowered Committee.
- The Empowered Institution comprises
 - o Additional Secretary (Economic Affairs)
 - o Additional Secretary (Expenditure)
 - o Representative of Planning Commission not below the rank of Joint Secretary
 - o Joint Secretary in the line Ministry dealing with the subject
 - o Joint Secretary (FT), DEA – – Member Secretary
- The Empowered Committee comprises
 - o Secretary (Economic Affairs)
 - o Secretary (Planning Commission)
 - o Secretary (Expenditure)
 - o Secretary of the line Ministry dealing with the subject
- Proposals are to be sent to the PPP Cell of the Department of Economic Affairs in the specified format. Copies of all project agreements (such as concession agreement, state support agreement, substitution agreement, escrow agreement, Operations & Maintenance (O&M) agreement and shareholders' agreement, as applicable) and the Project Report are to be attached.
- While submitting the proposal to the Empowered Institution, the PPP Cell has to indicate whether the proposal conforms to the mandatory requirements of the scheme. Deficiencies, if any, need to be indicated in the note of PPP Cell.
- The Department of Economic Affairs and the Department of Expenditure have to examine the proposals with a view to ensuring that they conform to the conditions specified in the scheme.
- The Planning Commission has to examine the project report and the concession agreement with a view to ensuring that the proposal is broadly in order.

- The Empowered Institution can sanction projects for Viability Gap Funding upto Rs. 100 crore for each eligible project, subject to the budgetary ceiling indicated by the Finance Ministry.

The finance ministry has provided a revolving fund of Rs. 200 crore for the Empowered Institution. The Empowered Institution disburses funds to the lead financial institution for the project, and claims re-imbursement from the Finance Ministry.

Empowered Institution also considers other proposals and places them before the Empowered Committee.

- Unless otherwise directed by the Ministry of Finance, the Empowered Institutions can approve project proposals with a cumulative capital outlay equivalent to ten times the budget provisions in the respective Annual Plan.
- The powers of the Empowered Committee are as follows:

- o Sanction Viability Gap Funding up to Rs. 200 crore for each project, subject to the budgetary ceilings indicated by the Finance Ministry.

It can sanction higher amounts with the approval of the Finance Minister.

- o Determine the appropriate formula that balances needs across sectors. The objective is to broad base the sectoral coverage and avoid pre – emptying of funds by a few large projects
- o Determine the inter-se allocation between any on-going Plan Scheme providing viability gap funding and this Scheme;
- o Provide clarifications or instructions relating to eligibility of a project for such support as and when requested by Empowered Institution.
- o Add or delete sectors or sub-sectors in the list of sectors eligible for VGF, with the approval of the Finance Minister.
- The Empowered Institution, the Lead Financial Institution and the private sector company have to enter into a Tripartite Agreement in such format as may be prescribed by the Empowered Committee. Only thereafter, will disbursement be made.
- VGF is disbursed only after the private sector company has subscribed and expended the equity contribution required for the project. VGF is disbursed to the lead financial institution in proportion to the debt amounts remaining to be disbursed.
- The Lead Financial Institution is responsible for regular monitoring and periodic evaluation of project compliance with agreed milestones and performance levels, particularly for the purposes of disbursing the VGF. It has to submit a quarterly progress report to the Empowered Institution.

9.5 *Infrastructure Debt Fund*

The sources of debt financing have traditionally been banks and financial institutions. Banks have limitations in extending long term financing because of asset-liability mismatches. Insurance and pension funds do not invest in infrastructure projects because of issues with the credit risk. IIFCL has been set up to provide long term debt finance for infrastructure projects. However, it can take a maximum of 30% exposure in a project.

Scarcity of lending institutions is a constraint for wider infrastructure development, which is the need of the country. One suggestion proposed in government circles is the creation of a debt fund that would raise low-cost long-term resources for re-financing infrastructure projects that are past the construction stage and associated risks. The Finance Minister, in his budget speech for 2011-12 announced such a fund.

The fund will invest in infrastructure projects that are backed by a 'buy-out' guarantee from the government (the guarantee being part of the MCA discussed in the previous chapter). Suitable credit enhancement measures will be worked out to enable investments by the fund.

The project sponsors will benefit with cheaper re-finance. The gains can be shared with the government or the users. The re-financing will release capacity in the banks to invest in newer infrastructure projects.

The Concept Paper on the subject mentions the following:

- The India Infrastructure Debt Fund will have a corpus of Rs. 50,000 crore to meet the needs of long term debt for infrastructure projects that are set up through the PPP route. It can start small and grow progressively. Multiple funds can be floated on similar lines.
- The Fund will be set up as a trust to be approved and regulated by SEBI.
- The Fund will be set up by one or more sponsors (the "Sponsor"), who will act as the General Partners of the Fund. The Sponsors could be one or a combination of IIFCL, State Bank of India (SBI), ICICI, LIC, IDFC, UTI, an infrastructure NBFC or an investment bank.
- Multi-lateral institutions such as the International Finance Corporation (IFC) and Asian Development Bank (ADB) [private sector window] can be invited to participate as Sponsors of the Fund.
- Further, the World Bank and ADB can also be approached for participating in this Fund through their normal lending window supported by sovereign guarantees.
- The Sponsors would be required to invest at least 10% of the total investment in the form of subordinated debt. They can mobilise the required money through tax-free bonds.

- The Fund will mobilise money from investors such as Indian and foreign insurers and pension funds and sovereign wealth funds. Credit enhancement and liquidity measures will be provided to make it attractive for them to invest.
- The amounts targeted from different kinds of investors in the Fund is as follows:

o Domestic insurance/ pension funds	Rs. 20,000 cr.
o Foreign insurance/ pension funds	Rs. 10,000 cr.
o Foreign sovereign funds	Rs. 10,000 cr.
o World Bank/ ABB	Rs. 5,000 cr.
o Sponsors (IIFCL, SBI, ICICI, UTI, IDFC etc.)	Rs. 5,000 cr.
o Total	Rs. 50,000 cr.
- Out of India's foreign exchange reserves, \$2bn can be made available for the Fund.
- The Fund will be managed by a fund manager of international repute. Compensation can be linked to mobilisation, disbursements and returns on the Fund, subject to a cap of 25 basis points on the outstanding debt.
- The Fund will have an advisory board with representation from different stake-holders.
- The Fund will only lend to projects that have entered into commercial operation after completion of construction. They will take-over the debt given by the commercial banks to the project.
- The investments can be restricted to projects awarded through competitive bidding, that have completed one year after Commercial Operation Date (COD), without any material default in debt service or in the performance of their obligations under the project agreements.
- The investments would normally cover road, railway, metro rail, port and airport where the agreements provide for compulsory buy out by the project authority. Some power projects too will qualify.
- The Fund will re-finance upto 85% of the senior outstanding debt from senior lenders. The senior lenders will retain the balance 15% for at least 7 years from COD.
- The Fund will invest in bonds that have a minimum maturity of 10 years. Shorter maturities can continue to be handled by banks.
- The project company will repay the borrowings through EMIs. The entire loan should be repaid at least two years before the expiry of the project contract. 50% of the debt can be in the form of bonds that are repaid through a bullet payment, at least five years before the expiry of the project contract.

- The Fund (and other lenders excluding the sponsors) will have pari passu charge on the assets with senior lenders. However, in the event of termination, the terminal payments will be first used to repay the debt of the Fund. The remaining amount can go to senior lenders.
- Investment by the Fund will be in project bonds issued by the project. It will be backed by a tri-partite agreement between the Fund, the project company and the project authority. It will be counter-signed by the lead financier.
- The Fund will have right to seek substitution of the concessionaire or trigger a termination event to receive termination payment if there is a default in debt servicing for more than 180 days.
- The sponsor should not transfer the subordinate debt to any other entity for 10 years. It can be compensated for the higher risk with a 1.5% additional return on the subordinate debt.
- The central government will provide a comfort letter to all lenders, stating that it will give all support and assistance to the Fund for recovering its dues from the project authorities as per the tri-partite agreement. However, there will be no direct or indirect sovereign guarantee.
- Investors in the Fund will receive negotiable bonds.
- The Fund will not make any project-specific borrowing. All the borrowings will be pooled for lending to various projects.
- Similarly, the project company will issue negotiable bonds to the Fund. These can be traded directly, or through securitisation of bonds issued by a group of project companies. Separate series can be issued for rupee and forex borrowings.
- The Fund will seek to earn a 1% long term spread over the rate it pays to its financiers. This will cover operation costs of the Fund and premium payable to sponsors for the subordinate debt.
- The Fund will have freedom to select the projects to lend to, the quantum, tenor and loan covenants.
- The Fund will have to bear the foreign currency risks arising to foreign insurers and pension funds. This can be mitigated through any of the following options:
 - o Lend to the project company in the same currency as the borrowing from investors. Thus, the risk is passed on to the project company. It can force the project company to hedge its risk.
 - o It can recover a higher interest from the project company to hedge the forex risk.

- o An additional 3% of the debt can be recovered and kept in reserve to meet foreign currency fluctuations. Losses beyond that can be underwritten by the government.
- Re-financing gains can be shared between the project authority and the project company. The project authority can provide for a 50% sharing in the tri-partite agreement.
- The bonds issued by the Fund will have international credit rating to facilitate trading and liquidity.
- Specific buyback provisions can be worked out for international investors, backed by the sponsors and the government.
- In the second phase, the Fund can work towards creating a liquid market for infrastructure bonds.

9.6 High Level Committee on Financing of Infrastructure

The Committee was appointed to assess the investment requirements in ten major physical infrastructure sectors during the Twelfth Five Year Plan and suggest ways to meet them. It has submitted its Interim Report. Key recommendations, which are an indication of the likely direction of financing of infrastructure in future, are as follows:

- The standard bidding documents for private power stations have caused problems, such as risks and costs associated with pricing of fuel and its availability. These need to be modified to ensure sustainability of projects.
- The current FDI limit of 74% for telecom already lets foreign investors exercise complete control. There are issues in getting the balance 26% Indian participation, because significant investment is required without the Indian investor getting any control. In order to get more competitive offers and enhance the overall FDI, the limit can be increased to 100%, as in the case of power, roads and ports.
- The railway board needs to be re-structured on commercial lines to enable investments and growth in the railway sector.
- Private participation should be attracted to irrigation projects. Since part of the water from the dams would go to industry and urban areas, user charges can help improve viability. VGF can be considered, wherever necessary.
- Concessions for four greenfield airports at Navi Mumbai, Goa, Kannur and Chandigarh, which have been identified for PPP, should be awarded immediately.
- The role of IIFCL needs to be reviewed:
 - o IIFCL has been raising funds on the basis of sovereign guarantees rather than its own balance sheet strength.

- o It has been giving loans to a large number of projects on terms similar to banks, for slightly longer maturity.
- o Funds for infrastructure need to be mobilised from sources such as insurance and pension funds, external debt and household savings. This calls for a vibrant bond market with sufficient debt.
- o IIFCL should provide credit enhancement by guaranteeing bonds issued by infrastructure project companies. This will help in attracting more institutional money into the sector.
- o IIFCL can charge a guarantee fee of 1% in the case of PPP projects where the termination clause includes compulsory buyout by a project authority. In other cases, a higher guarantee fee of 2.5% can be recovered in consideration of the higher risk involved.
- o IIFCL can provide subordinate debt upto 10% of the approved project cost to infrastructure projects. This will minimise the demands for scarce equity for such projects. The debt should carry moratorium of at least 12 years on repayment of principal.
- o Approval of subordinate debt should not be linked to debt exposure of the lead bank or institution. However, disbursement should be made only after the promoter's equity contribution equal to at least 20% of the project cost is received in the project. Further, the debt should be covered by the compulsory buyout clause of the project authority.
- o In general, IIFCL should perform roles that commercial banks cannot do, and be a catalyst in channelling more funds into the infrastructure sector.
- o Where IIFCL does direct lending, it should be for tenures more than 20 years, since commercial banks can lend for tenures upto 15 years.
- o IIFCL should start raising moneys on its own balance sheet strength. In order to meet capital adequacy norms, government can provide callable capital equal to twice the subscribed equity and reserves of IIFCL.
- o Limitations imposed by group exposure limits should be removed. These are in any case irrelevant when the PPP project carries a guarantee of compulsory buyout by the project authority.
- o IIFCL should stop its take-out financing mechanism for PPP projects, since this can be provided by an Infrastructure Debt Fund. Alternately, it can promote an Infrastructure Debt Fund that will provide take-out finance for PPP projects.

Self-Assessment Questions

- ❖ What is the position of banks on asset-liability management?
 - Exactly balanced
 - More or less the same
 - **Longer on asset side**
 - Longer on liability side
- ❖ Which of the following has the ideal liability structure to support infrastructure finance?
 - SBI
 - **LIC**
 - UTI
 - NBFCs
- ❖ In which of the following is a liability taken off the books of the original lender?
 - Securitisation
 - Take-out financing
 - **Both the above**
 - None of the above
- ❖ VGF is permitted upto _____ of total project cost
 - 10%
 - 15%
 - **20%**
 - 5%
- ❖ Empowered Institution can sanction VGF proposals upto
 - Rs. 50 crore
 - **Rs. 100 crore**
 - Rs. 150 crore
 - Rs. 200 crore
- ❖ Securitisation transactions are always done without recourse to the original lender.
 - True
 - **False**

Chapter 10 Taxation & Incentives

10.1 Taxation

The profits arising out of projects are taxable under the head 'Profits and Gains of Business or Profession'. Taxable profits of the previous year are liable to tax in the assessment year. The following points are relevant in the calculation of taxable profits.

10.1.1 Depreciation

In Chapter [5], the role of tax-shield in project evaluation was discussed. Depreciation is reduced from the profits subject to taxation. This brings down the taxable profits and therefore the tax payable.

Under the Income Tax Act, 1961, depreciation is allowed on tangible assets (building, machinery, plant and furniture), but not on land. Plant includes ships, vehicles and books. Depreciation is also allowed on intangible assets (know-how, patents, copyrights, trade-marks, licences, franchises or business or commercial rights of similar nature) acquired after April 1, 1998.

Income Tax Act, 1961 permits depreciation only on written down value (WDV) basis. Suppose depreciation rate is 10% and original cost of the asset is Rs. 10,000.

Depreciation in the first year will be Rs. 10,000 X 10% i.e. Rs. 1,000. WDV at the end of the first year will be Rs. 10,000 – Rs. 1,000 i.e. Rs. 9,000.

Depreciation in the second year will be 10% calculated on previous year-end WDV of Rs. 9,000. Thus, depreciation in the second year will be Rs. 900. WDV at the end of the second year will amount to Rs. 9,000 – Rs. 900 i.e. Rs. 8,100.

Depreciation for income tax purposes is permitted, not separately for each asset, but on *block of assets*. Block is a group of assets of the same class for which the same rate of depreciation has been prescribed. Some of the prescribed depreciation rates are as follows:

- Buildings
 - o Used exclusively for residential purposes, except hotels and boarding houses – 5%
 - o Specified buildings for water supply projects and water treatment plants – 100%
 - o Purely temporary structures such as wooden structures – 100%
 - o Buildings other than the above – 10%
- Furniture and fittings including electrical fittings – 10%
- Plant and machinery
 - o General – 15%
 - o Motor Cars other than those used in car hiring business – 15%

- o Air pollution control equipment – 100%
- o Water pollution control equipment – 100%
- o Solid waste control equipment – 100%
- o Computers including computer software – 60%
- o Life-saving medical equipment – 40%
- Intangible assets – 25%

In the case of undertakings engaged in generation, or generation and distribution of power, income tax depreciation is allowed on straight line basis at the prescribed rates. Suppose depreciation rate is 3.4% and original cost of the asset is Rs. 10,000.

Depreciation will be allowed every year at Rs. 10,000 X 3.4% i.e. Rs. 340. This will continue until the asset is fully written off.

If any grant, subsidy or incentive is received towards cost of the asset, then that needs to be reduced from the original cost of the asset. Only on the balance amount, depreciation can be claimed.

If any asset is sold, then the sales realisation is reduced from the value of the concerned block of assets. Accordingly, all future depreciation for that block of assets will be calculated on such reduced value.

If benefit of deduction on account of depreciation cannot be claimed, fully or partly, on account of inadequacy of profits, the unabsorbed depreciation can be carried forward indefinitely, for adjustment against profits in future assessment years.

10.1.2 Amortisation of Preliminary Expenses

Expenses incurred prior to commissioning of a project are called preliminary expenses. The Income Tax Act, 1961 allows for 5% of the cost of project as preliminary expenses. This can be written off in 5 consecutive financial years, starting with the year in which the project is commissioned.

10.1.3 Amortisation of Telecom License Fees

This is permitted to be amortised over the period of the license.

10.1.4 Interest on borrowed capital

Interest on capital borrowed for the purposes of business is allowed as a deduction.

Where the capital is borrowed for acquiring a capital asset, then interest relating to the period prior to commissioning of the asset cannot be written off as interest. It is to be added to the cost of the asset, and written off as depreciation at the specified rates.

10.1.5 Disallowances under the Act

The following expenses are not available as a deduction in calculating taxable profits:

- If there is a default in complying with requirements of deducting tax at source (and depositing them with the government) on interest, royalty or technical fees paid abroad.

However, if the TDS amount is deposited with the government in a subsequent year, then the deduction will be available in the year of deposit.

- If there is a default in complying with requirements of deducting tax at source (and depositing them with the government) on interest, commission, brokerage, technical services, professional services, payment to contractor / sub-contractors, rent or royalty to a resident.

However, if the TDS amount is deposited with the government in a subsequent year, then the deduction will be available in the year of deposit, subject to conditions.

- Excessive or unreasonable payments made to relatives or people having a substantial interest in the business or profession.

Excessive or unreasonable is considered based on fair market value of similar goods, services or facilities.

Relative in the context of an individual means husband, wife, brother, sister or any lineal ascendant or descendent of the individual.

A person is presumed to have substantial interest in a company if more than 20% of the equity capital of the company is held by the person at any time during the financial year.

A person who is entitled to more than 20% of the profits of a non-corporate assessee at any time during the financial year is a person having substantial interest.

- Payments made in excess of Rs. 20,000 to any party otherwise than through account payee cheque or account payee demand draft (subject to certain exceptions)
- The following payments that remain unpaid at the end of the financial year:
 - o Any sums payable by way of tax, duty, cess or fee
 - o Sums payable by an employer as contribution to provident fund or superannuation fund or any other fund for the welfare of employees
 - o Any sum payable as bonus or commission for service rendered
 - o Any sum payable as interest on loans from public financial institutions or a state finance corporation or a state industrial investment corporation

- o Any sum payable as interest on any term loan or advance from a scheduled bank including a co-operative bank
- o Any sum payable as leave encashment to the employee.

The amount disallowed can be claimed as deduction in the year of payment.

10.1.6 Expenses, in General

Expenses, in general, are allowed as expense in calculating taxable profits, if they are not specifically disallowed, and if they fulfil the following conditions:

- It should be in respect of a business carried on by the assessee.
- It should have been spent wholly and exclusively for the purposes of the business.
- It should have been incurred during the previous year.
- It should not be in the nature of capital expenditure, or personal expenditure of the assessee.
- It should not have been incurred for a purpose, which is an offence or is prohibited under any law.

10.1.7 Compulsory Audit

In the following situations, the person has to get the accounts compulsorily audited by a chartered accountant:

- A person carrying on business if the total sales turnover or gross receipt in business is more than Rs. 1 crore in the previous year.
- A person carrying a profession if the gross receipts in the profession are more than Rs. 25 lakh in the previous year.

10.2 Incentives

Various project-linked incentives are available from the Central Government and State Governments. Some of these are of the following nature:

- Capital subsidy on investment made. As seen earlier, the subsidy amount is to be reduced from the cost of asset. Depreciation can be claimed only on such reduced cost.
- Exemption from value added tax for a specified number of years, upto a specified amount. Since the exemption will increase the taxable profits of the assessee, tax payable goes up.
- Deferral of value added tax for a specified number of years, upto a specified amount.

The amount deferred is payable after the deferral period in one or more instalments. Thus, the benefit is only in terms of liquidity for the deferral period. However, since the deferred amount does not become income of the assessee, tax liability does not increase. Thus, it is tax-efficient.

Benefits offered by a government can always be withdrawn. Therefore, most international companies do not consider future benefits while assessing the viability of the project. They proceed with a project only if it is commercially viable without considering future benefits from the government.

10.3 Maharashtra Package Scheme of Incentives

Salient features of the Maharashtra scheme are listed below:

- Various locations in the state have been classified as A, B, C, D and D+, based on level of development in the location. The most developed locations are categorised as A, while D+ locations are the most backward. No-industry locations too have been identified, where there is no industry.
- The more backward locations offer more benefits. Thus, industry is incentivised to set up operations in backward areas, increase the level of employment, and contribute to balanced development of the state.
- Units with investment in plant and machinery less than Rs. 3 crore are treated as small scale units. District Industry Centers (DICs) located at the district headquarters of all the districts in Maharashtra are the implementing agency for the scheme for small scale projects.
- Industries department is the implementing agency for medium-scale and large-scale units as well as units promoted by Non-Resident Indians (NRIs).
- Maharashtra State Financial Corporation (MSFC) is the disbursement and monitoring agency for units that it finances. Tourism projects are monitored by Maharashtra Tourism Development Corporation (MTDC).
- Capital subsidy is available for new small scale units, subject to ceilings as follows:

<i>Location</i>	<i>Ceiling 1: % of fixed capital investment</i>	<i>Ceiling 2: Monetary limit (Rs. Lakh)</i>
A	-	-
B	-	-
C	20	10
D	30	20
D+	35	25
No Industry	40	35

Capital subsidy is given up to the lower of the two ceilings. It is also available for Information Technology and bio-technology projects. The subsidy is disbursed in equal annual instalments over 5 years.

- Interest subsidy is available for new textile, hosiery and knitwear small scale units, on interest paid to banks / financial institutions on term loans availed for fixed capital investment. The subsidy of 5% p.a. is available subject to ceilings as follows:

<i>Location</i>	<i>Ceiling 1: Number of Years</i>	<i>Ceiling 2: Monetary limit (Rs. Lakh)</i>
A	-	-
B	-	-
C	4	10
D	5	20
D+	6	25
No Industry	7	35

The monetary ceiling is applicable for the entire period specified.

- New industries establishing in C, D, and D+ areas and No-industry District(s) are exempted from payment of Electricity Duty for a period of 15 years. In other parts of the State, 100% Export Oriented Units (EOUs), Information Technology and Bio-technology units, and industries setting up in Special Economic Zone (SEZs), and Electronic Hardware Technology Parks are exempted from payment of Electricity Duty for a period of 10 years.

Similar schemes are available in many other states too. Project planners need to explore such possibilities to rationalise the project cost and economics.

Self-Assessment Questions

- ❖ Depreciation benefit is not available for income tax purposes in the case of intangible assets.
 - True
 - **False**
- ❖ Depreciation in the normal course is allowed for income tax purposes on
 - Straight Line basis
 - **Written down value basis**
 - Either of the above
 - None of the above

- ❖ Under the Income Tax Act, 1961, Preliminary Expenses can be written off over _____ years.
 - 3
 - **5**
 - 7
 - 10
- ❖ If TDS is not deducted or paid to the government, the relevant expense can get disallowed for income tax purposes.
 - **True**
 - False
- ❖ Person having more than _____ stake in a company is deemed to have a significant stake under the Income Tax Act, 1961.
 - 10%
 - 5%
 - **20%**
 - 25%
- ❖ Benefit in the form of exemption from VAT is more tax-efficient than deferral of VAT.
 - True
 - **False**

Chapter 11 Project Risks & Their Mitigation

11.1 Background

Various risks are involved in setting up a project. Greater the investment committed, higher the downside if any risk becomes a real problem.

The entrepreneur and his equity investment are most at risk. If the losses are more than the equity investment in the project, then depending on any loan covenants, the entrepreneur may have to use other assets owned by him, to meet obligations.

If losses lead to a situation where the value of project assets plus value of assets of entrepreneurs (and others who may have offered guarantees) is not sufficient to repay loans, then the lenders will have to write off the amount unpaid. Therefore, project financiers have an equal interest in ensuring that risks related to project are comprehensively identified and suitably mitigated.

Some of the risks that come with projects, and approaches to mitigate them, are detailed in this Chapter.

11.2 Project Conceptualisation Risk

A lot of groundwork needs to be done before a project idea gets off the ground and becomes a project. These entail investment of time and cost for the entrepreneur. After investing in the ground work, the entrepreneur may find that the idea cannot be translated into a project. The constraints can be many. For example, implementing the idea violates a third party patent, or the project is not permitted by law or the idea cannot be executed in a financially viable format or critical skill sets and competencies required are beyond the abilities of the entrepreneur.

If the constraint is on account of violation of a third-party patent, the possibility of obtaining permission from the patent-holder or forging an alliance with him should be considered.

If the project is not permitted under the prevailing regulatory framework, then changes in regulation need to be monitored. Further, on a proactive basis, the bureaucracy and government can be educated on the benefits of the project.

Financial viability of projects can be serious issues. Alternate business models and alliance opportunities can be considered to minimise capital investment or enhance revenue or optimise on costs.

A sensible project should not be called off for want of skills. The requisite skills can be brought into the business through an alliance, or by appointing relevant experts.

If, despite exploring all options, a project were to be called off, all the money invested becomes a loss for the entrepreneur. The time invested by the entrepreneur does not come through as a direct loss, but there is an opportunity cost involved. The time could have been put to alternate use to earn money for the entrepreneur.

The approach to risk mitigation is to commit only as much money as the entrepreneur can afford to lose. The money requirement to explore the idea should be estimated in advance. If the amount is beyond the pocket of the entrepreneur, then he should tie-up with a partner or arrange for some kind of seed capital at an early stage. The entrepreneur should never take a loan for such early stage expenses.

11.3 Financial Closure Risk

Once a decision is taken to proceed with the project, the resources need to be mobilised to invest in the project. Unless financial closure is achieved, it becomes difficult to implement the project, especially if the investment is large in the context of the resources available with the entrepreneur.

Good projects do manage to obtain the resources. The risk can be mitigated by engaging a good expert to prepare the Detailed Project Report (DPR). Further, the task of mobilising the money can be left to a professional investment banker who has the reach and expertise to do the needful. Some investment bankers also commit to invest their own funds in the project. This builds confidence in others to lend to or invest in the project.

Another confidence builder for financiers is the strength of the management team. Therefore, the entrepreneur should always look for good people who share the same fire and values.

The economic environment does affect resource mobilisation efforts. Therefore, if the market conditions are bad, the project implementation may have to be deferred for a while. The entrepreneur should also be prepared for compromises in valuation at which other investors bring in money, and the extent of stake he needs to dilute in favour of outsiders.

In most resource mobilisation exercises, and especially large ones, there is a considerable gap between the commitment given by financiers and the actual flow of funds from them. During the period, if there are any adverse developments, in the economy or the project or the position of the financiers, getting the money becomes difficult. Therefore, the project should invest in a good legal team that will draft the contracts. Some people in the management team should also be good at negotiating the terms on which financiers come in. These measures will protect the project from any attempts by financiers to back out of their commitments.

11.4 Project Construction Risk

Various problems can come up in the course of project construction. Problems of technical knowledge can be solved by engaging a good collaborator or Engineering, Procurement & Construction (EPC) contractor. The contract terms should be worked out well, including a provision for liquidated damages in case of delays. Similarly, ethical standards and safety standards need to be imposed on the contractor.

Projects do require several approvals from multiple agencies. Time invested in obtaining these approvals goes a long way in avoiding future problems. A thoroughly regulatory review should be done by an expert who has handled a few similar projects recently. This ensures that the project benefits from the regulatory learning from previous projects.

11.5 Political Risk

Large and high profile projects can run into opposition led by vested agendas. These need to be handled tactfully. At the initial stages itself, potential problem issues and problem creators should be identified. Some mechanism can be worked out where they also benefit from the project. For example, by giving jobs to locals, investing in a Non-Government Organisation (NGO) for the benefit of the region etc. Many problems can be avoided by ensuring transparency of communication at an appropriate level of detail.

More sensitive the project, greater is the need to engage with parties at various ends of the political spectrum. This is particularly true of infrastructure projects whose viability depends on collection of user charges. There is always the risk that after the project has come up, a change in government leads to problems in collecting the user charges.

In any case, private entrepreneurs should make it a point to pass on the political risk to the government or other project authority that is in a better position to handle the political risk. The standard MCA of the government envisages such a sharing of risk.

11.6 Market Risk

After the project is commercialised, the project may find that its products do not have a market, or that the demand is much lower than anticipated or at a lower selling price than planned. While this risk cannot be eliminated completely, the problem can be minimised by engaging a good firm for the market study.

Even after the project implementation has commenced, there is need to watch developments in the market in the form of newer technologies, competitive products, customer migration, change in fashions etc. Any major change on these parameters justifies a project review. If at that stage, the project viability appears doubtful, it may be prudent to call off the project despite the money that may have been invested. The decision can at least prevent good money from following bad money invested in the project.

11.7 Supply Chain Risk

Projects need to build a strong supply chain. Problems can come from either the input end (raw materials, power etc.) or the output end (distributors or other intermediaries). Therefore, the entire supply chain should be planned wisely. Fewer the flexibilities that the project has on the supply chain, greater the project risk.

As far as possible, the project should protect itself through suitable contracts or alliances.

11.8 Policy Risk

As discussed in the previous chapter, tax policy as well as incentive schemes do change. These may not be aimed at a specific project, but affect the overall economy. Similarly, policies on FDI limit, sectors permitted for the private sector, import tariffs etc. are susceptible to change.

It is considered prudent to do a sensitivity analysis for every project. Caution should be exercised in taking up projects where the financial viability is highly sensitive to policy risk.

While investing abroad, there is also a risk that restrictions may be imposed in repatriating capital or profits. India has signed treaties with various countries to lay the policy framework for investment and trade transactions between the countries. Preference should be given for such countries, because the backing of the government and the bi-lateral treaty become available in case of disputes.

There is also the international charter, General Agreement on Tariffs and Trade (GATT). These provisions should be studied to understand the extent of protection available and risk exposure.

11.9 Exchange Risk

Changes in exchange rates can cause havoc to businesses. This may be either through the rupee cost of imports or exports, or the repayments on foreign currency loans.

Progressive companies do not speculate on foreign currency. They take full cover, even if it appears to be costly. It is a small price to pay, to ensure that the company can focus on its regular business of manufacturing and selling goods, or providing services.

While borrowing in foreign currency on the basis of low interest rate, it should be noted that the foreign currency can strengthen to compensate for the apparent saving in interest cost and cause huge losses.

11.10 Environmental Risk

The role of environment in commercial decisions and litigation by third parties is expected to increase in the years to come. The company should therefore do a thorough study of the environmental risks inherent to the project. If required, they should adhere to standards that are more rigorous than those mandated by the government. This will not only build goodwill for the company, but also minimise the chances of litigation by people allegedly affected adversely.

11.11 Force Majeure

Despite the best efforts, some events happen that are beyond the control of any party. For example, earthquake, cyclone or other acts of God. Acts of terrorism are another source of risk.

A thorough evaluation of the project location and other related locations should be made. Wherever possible, insurance cover should be taken. For instance, in a location prone to floods, it is advisable to obtain a strong insurance cover against the contingency. Insurance policies should be studied by expert insurance advisers, so that the cover that the project is seeking is actually available in the insurance policy purchased.

In general, every company should have a risk policy that is decided at the level of Board of Directors. Companies should have a professional risk department that monitors the various risks that the company is exposed to, voluntarily or involuntarily, and suggests risk mitigation measures. Risk is a topic that should be discussed at the board level at least every quarter.

Self-Assessment Questions

- ❖ Financial closure risk can be mitigated through
 - Good DPR
 - Professional investment banker
 - Capable management team
 - **All the above**
- ❖ Project construction risk can be mitigated through
 - **EPC contractor**
 - Banker
 - Credit rating agency
 - Forfaiting

- ❖ If entrepreneur does not have the financial resources, he should borrow to invest moneys in exploring project ideas.
 - True
 - **False**
- ❖ Stronger the supply chain, lower the project risk.
 - **True**
 - False
- ❖ Which of the following is /are force majeure events?
 - Cyclone
 - Earthquake
 - Volcanic eruption
 - **All the above**
- ❖ Insurers do not cover terrorism risk
 - True
 - **False**

References

Prahalad CK, Competing for the Future, Harvard Business School Press (1994)

High Level Committee on Financing of Infrastructure (Interim Report)

The Secretariat for the Committee on Infrastructure (www.infrastructure.gov.in)

United Nations Economic & Social Commission for Asia and the Pacific (UNESCAP),
A Guidebook on Public-Private Partnership in Infrastructure