

VOLUME II
THE MAIN REPORT

THE INDIA INFRASTRUCTURE REPORT

POLICY IMPERATIVES
FOR GROWTH AND WELFARE

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EXPERT GROUP ON THE COMMERCIALISATION
OF INFRASTRUCTURE PROJECTS

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COMMERCIALISATION OF
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Rakesh Mohan
Director General

June 22, 1996

Dear Hon'ble Finance Minister,

I have great pleasure in submitting the Report of the Expert Group on Commercialisation of Infrastructure Projects set up in October 1994 by the Department of Economic Affairs, Ministry of Finance.

Whereas I deeply regret the considerable delay in submitting this report, I hope that its contents will at least partly compensate for this delay. The broad coverage of sectors and the complexity of the many issues involved in the commercialisation of infrastructure provision required much greater thought and examination than originally envisaged.

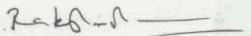
I would like to place on record my deep appreciation of the contributions made by all members of the Expert Group and of their commitment to the improvement of infrastructure in the country. In particular, I would like to acknowledge the generous assistance provided by Ms. Lalita Gupte, Deputy Managing Director, ICICI and Member Secretary of the Expert Group, in terms of both her own time as well as the staff and other resources of ICICI that she put at the disposal of the Expert Group. Similarly, the staff of the Office of the Economic Adviser in the Ministry of Industry provided support far beyond the call of duty in putting together this report.

The resources required for infrastructure investment in India over the next decade are immense. Our hope in submitting this report is that it will contribute to the deepening of understanding of the many issues involved. The implementation of the policy directions proposed should make it feasible to commercialise many segments of the infrastructure sector. It will then become possible to raise the required volume of resources for infrastructure investment from both domestic and foreign sources.

We believe that only if infrastructure investment is accelerated in this manner that the 7 percent plus average annual income growth rate envisioned by you could be achieved over the next ten years.

With warm regards,

Yours sincerely,



Rakesh Mohan

Shri P.Chidambaram
Finance Minister
North Block
New Delhi 110 001.

PREFACE

The Department of Economic Affairs, Ministry of Finance constituted an Expert Group on Commercialisation of Infrastructure Projects in October, 1994

Shri Gajendra Haldea, Joint Secretary, Department of Economic Affairs, Shri Yogendra Narain, Chairman, National Highways Authority of India, Dr. Pronab Sen, Consultant, Planning Commission, Smt. Anita Soni, Deputy Director General, Department of Telecommunications and Shri R. Venkatesan, Chief Officer, Reserve Bank of India were later co-opted as members in the Expert Group.

The Expert Group held 5 meetings and 2 workshops for deliberations as follows:

1. 17th November, 1994 at New Delhi.
2. Workshop on 1011 January at Mumbai
3. Workshop on 31st January, 1st February, 1995 at Mumbai
4. 2nd March, 1995 at New Delhi.
5. 21st April, 1995 at Mumbai.
6. 11th August, 1995 in New Delhi.
7. 910 December, 1995 at Mumbai.
8. 15 June, 1996 at New Delhi.

At the time of formation of the Expert Group, brief terms of reference of the Group were given. Detailed discussions were held during the first meeting of the Expert Group to firm up the terms of reference. During the first meeting 5 sub groups were formed to look at various aspects of infrastructure investment. The composition of the sub groups is given in Annex II.

At the outset, I would also like to place on record my appreciation to Shri N. Vaghul, Chairman, ICICI for the extent to which he generously placed the resources of ICICI for supporting the work of the Expert Group. Ms. Lalita D. Gupte, Deputy Managing Director, ICICI and Member Secretary of the Expert Group has been unstinting in providing inspiration, guidance and hard work in contributing to the work of the Group. Ms. Gupte has been extremely generous with the time of her staff for help in the work of the Expert Group. All meetings of the Expert Group were hosted by ICICI and very ably co-ordinated by Ms. Vinita Karavana.

I would also like to place on record a particular word of appreciation to my colleagues in the Ministry of Industry for the assistance they have provided during all phases of work. The Industrial Investment Division, Office of the Economic Adviser, then headed by Shri Somnath Chatterjee functioned as the Delhi secretariat for the Expert Group. Besides providing other inputs, Shri Somnath Chatterjee contributed very

significantly to the drafting of the main report. Shri M.C. Singhi and Smt. Anuradha Balaram did extensive work in formulating the sectoral report on the Ports Sector. Shri Atul Rai performed the arduous task of succinctly portraying the relevant 'boxes' that are on display throughout this report. I am also grateful to my personal staff which includes Shri Prakash Chandra, Shri A.K. Gupta, Shri Dhani Ram and to the staff of the Industrial Investment Division, namely, Shri V. Srikanth, Ms. Sumitra Chaudhury and Shri Kulwant Singh who have provided excellent backup support. A special word of appreciation goes to Shri A.K. Gupta for performing the arduous task of word processing most of this voluminous report and organising the collection of its many segments.

I would like to thank all members of the Expert Group for taking time from their very busy schedules for participating in and contributing to the work of the Expert Group. Special thanks are due to the Sub-group Chair persons Dr. R.H. Patil, Shri Pratip Kar, Shri Ravi Parthasarthy, Shri K.K. Bhatnagar and Shri Siddharth Shriram (see Annex P.2 for composition of the various sub-groups). Special thanks are accorded to Shri K.K. Bhatnagar, Shri Yogendra Narain, Shri S.K.N.Nair, Shri S.D.Saxena and Smt. Anita Soni, and Shri S.N. Chattopadhyaya for preparing the sectoral reports on urban infrastructure, roads, power and telecommunications, and industrial parks respectively.

I am grateful to Dr. Javed Shirazi, Resident Representative of the World Bank for many useful discussions and for contributing the services of Shri Bhaskar Naidu who did excellent work on the macro-level projections which formed the basis for assessing our forthcoming requirements for infrastructure investment.

Although the preparation of this report has been a truly co-operative effort I would like to acknowledge the specific contributions made by the many individuals who gave generously of their time.

Shri Gopal Rajagopalan, Shri Hari Shankaran, Shri Prasad Ranade and Smt. Sangita Anand all of IL&FS, along with Shri Somnath Chatterjee contributed to the preparation of Chapter I of the main report. The statistical assistance for Chapter II was provided by Shri Bhaskar Naidu of the World Bank. Workshops held at the Department of Economic Affairs by Shri Montek Singh Ahluwalia, Finance Secretary, and specific comments received from Dr. Arvind Virmani helped greatly in sharpening the projections. Chapter III was mainly contributed by Shri Somnath Chatterjee now with the Department of Economic Affairs, Ministry of Finance. Chapter IV was prepared under the direction of Dr. R.H. Patil, Managing Director

of the National Stock Exchange and member of the Expert Group. The main drafting burden was borne by Shri Rajgopal S. Kudva of the ICICI with assistance from Shri Shekhar Damle. Smt. Meera Mehta contributed the material on Municipal Bonds. Chapter V was prepared under the direction of Shri Pratip Kar, Executive Director, SEBI and member of the Expert Group. He was assisted by Shri S.H. Bhojani, Executive Director, ICICI. Finally Chapter VI was prepared under the direction of Shri Ravi Parthasarthy, Vice Chairman and Managing Director, IL&FS, with assistance from Shri Gopal Rajagopalan and Shri Hari Shankaran. The material for the appendix on stamp duty was received from Shri P.S.A. Sundaram.

The Power Sector report was mainly compiled by Shri S.K.N. Nair, member of the Expert Group. Useful contributions and guidance were received from Shri R. Vasudevan, former Secretary, Power, Shri P. Abraham, Secretary, Power, Shri Pradeep Bajjal, Joint Secretary, Power and Shri Sanjeev Ahluwalia, former Special Secretary, Department of Industries, Govt. of U.P. and now a staff member of the Tata Energy Research Institute.

The Urban Infrastructure report was prepared under the direction of Shri K.K. Bhatnagar, CMD, HUDCO. Very useful contributions were provided by Smt. Kiran Wadhwa who was responsible for the preparation of the report. Dr. P.S. Rana, Dr. Majumdar, Mr. Subramaniam and Mrs. Madhu Chadha also provided able assistance.

The Telecommunication Sector report was prepared under the direction of Shri S.D. Saxena and Smt. Anita Soni, members of the Expert Group and Dr. D. Sengupta of the ICICI. Smt. Dipannita Chattopadhyaya, Shri Kamal Gianchandani and Shri Suresh Maheshwari made very useful contributions to the preparation of the report. Dr. Mahesh Uppal also provided useful inputs on the Telecom Sector.

The Roads Sector Report was prepared under the direction of Shri Yogendra Narain, member of the Expert Group and Chairman of the National Highways Authority of India. He received very able assistance from Shri D.B. Gupta and Shri Kamlesh Kumar of the NHAI, and Shri M.C. Singhi.

The Report on Industrial Parks was prepared under the direction of Shri S.N. Chattopadhyaya, on behalf of Shri Siddharth Shriram, Member of the Expert Group. We are particularly grateful to Shri N.C. Singhal, Managing Director, SCICI, for providing his staff resources to help in the finalisation of this report. Shri M.J. Subbiah of SCICI made a very significant contribution. Useful comments and suggestions were also received from Shri Arvind Mayaram, Managing Director of the Rajasthan Bureau of Industrial Promotion. I particularly appreciated very useful comments and suggestions from Shri V. K. Shunglu, Comptroller and Auditor General of India.

The Ports Sector report has been prepared by Shri M.C. Singhi and Smt. Anuradha Balaram of the Office of the

Economic Adviser in the Ministry of Industry. We are grateful for the support provided by Shri S. Sundar, Secretary, Ministry of Surface Transport and Shri S. Gopalan, also of that Ministry.

The Expert Group has also received very useful submissions from various institutions and individuals. Ms. Naina Lal Kidwai of Morgan Stanley and Mr. Renato Limjoco of Asian Development Bank sent us their studies on the Indian debt market. Representatives of the HDFC Bank and National Westminster Bank gave us a presentation on private sector toll roads. The Chubb Insurance Group provided useful information on the insurance market. On the regulatory framework we received a lot of useful documents from Ms. Sheena Brand of Denton Hall. We have also received inputs from Shri Urjit Patel of the Reserve Bank of India, on the development of the yield curve, Shri Farroukh Irani on leasing, Shri V.K. Mathur on airports, Shri R. Ravimohan, Managing Director, CRISIL, on the development of the debt market, and Shri Udaibir S. Das of the RBI, on the development of an infrastructure financing institution. Mr. Roger Woods of National Grid provided useful information on the restructuring of the British power industry. We also received very useful materials as the various US Trust Funds for infrastructure from the Embassy of The United States.

We also benefited from the contributions made by the workshop participants in January, 1995. They were Shri K. Pandav, Videocon Industries Ltd; Messers Pramod Saxena, Neeraj Sanghi, Ravi Padiyar of Essar Gujarat Ltd; Shri K.V. Natarajan of Jawaharlal Nehru Port - New Bombay; Messers Y. M. Deosthalee, P.J. Mehta, R. Rangarajan, A.C. Datta, Rakesh K. Niraj of Larsen & Toubro; Shri S. Ramkrishnan of Tata Industries Ltd; Messers J.K. Bhosle, Ravindra Tewari of Usha Martin Industries Ltd; Messers S. B. Mathur, K.V. Subramanian of Reliance Industries Ltd; Shri Ranjit Mathrani, Chairman, Vanguard Capital; Shri Latif Chaudhry, Senior Investment Officer (IWF), Asian Development Bank; Mr. Richard Hand of Trafalgar House Corporate Development Ltd; Mr. Sadao Makai, Mr. Akio Hotta, Mr. Vacho Satake, Mr. Takashi Mishima and Mr. Tommy Tanaka of Nippon Telegraph & Telephone Corporation; Shri M.P. Rajan, Managing Director, Madhya Pradesh Audyogik Vikas Nigam; Shri V.K. Phatak, Chief Planning Division, Bombay Metropolitan Development Authority; Shri Sandeep Kamat, Shri Ravi Suri, GE Capital; Mr. Barry Gold, Lehman Brothers, Hong Kong; Shri Ashok Wadhwa of Arthur Anderson; Shri Raj Pandey, Resident Managing Attorney, White and Case.

I would also like to record a personal debt of gratitude to many friends abroad who have kept me supplied with the many written materials that are now coming out incessantly on the commercialisation of infrastructure. Foremost among them are Ashoka Mody and Suman Bery of the World Bank who have kept me abreast with both theoretical and practical developments in the literature as well as specific ideas ema-

nating from East Asian and Latin American countries. Charles Frank Jr. of GE Capital educated me on the role of independent power producers and the nature of U.S. regulation for the power industry. Gary Perlin and D.C. Rao contributed to my education on the development of the bond market. Kaushal Tikku of Price Waterhouse, Hongkong gave me a crash course on commercialisation by arranging very useful discussions with leading firms based in Hong Kong such as the Asian Infrastructure Fund, Hong Kong Land, Jardine Fleming, Goldman Sachs, AT & T and others. Gordon Wu, Chairman, Hopewell Holdings, has been generous with his time on several occasions. Similarly, Shri S.K.Majotra, then with the Indian Embassy in Tokyo, organised visits to all the main infrastructure ministries and other institutions in Tokyo.

In addition to the members of Expert Group and co-opted members, many other officers and staff of the organisations to which Expert Group members belong also contributed significantly in the preparation of the report. We would like to sincerely thank all the persons connected in preparation of the report. I would specifically like to thank Shri Niral Maru of SEBI who made the final production of this report possible through his amazing information technology skills.

This report has taken a long time in its preparation, and

many developments have taken place during the time that the Expert Group has been in existence. There is now widespread awareness of the importance of infrastructure investment for enabling the kind of economic growth and development that the country needs. We hope that this report will contribute to improving the understanding of the many issues involved in the commercialisation of infrastructure; that it will provoke discussion on the many recommendations given; so that appropriate policy changes are put in place. We believe that the concept of commercialisation, wherever it is feasible, will have to be applied to the operation of both the public and private sectors in their investments in infrastructure. Our findings indicate the public sector will have to continue contributing to infrastructure at least at the levels that it has been investing over the last decade. There is no room for private sector substitution. However, the increase in investment levels required will have to come from the private sector. The public private composition will naturally vary between sectors. The order of the day will have to be public private partnership in infrastructure provision.

Rakesh Mohan
Chairman

ANNEX P.1

Development of the Debt Market: R.H. Patil, Convenor; Lalita Gupte, Shitin Desai, Pratip Kar, Anita Soni

Regulatory Framework: Pratip Kar, Convenor; S.K.N. Nair, S.H. Bhojani, Anita Soni, R. Venkatesan, Gopal Rajgopalan, O.P. Sodhani

Fiscal Issues for Infrastructure Projects: Ravi Parthasarthy, Convenor, R.H. Patil, Pratip Kar, Pradeep Shah, Anita Soni, V. Suresh, S.D. Saxena, Lalita Gupte

Commercialisation of Urban Infrastructure Projects: K.K. Bhatnagar, Convenor; Dinesh Mehta, S.N. Chattopadhyaya, A. Ananthakrishna, Vijay D. Lall, Ravi Parthasarathy, P.K. Mohanty, Siddharth Shriram, M.S. Srinivasan, Nasser Munjee, Hari Shankaran, M.J. Subbaiah, Pronab Sen

Industrial Parks: Siddharth Shriram, Convenor; V. Suresh, S.K.N. Nair, Anita Soni, R.S. Ramasubramaniam, S.R. Ramakrishnan, J.S. Gill, aS.N. Chattopadhyaya

ANNEX P.2

No.F.10/7/CM/94
Government of India, Ministry of Finance
Department of Economic Affairs, New Delhi, dated the 13th Oct., 1994.

ORDER

1. Government of India has taken a number of initiatives aimed at making Indian industry globally competitive and increasing the extent of integration with the global economy. The success of these policies in terms of an accelerated response of production and exports depends crucially upon the expansion of critical infrastructure and improvement in its quality.

2. Considering the vital role of infrastructure, Government has decided to constitute an expert Group to consider issues relating to the commercialisation of infrastructure projects. The Group will examine problems relating to the institutional arrangements, legal framework and specific sector constraints that are presently inhibiting the free flow of resources to the infrastructure sector and make recommendations for overcoming these constraints.

3. The composition for the Expert Group will be as follows:

1. Dr.Rakesh Mohan	Economic Adviser Ministry of Industry,	Chairman,
2. Sh.Ravi Parthasarathy	Managing Director, ILFS,	Member
3. Sh.Pradeep Shah	Managing Director, Indocean Fund Management, (Former MD, CRISIL)	Member
4. Sh.Shitin Desai	DSP Financial Consultants.	Member
5. Sh.Siddarth Shriram	Managing Director Shriram Industrial, Enterprises Ltd.	Member
6. Sh.R.H. Patil	Managing Director, National Stock Exchange	Member
7. Sh.Pratip Kar	Executive Director, Securities & Exchange Board of India	Member
8. Sh.K.K. Bhatnagar	Chairman, HUDCO	Member
9. Sh.S.K.N. Nair	Consultant, (Former member CEA and former member, Telecom Commission)	Member
10.Dr.Arvind Virmani	Adviser (P&P) Department of Economic Affairs.	Member
11.Sh.S.D. Saxena	Financial Adviser. MTNL	Member
12.Smt.Lalita Gupte	Executive Director. ICICI	Member Secretary

4. The terms of reference of the Expert Group will be to :

(i) Review the existing legal framework that governs the infrastructure sector and make specific recommendations in respect of legal framework that would facilitate private sector participation in infrastructure.

(ii) Make recommendations on appropriate institutional arrangements which would facilitate the successful domicile of projects, with the intention of empowering the institutions concerned to raise resources on a project recourse basis.

(iii) Examine and propose modifications to the role of Government in facilitating public-private partnerships in the financing of infrastructure projects.

(iv) Make recommendations on the role Government could play in developing the capital market for intermediating long term savings to long infrastructure investments, including in the fostering of desirable institutional arrangements.

(v) Examine the role of private international capital flows in infrastructure financing and development, assess the nature of projects likely to receive such capital, and consider how such financing can be obtained and structured to the country's advantage.

5. The Expert Group will submit its report and recommendations within 6 months from the date of its constitution.

Sd/
(V. SARASWATHY)
Under Secretary to the Government of India
Tel. : 3015581

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The Need for a New Approach

INFRASTRUCTURE is generally defined as the physical framework of facilities through which goods and services are provided to the public. Its linkages to the economy are multiple and complex, because it affects production and consumption directly, creates positive and negative spillover effects (externalities), and involves large flows of expenditure.

Infrastructure contributes to economic development both by increasing productivity and by providing amenities which enhance the quality of life. The services provided lead to growth in production in several ways:

- Infrastructure services are intermediate inputs to production and any reduction in these input costs raises the profitability of production, thus permitting higher levels of output, income, and/or employment
- They raise the productivity of other factors, including labour and other capital. Infrastructure is thereby often described as an "unpaid factor of production", since its availability leads to higher returns obtainable from other capital and labour.

The infrastructure sector covers a wide spectrum of services: transportation (roadways, railways, airways and water transportation); power generation, transmission and distribution; telecommunications; port handling facilities; water supply and sewage disposal; urban mass transport systems and other urban infrastructure; irrigation; medical, educational and other primary services. Some of these services have a direct impact on the working of a business enterprise, while others

are more important from a societal point of view. This Report focuses on the provision of the key physical infrastructure services. It does not address the requirements in social infrastructure such as medical, educational and other such services.

Each sub-sector is inherently unique in terms of its administrative and organisational structure, the regulatory framework governing its operations, the level of technology, and the degree of commercialisation. In addition, while some services such as telecommunications can be provided on a strictly commercial basis, others like roads are expected to be fully provided by the State or at least part-subsidised.

Infrastructure projects can be classified vis-à-vis their characteristics and the nature of their users as :

- **Open Access Projects:** Those from which people cannot be easily excluded, such as water supply and intracity flyovers.
- **Limited Access Projects:** Typically those that can be provided on the basis of a person's ability to pay. Exclusion of categories of people who are unable to pay would usually be feasible through the provision of alternate facilities.

This Report is addressed in particular to the possibility of commercialisation of infrastructure provision, be it within the public sector or the private sector. As such much more attention has been given to the second category of projects.

Impact on Growth and Development

The availability of adequate infrastructure facilities is imperative for the overall economic development of a country. Infrastructure

adequacy helps determine success in diversifying production, expanding trade, coping with population growth, reducing poverty and improving environmental conditions.

In recent years, much research has been devoted to estimating the productivity of infrastructure investments. Many studies examining the link between aggregate infrastructure spending and GDP growth show very high returns in time-series analyses. However, the causality—does infrastructure investment cause growth or does growth cause infrastructure investment?—has not been fully established. A strong association nevertheless exists between the availability of certain services—telecommunications (in particular), power, paved roads, and access to safe water—and per capita GDP.

Research indicates that while total infrastructure stocks increase by 1 per cent with each 1 per cent increment in per capita GDP, household access to safe water increases by 0.3 per cent, paved roads by 0.8 per cent, power 1.5 per cent and telecommunications 1.7 per cent. Infrastructure productivity will determine how India will cope with the increasing pace of urbanisation, globalisation and technological innovations in manufacturing and logistics. Environmental issues and poverty reduction, too, depend heavily on the productivity of the infrastructure sector.

Typically, as incomes rise, the composition of infra-

As a transition is made from exclusive provision of infrastructure by the public sector, the rules of the game need to be codified better.

structure changes significantly. For low-income countries, more basic infrastructure is important—water, irrigation, and (to a lesser extent) transport. As economies mature, most of the basic consumption demands for water are met; the share of agriculture in the economy shrinks, and more transport infrastructure is provided. The share of power and telecommunications is greater in high-income countries.

Production and Investment: Most directly productive activities in industry, agriculture and services use electricity, telecommunications, water and transport as intermediate inputs. Even in the informal sector, infrastructure can be a major share of business expenses. A measurable benefit of investment in infrastructure is the reduced cost to users of each service unit consumed. This benefit is greater, the more the

service is characterised by economies of scale.

If enterprises are unable to realise the benefit of efficient generation of infrastructure services, they are forced to seek higher-cost alternatives that may have unfavourable impacts on profits and production levels. Unreliability (erratic water pressure, call interruptions etc) and lack of access to infrastructure services lead to underutilisation of existing productive capacity and constrains short-run productive efficiency and output growth. Users are forced to invest in alternative

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Importance of Infrastructure to Economic Development: An Example From China

THE fact that infrastructure provides critical support to the growth of an economy can be clearly seen when bottlenecks arise. China's intercity transport system is a striking example.

The coverage of China's intercity transport networks is one of the thinnest in the world: the total route length per capita or per unit of arable land—for highways or railways—is similar to or lower than that in Brazil, India and Russia. This has resulted mainly from chronic underinvestment. China's transport investments amounted to only 1.3 per cent of its gross national product annually during the eighties, whereas this was actually a period of rapid growth in transport demand.

Since the onset of China's open door policy in 1979, economic growth averaging 9 per cent a year has resulted in an unprecedented expansion in intercity traffic, with freight growing at an average of 8 per cent a year and passengers 12 per cent. This has imposed tremendous strains on the transport infrastructure, as manifested by bottlenecks in the railway network, the severe rationing of trans-

port capacity on railway lines, and the poor quality of service experienced by shippers and passengers.

The fallout is far-reaching. In particular, transport shortages have adversely affected the supply of coal, which is the source of some 73 per cent of the country's commercial energy and about 43 per cent of the total freight tonnage handled by the railways. The coal shortage has in turn adversely affected supply of electricity, about 76 per cent of which is generated by thermal plants. In 1989, China was experiencing a shortfall in available power of about 20 per cent of industrial electricity requirements. Central and local authorities established quotas for allocating electricity and rationed new connections, but power cuts have nevertheless been frequent.

A conservative estimate is that the annual economic costs of not having adequate transport infrastructure in China during the past several years amount to about 1 per cent of China's GNP.

Source: The World Bank, Development Report 1994.

sources such as captive power plants and tube wells, thereby raising capital costs. This has ripple effects, creating bottlenecks and slack capacity utilisation in other sectors of the economy. Problems like undermaintenance of facilities and poor service quality shift the burden of infrastructure provision and increase overall costs to produce outcomes which are not the most economically efficient.

Infrastructure is central to the basic patterns of demand and supply, and to the economy's ability to respond to changes in prices or endowments of other resources. The expansion of service, high-technology and financial sectors relative to manufacturing industries increases the demand for telecommunications, but decreases the relative requirements for industrial waste disposal and transportation of manufacturing inputs and outputs.

Recent Government of India (GoI) policy initiatives have served to open the Indian economy and achieve a higher degree of integration with the world economy. A focused effort is underway to render Indian firms globally competitive, ease the barriers of entry and provide an impetus to exports. To attain these goals, India requires to rapidly demonstrate its competitive advantage in terms of a deep domestic market with purchasing power, affordable level of wages, labour productivity, natural resources, and most importantly, infrastructure availability. It is therefore essential to accelerate investment in this sector.

Massive Investment Requirements

Developing countries have to make massive investments of financial, human and managerial resources in infrastructure. Estimates vary substantially depending on definitions, methodology and source of information as well as assumptions of what needs can and should reasonably be met, but it may be useful to look at some illustrative numbers. A recent World Bank study has estimated that developing countries as a whole invest about \$200 billion per year in physical infrastructure facilities. This is about 4 per cent of their GDP. Roughly four-fifths of this, or about \$160 billion, is financed through domestic public resources, about one-sixth or about \$25 billion through international development assistance and the remaining, about \$15 billion, through private capital. The private sector's share, while still small, is fast rising in many countries and sectors.

Future investment needs are expected to be much higher, because of demand created by economic growth, rising population, rapid urbanisation as well as the need to reconstruct some economies and make up for lack of adequate investment in others in the recent past. This is particularly true for the East Asia Region, whose sharply-increased investment needs are driven by its very high economic growth rate. The need for investment in infrastructure rises exponentially with economic growth rate. The World Bank estimates that East Asian economies have steadily increased infrastructure investment in absolute terms and as a proportion of GDP. Total

investments rose from 3.6 per cent in the 1970s, to about 4.6 per cent in the 1980s, and to 5.0 to 5.5 per cent of GDP in 1993. As will be seen in Chapter 2, the Indian experience is not too different. These estimates cover investments in sectors such as power, telecommunications, transport, water and sanitation, roads, and railways. East Asian economies are expected to grow at an annual rate of 7-8 per cent. As a result, infrastructure investments may have to increase from about 5 per cent of GDP to about 6.5-7 per cent in the next 10 years. This would translate to between \$1.3 -1.5 trillion during the next decade. India needs a similar acceleration.

Whatever the exact numbers, it is obvious that the size of investments and the managerial effort needed to handle them effectively will be enormous. The manner in which these investments are selected, designed, funded, implemented and finally operated would have a critical impact on the quality of the services, and have major macro-economic implications for the country. It is, therefore, appropriate to look at past experience around the world and draw lessons that can help improve the quality and cost-effectiveness of such investments.

Infrastructure projects have lumpy investments and long payback periods. This makes it difficult for private firms to enter the sector.

Scope of this Report

Clearly, we need a good understanding of the nature of infrastructure, how it has traditionally been provided, and what intrinsic changes are taking place in the world which necessitate the adoption of new approaches. Since the needs and fund requirements are massive, it is also necessary to obtain a realistic view of what is feasible to be invested over the next decade. Given the scarcity of public funds, we need to understand which sectors are amenable to commercialisation and to what extent. Similarly, we need to explore the changes necessary in the working of our capital markets so that commercial infrastructure projects can raise resources here. As a transition is made from the exclusive provision of infrastructure by the public sector to a situation

where there would be many agencies, both public and private and combinations of both, the rules of the game need to be codified better for the benefit of investors, service providers and consumers alike. Thus it is important to understand the role and scope of regulation in these activities. Finally, we need to probe whether specific fiscal incentives are required to direct investment into these desirable areas.

This Report is devoted to exploring each of these areas.

The Historical Prominence of the Public Sector

Infrastructure services have generally been provided by the public sector across the world for most of the 20th century. The private sector's increasing interest in infrastructure provision on a commercial basis is only a recent phenomenon, which has emerged in the last five to 10 years.

Most infrastructure services have some elements of public good in them in the sense that they are generally publicly

available and also exhibit significant positive externalities. To take the simplest example, public lighting benefits all citizens. The consumption of public lighting by one citizen has no effect on the consumption by another. It is also difficult to exclude anyone from the benefit, and hence to charge for it from those who do benefit. The only way in which such exclusion is possible is to restrict entry into the areas where public lighting is provided, but this is neither practically feasible nor desirable. As a consequence, public lighting is characteristically provided by public authorities and is generally financed by some form of tax revenues. Similarly, roads. But in their case, there is greater possibility of pricing and exclusion. The usage of a road by one consumer does not affect the usage by another until a point of congestion is reached. It is only after the road becomes congested that the use of the road by an additional consumer imposes costs on all others already on the road. Thus there is some rationale for charging for road usage in order to avoid congestion. In most roads, it is difficult to limit access to only those paying a certain price. Moreover, the use value of a road is enhanced by its connectivity. Attempts to price access to most roads would result in a decline in their value. Thus, generally, it is only certain long-distance highways which are built

for exclusive use by those who pay for their use. Other examples like transportation, power, water, telecommunications and irrigation may be taken to show that different segments of infrastructure have different degrees of the characteristically public and private good in their provision.

In the case of most infrastructure services, it is difficult to price them fully to cover all costs. Consequently it has traditionally been difficult for the private sector to participate in the provision of these services. The greater the element of public good and the difficulty of exclusion and pricing in a service, the higher is the likelihood that the service would be provided by the public sector and financed by some form of tax revenues. This has been the main rationale for the public provision of infrastructure services.

There are other characteristics of these services which also tend to make them more suitable for supply by the public sector. Typically, it is difficult for more than one infrastructure supplier to exist in one location. Power and water supply networks, telecommunications, sanitation and sewerage all have elements of monopoly built into them. It is physically not feasible, say, to have competing water supply networks serving the same neighbourhood. The consequence is that such services either have to

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The Evolution Of Private Solid Waste Disposal in the US

A study carried out by the American Public Works Research Foundation in 1989 revealed that more than half the cities surveyed relied on private solid waste disposal. Private landfills contain half of the nation's existing disposal space, though they represent only 14 per cent of the total numbers in the country. In addition, half of the nation's resource recovery plants are privately owned. In just one year, for example, Browning-Ferris Industries, one of the largest waste disposal firms in the US, bought 131 small garbage collection businesses.

Private participation has not always dominated waste disposal. Since the mid-1800s, when the emergence of large industrial cities greatly increased the problem of urban waste, cities came to assume a governmental responsibility for the collection and disposal of waste through "contracting out" the provision of the service to local private vendors. The growth of the Progressive Movement around the time of the First World War, which believed that providing services publicly would reduce opportunities for graft and mismanagement, led the cities to discontinue this practice. After the Second World War, a number of cities resumed contracting out due to high cost of collection equipment and political difficulties in siting waste disposal facilities. The cost of refuse collection was paid by local governments from the proceeds of real estate taxes, although special user fees have sometimes been assessed.

The shift towards private waste disposal came about with the rise of the environment movement in the 1960s, transforming waste disposal from a labour-intensive to a capital-intensive industry dominated by a handful of giants. Garbage until then was disposed of in open dumps or burned in incinerators. Emission limits in the 1970 Clean Air Act forced many communities to close down their incinerators. The Resource Conservation and Recovery Act (RCRA) of 1976 established strict controls over the design and operation of landfills, required separate facilities for the disposal of hazardous waste, and encouraged the development of facilities for recovery of resources. The Public Utilities and Regulatory Policy Act (PURPA) of 1978 made prospects for waste-to-energy plants more attractive by requiring electric utilities to buy energy from the plants at the avoided cost of supply from new generation plants.

Stringent technological requirements have also contributed to increasing the cost of developing and operating new waste disposal facilities. The National Solid Wastes Management Association estimates that the cost of constructing a landfill (above and beyond acquisition of land) has risen from \$200,000 per acre in 1975 to \$1 million an acre in 1990. Environmental management requirements add another \$210,000 an acre. Tipping fees (the user or access fees charged by landfill or waste recovery plant operators) have risen dramatically, both to cover these higher costs and to

be supplied by the public sector or have to be regulated in the presence of such monopoly.

Also, infrastructure provision usually involves high upfront costs and long payback periods. Investments are typically bulky and lumpy. This has two implications. First, the investor has to have large initial capital. Second, in view of a long payback period, he has to be capable of obtaining matching long-term finance. This has traditionally made it difficult for private firms to enter the sector since it neither has adequate access to such large-scale finance, nor does it find it feasible to raise long-term resources in the capital market. Moreover, since infrastructure sectors have to be heavily regulated because of their monopoly characteristics, there is high risk attached to such investments due to uncertainties involved in regulation and pricing.

Finally, there is also the issue of social welfare and externalities. Minimum supply of water, power, sanitation and sewerage, and access to transport are all regard-

When infrastructure is developed by the State, there is typically little connection between the cost of funds and the returns on investment.

reflect the increasing scarcity of disposal capacity.

Private waste disposal is usually done on either a contract or a merchant basis. Under the former approach, a private firm agrees to design, build and operate a plant for one or several municipal governments. The contract fixes the tipping fee per tonne (often with provision for inflation) and guarantees a minimum volume of waste to be delivered. The public sector often assists or takes responsibility for siting. Actual site ownership, private or public, is usually dictated by the advantages offered by the tax laws in effect when the plant was built. The usual contract specifies that the private company absorbs the risk of any doubt that the plant will work correctly and can be built and operated within budget, while the public sector absorbs the risk that open market tipping fees might decline or local trash volumes might fall below contract minima. Many communities choose the contract route because they are not prepared to build or operate today's technologically sophisticated disposal technologies and they do not want to be exposed to the risk of ever-increasing tipping fees.

The merchant plant, by contrast, is generally built and operated without prearranged public or private clients, and without siting assistance. It is, however, free to charge whatever the market will bear for waste disposal. In terms of risks, merchant plants are close to toll roads, since the plant operator assumes not only the risks of whether the technology will work and be on budget, but also the risks of fluctuations in market demand or prices.

Source: Gomez-Ibanez, Jose A. et al in "The Prospects for Privatising Infrastructure: Lessons from US Road and Solid Waste", *Journal of Transport Economics and Policy*, September, 1991

ed as public services that should be available to all citizens. The extension of lighting to all homes, for example, enhances the ability of children to study; denial because of inability to pay would not only harm the individual affected but also the economy as a whole because of the reduced availability of an educated labour force. Provision of clean drinking water reduces disease, and thereby improves productivity, and reduces health costs. Thus infrastructure provision also typically involves different degrees of cross-subsidies which are easier done by the public sector than the private.

However, it is of interest to note that the public sector was not always so dominant in infrastructure provision. In the 19th century, a good deal of investment was made by the private sector. In some sense, we are coming back full circle after a hundred years.

In the 19th century, many railway, canal, road, gas, power and water systems were initially privately owned, operated and funded in most countries. But with time, more and more infrastructure companies were regulated or nationalised. This pattern varied substantially across and within countries and sectors. In several cases, nationalised companies were reprivatized due to fiscal constraints—although usually only briefly. Almost all the railroads in the United States and Latin America in the 19th century were built by private investors. International capital markets worked well at that time and a good deal of financing was done through the sale of railway and other infrastructure bonds in London—the most vibrant capital market of the time. Associated land concessions and other lucrative rights were also common as a means of financing these investments.

Nevertheless, by the start of the First World War, many infrastructure firms were subject to some type of utility regulation or State ownership. There were also many bond failures, arising either from the failures of the infrastructure companies themselves or because of wars and other dislocations. Wars and economic depression gave another boost to nationalisation and stronger regulation, which increased in the 1940s and 1950s. Disenchantment with the performance of regulated or nationalised firms has led again to deregulation and privatisation in many countries from the 1970s onwards.

Major issues for the state nevertheless arise, because many users are dependent on a common facility, say, an electricity network, which is not subject to head-to-head competition. Whoever controls such a "natural monopoly" can extract excessive profits (rents) from it. The network owners, consumers and the body politic vie for these. A sustainable ownership arrangement requires a rent-sharing system which protects consumers, provides owners with incentives to operate the network efficiently, and reduces the temptation of governments to exploit monopoly rents for political advantage. In principle, such arrangements can be implemented through well-designed regulatory frameworks. Historically, however, satisfactory regulatory regimes have been difficult to achieve.

Pressures to establish some kind of regulatory mecha-

nism arise soon after the establishment of a new infrastructure network. Rail, gas and water networks all emerged in the first decades of the 19th century in Britain. Early moves in water and gas to limit wasteful competition by establishing monopoly franchises started around 1820. Rent regulation came into being with Gladstone's 1844 Railway Act, followed by dividend limitations—to 10 per cent—for gas and water companies under the 1847 Gas Works and Water Works Acts. Similarly, limits on prices or returns were introduced in Canada (Toronto) for town gas and in some United States railroad statutes around the middle of the century.

Private provision of infrastructure inevitably requires strong and transparent regulation. Given the typical lack of competition in supply, prices need to be regulated in the interest of protecting consumers. Similarly, because of the non-tradable nature of infrastructure services, there is no direct link with exchange rate changes: thus foreign investors face exchange risk and expect some predictability in tariff setting. Service providers face commercial risk in terms of unpredictability of demand and other risks arising from regulation itself. Thus private provision entails considerable complexity giving rise to significant increase in transaction costs for all parties. This has itself inhibited private provision of infrastructure. These issues are examined in detail in Chapter 5.

What Has Changed?

What is then new in the current situation which allows for commercialisation and greater participation of the private sector?

A wave of privatisation and deregulation has been sweeping infrastructure sectors around the planet. These bold new approaches promise improved efficiency and service quality. But the world has seen waves of private participation in infrastructure before, only to see reversion to State solutions. Should the recent wave be viewed as the beginnings of a new trend, or simply as another cycle of the great privatisation-nationalisation wheel? We believe that the recent shift in policy opens the door for new competitive solutions, which could overcome some of the drawbacks of public ownership and regulation of infrastructure.

The new wave began in the 1970s when the US started deregulating natural gas, power and airlines. During the 1980s, Chile, New Zealand and the UK implemented far-reaching deregulation and privatisation of almost all infrastructure sectors. Since the late 1980s, at least 145 companies in 30 countries have been privatised and at least 146 new projects in 34 countries with significant private participation started in power, natural gas, telecommunications, roads and water. Many more initiatives have been undertaken in sectors where privatisation is easier, such as waste management, airlines and surface transport services. Currently, more than a thousand new private infrastructure projects are under consideration worldwide.

In many OECD and Latin American countries, the current flurry of privatisation of existing facilities is driven by dis-

enchantment with the efficacy of State solutions and precarious government finances. Private provision of new facilities is also being pursued in fast-growing countries where fiscal revenues are a low share of output, most notably in East Asia. The other key driver is technological change, which has always influenced the degree of competition possible. Today, telecommunications is particularly affected as new transmission and compression techniques allow private competition where monopoly once reigned.

While the specific motivations and circumstances vary by countries, and within countries by sectors, there are five basic pragmatic and non-ideology-related factors leading countries across the world to consider enhanced commercialisation of infrastructure provision:

Massive Investment Needs: The huge investment needs projected cannot be met within the financial resources of the State, without crowding out other priority social and economic programmes that can only be carried out by the State.

Currently, countries invest about 5 per cent of their GDP in such physical infrastructure; more than 90 per cent of this is public investment. At this level of investments, many countries are facing major infrastructural bottlenecks. Future investment needs are projected to be much higher because of demands created by rapid urbanisation, and the need to make up for past inadequate investment and, most importantly, because of the high economic growth rates. As already mentioned, during 1996-2005, developing countries in East Asia will need to invest \$1.3-1.5 trillion. But, most of them are being forced to curtail overall public spending and yet increase allocations to social programmes. They are not in a position to simultaneously increase outlays on infrastructure projects. The only solution is to turn increasingly to private financing.

A similar situation exists in most developed countries. In their case, the share of the public sector has increased to between 40 and 50 per cent of GDP in most countries. But much of this increase is devoted to social security and related expenditures, leaving little for infrastructure. In some of these countries, the real need is the replacement of old existing infrastructure. In others, the quest is to install more modern transport systems for the 21st century using the latest technology. Such infrastructure is extremely capital-intensive: the only choice then is to go for increasing commercialisation.

Managerial Constraints in the Public Sector: While there are well-performing public utilities in some countries, the quantity, quality, and cost-effectiveness of infrastructure services overall have not kept up with the needs of either the general public or the business community in most countries. The public sector is unable to keep up with the myriad decisions and managerial challenges associated with the acceleration of investments at a time when the infrastructure business is becoming more complex.

**To compete for FDI,
facilitate exports,
and improve their
competitiveness, all
East Asian countries
recognise the need
to improve
infrastructure.**

Efficiency of investment has assumed new importance in the context of fiscal stringency. There is greater demand for accountability in public expenditures. When infrastructure facilities are developed by the State or State agencies, there is typically little connection between the cost of funds and the returns from the investment. Consequently, there is little accountability. Often, public sector entities are not good at responding to consumer needs owing to rigidities in their management structures, the necessity to follow government-set rules and regulations, and inappropriate incentive structures. Thus a demand has arisen for commercialisation and privatisa-

tion of infrastructure in order to inject greater efficiency.

Changes in Technology: Changes in technology, particularly in telecommunications, computers and electronics now make it easier to charge for marginal usage of services. For example, in telecommunications, it is possible for different service providers to be linked through the same network to the ultimate consumer. Computerisation allows the consumer to be charged on a marginal usage basis and each provider to be given revenues according to different use by different subscribers. It has therefore been possible to introduce competition, particularly in long-

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Private Sector in Infrastructure: Conventional Concerns

NUMEROUS studies of infrastructural facilities suggest that private operators cost less than public operators as long as there is competition to ensure efficiency. Some private sector "savings" may simply be transfers, yet private firms do appear to have a number of potential real cost advantages as well. These are created in part by the incentives provided by the profit motive, in part by avoidance of some cumbersome public sector bidding and contracting requirements, and in part by achieving efficiencies of scale, scope and experience that might elude public operators.

Private operators, for example, may have a stronger incentive and more flexibility in using resources such as labour productively. Comparisons of labour-intensive public and private services, such as garbage collection, often show that private firms have higher labour productivity because they have more freedom to structure the compensation, promotion and other incentives to encourage worker productivity and are less constrained by cumbersome work rules. Similarly, some private landfill operators use their sites and labour more efficiently by giving managers and employees strong incentives to compact trash more thoroughly and grade and cover it more carefully.

Private firms may also achieve real cost savings by building facilities more quickly. The public sector generally plans, designs, bids and builds major facilities in a sequential process, completing each stage before the next is begun. Private firms may have more flexibility to use design-build or fast-track parallel processes, in which design engineers and private contractors are selected simultaneously and the planning, designing, building and construction phases overlap. For example, proponents of the private Dulles Toll Road Extension in the US assert that they can plan, receive approval for, finance and build a road in four to five years, which is two or three years faster than what the Virginia Department of Transportation would take to build a similar facility. Faster construction saves on the capital required for a project by bringing the investment into service more quickly.

The Dulles Toll Road Extension has so far, though, been marked by delays from the corporation's original schedules. In April 1988, the toll road backers estimated that the road would open in the fall of 1991, but that schedule has been extended several times. These delays, however, are due in part to public regulatory oversight.

Ironically, the private sector may also be better able to exploit economies of scale, scope and experience. For example, private firms building or operating a number of plants in a variety of locations may achieve greater specialisation of labour by being able to afford experts with specialised technical or managerial skills, while smaller public agencies rely on generalists. Multiple plant operation may also allow the private operator to achieve economies in administrative or overhead functions and offer staff more opportunities and incentives for career advancement (and so to recruit a better workforce at less cost, all else being equal). Private operators may also be better placed to exploit their experience, or the learning curve, since, as they build larger plants or build plants more often, they do not have to learn about the practical and technological problems afresh each time.

The public sector may encounter difficulties in achieving these economies of scale, scope and experience on its own (or more precisely, without contracting with the private sector). Even if they band together on a regional basis, for example, local communities are unlikely to build or operate more than one large waste recovery plant or landfill every decade or two. The public sector's appreciation of these potential economies is reflected in the near-universal practice of contracting with private firms to construct complex infrastructure facilities (even when they are publicly owned), and in the growing practice of contracting for management as well.

Source: Gomez-Ibanez, Jose A. et al in "The Prospects for Privatising Infrastructure: Lessons from US Road and Solid Waste", Journal of Transport Economics and Policy, September, 1991.

distance services whereas earlier, telecommunications was regarded as a natural monopoly and therefore suitable for public sector provision. Similarly, smart cards, electronic billing etc. are making it possible to potentially charge for road usage on a marginal use basis without the disruption caused to traffic by toll booths. In the case of power too, it is now increasingly feasible for different service providers to have access to the same consumer over the same network according to the consumer's choice. Computerisation also enables power pricing to be much more sophisticated so that different prices can be charged at different times of the day or according to the rate and type of consumers. It is also becoming possible to exclude those who do not pay without excessive disruption. The need for regulation is also reduced to the extent that more competition becomes possible.

Technology changes have also made it possible to unbundle infrastructure services. Today, different telecommunications services such as international, domestic long distance, local services, other value-added services, can be provided by different firms. In power, it is now quite easy to separate generators from transmission providers and distributors. In general, greater opportunity for unbundling services enables the increasing introduction of competition and therefore the participation of the private sector.

Globalisation: Many surveys of transnational corporations have indicated that the quality and cost of infrastructure is one of the primary considerations in their decisions as to where new investments should be located. To compete for FDI, to facilitate exports, and more generally to improve their competitiveness, almost all East Asian countries recognise an urgent need to improve the quality and variety of infrastructure services. Many countries see greater involvement of the private sector within a competitive environment as a tool to improve efficiency—both of investments and operations—since private companies are seen to be better at assessing market needs and managing risks. In political economy terms, privately provided services are also seen as better able to charge market prices. Elimination of subsidies would in turn moderate growth in demand, as well as reduce investment needs and consumption subsidies.

Adequate quantity and reliability of infrastructure are key factors in the ability of countries to compete in international trade. In fact, globalisation of world trade has arisen not only from the liberalisation of trade policies but also from major advances in communication, transport and storage technologies. These advances centre on managing logistics—the combination of purchasing, production, and marketing functions—to achieve cost savings in investing and working capital and respond more rapidly to customer demand. During the 1980s, order cycle times in OECD countries have reduced by up to 80 per cent. More than 60 per cent of production and sales in these markets are now processed directly to order, and “just in time” (JIT) delivery to customers is projected to increase continuously.

Virtually all the improved practices designed to reduce logistics costs, including those in transport, have been based on information technologies using telecommunications infrastructure. Cost reductions and the increased speed of freight movements over the past few decades have also been increasingly based on multi-modal transport involving containerisation, which requires intensive co-ordination by shippers across rail, port, air and road freight modes.

The exigencies of modern logistics management in developed industrial countries pose similar requirements on developing countries wishing to compete in these markets. Global sourcing has created interwoven networks of international trading and industrial relations, in which businesses in several countries produce different components of the same final product. The ability of developing countries to provide the transport and communications services essential for modern logistics management will increasingly determine their ability to compete for export markets and FDI.

In India the freight rates of container traffic and transit times through ports exceed those of Asian competitors by large margins, which seriously constrains the country's export promotion goals. The main reason for this poor performance lies in excessive regulation of trade and transport, administrative practices and inefficient management by public transport entities. The evidence of trade performance indicates that dysfunctional regulatory and administrative practices which reduce quality and reliability of trade and transport services can be a serious impediment to growth of international trade, even if physical infrastructure is otherwise good. However, structural reforms of the policy and institutional environment for trade and transport cannot be a substitute for the minimal transport and communications infrastructure needed to compete in export markets.

New Dynamism in World Capital Markets:

Before the First World War, most governments typically did not have adequate resources for undertaking infrastructure activities. Taxes were low, collection abilities were limited and government centralisation was inhibited by lack of transport and communication facilities. At the same time, capital markets functioned relatively well, particularly in the UK and other European countries. However, the first 50 years of the 20th century were punctuated by a number of political and economic dislocations. The First World War, the Russian Revolution and ensuing Soviet default on Russia's foreign debt, the Wall Street Crash of 1929, the resultant Great Depression in the capitalist world, the bond failures of the 1930s and the Second World War, all occurred in rapid succession within a period of about 30 years. One significant consequence of these dislocations was the collapse of the global capital market which had otherwise developed well in the latter part of the 19th century and the first decade of the 20th. Similarly, the exchange rate regimes also became restrictive, thereby imparting considerable rigidity in the settlement of international payments. When the

Ensuring efficient, responsive delivery of infrastructure services

The incentives need to be changed, through commercial management, competition and stakeholder involvement.

Second World War ended, capital markets in most countries except the US were not functioning well. Consequently, there was little choice but for the public sector to provide the required infrastructure investments throughout most of this century. International movements of capital were mediated through institutions such as the World Bank and private international banks.

However, the 1990s have seen the re-emergence of both domestic and global capital markets which can be accessed relatively easily by private firms, institutions and governments. Gross private capital flows to developing countries have risen from about \$20 billion in 1985 to \$42 billion in 1989, \$113 billion in 1992, and \$173 billion in 1994: nearly a nine-fold increase in as many years. These private flows are now about three times of official development assistance. About half of the \$173 billion transfer in 1994 consisted of foreign direct equity and another fifth of portfolio investment. Thus, the private sector now has access to the kind of resources needed for infrastructure investment.

There are many reasons for this increased flow of private resources from the developed to the developing world. As the population of the OECD countries has aged, contractual savings in the form of life insurance, pension funds and the like have expanded very considerably. Currently, there is a particular bulge in the volume of funds available with such institutional savings organisations because of post-Second World War baby boomers who are now at the peak of their earnings cycle. This situation is expected to continue for at least another decade. These funds are searching for high-return opportunities outside the OECD countries as the returns on investment in these mature economies are lower than in the newly industrialising economies. This is a welcome opportunity for developing countries to attract these large footloose funds so that they can be channelled into infrastructure investment.

At the same time, with their functions expanded, particularly after the Second World War, governments have over the years resorted to increases in taxes and borrowing to finance all the activities that they had started to get into. Because of the lack of inadequate returns in many of these activities, they have had to continue to increase their borrowing. The result is that most governments, both in developed and developing countries, have now reduced access to resources since an increasing proportion of revenues has to be devoted to the servicing of past debts. In our own case, the government has now run a revenue deficit for many years. The GoI is borrowing from the market to finance even current expenditures. Thus all government infrastructure expenditures are now being financed by market borrowings.

However, many of the other problems remain. Many infrastructure projects have high initial costs accompanied by long payback periods and high risk. The private sector overcoming these problems requires institutional and other interventions both through appropriate regulation and through the development of the capital market. A certain degree of monopoly will always remain in the provision of infrastructure ser-

The State will retain a strong role in provision, regulation and subsidising of infrastructure. What is needed, however, is transparency.

vices and will therefore require different degrees of Government regulation.

Finally, the problem of adequate access to these services for the poor and hence of cross-subsidies will remain. Consequently, whereas it is clear that there must be a greater degree of private participation in the provision of infrastructure, the Government will always retain a strong role both in direct provision in areas not amenable to appropriate financing and user charges, and in regulation in other sectors. The Government's role in providing subsidies where necessary will also remain. Thus, what is necessary is a transparent framework which promotes synergistic firmness of public-private partnership in infrastructure provision.

The Social Dimensions

Impact on the Environment: The relationship between each infrastructure sector and the environment is complex. Infrastructure's linkages to the environment, as to poverty, are felt both through its effects on the quality of life and on economic productivity. These effects may be positive as well as negative, depending on the nature of each infrastructure development and what the alternatives are. While there may be trade-offs between economic benefits and the environmental impacts involved in particular cases, there is a wide scope for "win-win" strategies through which the quality of both services and the environment can be enhanced.

Negative environmental impacts often result from a failure to take account of interdependencies among infrastructure sectors. For example, underinvestment in sewerage relative to water supply in many places has led to harmful contamination of water reserves, exacerbated flooding, and reduced the health benefits from water investments. Poor management of solid waste and inappropriate disposal further complicates waste water disposal and urban street drainage.

There are also many positive opportunities for synergies among activities in infrastructure and other sectors to increase both environmental and economic benefits in urban areas. For example, reclaimed landfill sites and wetlands used for sewage treatment can be developed into recreational parks. Duckweed ponds can serve both as waste water treatment and a source of high-quality protein feedstock for animals. Methane can be extracted from sewage treatment plants and from the decomposition of organic matter in landfills and used as fuel. Compost from organic solid waste can restore soils, and properly treated municipal sewage and waste water can be used for irrigation. Recycling of municipal solid waste can reduce the requirements for virgin raw materials, such as trees for pulp. Technical and economic requirements may not make these options attractive or feasible in all cases, but examples do exist of their current application even in some of the least developed countries.

Impact on Productivity: Infrastructure developments, such as improved transport, which reduce workers' time spent on

non-productive activities, or which improve health status (for instance, through better access to clean water and sanitation), raise the economic returns on labour. By the same token, the lack of affordable access to adequate infrastructure is a key factor in determining the nature and persistence of poverty. Inadequate access affects the time allocations of the poor and thus their ability to engage in income-earning activities or activities which would have a greater impact on the household's welfare (such as child care or food preparation).

Impact on Health: Inadequate infrastructure can have multiple effects on health, and thereby on labour productivity as well as quality of life. Improvements in water supply and sanitation have a large impact in reducing morbidity from major water-borne diseases (ranging from 25 to 78 per cent) and reducing the severity of disease when it occurs. It is interesting that the health benefits are not assured merely by access to the physical infrastructure of water supply. Adequate sanitation (excreta disposal) is critical to the reduction in incidence and severity of diseases and thus planning for both water supply and sanitation needs to be better integrated. Moreover, research has found that consistent and reliable operation of the facilities are necessary—for example, they must not fail during

seasonal transmission periods of the diseases—and must be supported by appropriate behaviour of users regarding personal and domestic hygiene.

In addition to the obvious linkage between water and sanitation and health, the quality of transport and communication infrastructure can affect access to health care. Air pollution and safety hazards connected to motor transport—accidents on congested routes—also affect morbidity, particularly in densely populated areas, where the poor are often concentrated.

Linkages to Poverty: The main point from the above discussion of infrastructure's linkages to productivity and health, and its implication for poverty is not that the provision of infrastructure is often highly unequal, as is so often the case with other resources as well. Rather, the way in which infrastructure is provided and especially the way in which it is financed, have implications for the potential to mitigate poverty and reduce inequalities in the longer term.

The impact on low-income individuals' access to infrastructure depends on the options available, and the poor as a group have fewer or less attractive options than the rich. Alternative sources of service (e.g. by investing in their own

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Privatisation of Infrastructure in Malaysia: Support Options

LIMITED recourse is almost universally adopted for financing large infrastructure projects in Malaysia. Outright government guarantees, common in the past, are being replaced by implicit guarantees such as those given in greenfield projects undertaken by the five independent power producers (IPPs). The attendant risks of demand and inflation are passed through to Tenaga Nasional—a privatised group with government shareholding, under a power purchase agreement that includes a minimum uptake of electricity output.

Tenors have stretched from five years to 10—and now 15 for the IPPs. In the last five years, 7 per cent of an estimated M\$40 billion has been securitised. Securitisation is still limited because the covenants are not as watertight as in other, more regulated markets. With the IPPs, for instance, exchange rate risks are not taken into account. Given the rising foreign currency component in technically-intensive projects, debt raising remains localised.

As capital market financing is limited, issues have focused on syndication, using commercial paper and debt notes, typically on half-floating, half fixed-rate pricing. The entry of the Employees Provident Fund (EPF), however, with a monopoly on M\$10 billion, into the market two years ago has led to the emergence of long-dated, fixed-rate, traceable and, invariably, fully-subscribed bonds. Although there is little difference between EPF-held paper and straight debt in structure, the fund's entry simplifies documentation, speeds up the sale and shifts attitudes towards accep-

tance of pure project risks. The EPF participation has permitted the IPPs to take off in two years, and has financed Kuala Lumpur's M\$1.2 billion light rail transit system and the M\$8 billion international airport.

Using land rights as a pivotal element in financing of infrastructure projects is also gaining ground. The six-mile land bridge linking Malaysia's Johore state with Singapore is being financed in two tranches: M\$351 million in payments from an associated company developing a nearby piece of land, and a M\$1 billion syndicated loan arranged by Commerce International Merchant Bankers (CIMB). The Malaysia-Singapore Second Crossing concession, held by civil works contractor United Engineers, is unlike earlier toll road projects by the company. There are no government guarantees for minimum traffic volume and no government soft loans—the two conditions which produced the successful syndication of the M\$6 billion North-South Toll Expressway.

With a return on equity on the project lower than the 12 per cent minimum that would make repayments viable, and insufficient revenues from bridge traffic, United Engineers secured a 14,700-acre site around the approach road to the bridge. This is to form the nucleus of the planned 27,000-acre town Gelang Patah, which is to be developed over 23 years at a cost of M\$83 billion. It is hoped that the land, priced at between 6 per cent and 10 per cent of Singapore's land costs, will attract local and Singaporean developers.

well or water pump, private transport, kerosene stoves or lighting, or by moving to a better-served neighbourhood) may be unavailable or unaffordable to the poor. Policies to improve access should not be focused mainly on reducing the costs of the formal supply systems, e.g. through subsidies on public utilities, since these are often poorly targeted as well as financially unsustainable. The main supply system may not even be the most appropriate for low-income users. At the same time, equity and efficiency are both served when private beneficiaries of public infrastructure investments are required to pay for them to the greatest possible extent.

Public policies should aim at increasing the range of affordable options for services of the type and quality required by the poor. Often, this will call for directing policies to facilitate alternative forms of provision by the private sector, within a framework of regulation which protects safety and fairness.

Impact on Technological Innovation: In a fundamental sense, and today more than ever before, infrastructure provides the key to modern technology in practically all sectors. The changes in markets and production brought about by the railways and electric power in the past are significant enough, but are dwarfed by the telecommunications-based information revolu-

The second such project where land is pivotal is the National Sports Complex. Part-payment for the M\$550 million (\$229 million) project, due for completion in 1997, is being made through offering land for development, here also to United Engineers. As part of the build-own-transfer concession agreement of the sports facility, the firm has been given the 32-acre piece of Merdeka land—the site of country's existing 1957-built national stadium—plus a 150-acre site at Bukit Jalil. The sites are valued at M\$423 million. The Merdeka land, with property prices rising in Kuala Lumpur, offers the most plausible option to meet the promoter's debt obligations. The sports complex has no long-term fixed revenue stream and so requires credit support by developing adjacent land. Using land rights to support the financability of projects requires a strong sponsor able to develop the land, and United Engineers carries considerable weight as a company.

One way to encourage special-purpose project vehicles in Malaysian project finance is through further deregulation on existing restrictions. At present, restrictions exist on the use of bank guarantees in financing by insurance companies. There are also multiple approvals required before debt instruments are issued, as well as a plethora of other minor regulations and tax and legislation hurdles. The Government has promised to simplify the process. Moreover, structural issues—such as the size and expertise of the banks, the lack of a defining class of assets, the absence of any benchmark yields, and the absence of a liquid secondary bond market—will all have to be addressed if Malaysia is to advance to the point where the domestic capital markets can be regularly tapped to finance infrastructure.

Source: Project and Trade Finance, July 1995

tion of recent decades. Electronic information systems underlies a very large share of production and distribution activities in secondary and tertiary sectors of the modern economy, including banking, government, and culture.

Information is today considered a factor of production by itself, and activities involved with the processing and generation of information account for one-third to half of GDP and employment in OECD countries, and a growing share of GDP in the modern sectors of LDCs. Technological change, which has drastically reduced the cost of communicating and expanded the range of services available, has also reduced costs of transportation and many other telecommunications-using activities. The result has been a dramatic change in cost structures and increased information intensity of many activities, a heightened globalisation of trade, manufacturing, and capital flows, as well as increased contact and cultural exchange across populations.

New Approaches

Delivery of Infrastructure Systems: The dependence on budgetary allocations has been essentially responsible for delays in the implementation of projects, due to the resultant non-availability of funds on time. Funds are released in intermittent dribbles and not necessarily in tune with expenditure patterns and optimal project cash flows. Consequently, projects are largely budget-driven, and as a corollary, efficient logistics management is accorded secondary importance.

The detailed planning and execution of infrastructure projects frequently involves a multiplicity of organisations and numerous administrative ministries. The procedure for approval of a project plan is lengthy and time-consuming. In the absence of commercial funding and a consequent need to recoup investments, little urgency is attached to completing projects on schedule. Cost overruns have thus been the norm, ranging up to even 1,000 per cent.

The generation of revenue and profit streams has rarely been a significant objective tied to the creation of a specific asset. Consequently, there is no tangible profit motive to drive the speedy implementation of projects. So, organisations implementing infrastructure projects have not had any incentives to go in for constant technology upgradation and the development of project management skills.

Service, however, is the goal and measure of infrastructure development. Hence, concern is shifting from increasing quantity of infrastructure stocks to improving the quality of services. And the source of improved performance in service delivery lies in the incentives facing the providers.

Insufficient maintenance, misallocated investment, unresponsiveness to users, and technical inefficiencies present issues which need to be addressed to improve delivery. The impetus to improvement lies in examining the institutional arrangements with the view to effecting systems of delivery which are more efficient, user-responsive, environment-friendly, and more resourceful in using public and private resources.

A new pragmatism, arising from an enhanced understanding of the relative strengths and weaknesses of governments and markets in infrastructure provision, is creating opportunities for reform of delivery mechanisms. Worldwide, liberalisation of markets and experiments with different forms of pri-

vate sector participation have provided a new body of experience to reinforce this attitude.

Stages in Development: The development of infrastructure projects typically involves three distinct phases, including project identification and planning, detailed design and execution, and operation and maintenance.

Presently projects are identified by various ministries of the Central/State Governments based on proposals put up by local organisations which act as their operational arms. The existing structure has been derived from the viewpoint of streamlining budgetary allocation of resources. Project proposals are therefore not based on commercial considerations, but frequently reflect social and political priorities, and budgetary constraints. Obviously, the process has inherent limitations.

The detailed design and implementation of projects is carried out by governmental departments and organisations which work under the supervision of the concerned ministry. In certain instances, GoI and State Governments have promoted autonomous organisations to undertake the development of a specific area on an integrated basis. Examples are the New Okhla Industrial Area Development Authority (NOIDA), City & Industrial Development Corporation Ltd (CIDCO) and the National

Basing project proposals on social and political priorities, and budget constraints, not commercial considerations, has inherent limitations.

Capital Region Board (NCRB), as well as innumerable state-level organisations.

Notwithstanding the creation of a legally distinct format, the organisations created continue to function largely as a government department, and are rarely permitted actual autonomy in operations. Frequently, the very basis of their constitution precludes independent decision making and the ability to raise resources outside conventional systems. Hence, there has been little incentive for these organisations to strive for technical upgradation, aesthetics and the provision of a full range of international-standard amenities.

The operation and maintenance of the projects are usually carried out by the same organisations that implement the project. Thus the DoT, MTNL and VSNL provide and maintain the telephone network, while the same function is discharged in the transport

sector by the PWDs, and in the power sector, primarily by the SEBs. Given the pressures to implement new projects, and the paucity of resources, maintenance budgets are typically minimal. This is in fact anomalous in the infrastructure sector, as a rupee of preventive maintenance would typically save tenfold the amount in repairs.

Since a typical project involves high capital costs and a long gestation period, a key aspect in ensuring its commercial

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Private Sector Involvement in Airport Development

THE privatisation of ABA (formerly the British Airports Authority)—owner of Heathrow, Gatwick, Stagnated, Aberdeen, Glasgow and Southampton Airports in 1987 through an initial public offering of 97 per cent of the equity marked the beginning of airport privatisations. Since then, the idea has been gathering momentum. A 25 per cent stake in Vienna Airport was sold to investors in 1992. Another 24 per cent was sold in 1992. One-fourth of Copenhagen Airport was sold in 1994. Rome's two airports are scheduled for privatisation in 1997. Australia has announced its plans to sell its four largest airports serving Brisbane, Melbourne, Sydney and Perth in 1997 to be followed by privatisation of 19 others by 2000. There are also greenfield options such as Athens' new Sprat airport for which a \$2.7 billion project financing closes in 1996.

Privatisation is becoming an attractive option as the airports are now close to capacity while air traffic is projected to continue growing at a rapid rate. The International Civil Aviation Organisation is forecasting a 5 per cent per annum growth in passenger kilometres from 1992 to 2003 and 6.5 per cent in freight-tonne kilometres,

which means that large sums are needed to expand and upgrade airports around the world. Inexpensively priced money can flow into airport financing through privatisation and the risks for the whole venture can be passed on to an independent company.

Despite the appeal of private sector sale or financing, however, a number of factors have stopped privatisation from becoming more common. Airports are seen by some governments as key to national security and therefore should not be in private hands; indeed, in some countries, airports share facilities with the air force. There are also conflicts between regional and national governments as well as air traffic control issues that make it difficult to envision certain airports in private hands.

There are also cases where government ownership has not adversely affected the financial independence or capital structure of the airports. Amsterdam's Schipol has been a limited liability company since 1958. The Central Government owns 76 per cent, the city of Amsterdam 22 per cent and Rotterdam 2 per cent. Privatisation is not on the cards. Schipol has a supervisory board which appoints the four-member executive board: a president and three managing direc-

viability is the expeditious implementation of the project within a defined timeframe. In addition, construction technologies and materials must be such as to minimise the high base project cost as well as truncate implementation time. This needs significant value engineering and involvement of agencies with superior project management expertise.

In the longer term, strategies that augment the capacity of local authorities to operate, maintain, and generate revenues would help induce systemic change. Such a strategy would also provide a platform for better levels of service and greater coverage. To promote operation and maintenance on a commercial basis, the project should be able to generate revenues that sustain acceptable standards of service operation and maintenance.

Incentive Structures for Efficient Service

Delivery: To ensure efficient, responsive delivery of services, incentives need to be changed through the application of three instruments—commercial management, competition, and stakeholder involvement. This requires a transformation in the role of Government and the private sector in delivery. And especially so in the context of the Indian economy, where constraints on budgetary allocations and dismantling of the allocated system of credit have resulted in competing demands on

tors. The current and former presidents both came from the Ministry of Transport. The executive board is responsible for policy making and development, but major decisions must be approved by the supervisory board which is by law charged with protecting the interests of the company.

With over 20 million passengers, 260,000 commercial aircraft movements, and 775,000 tonnes of cargo, Schipol is already among the four largest airports in Europe. Airline charges account for 44 per cent of total revenues. Of this, 59 per cent is derived from the landing fees (based on maximum landed weight) and most of the remainder from passenger fees (charged on a per-passenger basis to the airlines). Concession income accounts for 21 per cent of total revenue, and parking for another 6 per cent (a similar proportion to other major airports). Schipol has a well-defined pricing strategy, based almost wholly on competitive factors, aiming to stand broadly in the middle of the range among its key competitors. The airport provided a 6 per cent dividend from the mid-1980s until 1993 when it rose to 7.5 per cent.

The Schipol Investment Programme 1990-2015 amounts to DFL 22 billion, of which DFL 7 billion will be spent by the airport, and DFL 15 billion by government bodies (including Dutch Railways).

Source: Infrastructure Finance, December 1995-January 1996; S&P's Credit Review; July 27, 1994

The transition from monopoly to a more competitive system needs enforceable contracts to provide the stability needed for long-term investment.

the resource pool, in effect necessitating a greater induction of private capital in the delivery of infrastructure services.

Governments, though, have a continuing role. In addition to taking steps to improve the performance of infrastructure provision under their direct control, they are responsible for creating the policy and regulatory framework to facilitate delivery on a commercial basis, safeguard the interests of the poor, improve environmental conditions and coordinate inter-sectoral interactions.

Creating the institutional and organisational conditions for efficient and user-responsive delivery of infrastructure systems, thus, requires an understanding of the institutional arrangements based on a public-private partnership format and the incentives governing the delivery of such systems.

Infrastructure provision needs to be reoriented to function like a service industry that responds to customer demand. The high willingness to pay for some services provides greater opportunity for user charges, private sector involvement in management, financing, or ownership.

In the recent past, much has been said about the role of competitive markets in achieving an efficient allocation of resources. A fundamental feature of competitive markets is that they provide incentives and disincentives for effective institutional performance. Thus, the most effective way to achieve demand orientation is to expand the realm of competitive markets.

The Organisational Framework: The present organisational framework lacks integration in the planning and implementation of projects, is dependent on budgetary support from the Government for its fund requirements, and has failed to upgrade its technology and project management skills to international standards.

It is necessary to conceive of new institutions or adapt existing institutions to a format where the institution concerned has an equity stake in the project, and develops within it the relevant technologies and financing skills. It is also necessary that the tasks of the institution selected are clearly defined to include the dissemination of project appraisal skills, on-time project management and sector reform. The institutions would need to interface with Central and state governments, as well as municipalities and local authorities. If specific initial projects are successful, additional projects would, in the normal course, be undertaken with the same agency. At this juncture, it may be appropriate for the GoI to consider the creation of local joint ventures between the institution concerned and the local authority, to facilitate the rapid implementation of additional projects, and to create expertise at the field level.

To achieve integration in project implementation, it is necessary to create organisations to implement the projects. Such organisations would fulfil six objectives:

- To identify specific projects that could be taken up for commercial implementation
- To seek additionality in resources with respect to implementation of projects so identified

- To ensure project management and implementation along professional lines
- To attract new and appropriate technologies
- To seek skills upgradation with respect to project conceptualisation, techniques, costing, maintenance and aesthetics
- To promote the implementation of major projects under a self-sustaining format in conjunction with local authorities and municipalities

Regulatory Design: A Continuum of Solutions

The transition from monopoly to a more competitive system, however, requires enforceable contracts to balance the interest of all stakeholders and to provide the stability needed for long-term investment. Comprehensive, transparent, and non-discriminating rules of the game need to be developed. Effective implementation of economic regulation requires a highly sophisticated information base which is usually unattainable, making the task of regulation extremely difficult. A greater appreciation of regulatory failure has led to progress in the design of simple rules to which regulators can precommit and that produce predictable and consistent outcomes. Also, involvement of stakeholders, especially users, can make the regulatory process more effective.

Under all regulatory systems, the notion of a "fair" price or return plays a role. Early on, it was understood that price or return regulation risked undermining the incentives for firms to invest and operate efficiently. Ever since, mechanisms have been sought to cope with the trade-off between fairness and efficiency. When prices are controlled, quantity and quality also require some regulation. Service and access obligations are embedded in all regulatory mechanisms. This opens the door for endless arguments and policies about who to serve at what price, with the risk of introducing inefficient and unjustified subsidies and cross-subsidies among customer groups.

Consequently, institutional arrangements to implement regulatory goals reflect the balance of interests in a particular situation and the political and administrative system of the country. A whole array of solutions is found across countries and sectors. Ownership may be private, mixed or public. Regulatory powers rest in varying degrees with the legislative, executive or judicial branch of the Government. Separate regulatory institutions may exist. Different levels of government may be involved—municipalities, provinces or the Central Government.

These various institutional arrangements are points on a continuum. All interfere with firm-level pricing and investment decisions. At one end of the spectrum, full nationalisation places all decisions in the hands of the State. Decisions are not transparent, consumers are represented only in their capacity as voters, not directly. Further along, the State establishes autonomous corporations, governed by performance contracts, which generally specify key pricing and investment decisions.

Transparency is enhanced. Still further along, private firms may be subject to regulatory oversight by agencies as in the US, which influence price and investment decisions. At the other end, in French municipalities, no separate regulatory agency exists. Consumers can exercise their rights through complaints and by voting in mayoral elections.

No Best Solution: Given that different ownership and oversight combinations exhibit similar features, it remains unclear why and how performance should systematically vary among them. Indeed, empirical investigations about the respective merits of alternative arrangements remain inconclusive. However, it is clear that regulatory systems are costly and often fail to achieve their goals. Recent estimates of the benefits derived from deregulation in the US amounted to some 9 per cent of the output of formerly-regulated infrastructure sectors.

Furthermore, for this very same reason, the privatisation-regulation-nationalisation cycle may arise, not inevitably, but with some likelihood. Regulation imposed on private firms tends to weaken their incentives to perform and involves "the public" in decisions about levels of income and subsidy. When firms do not receive sufficient revenues and when prices are kept artificially low, demand will be large and supply insufficient and of poor quality. More Government intervention culminating in nationalisation will cloak the problem. When subsidies required to obtain acceptable service quality can no longer be borne by the public purse, privatisation will once again be seen as a remedy.

Estimates of the benefits derived from deregulation in the US amounted to 9 per cent of the output of the formerly-regulated sectors.

Summary

The availability of adequate infrastructure facilities is vital for the acceleration of economic development. Knowing this, governments have traditionally accorded high priority to investment in sectors such as railways, roads, power, telecommunications, ports, water supply, sanitation, sewerage and airports. Infrastructure services are often monopolistic in nature; they usually involve high upfront costs and long payback periods; and investments are typically bulky and lumpy. The existence of externalities also makes it difficult for infrastructure entities to both capture investment costs and operational expenses through the levy of user charges. Consequently, the supply of infrastructure services has been predominantly provided by the public sector in almost all countries for most of the 20th century. In the 19th century, however, a good portion of infrastructure investments were provided by the private sector.

A wave of privatisation and deregulation has been sweeping infrastructure sectors around the globe for the last decade or so. These bold new approaches promote improvement in efficiency and service quality. Whereas the specific motivations and circumstances vary by countries, and in countries by sectors, there are five basic pragmatic and non-ideology-related factors that are leading countries to consider enhanced commercialisation of infrastructure provision. First,

the massive investment requirements arising from sharply rising economic growth rates are pushing countries to look for additional sources of financing, given fiscal stringency in most countries. Second, the rising awareness of the importance of efficiency in investment and delivery, in a tight fiscal situation, is also giving rise to rethinking on the ability of government-owned entities to supply these services in an adequately businesslike manner. Third, changes in technology now make it easier to charge for marginal usage of infrastructure services where it was not possible before. Such technological changes are making possible the introduction of competition horizontally and unbundling of services supplied vertically. Fourth, the increasing recognition of the need to compete in the global marketplace is putting additional pressure on countries to provide efficient infrastructure services to their businesses in a cost-effective and competitive basis. Higher infrastructure costs in terms of both price and time delays can make the difference between firms being globally competitive and otherwise. Fifth, the new dynamism and integration of world capital markets has vastly increased the possibility of private firms raising large funds for infrastructure investment on a commercial basis whereas, earlier, it was governments which had better access to resources. In many cases, it is now the private sector which can source large funds internationally.

But despite these forces pushing most countries towards the commercialisation of infrastructure services, there is also increasing understanding of the social dimensions of infrastructure. In poor countries in particular, the State bears a responsibility to provide the impoverished adequate access to basic services such as health, education, water supply, sanitation and sewerage. Moreover, given the continuing monopolistic elements in most infrastructure services, despite the new possibilities of competition mentioned above, the State remains responsible for providing the appropriate regulatory frameworks which assist investors and infrastructure entities on the one hand and protect consumers from monopolistic exploitation on the other. The commercialisation and unbundling of infrastructure also lead to considerable increase in transaction costs which have to be mitigated through transparent and appropriate regulation.

The general conclusion is that whereas the possibility of commercialisation of infrastructure investment and services has increased tremendously over the last decades, the role of the public sector in both actual investment and delivery of services and in regulation will continue to be vital. This scenario therefore suggests the introduction of a new framework for

public-private partnerships in different forms so that appropriate investment can fructify.

This Report examines all these issues and provides directions for policy reforms which can help in greater commercialisation along with the promotion of public-private partnerships. Chapter II provides estimates of the investments required over the next 10 years, from 1996-97 to 2005-06. These estimates are made both from a macro-economic viewpoint which provides limits of what is feasible in the context of a relatively robust growth of the economy at an average of about 7 per cent per annum, and also from the bottom up for different sectors according to perceived requirements which have then been aggregated. The latter clearly comes out to be greater than the macro-estimates of feasibility. Chapter III provides an approach to commercialisation of projects along with an analysis of the different kinds of risks involved in infrastructure investment, and suggestions for their appropriate allocation. Chapter IV gives a review of the existing capital market framework in the country and makes projections for the sources of funds that would be required for the investment estimates made in Chapter II. These projections suggest the necessity for a vast expansion of the capital market, particularly on the debt side. This chapter then provides policy directions required to activate the debt market, particularly the long-term debt market, essential for infrastructure investments. Chapter V reviews the overall regulatory framework governing different infrastructure sectors. It provides pointers to the approach required to make regulation transparent and protect investors and infrastructure entities, and the needs and interests of consumers. Finally, Chapter VI suggests some fiscal reforms which may be necessary to channel the kind of resources required over the next decade.

Volume II of this Report takes an in-depth look at the investment requirements and regulatory practices in each of six sectors.

- Urban Infrastructure
- Power
- Telecommunications
- Roads
- Industrial Parks
- Ports

The approach in each of these sectoral reviews is consistent with the overall approach adopted in the main part of these Report. Some key sectors where a similarly appropriate level of examination was not possible include railways, civil aviation and airports, shipping and water transport.



The Investments Required: 1996-2006

INFRASTRUCTURE requirements are not easy to estimate at any time. Different countries have developed elaborate systems of planning devoted to finding methods and processes which could look ahead in order to co-ordinate the investment requirements of infrastructure with the rest of the planned growth of the economy. These procedures, mostly designed for ordering investments within the public sector itself, were essentially supply-oriented and were often unable to take adequate cognisance of the existing and anticipated levels of demand. Large errors have been made in different countries: either overinvestment in infrastructure much before the actual appearance of demand or, conversely, underinvestment because of failure to anticipate the demand. Consequently, investment plans for infrastructure have often gone awry.

The situation now is vastly more complex. First, the pace of change itself has accelerated. Sustained growth rates in per capita incomes of 7 per cent and above have been achieved by many of the South East and East Asian countries in recent decades. We hope that this contagion of high growth will now spread to India as well. If India does begin to accelerate its rate of growth, as seems to be happening, it is difficult to anticipate well what the requirements will be over the next decade. Second, the pace of technological change has also quickened. The best example of this in the infrastructure sector is in telecommunications. The introduction of satellite-based communications, cellular telephony, and the like has totally transformed the sector in ways that could clearly not have been foreseen even a decade ago. Technological changes have very

large effects on costs of materials, services and equipment. Thus the estimation of requirements for infrastructure investment is fraught with difficulty since it is nearly impossible to anticipate such changes. Third, with the introduction of the private sector and overall commercialisation wherever feasible, demand for infrastructure is likely to become much more price-sensitive. Infrastructure will presumably be provided in many sectors only if it is commercially viable; this makes anticipation of both demand and supply more difficult as compared with need-based estimates.

We have therefore undertaken this exercise with a certain degree of humility and trepidation. The objective is to provide estimates of broad magnitudes that are seen to be feasible at the present time. The attempt is to improve the level of information that is available at present. This should help in shaping expectations of the different players in the area of infrastructure: the government, suppliers of funds in the capital market, infrastructure entities making plans to make investments in the infrastructure sector, foreign investors, and the general public.

We have used two broad approaches to making these estimates. The first is a macro-economic approach painting a feasible scenario for the country's economic growth over the next 10 years and thereby deriving the broad magnitudes of infrastructure investment which are seen to be consistent with such growth. Though based on a macro-consistency framework so that the sums are kept consistent, the approach is a judgmental one in positing a relatively optimistic scenario of

INDIA: ECONOMIC GROWTH 1980-1994

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95
Real annual growth rates (%)															
GDPmp	6.6	6.5	3.8	7.4	3.7	5.5	4.9	4.8	9.9	6.6	5.7	0.4	5.3	3.9	6.3
<i>GDP at Factor Cost</i>	7.2	6.1	3.1	8.2	3.8	4.1	4.3	4.3	10.6	6.9	5.4	0.8	5.1	5.0	6.3
<i>Agri. & Allied Services</i>	12.9	5.9	-1.2	10.8	0.0	0.3	-1.7	0.4	16.3	1.7	3.8	-2.5	5.3	4.2	4.9
<i>Manufacturing</i>	0.2	8.0	6.5	9.9	6.5	4.0	7.0	7.3	8.8	11.7	6.2	-3.2	3.1	4.7	9.0
<i>Mining and Quarrying</i>	12.2	13.5	11.5	2.7	1.4	5.5	13.5	3.4	15.0	7.3	10.7	3.7	2.3	2.9	4.3
<i>Other Industry</i>	11.2	6.4	-1.7	7.0	5.8	6.1	6.6	4.7	8.6	6.8	6.7	5.6	5.3	5.9	7.4
<i>Services, Etc.</i>	4.2	5.0	6.5	5.2	6.3	7.4	7.6	6.1	7.3	8.9	4.4	5.4	4.9	7.3	6.0
GDP Deflator	100.00	110.26	118.46	128.50	138.12	148.46	158.14	171.68	185.51	200.92	222.92	255.63	277.69	303.57	337.12
GDP- Inflation	11.6	10.3	7.4	8.5	7.5	7.5	6.5	8.6	8.1	8.3	10.9	14.7	8.6	9.3	11.1
<i>(percentage of GDPmp)</i>															
GDP at Factor Cost	90.0	89.6	89.5	89.9	90.1	89.2	88.8	88.5	89.1	89.5	88.8	89.4	89.0	90.3	90.3
<i>Agri. & Allied Services</i>	34.3	33.0	31.5	32.5	31.1	29.4	28.1	27.7	28.8	27.8	27.6	28.5	27.4	27.7	28.1
<i>Manufacturing</i>	15.9	15.8	15.8	15.9	16.1	15.9	15.8	15.9	15.9	16.9	16.6	15.7	15.8	15.4	15.7
<i>Mining and Quarrying</i>	1.4	2.2	2.5	2.4	2.4	2.4	2.3	2.1	2.3	2.3	2.2	2.0	2.1	2.1	2.0
<i>Other Industry</i>	6.0	5.9	6.1	6.2	6.5	6.8	7.1	7.2	7.1	7.1	7.1	7.1	7.2	7.5	7.6
<i>Services, Etc.</i>	32.4	32.8	33.6	33.0	34.0	34.6	35.5	35.6	35.0	35.4	35.3	36.1	36.5	37.6	36.9
Net Indirect Taxes	10.0	10.4	10.5	10.1	9.9	10.8	11.2	11.5	10.9	10.5	11.2	10.6	11.0	9.7	9.7
Gross Domestic Investment	22.7	21.4	20.4	20.1	19.7	22.2	20.9	22.9	24.5	24.9	27.0	23.4	23.1	21.6	25.2
Current Account Balance	-1.7	-1.9	-1.6	-1.5	-1.8	-2.8	-2.6	-2.5	-3.1	-2.7	-3.4	-0.6	-1.6	-0.2	-1.0
Memo Items															
Population (million)	687.0	701.8	716.9	732.3	748.1	764.2	780.6	797.4	814.6	832.1	846.3	861.7	877.0	892.5	907.8
Per-Capita Income*	1980	2065	2098	2206	2239	2312	2373	2434	2619	2732	2839	2800	2896	2957	3090
Per-Capita Income**	1980	2276	2485	2835	3093	3432	3753	4179	4859	5490	6328	7158	8042	8975	10416

Source: CSO, National Accounts Statistics; *(Rs at constant prices); **(Rs at current prices)

growth over the next decade. This approach provides an idea of the limits of infrastructure investment levels that are feasible in an upbeat scenario. This is essentially a top-down approach.

The main objective of this approach is to place the required infrastructure investment within the broad macro-economic context and trends. A macro-economic model has been used to capture the main variables such as savings, investment, sectoral outputs, and giving particular attention to the balance of payments—both current and capital accounts. The economy can be made to grow in this framework while ensuring the existence of the various standard macro-economic identities. Although point estimates have been given for each variable, they should be interpreted as broad ranges in each case since the projections provided are mainly intended to give an idea of the range of magnitudes implied by the relatively optimistic scenario of growth that is modelled in this framework. Different simulations could have been made for exhibiting such ranges but they would be difficult to discuss and present. Thus only the most preferred scenario is being provided.

The second approach is a bottom-up one attempting to aggregate the investment requirements from estimates in each sector. These sectoral estimates are also judgmental, based on what sectoral experts are projecting in terms of requirements in each sector. They are somewhat normative since they reflect views on what should (ITALICS) be invested in order to provide reasonable quality and quantity of services for satisfying the people's perceived needs. They have, however, been tempered so that the projections are not too inconsistent with past investment trends. The area of greatest difficulty is that of urban infrastructure which currently exhibits perhaps the most acute underinvestment. It is also difficult to estimate what the past trends have been since the data are not easily segregated from either the national accounts or sectoral sources.

Overall, the two approaches provide rather different results. The aggregation of the bottom-up estimates provides volumes of investment much in excess of what may be feasible in even an optimistic macro-economic scenario. But we have made no attempt to reconcile the two estimate sets. The sectoral estimates provide some idea of the potential requirements and aspirations in the country within each sector. The macro-based estimates give a sense of what is feasible in the aggregate. The difference provides an index of the excess demand for capital that is likely to manifest itself. The difference also indicates the role that appropriate pricing will have to play in moderating the expected demand, as well as the importance of cost reduction and efficiency improvement in infrastructure provision in each sector.

The overall estimates are used to derive some idea of what is likely to be the total draft on the capital market in the country in terms of both equity and debt. These estimates provide pointers for capital market reforms and institutional development that would be necessary if such magnitudes of funds are to be mobilised.

Projecting Economic Growth: 1996-2006

What rate of economic growth can be expected over the next decade? What are our aspirations and what is feasible? The growth of Indian national income (gross national product, GNP) was in the range of 3 to 3.5 per cent per year between 1950 and 1980, the first three decades after independence. Annual per capita income growth was about 1 to 1.5 per cent over this long period—low enough to be barely perceptible, but nonetheless, a significant departure over the previous 100 years. A noted acceleration took place during the 1980s when annual GNP growth increased to about 5 to 5.5 per cent. Consequently, per capita income growth accelerated to a range of 3 to 3.5 per cent per year over this decade—a very significant jump over the previous 30 years. As a result, officially measured levels of absolute poverty began to decline perceptibly—though they continued to be unacceptably high. Some portion of this acceleration in growth was caused by the compositional shift in the structure of the economy. As the agricultural economy has grown consistently slower than the rest of the economy, its share has fallen, and the weight of the other sectors has risen. Consequently, with further acceleration of the growth of the industrial and service sectors during the 1980s, overall growth in GNP jumped. It should also be noted, parenthetically, that the planning process laid particular emphasis on infrastructure investments during this decade.

In order to estimate the country's infrastructure requirements over the next 10 years, we have projected the overall growth of the economy until the year 2005-06. Until 1995-96, we have shown all economic magnitudes at current prices and external transactions at the prevailing exchange rates for each year. In our projections for 1995-96 to 2005-06, we have eschewed any projections of inflation or of exchange rate. Thus all magnitudes in our pro-

jections are in real terms, made at constant 1995-96 prices and at a constant exchange rate of US \$ 1 = Rs 35.

The economic reforms since 1991 are particularly designed to improve efficiency in the economy. The introduction of competition in every sphere of activity, the opening of trade, the freeing and opening of capital markets, the availability of free access to foreign investment and technology, and the introduction of the private sector into most areas reserved hitherto for the public sector, should all result in better allocation of resources and hence greater efficiency in the economy. Higher levels of productivity should result in the attainment of a lower overall incremental capital output ratio. In other words, if the economic reforms have the effect that they are designed to achieve, higher income growth should be achieved from even the same levels of gross investment. The average level of gross domestic investment was in the region of 23 to 24 per cent of GDP during the 1980s. This yielded an average rate of GDP growth of about 5 to 5.5 per cent, giving an incremental capital output ratio (ICOR) of about 4.2 (Table 2.1). Even if the

**Assuming that ICOR
reduces to 3.5
results in the
current GDP growth
rate of 6.2 per cent
rising to 7.5 per
cent in 2000-01 and
8.5 in 2005-06.**

Key economic ratios of selected developing countries (1965-1994)

	1965	1973	1980	1985	1990	1991	1992	1993	1994
China									
Gross Domestic Investment/GDP	24.0	29.0	30.1	38.6	33.2	35.1	34.4	41.2	43.6
Gross Domestic Savings/GDP	24.8	29.8	28.3	34.7	37.3	38.4	37.0	40.2	44.2
GDP (average annual growth)*	8.5	5.3	10.2	8.1	12.7	8.4	14.3	14.0	12.6
Exports of goods and nfs/GDP	4.2	4.6	10.2	10.5	19.1	18.7	22.5	23.9	24.9
Imports of goods and nfs/GDP	3.4	3.8	12.1	14.4	15.0	15.4	19.9	24.8	24.3
Current Account Balance/GDP		-1.6	-4.1	3.4	3.7	1.4	-2.8	0.4	
Total Debt/GDP			2.3	5.8	14.8	17.3	16.5	19.7	19.2
Total Debt/Exports			20.9	56.0	87.0	87.1	81.7	91.8	83.6
Total debt service/exports			4.3	8.3	11.5	12.1	10.2	11.1	10.9
ICOR (5 years average, 1 year lag)			4.7	2.9	5.0	4.9	4.1	3.6	
ICOR (1 year incremental)			3.9	2.4	9.4	3.9	2.3	2.3	
India									
Gross Domestic Investment/GDP	17.0	18.3	20.9	23.9	26.6	24.0	23.3	21.3	24.8
Gross Domestic Savings/GDP	14.9	17.7	17.4	20.8	23.7	23.4	22.0	21.1	24.1
GDP (average annual growth)*	3.7	3.8	5.3	6.6	3.6	1.2	4.8	3.5	4.9
Exports of goods and nfs/GDP	3.6	4.3	6.5	6.0	7.9	9.3	10.1	11.4	11.9
Imports of goods and nfs/GDP	5.6	4.8	10.1	9.1	10.8	9.9	11.4	11.6	12.6
Current Account Balance/GDP		-1.7	-2.8	-3.7	-1.2	-1.7	-0.3	-0.7	
Total Debt/GDP		13.8	11.9	19.1	27.6	28.5	37.2	36.6	34.2
Total Debt/Exports		297.6	136.0	263.7	314.7	274.3	329.1	287.8	268.2
Total debt service/exports		18.7	9.3	22.7	30.7	28.9	28.2	28.0	26.2
ICOR (5 years average, 1 year lag)			7.7	4.4	3.9	4.7	4.7	6.4	
ICOR (1 year incremental)			3.8	4.0	4.7	35.0	4.9	9.1	
Indonesia									
Gross Domestic Investment/GDP	7.8	20.8	24.3	28.0	30.1	35.0	28.7	28.3	27.6
Gross Domestic Savings/GDP	7.7	22.5	37.1	29.8	32.1	35.4	31.0	30.5	29.7
GDP (average annual growth)*	6.6	7.2	5.1	6.1	6.5	6.7	6.5	6.3	6.5
Exports of goods and nfs/GDP	5.3	20.3	33.0	22.2	27.4	27.6	28.9	27.6	28.4
Imports of goods and nfs/GDP	5.4	18.6	20.2	20.4	25.5	27.2	26.5	25.4	26.3
Current Account Balance/GDP		3.6	-2.2	-3.1	-3.6	-2.4	-1.6	-2.6	
Total Debt/GDP		33.5	26.8	42.0	63.0	65.7	65.4	61.9	62.2
Total Debt/Exports		158.8	94.2	181.7	223.8	230.7	219.1	213.8	204.1
Total debt service/exports		6.3	13.9	28.8	30.9	32.6	30.6	31.8	30.8
ICOR (5 years average, 1 year lag)			2.6	5.9	5.0	4.9	4.7	4.6	
ICOR (1 year incremental)			2.7	11.1	4.3	5.0	5.0	5.0	

contd...

Key economic ratios of selected developing countries (1965-1994)

	1965	1973	1980	1985	1990	1991	1992	1993	1994
Republic of Korea									
Gross Domestic Investment/GDP	15.1	24.5	31.7	29.6	36.9	39.1	36.6	34.3	38.4
Gross Domestic Savings/GDP	7.7	21.6	24.3	30.9	36.4	36.5	35.6	34.7	39.2
GDP (average annual growth)*	10.2	9.0	8.8	10.1	6.6	8.4	5.0	5.6	8.0
Exports of goods and nfs/GDP	8.6	29.7	34.0	34.1	29.8	29.3	28.9	29.4	27.9
Imports of goods and nfs/GDP	16.0	32.6	41.5	32.8	30.3	31.9	29.9	29.0	27.1
Current Account Balance/GDP			-8.6	-1.0	-0.9	-3.0	-1.5	0.2	0.4
Total Debt/GDP		26.8	47.1	50.0	13.8	14.0	14.3	14.3	14.2
Total Debt/Exports		85.6	130.6	142.4	45.2	46.6	48.4	47.6	49.2
Total debt service/exports		15.1	19.7	27.3	10.7	7.1	7.6	9.2	8.2
ICOR (5 years average, 1 year lag)			3.8	3.6	3.1	3.4	4.3	5.1	
ICOR (1 year incremental)			-13.4	4.2	3.6	4.0	7.8	6.6	
Malaysia									
Gross Domestic Investment/GDP	19.7	25.5	30.4	27.6	31.5	37.0	33.8	33.2	..
Gross Domestic Savings/GDP	24.0	31.0	32.9	32.7	33.4	31.1	35.5	38.1	..
GDP (average annual growth)*	6.7	7.5	5.6	7.1	8.3	8.7	7.8	8.5	8.3
Exports of goods and nfs/GDP	42.5	39.8	57.5	54.9	76.6	81.4	78.0	80.3	85.4
Imports of goods and nfs/GDP	38.2	34.3	55.0	49.8	74.6	87.3	76.2	75.4	86.0
Current Account Balance/GDP			-1.3	-2.1	-2.3	-8.9	-2.8	-3.3	-10.0
Total Debt/GDP		9.7	27.0	65.0	37.5	37.7	34.4	36.2	36.3
Total Debt/Exports		22.0	44.6	114.0	46.6	44.9	42.8	43.8	40.6
Total debt service/exports		2.6	6.3	30.4	10.3	7.7	6.6	7.9	7.2
ICOR (5 years average, 1 year lag)			3.0	7.0	3.7	3.2	3.4	3.7	
ICOR (1 year incremental)			3.7	-31.9	2.9	3.6	4.9	4.2	
Thailand									
Gross Domestic Investment/GDP	19.7	27.0	29.1	28.2	41.1	42.0	39.6	40.0	..
Gross Domestic Savings/GDP	18.6	25.6	22.9	25.5	33.6	35.0	35.4	35.9	..
GDP (average annual growth)*	7.8	7.5	5.5	10.8	8.2	8.1	7.6	9.0	8.1
Exports of goods and nfs/GDP	16.5	18.6	24.1	23.2	34.0	35.4	36.3	37.0	37.0
Imports of goods and nfs/GDP	17.6	20.0	30.4	25.9	41.5	42.5	40.5	41.1	42.6
Current Account Balance/GDP			-6.8	-4.3	-8.7	-7.8	-5.7	-5.6	-5.4
Total Debt/GDP		4.2	25.6	45.1	33.0	36.5	35.5	36.7	41.7
Total Debt/Exports		20.7	96.8	171.7	90.3	94.9	92.4	94.0	107.0
Total debt service/exports		2.5	18.9	31.9	16.9	13.1	13.9	18.7	11.3
ICOR (5 years average, 1 year lag)			4.0	5.5	2.8	3.0	3.4	4.0	
ICOR (1 year incremental)			6.0	6.6	2.8	4.8	5.3	5.0	

* Number shown under 1965, 1970, and 1980 represents average annual growth rates for the periods 1965-73, 1973-80 and 1980-85 respectively

Source: The World Bank, Trends in Developing Economies, and World Debt Tables.

INDIA: ECONOMIC GROWTH 1995-2005

P R O J E C T I O N S

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
(Rs billion at 1995/96 prices)*																
GDPmp	5355.3	6168.0	7053.3	8010.3	9456.2	10884.1	11637.8	12437.7	13318.9	14275.0	15371.4	16566.9	17898.0	19372.1	21013.4	22825.9
GDPfc	4756.0	5515.5	6276.3	7231.0	8541.0	9794.8	10422.6	11116.9	11871.1	12708.1	13656.9	14716.7	15894.0	17200.4	18641.5	20233.1
<i>Agri. & Allied Services</i>	1480.0	1760.5	1933.3	2217.5	2659.1	2815.0	2899.5	2989.3	3082.0	3180.6	3282.4	3387.5	3499.2	3614.7	3737.6	3868.4
<i>Manufacturing</i>	889.9	967.2	1113.1	1234.8	1484.8	2213.1	2438.8	2692.4	2977.8	3299.4	3662.4	4072.5	4536.8	5063.1	5660.5	6339.8
<i>Mining and Quarrying</i>	117.9	126.4	145.1	169.5	188.7	157.7	164.1	170.7	177.5	184.6	192.3	200.4	208.8	217.6	226.7	236.3
<i>Other Industry</i>	378.3	437.4	509.8	601.0	714.7	813.7	862.5	918.6	980.1	1045.8	1115.8	1190.6	1270.4	1355.5	1446.3	1543.2
<i>Services etc.</i>	1890.0	2224.0	2575.0	3008.3	3493.8	3795.3	4057.8	4345.9	4653.7	4997.6	5403.9	5865.7	6378.7	6949.5	7570.3	8245.4
Net Indirect Taxes	599.3	652.5	776.9	779.3	915.1	1089.3	1215.2	1320.8	1447.8	1567.0	1714.5	1850.2	2004.0	2171.7	2371.9	2592.8
GDI	1448.5	1477.4	1637.6	1733.3	2384.1	2825.5	3091.4	3391.1	3696.4	4075.5	4512.0	4930.0	5415.3	5938.8	6523.4	7179.5
ICOR (5 yr average 1 yr lag)	3.5	5.2	5.1	4.8	3.8	3.7	3.6	3.6	3.6	3.6	3.6	3.6	3.5	3.5		
ICOR (1 year incremental)	4.0			5.6	3.2	3.5	3.6	3.7	3.7	3.7	3.5	3.6	3.5	3.5	3.5	3.4
(% of GDP)																
GDPfc	88.8	89.4	89.0	90.3	90.3	90.0	89.6	89.4	89.1	89.0	88.8	88.8	88.8	88.8	88.7	88.6
<i>Agri. & allied Services</i>	27.6	28.5	27.4	27.7	28.1	25.9	24.9	24.0	23.1	22.3	21.4	20.4	19.6	18.7	17.8	16.9
<i>Manufacturing</i>	16.6	15.7	15.8	15.4	15.7	20.3	21.0	21.6	22.4	23.1	23.8	24.6	25.3	26.1	26.9	27.8
<i>Mining and Quarrying</i>	2.2	2.0	2.1	2.1	2.0	1.4	1.4	1.4	1.3	1.3	1.3	1.2	1.2	1.1	1.1	1.0
<i>Other Industry</i>	7.1	7.1	7.2	7.5	7.6	7.5	7.4	7.4	7.4	7.3	7.3	7.2	7.1	7.0	6.9	6.8
<i>Services etc.</i>	35.3	36.1	36.5	37.6	36.9	34.9	34.9	34.9	34.9	35.0	35.2	35.4	35.6	35.9	36.0	36.1
Net Indirect Taxes	11.2	10.6	11.0	9.7	9.7	10.0	10.4	10.6	10.9	11.0	11.2	11.2	11.2	11.2	11.3	11.4
Gross Domestic Investment	27.0	24.0	23.2	21.6	25.2	26.0	26.6	27.3	27.8	28.6	29.4	29.8	30.3	30.7	31.0	31.5
(Real Growth Rates)																
GDPfc	4.9%	1.1%	4.6%	5.0%	6.3%	6.2%	6.4%	6.7%	6.8%	7.0%	7.5%	7.8%	8.0%	8.2%	8.4%	8.5%
<i>Agri. & Allied Services</i>	3.8%	-2.5%	5.3%	4.2%	4.9%	3.0%	3.0%	3.1%	3.1%	3.2%	3.2%	3.2%	3.3%	3.3%	3.4%	3.5%
<i>Manufacturing</i>	6.2%	-3.2%	3.1%	4.7%	9.0%	10.0%	10.2%	10.4%	10.6%	10.8%	11.0%	11.2%	11.4%	11.6%	11.8%	12.0%
<i>Mining and Quarrying</i>	10.7%	3.7%	2.3%	2.9%	4.3%	4.0%	4.0%	4.0%	4.0%	4.0%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%
<i>Other Industry</i>	6.7%	5.6%	5.3%	5.9%	7.4%	5.5%	6.0%	6.5%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%
<i>Services etc.</i>	4.4%	5.4%	4.9%	7.3%	6.0%	6.8%	7.0%	7.2%	7.2%	7.5%	8.2%	8.6%	8.8%	9.0%	9.0%	9.0%

*Till 1995-96 at current prices, afterwards at 1995-96 prices.

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INVESTMENT INTENTIONS IN INDUSTRY

	1991-92	1992-93	1993-94	1994-95	1995-96
LOI/IEM (No)	3,279	5,480	4,984	5,210	6,857
Proposed Investment (Rs Bn)	784	1,299	828	1,067	1,398
No of Primary Market Issues	512	1,037	1,143	1,694	1,692
Capital Raised from Primary Markets	58	206	241	278	208
Assistance by All India Financial Institutions					
Sanctions	221	326	403	573	642
Disbursements	150	223	256	321	381

Note: 1. Letters of Intent (LOI) and Industrial Entrepreneurs Memoranda (IEM) are in calendar years. 2. Capital Raised from Primary Market excludes bonds issued by Public Sector Enterprises

Source: Reserve Bank of India; Ministry of Industry; Securities and Exchange Board of India; Industrial Development Bank of India

level of gross domestic investment remains at similar levels, an annual growth rate of about 6.5 per cent would be achieved if efficiency and productivity enhancements resulting from the economic reforms succeed in reducing the ICOR to about 3.5 to 3.6. Can the ICOR be reduced even further? The experience of the high growth countries of East Asia would suggest not. As might be expected, the experience of different countries reveals a good deal of variation. There is also the difficulty of selecting the appropriate time periods for purposes of comparison. However, a review of this experience (Table 2.2) suggests that, broadly, an ICOR lower than 3.5 is unlikely. This is particularly so in India because of its size and the existence of wide variation within the country. High growth states such as Punjab, Haryana, Gujarat and Maharashtra co-exist with low growth states such as Orissa, West Bengal and Bihar. Whereas it is possible that efficiency and productivity levels increase significantly in some areas of the country, it is unlikely that they can improve uniformly across the country. It is therefore an optimistic assumption to posit a reduction of the ICOR in India to about 3.5 over the next decade.

Can the level of gross domestic investment be expected to increase over the next decade? The experience of the high growth Asian countries suggests that high GDP growth rates can be achieved only if the level of gross domestic investment rises significantly to about 30 per cent of GDP and beyond (Table 2.1). It is only with such levels of investment that these countries have been able to achieve sustained annual growth rates in per capita GDP of 7 per cent and beyond. A growth rate of 7 per cent results in the doubling of per capita income level in 10 years. This is the kind of growth that the Indian economy requires if poverty is to be eliminated within the next decade or two.

During the 1980s, the level of gross domestic investment rose from about 20-22 per cent in the first half of the decade to about 22-25 per cent in the second half of the decade, albeit accompanied by unsustainable levels of fiscal and balance-of-payment deficits (Table 2.1). The initial years of stabilisation in the context of economic reforms resulted in a sharp reduction in total investment. Thus estimates of gross domestic investment reduced to 23.5 per cent in 1991-92, 22.9

per cent in 1992-93, and 21.6 per cent in 1993-94, from a high of about 27 per cent in 1990-91. The early estimates for 1994-95 show a sharp investment recovery to about 25.2 per cent of GDP. We have assumed that this recovery will now be self-sustaining and that the investment level will continue to increase from this 25 per cent level to about 29 to 29.5 per cent by 2000-01 and 31 to 31.5 per cent by the end of the decade in 2005-06. The corresponding assumption of reduction in ICOR to about 3.5 results in the current GDP annual growth rate of 6.2 per cent rising to about 7.5 per cent in 2000-01 and 8.5 per cent in 2005-06. The corresponding per capita growth rates would be about 5.8—5.9 per cent in 2000-01 and 7 per cent in 2005-06 (Table 2.3).

In assessing whether such growth rates are feasible in the Indian scenario, it is useful to look at the implication for sectoral growth rates (Table 2.3). In the framework adopted, annual manufacturing growth is projected to rise from the current 10 per cent to about 12 per cent in 10 years. The overall industrial growth is somewhat lower with lower growth projected for the mining sector. Correspondingly, services sector growth is projected to rise from the current 6-7 per cent to about 9 per cent in 10 years. We have been somewhat conservative in projecting agricultural growth from 3 per cent to only 3.5 per cent over these 10 years. In discussions, some have argued that sustained growth of the magnitude envisaged in industry and services cannot occur if agriculture continues to grow at such a low rate. There may be some merit in this argument. It is possible that we have underestimated agricultural growth and overestimated growth in the other sectors. There may well be more balanced growth. Despite such interim adjustments, we would not expect much higher aggregate growth than that projected.

The sectoral growth rates posited seem to be within the realms of feasibility as seen from the current vantage point. The investment intentions filed so far since the reforms were initiated in 1991 suggest a clear acceleration in industrial investment (Table 2.4). The early indications of actual private corporate sector investment also suggest significant buoyancy in industrial investment. If these trends continue and if the current direction of economic reforms is maintained, the

INDIA: BALANCE OF PAYMENTS SUMMARY (1980-1994)

(US \$ MILLION)

	P R O J E C T I O N S														
	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95
GDPmp	172321	178915	185009	201306	194621	214296	229108	256932	273393	274153	298373	251562	243603	255325	301410
Trade Balance	-7546	-6855	-5998	-5693	-5655	-7835	-7320	-7170	-9361	-7456	-9437	-2798	-4368	-1285	-4815
Exports	8316	8697	8389	9090	9769	9463	10420	12646	14257	16955	18477	18266	18869	22700	26857
Imports	15862	15552	14387	14782	15424	17298	17740	19816	23618	24411	27914	21064	23237	23985	31672
Invisibles (net)	4649	3368	2950	2684	2143	1840	1277	770	752	76	-704	1163	479	655	1801
Current Account Balance	-2897	-3487	-3047	-3008	-3512	-5995	-6044	-6400	-8609	-7380	-10141	-1635	-3889	-630	-3014
Total Debt Flows *	747	8	240	1691	2106	4235	4429	5292	5225	4227	4158	3306	1225	-504	2669
Disbursements	1502	754	1173	2777	3197	5544	6719	7187	7174	6190	6555	5875	4174	3675	7298
Repayments	755	746	933	1086	1091	1310	2290	1895	1949	1963	2397	2569	2950	4179	4629
Others (net) **	1153	575	2849	1769	1154	1789	1075	179	1259	1454	1372	-177	2413	385	-1349
Foreign Investment	8	10	65	63	62	160	208	181	287	350	165	158	587	4110	4895
Other Capital Flows***	-1171	-1899	-2414	-962	-598	1428	1351	1148	694	10	2675	1742	703	5165	1556
Capital Account	1380	-809	1138	2928	3177	7971	7466	7209	7871	6541	8369	5029	4927	9156	7771
Reserves Position	6858	4460	4965	5847	6110	6657	6729	6391	4959	4109	2338	5722	6749	15476	20233
(months of gnfs imports)	4.7	3.1	3.7	4.1	4.1	4.1	4.0	3.4	2.2	1.8	0.9	2.8	3.0	6.3	6.2
Total External Debt	20532	22573	27407	31978	33755	40849	48109	55542	58270	73393	81983	83947	89822	92104	98990
Total Debt Service	1406	1568	2043	2610	2959	3533	5273	5695	5959	6735	7894	7502	7323	8454	10516
% of GDP															
Current Account Balance	-1.7	-1.9	-1.6	-1.5	-1.8	-2.8	-2.6	-2.5	-3.1	-2.7	-3.4	-0.6	-1.6	-0.2	-1.0
Total External Debt	11.9	12.6	14.8	15.9	17.3	19.1	21.0	21.6	21.3	26.8	27.5	33.4	36.9	36.1	32.8
% of Exports (goods)															
Total External Debt	246.9	259.6	326.7	351.8	345.5	431.7	461.7	439.2	408.7	432.9	443.7	459.6	476.0	405.7	368.6
Total Debt Service	16.9	18.0	24.4	28.7	30.3	37.3	50.6	45.0	41.8	39.7	42.7	41.1	38.8	37.2	39.2

*Includes Grant-Aid, Official Borrowings, Public and Private Guaranteed Debt, and Short-term Debt.

** Includes IMF Credit (net), NRI Deposits (net), and Bilateral Balance.

*** Residual item including short-term capital, reserves revaluation changes, ad rupee trade imbalances etc.

investment levels and resulting growth rates projected here are not excessively optimistic. In summary, we are projecting total gross domestic investment to rise from the current 25 per cent levels to about 31 to 31.5 per cent of GDP in 10 years by 2005-06. The corresponding GDP growth rate is projected to rise from the current 6.0 to 6.2 per cent to about 8.5 per cent over this same period.

What are the implications of such a growth scenario? Can such investment levels be financed? The acceleration in industrial growth will require significant increases in investments in power, telecommunications, transportation, urban infrastructure, ports and airports. Further, industrial investment, industrial production and infrastructure investment of the magnitude implied will sack in large imports: these will have to be financed largely by corresponding export growth. At the same time, the level of gross domestic investment envisaged would be difficult, if not impossible, to be financed entirely from domestic savings. Significant external savings will have to be attracted into India. Thus some prudent level of a current account deficit would be necessary in order to absorb these external capital inflows (external savings). What would be the overall level of infrastructure investment required? How much external capital inflow can be expected? How much can domestic savings be expected to increase? It is to these questions that we now turn.

Mobilising External Savings

The objective in this section is to estimate the maximum feasible level of external savings that can be mobilised to finance an augmented programme of gross domestic investment in India over the next 10 years. To the extent that external savings can be mobilised for investment in India on a sustainable basis, it would reduce the volume of domestic savings required. Gross domestic investment (GDI) has been projected to increase from about 25 per cent to 31 to 31.5 per cent of GDP over 10 years. It is unlikely that domestic savings can rise as much over the same period. Thus external capital inflows will perform an important role in the financing of investment in India over the next decade—including infrastructure investment.

The key issue that has to be considered is the sustainability of external capital inflows. At present, although the Indian rupee is convertible on the current account, the capital account continues to be controlled by the RBI and the Government of India. Thus foreign equity investments are governed by the rules concerning foreign investment: apart from a list of 35 industries where foreign equity is automatically permitted upto a level of 51 per cent, all other investments are approved on a case by case basis by the Government of India. This includes investment in all infrastructure areas. The Indian capital market is partially open to investments by FIIs within prescribed limits: FIIs as a whole cannot invest in more than 24 per cent of a firm's equity, and no single FII can own more than 10 per cent of equity of a single company. Disinvestment and

dividends are fully repatriable. The only current exception is in the case of foreign direct investment (FDI) in a specified list of consumer goods industries where dividend repatriation has to be balanced by gross export earnings for a period of seven years from the date of investment. Foreign debt cannot be incurred by any Indian entity without the specific approval of the Government of India through its Ministry of Finance. Thus, at present, while seeking foreign capital inflows, the Government exercises substantial control over the incurring of foreign liabilities of Indian entities, both in terms of equity and debt.

This concern with foreign liability was heightened at the end of the 1980s when excessive and unsustainable borrowing in the latter half of the decade had contributed to the balance of payment crisis of 1991 (Table 2.5). The projections for feasible and sustainable capital inflows made here have been influenced by this episode of excess foreign liability that the Indian economy went through only recently. The approach adopted here can be interpreted in either of two ways. First, the approach is to make a judgement on what international capital

markets are likely to regard as sustainable levels of external capital inflows (both equity and debt) on the basis of macro-economic fundamentals. What are the levels of total debt that international markets will see as sustainable? What are the desirable debt service levels that would ensure such capital flows? What are the implied levels of exports and imports that would be required to service the expected import requirements and the servicing of equity and debt? What would be the level of foreign exchange reserves that would lend stability to foreign exchange markets? These judgements are made in the context of what might happen should the capital account be made convertible. The second interpretation can be made in the context of a continued control on the capital account: what are the macro magnitudes that should be targeted in the context of such control. The absorption of external capital inflows depends on the existence

External capital inflows will have to play an important role for GDI to rise from 25 per cent to 31 to 31.5 per cent of GDP over the next 10 years.

of a sustainable level of current account deficit. The current account deficit during the first half of the 1980s ranged between 1.5 per cent of GDP to 2.8 per cent, averaging about 1.9 per cent. During the latter half of the 1980s, the current account deficit ranged from about 2.5 per cent to 3.4 per cent of GDP, with an average of just under 3 per cent. These levels of current account deficit were in the context of export levels which ranged between 6 to 7 per cent of GDP and imports between 9 to 10 per cent. Moreover, these deficits were financed almost entirely by debt and were ultimately found to be unsustainable. By 1990-91, total external debt had risen to over US \$ 80 billion; the debt service ratio rose to 30 per cent as a proportion of total current receipts and as much as 43 per cent as a proportion of exports. Foreign investment during the 1980s had been negligible. A major turnaround has taken place in India's external account since then: exports are now about 10 per cent of GDP; imports about 11.5 percent; debt service as a proportion of current receipts is down to under 25 per cent, and 33 per cent as a proportion of exports (Table 2.6). We have

INDIA: BALANCE OF PAYMENTS: CURRENT ACCOUNT (1990-2005)

(US \$ MILLION)

	P R O J E C T I O N S															
	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
GDPmp	298373	251562	243603	255325	301410	315387	337228	360406	385940	413646	445414	480057	518627	561344	608903	661423
Exports, fob	18477	18266	18869	22700	26857	32430	38997	45542	52805	60670	69141	77686	86889	97052	107525	118792
Primary	4354	4189	3940	4794	6324	6827	7247	7703	8186	8706	9312	9919	10573	11278	12037	12856
Manufactures	13781	13773	14603	17441	20002	24619	30566	36555	43273	50474	58127	65867	74074	83274	93488	104937
Other than POL	13259	13356	14127	17044	19863	24453	30321	36234	42871	50054	57692	65413	73616	82782	92983	104418
POL Exports	522	417	476	398	138	166	245	321	402	420	436	454	458	492	505	518
Statistical Discrepancy	341	304	327	465	531	984	1184	1284	1346	1490	1702	1900	2242	2500	2000	1000
Merchandise Imports	27914	21064	23237	23985	31672	39445	46096	53314	61057	69379	78184	87456	96974	107404	118543	130815
POL	6028	5364	6000	5753	5884	6263	6608	7096	7615	8450	9344	10262	11183	12113	13040	14073
Non-POL (customs)	18045	14764	16078	17553	23330	30368	37715	44717	51942	58911	66734	74694	83291	92791	103002	114242
Non-customs	3841	936	1159	679	2458	2814	1774	1500	1500	2018	2106	2500	2500	2500	2500	2500
Trade Balance	-9437	-2798	-4368	-1285	-4815	-7015	-7099	-7772	-8252	-8709	-9043	-9769	-10085	-10352	-11018	-12022
Invisible Balance (net)	-704	1163	479	655	1801	1595	359	236	-212	-747	-1543	-2332	-3503	-4873	-6215	-7792
Non-factor Services	980	1206	1127	777	-494	-68	-509	-390	-231	-56	80	174	155	191	185	151
Net investment income	-3753	-3826	-3422	-3947	-3905	-4487	-4234	-4608	-5350	-6194	-7174	-8193	-9481	-10878	-12215	-13758
Interest Payments	-3738	-3445	-3370	-3513	-3832	-3829	-3914	-4043	-4610	-5176	-5768	-6403	-7090	-7807	-8501	-9316
Other Factor Payments	-105	-110	-115	-123	-314	-274	-318	-681	-984	-1391	-1894	-2439	-3088	-3787	-4563	-5395
Others (net)	91	-271	63	-311	241	-384	-1	116	244	373	488	649	697	715	848	953
Private Transfers	2069	3783	2774	3825	6200	6150	5101	5234	5369	5504	5551	5687	5824	5815	5815	5815
Current Account Balance	-10141	-1635	-3889	-630	-3014	-5421	-6740	-7537	-8464	-9455	-10586	-12101	-13587	-15226	-17233	-19814
(Annual Growth Rates)																
Exports, fob	9.0%	-1.1%	3.3%	20.3%	18.3%	20.7%	20.3%	16.8%	15.9%	14.9%	14.0%	12.4%	11.8%	11.7%	10.8%	10.5%
Merchandise Imports	14.4%	-24.5%	10.3%	3.2%	32.0%	24.5%	16.9%	15.7%	14.5%	13.6%	12.7%	11.9%	10.9%	10.8%	10.4%	10.4%
(% of GDP)																
Exports (Goods)	6.2%	7.3%	7.7%	8.9%	8.9%	10.3%	11.6%	12.6%	13.7%	14.7%	15.5%	16.2%	16.8%	17.3%	17.7%	18.0%
Current Account Balance	-3.4%	-0.6%	-1.6%	-0.2%	-1.0%	-1.7%	-2.0%	-2.1%	-2.2%	-2.3%	-2.4%	-2.5%	-2.6%	-2.7%	-2.8%	-3.0%

made our projections with this experience in view, and after observing the experience of other countries. We have accordingly aimed to bring down the debt service ratio to no more than 20 per cent (as a proportion of current receipts) on a medium to long-term basis, and no more than 25 per cent as a proportion of exports.

For the future, we envisage a judicious balance between debt and non-debt-creating inflows. Both kinds of inflows need to be serviced. In principle, the returns on equity ought to be higher than those on debt. But the returns on equity are performance-related, and therefore safer than those on debt. Moreover, a portion of the returns on FDI tend to be continually reinvested. Such retained earnings finance new investment but also need to be serviced in future years. Our simulations have taken account of this. FDI is, by its nature, less mobile: once invested, it is not usually expected to be disinvested for a long period of time, if ever. In the case of portfolio inflows, there is continuous movement in and out. Such movements are as determined by conditions in international capital markets as with the fundamentals in the receiving economies. Over time, gross inflows would be balanced by gross outflows, yielding a limited volume of net inflows. Accordingly, we have projected only net levels of portfolio inflows.

Our debt projections have assumed average debt terms of seven years and returns of 150 basis points above LIBOR. The net debt inflow is limited by the debt service targets mentioned above.

In the current account, exports have been projected to continue their healthy growth (Table 2.6). Exports grew by over 20 per cent a year in US \$ terms over the past three years (1993-94, 1994-95, 1995-96). We have projected a gradual tapering off from the current 20 per cent annual growth to about 10 per cent at the end of the next 10 years yielding an average annual real growth of about 15 per cent over this period. Such growth would result in exports increasing their share from the current 10 per cent of GDP to about 15 per cent by 2000-01 and over 17 per cent by 2005-06. Imports are projected to grow marginally faster to about 17 per cent of GDP in 2000-01 and over 19 per cent in 2005-06. On this basis, the level of exports would be about US \$ 66 billion in 2000-01, and US \$ 113 billion by 2005-06 (in 1995-96 US dollars). Although lower than some projections being made currently (e.g. US \$ 75 billion exports by 2000-01) these projections are still quite ambitious. Their achievement would itself be crucially dependent on very significant infrastructure investments in export logistics in transportation, ports and airports.

With such judgmental assumptions of foreign investment, foreign debt inflows, export and import growth, targeted debt service ratios, the current account deficit is projected to widen to about 2.5 per cent of GDP by 2000-01 and 3 per cent by 2005-06 from the current level of 1.5 per cent of GDP. This would enable a corresponding foreign capital inflow of similar magnitude.

This implies that the current level of net foreign invest-

ment inflow of about US \$ 4 to 5 billion would rise to about US \$ 9 billion by 2000-01, and US \$ 15 billion by 2005-06 (Table 2.7). Of this, FDI inflow is projected to rise from the current US \$ 2 billion to about US \$ 6.5 billion in 2000-06 and US \$ 11 billion by 2005-06, while net portfolio investment is seen to increase modestly to about US \$ 2.5 billion in 2000-01 and US \$ 4 billion by 2005-06. Some would find such a foreign investment profile to be too conservative. Even with such a profile, the servicing of the accumulated stock of foreign equity capital would rise to more than US \$ 2 billion by 2000-01 and US \$ 5 billion by 2005-06 (Table 2.6). Although foreign equity inflows are seen as preferable to debt-creating inflows, it is unlikely that the debt-equity ratio of inflows can be brought down to much below unity. In fact, infrastructure projects in particular tend to have higher debt-equity ratios. Moreover, one of the advantages of receiving foreign equity inflows is that it is then easier to leverage foreign debt inflows at more favourable rates. However, the existing high level of Indian foreign debt of approximately US \$ 100 billion reduces the degree of flexibility in receiving larger inflows of new foreign debt flows.

We have therefore assumed a rough parity between new net equity and net debt flows, including those from official multi-lateral and bilateral sources. Thus, the existing debt flow of about US \$ 3-4 billion is projected to rise to about US \$ 10 billion by 2000-01 and US \$ 12 billion by 2005-06. The implication for gross flows is a rise from the present US \$ 7-8 billion to about US \$ 15-17 billion by 2000-01 and US \$ 25-26 billion by 2005-06 (Table 2.7). The bulk of this new debt will have to be from commercial sources, since the scenario for official debt flows does not look promising over the next five to 10 years. Gross official flows are expected to stagnate at about US \$ 3.5 to 4.5 billion over the next 10 years, leading to reduction in net official debt flows.

The projections suggest that our repayments of official debt would rise from the current US \$ 2 to 2.5 billion to about US \$ 3 billion by 2000-01. Disbursements are expected to be roughly constant at US \$ 4 to 4.5 billion over the next five years: net official debt flows would also stagnate at between US \$ 1 to 1.5 billion over the next five years. Similarly, the debt repayments for external commercial borrowing are expected to rise from the current US \$ 2 to 2.5 billion to about US \$ 4.5 to 5 billion by 2000-01. Consequently, substantial increases in gross external commercial borrowing will have to take place if the projected levels of net debt flows are to materialise. Our projections suggest that gross external commercial borrowing will have to rise from about US \$ 6 billion in 1996-97 to about US \$ 12-13 billion by 2000-01. As the debt repayments arising from these flows start to increase substantially in the following five years, and with continuing pessimism regarding net official debt flows, keeping a net external debt flow of US \$ 10-12 billion between 2000-01 to 2005-06 will require gross external commercial borrowing to increase from about US \$ 12.5 billion in 2000-01 to US \$ 22 billion in 2005-06. If external commercial borrowings

One of the advantages of receiving foreign equity inflows is that it is then easier to leverage foreign debt inflows at more favourable rates.

INDIA: BALANCE OF PAYMENTS: CAPITAL ACCOUNT (1990-2005)

(US \$ MILLION)

	P R O J E C T I O N S															
	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Grant-Aid	462	461	363	370	390	335	300	300	300	300	300	300	300	300	300	300
Official Debt (net)	2347	2901	1942	1418	1250	959	1424	968	817	1193	1507	1467	1323	1192	932	664
Disbursements	3570	4368	3600	3801	3067	2920	3847	3595	3558	4040	4387	4505	4497	4480	4376	4374
Repayments	1223	1467	1658	2383	1817	1961	2423	2628	2741	2847	2880	3037	3174	3288	3444	3711
Other Borrowings (net)*	306	1418	-351	422	391	-29	1701	7322	7392	7374	7907	8718	8953	9035	9827	10297
Disbursements	1480	2520	941	2218	3203	3374	5506	8954	9502	10750	12500	14200	16300	17700	20100	22000
Repayments	1175	1102	1292	1796	2812	3403	3806	1632	2110	3376	4593	5482	7347	8665	10273	11703
Net Short-term Debt	1043	-1474	-730	-2714	638	112	450	500	550	600	600	600	600	600	600	600
Total Debt Flows (net)	3696	2845	862	-874	2279	1042	3575	8790	8759	9167	10014	10786	10877	10827	11358	11561
Others (net)**	1372	-177	2413	385	-1349	-1773	-1594	-1243	-987	-799	-554	-503	-485	-460	450	450
Foreign Investment	165	158	587	4110	4895	3973	5500	6500	7000	8500	9000	10000	10700	11500	14000	15000
Direct Investment	165	150	341	620	1314	1875	3500	4000	4500	6000	6500	7500	8000	8500	10500	11000
Portfolio Investment	0	8	246	3490	3581	2098	2000	2500	2500	2500	2500	2500	2700	3000	3500	4000
Other Capital Flows***	2675	1742	703	5165	1556	-1076	0	0	0	0	0	0	0	0	0	0
Total Capital Account	8369	5029	4927	9156	7771	2501	7781	14347	15072	17168	18760	20582	21392	22167	26108	27311

*Includes Public and Private Guaranteed Commercial Borrowings.

**Includes IMF Credit (net), NRI Deposits (net), and Bilateral Balance.

***Residual item includes short-term capital, reserves revaluation changes, and rupee trade imbalances etc.

continue to be controlled during this period, these are the kind of magnitudes which would have to be permitted so that appropriate capital inflows take place to fuel the increasing needs for overall investment.

With most of new debt expected to be commercial, these projections are crucially dependent on continuing improvement in India's credit rating and of its borrowing agencies internationally. In order to achieve good credit ratings, and to provide abundant caution in the face of ever rising capital inflows and import levels, our projections have provided for a cover of foreign exchange reserves at about six months of imports increasing to about 7.5 months by 2005-06. The reserves are thus projected to rise from the approximately US \$ 20 billion currently to about US \$ 50 billion by 2000-01 and about US \$ 90 billion by 2005-06. This cushion is also seen to be necessary to take account of the rising volumes of foreign exchange required to service the accumulating debt and stock of equity over the years. This level of foreign exchange reserves would provide the appropriate confidence to foreign investors and creditors to continue investing and lending in the economy. Sudden unforeseen shocks occurring internationally or within the domestic economy should then not have significant effects on the exchange rate and on international confidence. It is also important to understand that with rising exposure of the domestic economy to trade and to foreign debt and equity, sudden depreciations of the domestic currency would cause considerable difficulty to domestic firms, particularly in infrastructure sectors, in servicing their external obligations. A relatively high level of reserves should then help in maintaining a stable real exchange rate. In order to provide this continuing accretion to reserves, capital inflows have therefore to be somewhat higher than the current account deficit at any given time.

In summary, even somewhat conservative projections of a widening of the current account deficit to about 2.5 per cent of GDP by 2000-01 and 3 per cent by 2005-06, coupled with optimistic assumptions of trade expansion, yield quite large volumes of capital inflows. Total net capital inflow is projected to rise from the current US \$ 7-8 billion to about US \$ 17-20 billion by 2000-01, and about US \$ 25-30 billion by 2005-06, divided roughly equally between debt and foreign equity with the latter being preferably somewhat higher. With these projections, the stock of total debt would rise to about US \$ 140 billion by 2000-01 and US \$ 200 billion by 2005-06. Debt service payments would rise to about US \$ 14 billion by 2000-01 and US \$ 25-27 billion by 2005-06 (Tables 2.8, 2.9). Such magnitude of flows, both inflows and outflows, are not feasible to maintain without healthy and sustained overall economic growth of the kind that has been projected.

The mobilisation of such external capital inflows will be crucial for infrastructure investment. As emphasised earlier, the maintenance of good credit ratings will be essential to impart confidence to would-be investors. The substantial and ambitious trade expansion projected would form the basis of

market confidence in India's ability to service such external liabilities—of both equity and debt. A key lesson of this exercise is that continuing expansion of trade, both imports and exports, is crucial for the financing of growing domestic investment in India, and particularly that of infrastructure. Finally, sustaining a current account deficit of much higher than 2.5 to 3 per cent is unlikely to be viable in the foreseeable future. This provides the maximum feasible limit on the volume of capital inflows that can be expected.

As mentioned in the beginning, these projections of external capital inflows have been made on a judgmental basis on what the markets would be willing to lend to and invest in India based on the fundamentals of the economy. The debt service ratio according to these projections would range between about 15 and 22 per cent as a proportion of current receipts over the next 10 years, and between about 20 and 30 per cent of exports. Exports as a percentage of GDP would rise from the current 10 per cent of GDP to about 17 per cent while imports would rise from the current 11.7 per cent to about 19 per cent. The implications of these projections is that export expansion and an open regime for foreign direct investment and foreign institutional investment will be essential to mobilise the volume of capital inflows projected. If the capital account is not made convertible, external commercial borrowing permissions would have to be of the volumes indicated.

Within these overall projections for external capital inflows, the volume flowing into the infrastructure sectors will depend on how hospitable the regulatory regimes are in each sector for foreign investment. As in the other sectors, external commercial debt would tend to be closely associated with foreign investment. In sectors such as power and telecommunications, foreign equity inflows would tend to be associated with supplier credits as well as credits from official export credit agencies such as US EXIM Bank, the

Japanese EXIM Bank and others. Since the repayment for both equity and debt associated with infrastructure projects would have a longer duration, the payment burden arising from such capital inflows would be stretched out over time if the proportion of such inflows going into infrastructure can be maintained at a high level. In our projections for the financing of infrastructure investment requirements, we have assumed that a total of about 40 per cent of external capital inflows would flow to the infrastructure sector.

Some members of the Expert Group have felt that far greater volumes of foreign investment can be expected to be mobilised for infrastructure investment than the levels projected here. This would be quite feasible if international capital markets do not view a further widening of the current account deficit with any degree of alarm. As has been shown above, there is some marginal room for the debt service ratio to be maintained at a higher level of about 25 per cent. In that case it would be possible to increase the level of external capital flow by another 0.5-1 per cent of GDP. However, our overall judge-

Export expansion and an open regime for FDI and foreign institutional investment are essential to mobilise the capital inflows projected.

INDIA: BALANCE OF PAYMENTS SUMMARY (1990-2005)

(US \$ MILLION)

P R O J E C T I O N S

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
GDPmp (US\$ million)	298373	251562	243603	255325	301410	315387	337228	360406	385940	413646	445414	480057	518627	561344	608903	661423
Trade Balance	-9437	-2798	-4368	-1285	-4815	-7015	-7099	-7772	-8252	-8709	-9043	-9769	-10085	-10352	-11018	-12022
Exports	18477	18266	18869	22700	26857	32430	38997	45542	52805	60670	69141	77686	86889	97052	107525	118792
Imports	27914	21064	23237	23985	31672	39445	46096	53314	61057	69379	78184	87456	96974	107404	118543	130815
Invisibles (net)	-704	1163	479	655	1801	1595	359	236	-212	-747	-1543	-2332	-3503	-4873	-6215	-7792
Current Account Balance	-10141	-1635	-3889	-630	-3014	-5421	-6740	-7537	-8464	-9455	-10586	-12101	-13587	-15226	-17233	-19814
Total Debt Flows*	4158	3306	1225	-504	2669	1377	3875	9090	9059	9467	10314	11086	11177	11127	11658	11861
Disbursements	6555	5875	4174	3675	7298	6741	10103	13349	13910	15690	17787	19605	21697	23080	25376	27274
Repayments	2397	2569	2950	4179	4629	5364	6228	4259	4851	6223	7473	8519	10520	11953	13717	15414
Others (net)**	1372	-177	2413	385	-1349	-1773	-1594	-1243	-987	-799	-554	-503	-485	-460	450	450
Foreign Investment	165	158	587	4110	4895	3973	5500	6500	7000	8500	9000	10000	10700	11500	14000	15000
Other Capital Flows***	2675	1742	703	5165	1556	-1076	0	0	0	0	0	0	0	0	0	0
Capital Account	8369	5029	4927	9156	7771	2501	7781	14347	15072	17168	18760	20582	21392	22167	26108	27311
Reserves Position	2338	5722	6749	15476	20233	17314	18354	25164	31772	39485	47660	56141	63945	70887	79762	87259
(months of gnfs imports)	0.9	2.8	3.0	6.3	6.2	4.3	4.0	4.7	5.3	5.8	6.3	6.7	6.9	6.9	7.1	7.1
Total External Debt	81983	83947	89822	92104	98990	99515	102367	110693	119157	128341	138894	150433	162218	174059	186518	199194
Total Debt Service	7894	7502	7323	8454	10516	10497	11638	9463	10454	12309	14037	15836	18717	21049	23690	26430
% of GDP																
Current Account Balance	-3.4	-0.6	-1.6	-0.2	-1.0	-1.7	-2.0	-2.1	-2.2	-2.3	-2.4	-2.5	-2.6	-2.7	-2.8	-3.0
Total External Debt	27.5	33.4	36.9	36.1	32.8	31.6	30.4	30.7	30.9	31.0	31.2	31.3	31.3	31.0	30.6	30.1
% of Exports (goods)																
Total External Debt	443.7	459.6	476.0	405.7	368.6	306.9	262.5	243.1	225.7	211.5	200.9	193.6	186.7	179.3	173.5	167.7
Total Debt Service	42.7	41.1	38.8	37.2	39.2	32.4	29.8	20.8	19.8	20.3	20.3	20.4	21.5	21.7	22.0	22.2

*Includes Public and Private Guaranteed Commercial Borrowings.

**Includes IMF Credit (net), NRI Deposits (net), and Bilateral Balance.

***Residual item includes short-term capital, reserves revaluation changes, and rupee trade imbalances etc.

INDIA: BALANCE OF PAYMENTS PROJECTIONS (1990-2005)

(US \$ MILLION)

	P R O J E C T I O N S															
	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Total External Debt	81983	83947	89822	92104	98990	99515	102367	110693	119157	128341	138894	150433	162218	174059	186518	199194
Debt Service Payments	7894	7502	7323	8454	10516	10497	11638	9463	10454	12309	14037	15836	18717	21049	23690	26430
Principal Repayments	3123	3028	3283	4303	5988	6047	7197	4902	5319	6585	7684	8803	10949	12517	14417	16294
Interest Payments	4771	4474	4040	4151	4528	4450	4441	4561	5136	5724	6353	7033	7768	8532	9273	10136
Ext. Debt (% of tot. exports)*	314.1%	315.8%	340.2%	285.1%	253.5%	222.5%	194.2%	183.2%	172.9%	164.4%	158.2%	154.1%	150.3%	145.9%	142.5%	139.0%
External Debt (% of GDP)	27.5%	33.4%	36.9%	36.1%	32.8%	31.6%	30.4%	30.7%	30.9%	31.0%	31.2%	31.3%	31.3%	31.0%	30.6%	30.1%
Dbt Serv. Ratio (% of cur. rcts)	30.1%	26.9%	27.0%	25.5%	25.5%	22.4%	21.7%	15.4%	14.9%	15.5%	15.8%	16.0%	17.2%	17.5%	18.0%	18.3%
Dbt Serv. Ratio (% of X goods)	42.7%	41.1%	38.8%	37.2%	39.2%	32.4%	29.8%	20.8%	19.8%	20.3%	20.3%	20.4%	21.5%	21.7%	22.0%	22.2%
Foreign Investment	0.1%	0.1%	0.2%	1.6%	1.6%	1.3%	1.6%	1.8%	1.8%	2.1%	2.0%	2.1%	2.1%	2.0%	2.3%	2.3%
GDP curr mp (US\$ million)	298373	251562	243603	255325	301410	315387	337228	360406	385940	413646	445414	480057	518627	561344	608903	661423
Curr. Acc. Balance/ GDP	-3.4%	-0.6%	-1.6%	-0.2%	-1.0%	-1.7%	-2.0%	-2.1%	-2.2%	-2.3%	-2.4%	-2.5%	-2.6%	-2.7%	-2.8%	-3.0%
Exports as % of GDP	6.2%	7.3%	7.7%	8.9%	8.9%	10.3%	11.6%	12.6%	13.7%	14.7%	15.5%	16.2%	16.8%	17.3%	17.7%	18.0%
Imports as % of GDP	9.4%	8.4%	9.5%	9.4%	10.5%	12.5%	13.7%	14.8%	15.8%	16.8%	17.6%	18.2%	18.7%	19.1%	19.5%	19.8%

*includes goods, all services and workers' remittances

ment is that international capital markets would not permit such a widening of the current account deficit and corresponding inflow of external capital on a sustained basis.

Mobilising Domestic Savings

Having found the feasible ranges of external savings that can be mobilised, gross domestic savings required to be mobilised are now easily seen. Gross domestic savings would have to rise from the current level of about 24.5 per cent of GDP to about 27 per cent in 2000-01 and 28.5 per cent by 2005-06. Is such an increase feasible?

During the 1980s (Table 2.10), gross domestic savings hovered around 20 per cent until 1987-88; they tended to rise in the following years, reaching a maximum of 23.7 per cent in 1990-91. They then fell to about 21.5 per cent by 1993-94. The most recent quick estimate of 24.4 per cent for 1994-95 shows a recovery exceeding the late 1980s levels. Given this erratic record over the past 15 years, it is difficult to be sanguine about positing a continuous rise in the domestic savings rate over the next 10 years. It is fruitful, however, to examine the behaviour of the main components of domestic savings. First, a major component of the fall in savings in the early 1990s was a significant fall in public sector savings. From the 1981-86 average of 3.6 per cent of GDP, public sector savings fell to an average of 1.7 per cent during 1986-91, and 1.3 per cent during 1991-94. The recovery to 1.7 per cent in 1994-95 is a welcome development. The attainment of higher gross domestic savings is therefore crucially dependent on increases in public sector savings. Continuing macro-economic stabilisation and reduction in fiscal deficit are essential if gross domestic savings are to increase to the desired levels for financing investment for growth. We have been relatively conservative in projecting slow improvement to about 2.4-2.5 per cent of GDP in 2000-01 and 3.0 per cent in 2005-06.

Some members of the Expert Group have felt that this projection of the improvement in public sector savings is too conservative. They argue that if the fiscal deficit is not reduced sharply from the current 5.5 to 6.0 per cent of GDP to levels nearer 3 or 4 per cent of GDP, the draft of the public sector on all capital markets would make it difficult to carry out the capital market reforms proposed in this Report in the next chapter. It is therefore argued that without such substantial fiscal improvement and hence increase in public sector savings, it would be difficult to activate the private capital market. The public sector would crowd out the private sector. There is considerable merit in these arguments and, clearly, further decrease in fiscal deficit and corresponding increase in public sector savings is to be highly recommended. From the standpoint of these projections, our view is that higher public savings would only increase the gross savings projected here. Our

qualitative view is therefore unaltered.

It should also be stated, parenthetically, that an increase in public sector savings is likely to "crowd in" both private domestic and external savings. Improvement in public sector savings would occur if the losses of public sector enterprises are reduced. Within infrastructure, if the losses of the State Electricity Boards are reduced or eliminated, private investment, both domestic and foreign, would flow in much more freely into the power sector. The same can be said for the other sectors. Improvement in public sector savings is therefore vital for overall enhancement of the savings level.

The savings of the private corporate sector were relatively stagnant at about 1.7 to 1.8 per cent of GDP during the early 1980s, until about 1987-88. There has since been an encouraging trend upwards to about 3.8 per cent in 1994-95. The increase in private corporate sector savings is particularly marked since 1990-91.

We can expect a continuing increase in the share of the private corporate sector in the economy. First, with continuing marketisation of the economy unincorporated enterprises will tend to incorporate themselves. Thus there would be a shift from savings accounted under physical assets in the household sector to savings accounted under the private corporate sector. Second, as the corporate sector enters areas which were hitherto exclusively under the public sector, the share of the private corporate sector would increase in the economy, along with its share in domestic savings. A clear example is the telecommunications sector where large scale entry of the private sector will lead to increase in private corporate sector savings after the initial investment period of four to five years (see chapter on telecommunications in Volume II). We have therefore projected a continued increase in the savings of the private corporate sector from 3.8 per

cent recorded in 1994-95 to about 5.3 per cent in 2000-01 and 5.8 per cent in 2005-06 (Table 2.11).

Turning to the savings of the household sector it is observed that, during the 1980s, household savings ranged broadly from about 13.5 to 20 per cent of GDP during the decade (Table 2.10). Much of this large variation occurred due to significant year-to-year changes in estimates of savings accounted as those in physical assets. This category is essentially derived as a residual in the national accounting methodology. Household sector financial savings exhibit a more consistent and increasing trend from about 6 per cent to 7 per cent in the early 1980s to about 8 per cent to 9 per cent towards the end of the decade. What is noteworthy is that, despite the stabilisation period during the early 1990s, financial savings have continued to increase from 10.1 to 11.1 per cent of GDP between 1991-92 and 1994-95 (with the exception of a dip in 1992-93). The most significant increase that has taken place among the different components of household sector financial savings has been the very sub-

A smaller fiscal deficit is essential if gross domestic savings are to increase to desired levels for financing investment for growth.

GROSS DOMESTIC SAVINGS AND INVESTMENT (1980-94)

(% OF GDP)

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95
I. Household Sector	16.1	14.8	13.3	14.7	13.7	14.5	14.2	17.0	17.2	18.1	19.8	17.7	16.9	17.4	18.9
<i>A. Financial Savings</i>	6.3	6.0	7.1	6.5	7.7	7.1	7.9	8.0	6.9	8.1	8.7	10.1	8.4	10.8	11.1
<i>Currency</i>	1.2	0.6	1.1	1.3	1.2	0.8	1.1	1.4	1.1	1.7	1.2	1.3	0.9	1.7	1.7
<i>Net Deposits</i>	2.2	1.9	2.6	1.9	2.4	2.0	2.8	2.3	1.1	1.1	1.5	2.4	2.1	3.2	3.8
<i>Shares and Debentures</i>	0.3	0.3	0.4	0.4	0.6	0.8	0.8	0.6	0.6	1.1	1.6	2.5	1.8	1.7	1.2
<i>Net claims on Govt.</i>	0.4	1.0	0.6	0.9	1.3	1.2	0.9	1.0	1.3	1.3	1.4	0.7	0.5	0.8	1.1
<i>Life Insurance Funds</i>	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.0	1.1	1.2
<i>Provident and Pension funds</i>	1.6	1.6	1.6	1.5	1.6	1.6	1.7	2.0	1.9	2.1	2.1	2.0	2.1	2.3	2.2
<i>B. Savings in Physical Assets</i>	9.7	8.8	6.3	8.2	5.9	7.4	6.3	8.9	10.4	9.9	11.2	7.7	8.4	6.6	7.8
II. Private Corporate Sector	1.7	1.6	1.6	1.5	1.7	2.0	1.8	1.7	2.1	2.6	2.8	3.2	2.8	3.5	3.8
III. Public Sector	3.4	4.5	4.4	3.3	2.8	3.2	2.7	2.2	2.0	1.6	1.0	1.9	1.5	0.5	1.7
Gross Domestic Savings	21.2	20.9	19.3	19.5	18.2	19.8	18.7	20.9	21.4	22.2	23.7	22.8	21.3	21.4	24.4
IV. Foreign Savings	1.7	1.9	1.6	1.5	1.8	2.8	2.6	2.5	3.1	2.7	3.4	0.7	1.6	0.3	0.8
Gross Domestic Investment	22.8	22.9	21.0	21.0	20.0	22.5	21.4	23.4	24.5	24.9	27.0	23.5	22.9	21.6	25.2

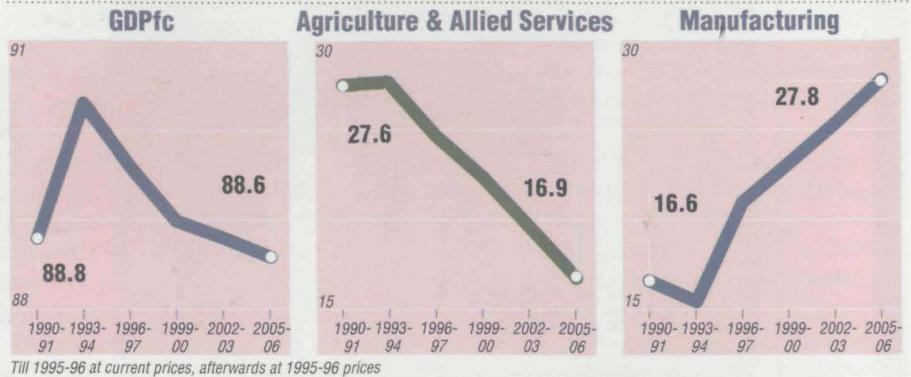
Source: CSO, National Accounts Statistics

THE INDIAN ECONOMY:

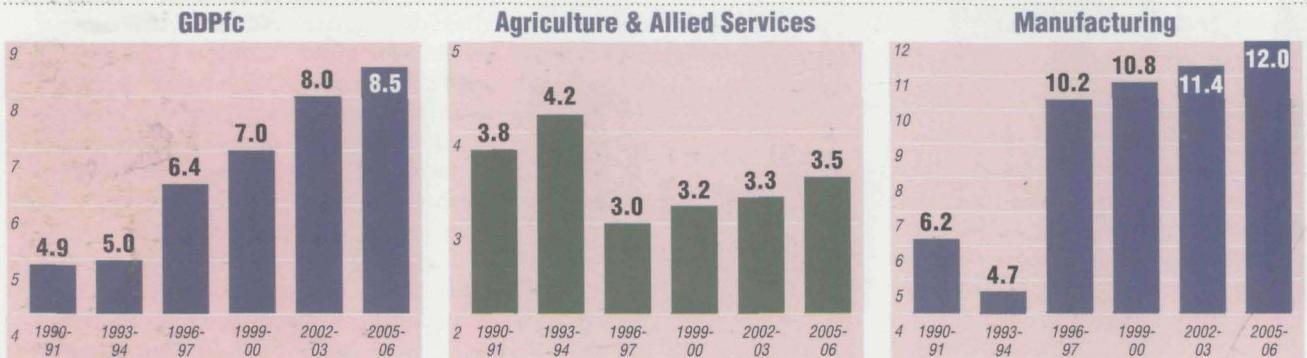
GDP GROWTH



SECTORAL GROWTH...

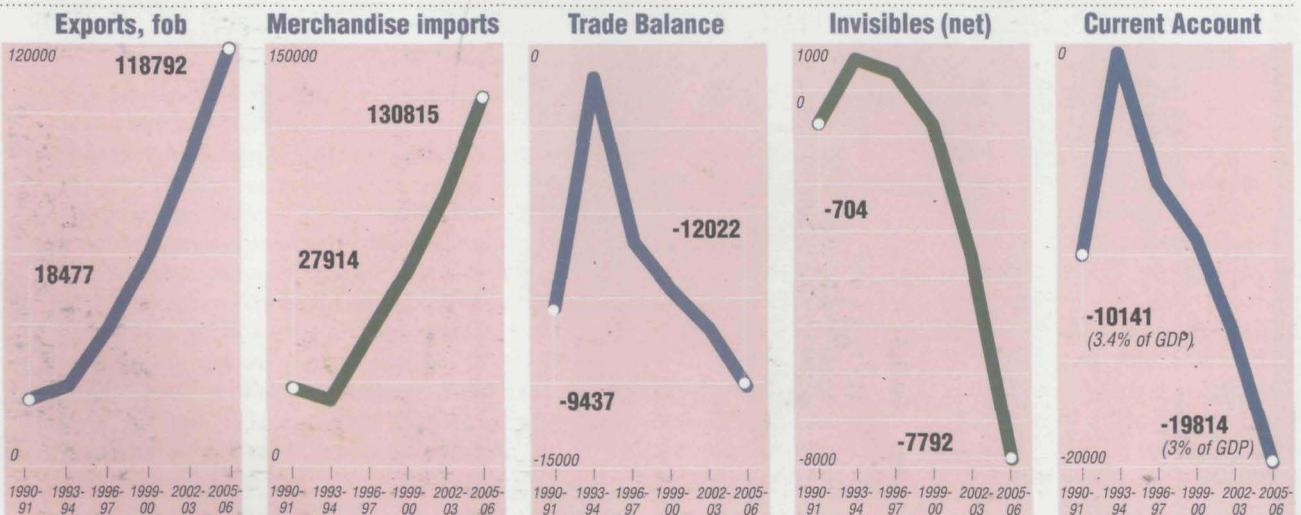


...AND REAL GROWTH RATES



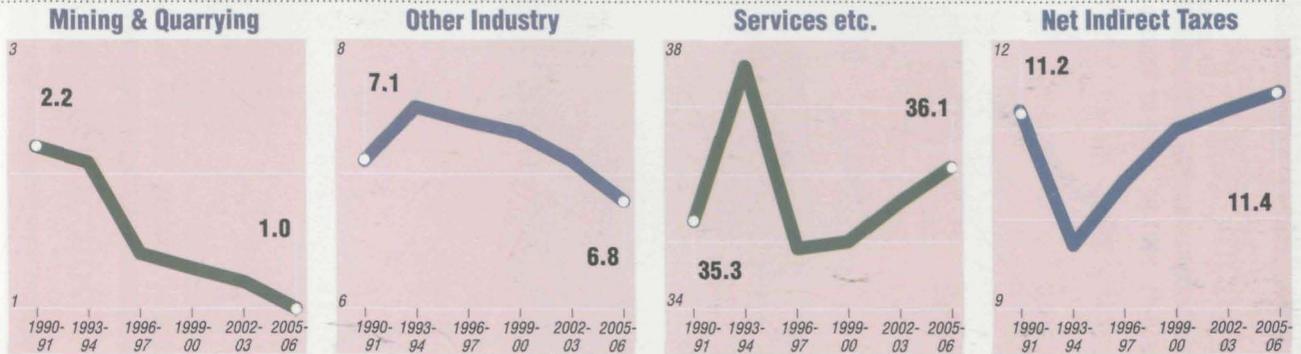
THE BALANCE OF PAYMENTS SCENARIO: THE CURRENT ACCOUNT...

(US \$ million)

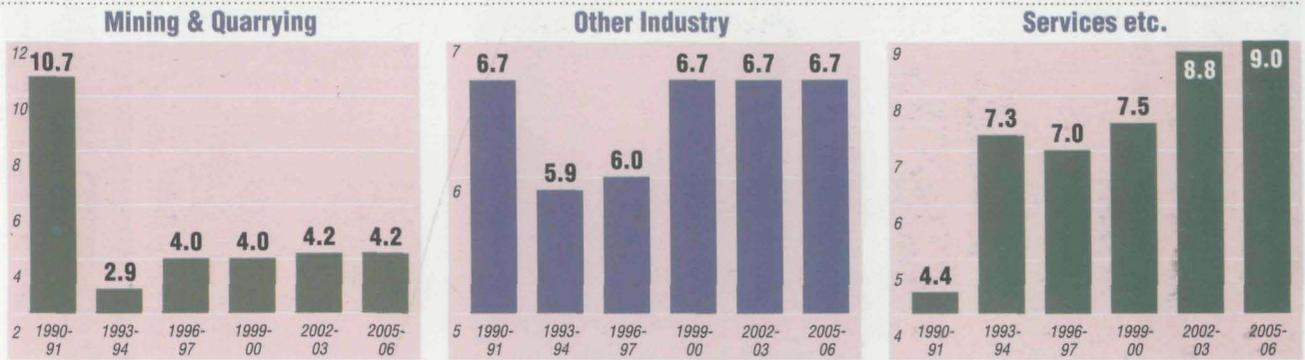


PERFORMANCE AND PROJECTIONS

(% of GDP)

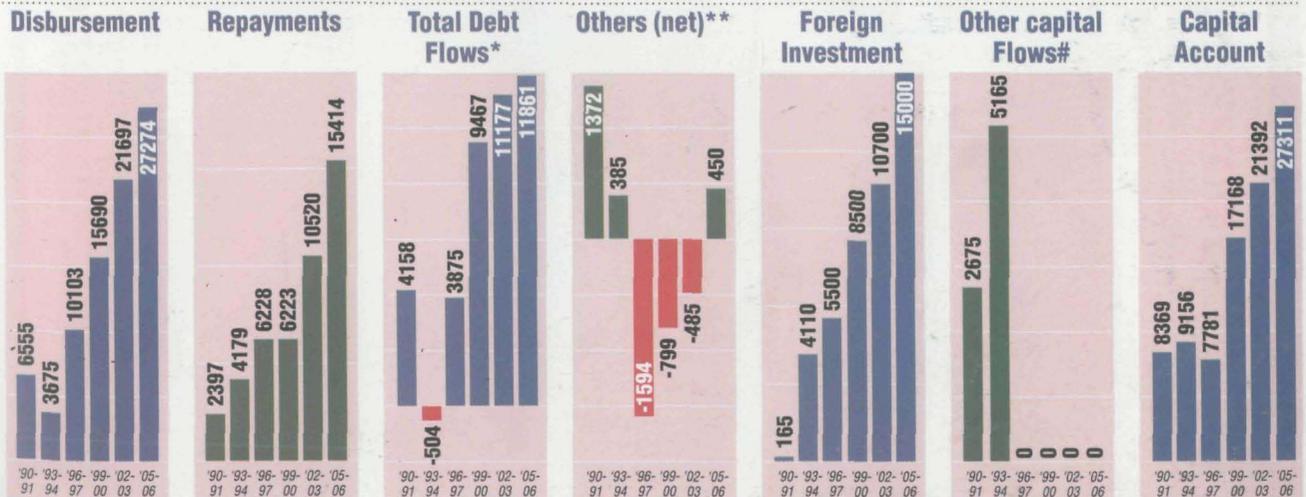


(Figures in %)



... AND THE CAPITAL ACCOUNT

(US \$ million)



* Includes Public and Private Guaranteed Commercial Borrowings. **Includes IMF Credit (net), NRI Deposits (net), and Bilateral Balance. #Residual item includes short-term capital, reserves revaluation changes, and rupee trade imbalances etc

GROSS DOMESTIC SAVINGS AND INVESTMENT (1990-2005)

(RS. BILLION AT 1995/96 PRICES)*

P R O J E C T I O N S

	1990-91	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
I. Household Sector	1062.8	1391.5	1787.0	1952.7	2090.7	2272.8	2458.6	2678.6	2963.1	3203.6	3478.8	3786.1	4121.5	4487.0
<i>A. Financial Savings</i>	463.5	861.3	1053.0	1190.9	1311.0	1476.8	1632.9	1807.8	2040.8	2259.3	2512.3	2778.7	3049.8	3345.7
<i>Currency</i>	62.5	133.7	160.2	156.9	187.9	251.7	261.0	287.5	334.6	370.7	400.4	444.4	444.1	469.7
<i>Net Deposits</i>	78.4	257.0	359.7	413.6	419.0	460.2	492.8	535.3	599.5	662.7	715.9	765.2	840.5	913.0
<i>Shares and Debentures</i>	84.1	135.6	116.0	130.6	186.2	211.4	239.7	271.2	307.4	347.9	411.7	484.3	546.3	639.1
<i>Net claims on Govt.</i>	73.6	60.6	101.1	119.7	128.0	124.4	133.2	142.8	153.7	149.1	161.1	155.0	168.1	182.6
<i>Life Insurance Funds</i>	53.4	92.0	109.9	130.6	133.8	155.5	186.5	214.1	245.9	281.6	322.2	368.1	420.3	456.5
<i>Provident and Pension funds</i>	111.6	182.5	206.2	239.5	256.0	273.6	319.7	356.9	399.7	447.3	501.1	561.8	630.4	684.8
<i>B. Savings in Physical Assets</i>	599.2	530.2	733.9	761.9	779.7	796.0	825.8	870.8	922.3	944.3	966.5	1007.4	1071.7	1141.3
II. Private Corporate Sector	149.4	276.7	359.7	489.8	547.0	609.4	665.9	742.3	814.7	894.6	984.4	1084.8	1197.8	1323.9
III. Public Sector	54.4	43.7	159.9	195.9	221.1	248.8	279.7	328.3	368.9	414.2	483.2	542.4	609.4	684.8
Gross Domestic Savings	1266.5	1711.8	2306.5	2638.4	2858.8	3131.0	3404.3	3749.2	4146.7	4512.4	4946.4	5413.3	5928.6	6495.7
IV. Foreign Savings	182.0	21.5	77.6	187.1	232.6	260.1	292.1	326.3	365.3	417.6	468.9	525.4	594.7	683.8
Gross Domestic Investment	1448.5	1733.3	2384.1	2825.5	3091.4	3391.1	3696.4	4075.5	4512.0	4930.0	5415.3	5938.8	6523.4	7179.5

* Till 1995/96 at current prices, afterwards at 1995/96 prices.

GROSS DOMESTIC SAVINGS AND INVESTMENT (1990-2005)

(% OF GDP)

P R O J E C T I O N S

	1990-91	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
I. Household Sector	19.8	17.4	18.9	17.9	18.0	18.3	18.5	18.8	19.3	19.3	19.4	19.5	19.6	19.7
<i>A. Financial Savings</i>	8.7	10.8	11.1	10.9	11.3	11.9	12.3	12.7	13.3	13.6	14.0	14.3	14.5	14.7
<i> Currency (residual)</i>	1.2	1.7	1.7	1.4	1.6	2.0	2.0	2.0	2.2	2.2	2.2	2.3	2.1	2.1
<i> Net Deposits</i>	-1.5	3.2	3.8	3.8	3.6	3.7	3.7	3.8	3.9	4.0	4.0	4.0	4.0	4.0
<i> Shares and Debentures</i>	1.6	1.7	1.2	1.2	1.6	1.7	1.8	1.9	2.0	2.1	2.3	2.5	2.6	2.8
<i> Net claims on Govt.</i>	1.4	0.8	1.1	1.1	1.1	1.0	1.0	1.0	1.0	0.9	0.9	0.8	0.8	0.8
<i> Life Insurance Funds</i>	1.0	1.1	1.2	1.2	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.0
<i> Provident and Pension funds</i>	2.1	2.3	2.2	2.2	2.2	2.2	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.0
<i>B. Savings in Physical Assets</i>	11.2	6.6	7.8	7.0	6.7	6.4	6.2	6.1	6.0	5.7	5.4	5.2	5.1	5.0
II. Private Corporate Sector	2.8	3.5	3.8	4.5	4.7	4.9	5.0	5.2	5.3	5.4	5.5	5.6	5.7	5.8
III. Public Sector	1.0	0.5	1.7	1.8	1.9	2.0	2.1	2.3	2.4	2.5	2.7	2.8	2.9	3.0
Gross Domestic Savings	23.7	21.4	24.4	24.2	24.6	25.2	25.6	26.3	27.0	27.2	27.6	27.9	28.2	28.5
IV. Foreign Savings	3.4	0.3	0.8	1.7	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	3.0
Gross Domestic Investment	27.0	21.6	25.2	26.0	26.6	27.3	27.8	28.6	29.4	29.8	30.3	30.7	31.0	31.5

stantial increase in savings in shares and debentures from 0.3 per cent of GDP in 1980-81 to an average of 1.7-1.8 per cent in the first half of the 1990s. Similarly, there has been a consistent increase in the share of contractual savings in life insurance funds, and provident and pension funds from an average of about 2.2 per cent in the early 1980s to an average of about 3.1 per cent in the first half of the 1990s. These data provide evidence of the continuing financial deepening of the economy and the formalisation of household sector savings in financial instruments, and away from savings in physical assets. This trend can be expected to continue in the foreseeable future. Industrialisation, tertiarisation and urbanisation can be expected to increase over the next few decades. Consequently the share of household sector savings in the total should still continue to rise, while the share of savings in physical assets should decline over this period.

We have accordingly projected financial savings of the household sector to increase from the current 11 per cent to about 13 per cent by 2000-01 and 14.5-14.7 per cent by 2005-06. We can expect continuing increase in savings in financial instruments such as shares and debentures, life insurance funds and provident and pension funds. We have projected an increase of about 1 per cent of GDP in savings in each of these three categories of financial instruments. We have projected a decline in savings in physical assets from the current 7.8 per cent to about 6 per cent of GDP in 2000-01 and 5 per cent in 2005-06. Consequently, total household savings are projected to increase from about 18 per cent at present to 19.5 per cent by 2000-01 and 19.5-20 per cent of GDP by 2005-06.

The plausible projections of savings enhancement made above in each of the three main segments—the public sector, the private corporate sector and the household sector—yield a good possibility of gross domestic savings increasing from the current 24.5 per cent to about 27 per cent in 2000-01 and 28.5 per cent by 2005-06 (Table 2.11). Implications of these projections are:

- A sustained improvement in performance of the public sector so that overall public sector savings return to at least the levels of the mid 1980s.
- The expansion of the private corporate sector continues over the next decade along with a continued increase in its share of domestic savings.
- The household sector continues its resort to formal financial savings instruments in the future.

Our projections suggest a very substantial increase in contractual savings in life insurance, provident fund and pension funds from the current level of about 3.3 per cent to 3.4 per cent of GDP to about 4.2 per cent by 2000-01 and about 5 per cent by 2005-06. This kind of expansion in such savings is essential to increase the stock of long-term savings which are most suitable for investment in infrastructure which typically has long payback periods. With increasing urbanisation and

longer life expectancy, the demand for such savings instruments can also be expected to increase substantially in the coming years. At present, such savings are much easier to make by employees working within the organised sector. It is quite likely that there is considerable latent demand for contractual savings by workers in the unorganised sector across the whole economy. This is also reflected in the consistently high level of savings that are collected through the various government-run small savings schemes, mostly through the post office. In recent years, these savings have tended to be much higher than official projections made at the beginning of each fiscal year. The very strong implication of our projection is that if domestic savings are to be enhanced to the level envisaged, major reforms must be instituted towards the opening of the life insurance, provident and pension funds in the country. It is vital for infrastructure investment that these instruments of savings be available to the widest array of savers throughout the country. If these reforms are instituted, some diversion of savings would take place from current instruments such as those in the post office,

but the better availability of safe and high-return contractual savings instruments is likely to result in an overall enhancement of the household savings level.

Our projection of savings in shares and debentures are on the relatively conservative side, rising from the current 1.5 per cent to 1.6 per cent of GDP to 2 per cent by 2000-01 and 2.5 per cent by 2005-06. This should take place without much difficulty with the expansion and deepening of the capital market that is currently being experienced. For investment in infrastructure, it is imperative that the debt market is made much more active and deeper than it is at present. The expansion of contractual savings would also require safe vehicles for investment, particularly in safe long-term debt instruments. These issues are dealt with in the subsequent chapter on the capital market.

In summary, although we have projected a relatively optimistic enhancement of gross domestic savings from the current level of about 24.5 per cent of GDP to about 27 per cent in 2000-01 and 28.5 per cent in 2005-06, the disaggregation of this projection suggests that, given the enactment of reforms in life insurance, provident and pension funds, and in the working of the capital market, it should be possible to achieve these savings levels. The improvement projected for the public sector is relatively conservative but this minimum is essential if the overall working of the economy is to improve and if complementary private sector savings and investments are to flow in the economy.

Infrastructure Investment Required For Economic Growth

Acceleration in economic growth at the rate projected will clearly not be possible to achieve without a corresponding acceleration in the rate of investment in infrastructure.

For investment in infrastructure, contractual savings have to be expanded, and the debt market made far more active and deeper.

INDIA: INVESTMENTS IN INFRASTRUCTURE (1980-1994)

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95
(Rs billion at current prices)															
A. GDPmp	1360.1	1597.6	1781.3	2075.9	2313.4	2622.4	2929.5	3332.0	3957.8	4568.2	5355.3	6168.0	7053.3	8010.3	9456.2
B. Gross Domestic Investment	308.8	342.1	363.4	418.1	454.7	581.7	611.6	764.6	969.7	1138.2	1448.5	1440.2	1631.8	1733.3	2384.1
a. Infrastructure	60.8	80.1	91.9	95.7	112.6	136.5	176.2	184.4	219.4	251.7	287.4	350.5	387.3	452.2	494.1
Electricity, Gas, Water Supply	31.7	42.1	48.3	50.6	55.5	72.4	96.3	103.8	113.0	123.4	144.1	189.0	189.8	213.8	233.0
Railways	8.1	9.8	10.7	11.9	14.0	16.9	23.1	21.5	26.4	26.4	30.8	33.2	49.2	55.8	59.6
Other Transport	17.5	22.6	26.8	25.9	34.3	37.4	45.3	44.0	57.9	73.6	83.3	95.8	97.8	124.4	128.9
Storage	0.2	0.4	0.3	0.6	0.5	0.6	0.8	0.8	0.9	0.7	0.7	0.5	0.5	0.6	0.6
Communications	3.2	5.2	5.8	6.8	8.3	9.2	10.7	14.3	21.4	27.3	28.6	32.1	50.0	57.5	72.1
b. Other	248.0	262.0	271.5	322.4	342.1	445.2	435.4	580.2	750.3	886.5	1161.1	1089.7	1244.5	1281.1	1890.0
C. GDI—Public Sector	117.7	167.8	201.0	203.8	249.2	308.7	354.2	330.6	393.6	455.7	521.5	565.0	623.6	687.5	832.5
a. Infrastructure	47.7	58.3	70.3	73.2	86.3	104.1	142.3	145.2	167.1	193.5	217.3	266.5	278.4	346.9	387.1
Electricity, Gas, Water Supply	29.5	37.3	44.4	47.6	52.8	69.1	90.9	98.8	105.6	117.6	137.7	174.1	154.5	204.4	222.7
Railways	8.1	9.8	10.7	11.9	14.0	16.9	23.1	21.5	26.4	26.4	30.8	33.2	49.2	55.8	59.6
Other Transport	6.7	5.8	9.1	6.7	10.7	8.5	17.0	10.1	13.5	21.9	19.7	26.6	24.3	28.6	32.2
Storage	0.2	0.2	0.2	0.3	0.4	0.4	0.6	0.5	0.3	0.4	0.5	0.5	0.5	0.5	0.5
Communications	3.2	5.2	5.8	6.8	8.3	9.2	10.7	14.3	21.4	27.3	28.6	32.1	50.0	57.5	72.1
b. Other	70.0	109.5	130.7	130.6	162.9	204.7	211.9	185.4	226.5	262.2	304.2	298.6	345.1	340.6	445.3
D. GDI—Private Sector	191.1	174.3	162.4	214.3	205.6	272.9	257.4	434.0	576.1	682.5	927.0	875.2	1008.3	1045.8	1551.7
a. Infrastructure	13.1	21.8	21.6	22.5	26.3	32.4	33.9	39.2	52.3	58.2	70.1	84.0	108.9	105.3	107.0
Electricity, Gas, Water Supply	2.2	4.8	3.8	3.0	2.7	3.3	5.5	5.0	7.3	5.9	6.4	14.8	35.3	9.4	10.3
Railways	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Transport	10.8	16.8	17.7	19.3	23.6	28.9	28.3	33.9	44.5	51.8	63.5	69.2	73.6	95.8	96.7
Storage	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.3	0.5	0.5	0.2	-0.1	0.1	0.1	0.1
Communications	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
b. Other	178.1	152.5	140.8	191.8	179.2	240.6	223.5	394.8	523.8	624.3	856.9	791.2	899.4	940.5	1444.6
E. GDI (% of GDP)	22.7	21.4	20.4	20.1	19.7	22.2	20.9	22.9	24.5	24.9	27.0	23.4	23.1	21.6	25.2
F. GDI-Infrastructure (% of GDP)	4.5	5.0	5.2	4.6	4.9	5.2	6.0	5.5	5.5	5.5	5.4	5.7	5.5	5.6	5.2
G. GDI-Infra (% of GDI)	19.7	23.4	25.3	22.9	24.8	23.5	28.8	24.1	22.6	22.1	19.8	24.3	23.7	26.1	20.7
H. GDI-Public Sector (% of GDP)	8.7	10.5	11.3	9.8	10.8	11.8	12.1	9.9	9.9	10.0	9.7	9.2	8.8	8.6	8.8
I. GDI-Pub. Sec.-Infrastructure	3.5	3.6	3.9	3.5	3.7	4.0	4.9	4.4	4.2	4.2	4.1	4.3	3.9	4.3	4.1
J. GDI-Infra-Pub (% of GDI Pub)	40.5	34.7	35.0	35.9	34.6	33.7	40.2	43.9	42.5	42.5	41.7	47.2	44.7	50.5	46.5
K. GDI-Pub (% of GDI)	38.1	49.1	55.3	48.7	54.8	53.1	57.9	43.2	40.6	40.0	36.0	39.2	38.2	39.7	34.9
L. GDI-Pub-Infra (% of GDI Infra)	78.5	72.8	76.5	76.5	76.6	76.3	80.8	78.8	76.2	76.9	75.6	76.0	71.9	76.7	78.3

INDIA: INVESTMENTS IN INFRASTRUCTURE (1980-1994)

(% OF TOTAL INVESTMENT)

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95
GDI—Public Sector	38.1	49.1	55.3	48.7	54.8	53.1	57.9	43.2	40.6	40.0	36.0	39.2	38.2	39.7	34.9
<i>a. Infrastructure</i>	15.4	17.0	19.3	17.5	19.0	17.9	23.3	19.0	17.2	17.0	15.0	18.5	17.1	20.0	16.2
<i>Electricity, Gas, Water Supply</i>	9.6	10.9	12.2	11.4	11.6	11.9	14.9	12.9	10.9	10.3	9.5	12.1	9.5	11.8	9.3
<i>Railways</i>	2.6	2.9	2.9	2.8	3.1	2.9	3.8	2.8	2.7	2.3	2.1	2.3	3.0	3.2	2.5
<i>Other Transport</i>	2.2	1.7	2.5	1.6	2.4	1.5	2.8	1.3	1.4	1.9	1.4	1.8	1.5	1.7	1.4
<i>Storage</i>	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Communications</i>	1.0	1.5	1.6	1.6	1.8	1.6	1.8	1.9	2.2	2.4	2.0	2.2	3.1	3.3	3.0
<i>b. Other</i>	22.7	32.0	36.0	31.2	35.8	35.2	34.6	24.2	23.4	23.0	21.0	20.7	21.1	19.7	18.7
GDI—Private Sector	61.9	50.9	44.7	51.3	45.2	46.9	42.1	56.8	59.4	60.0	64.0	60.8	61.8	60.3	65.1
<i>a. Infrastructure</i>	4.2	6.4	5.9	5.4	5.8	5.6	5.5	5.1	5.4	5.1	4.8	5.8	6.7	6.1	4.5
<i>Electricity, Gas, Water Supply</i>	0.7	1.4	1.1	0.7	0.6	0.6	0.9	0.7	0.8	0.5	0.4	1.0	2.2	0.5	0.4
<i>Railways</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Other Transport</i>	3.5	4.9	4.9	4.6	5.2	5.0	4.6	4.4	4.6	4.5	4.4	4.8	4.5	5.5	4.1
<i>Storage</i>	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
<i>Communications</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>b. Other</i>	57.7	44.6	38.7	45.9	39.4	41.4	36.5	51.6	54.0	54.9	59.2	54.9	55.1	54.3	60.6

INDIA: INVESTMENTS IN INFRASTRUCTURE (1980-1994)

% OF GDP

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95
A. GDPmp *	1360.13	1597.60	1781.32	2075.89	2313.43	2622.43	2929.49	3332.01	3957.82	4568.21	5355.34	6167.99	7053.28	8010.32	9456.15
B. Gross Domestic Investment	22.7	21.4	20.4	20.1	19.7	22.2	20.9	22.9	24.5	24.9	27.0	23.4	23.1	21.6	25.2
a. Infrastructure	4.5	5.0	5.2	4.6	4.9	5.2	6.0	5.5	5.5	5.5	5.4	5.7	5.5	5.6	5.2
Electricity, Gas, Water Supply	2.3	2.6	2.7	2.4	2.4	2.8	3.3	3.1	2.9	2.7	2.7	3.1	2.7	2.7	2.5
Railways	0.6	0.6	0.6	0.6	0.6	0.6	0.8	0.6	0.7	0.6	0.6	0.5	0.7	0.7	0.6
Other Transport	1.3	1.4	1.5	1.2	1.5	1.4	1.5	1.3	1.5	1.6	1.6	1.6	1.4	1.6	1.4
Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Communications	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.6	0.5	0.5	0.7	0.7	0.8
b. Other	18.2	16.4	15.2	15.5	14.8	17.0	14.9	17.4	19.0	19.4	21.7	17.7	17.6	16.0	20.0
C. GDI—Public Sector	8.7	10.5	11.3	9.8	10.8	11.8	12.1	9.9	9.9	10.0	9.7	9.2	8.8	8.6	8.8
a. Infrastructure	3.5	3.6	3.9	3.5	3.7	4.0	4.9	4.4	4.2	4.2	4.1	4.3	3.9	4.3	4.1
Electricity, Gas, Water Supply	2.2	2.3	2.5	2.3	2.3	2.6	3.1	3.0	2.7	2.6	2.6	2.8	2.2	2.6	2.4
Railways	0.6	0.6	0.6	0.6	0.6	0.6	0.8	0.6	0.7	0.6	0.6	0.5	0.7	0.7	0.6
Other Transport	0.5	0.4	0.5	0.3	0.5	0.3	0.6	0.3	0.3	0.5	0.4	0.4	0.3	0.4	0.3
Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Communications	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.6	0.5	0.5	0.7	0.7	0.8
b. Other	5.1	6.9	7.3	6.3	7.0	7.8	7.2	5.6	5.7	5.7	5.7	4.8	4.9	4.3	4.7
D. GDI—Private Sector	14.1	10.9	9.1	10.3	8.9	10.4	8.8	13.0	14.6	14.9	17.3	14.2	14.3	13.1	16.4
a. Infrastructure	1.0	1.4	1.2	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.4	1.5	1.3	1.1
Electricity, Gas, Water Supply	0.2	0.3	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.5	0.1	0.1
Railways	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Transport	0.8	1.1	1.0	0.9	1.0	1.1	1.0	1.0	1.1	1.1	1.2	1.1	1.0	1.2	1.0
Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Communications	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
b. Other	13.1	9.5	7.9	9.2	7.7	9.2	7.6	11.8	13.2	13.7	16.0	12.8	12.8	11.7	15.3

*Rs billion at current prices

Higher industrial growth will require substantial new investment in power. Expansion of trade that will have to accompany such industrial growth will require significant expansion in internal as well as external transportation facilities. The Indian road and railway network is already grossly inadequate for present transportation demands. Similarly, existing port and airport capacity is already over-stretched to handle the recent growth in exports and imports. The expansion of telecommunication services that has taken place in the last five years has been impressive: this will accelerate further in the years to come. Rapid industrialisation will bring in its wake continuing urbanisation for the foreseeable future; but the current level of urban infrastructure services is woefully inadequate even in relation to existing demand. Large investments in water supply, sanitation and sewerage, urban transportation, housing and land development can be foreseen. Finally, rapid industrial development will also require substantive direct investment in industrial parks, technology parks, growth centres and the like. Thus it is clear that investment in infrastructure as a whole will have to accelerate quite significantly.

Although the precise linkage between infrastructure and economic growth is difficult to estimate, the World Development Report of 1994 found that, broadly, infrastructure capacity grows step by step with economic output: a 1 per cent increase in the stock of infrastructure is associated with a 1 per cent rise in gross domestic product across all countries. But the relative composition of infrastructure is found to change as a country develops. As countries move from low income categories to middle income categories, the relative share of power, telecom and roads tends to increase whereas other areas such as irrigation and railways decline. Value added by infrastructure services tends to increase with income growth: from about 6.5 per cent for low-income countries to 9 per cent for middle-income countries and 11 per cent for high-income countries. A clear acceleration has to take place in infrastructure investment as countries move from low-income levels to middle-income levels.

Infrastructure Investment in the 1980s: In order to project the infrastructure requirements over the next 10 years, it is useful to review the record of infrastructure investment and value added in the economy since the early 1980s. The main consistent source for doing such a review are the National Accounts Statistics (NAS) brought out by the Central Statistical Organisation. The key infrastructure categories are Electricity Gas and Water Supply (EGW) and Transport, Storage and Communication (TSC). For a more detailed break-up, TSC can be further sub-divided into the railways, other transport (which includes roads, ports, airports, aviation, and investment in trucks, buses etc), storage and communication. The key infrastructure category which it is not feasible to isolate from the National Accounts is that

of urban infrastructure. Some portion of this would be included in water supply (including sanitation) whereas urban transport would get included in "other transport".

At the aggregate level and at current prices, total investment in infrastructure increased from about Rs 60 billion in 1980-81 to about Rs 290 billion in 1990-91 and about Rs 500 billion in 1994-95 (Table 2.12). At constant 1980-81 prices, the total infrastructure investment doubled over the decade from Rs 60 billion to Rs 120 billion in 1990-91 and further in the 1990s to about Rs 150 billion in 1994-95. As a proportion of GNP, total investment in infrastructure ranged from about 4.5 per cent to 6 per cent, but broadly averaging about 5.5 per cent of GDP during the late 1980s and early 1990s. Average level of infrastructure investment in the first half of the 1980s was about 4.8 to 5 per cent of GDP. A significant increase took place in the second half of the 1980s, during the Seventh Plan period, when the average level increased to about 5.6 per cent of GDP. As a proportion of total gross domestic investment, GDI in infrastructure has varied between 20 and 25 per cent since the early 1980s. This pattern broadly conforms to international experience where investment in infrastructure is typically found to comprise about 20 to 25 per cent of gross domestic investment.

**At current prices,
total infrastructure
investment has
increased from Rs
60 billion in 1980-81
to Rs 290 billion in
1990-91, and Rs 500
billion in 1994-95.**

Viewed sectorally, the most significant change in pattern has been the increasing share of investment in the communication sector which has gone up from 0.3 per cent of GDP in the early 1980s to about 0.8 per cent now. The share of railways is remarkably constant at about 0.6 per cent of GDP, and that of "other transport" has ranged between 1.3 and 1.6 per cent. Investment in electricity, gas and water had tended to increase from an average of about 2.5 per cent of GDP in the early 1980s to about 3 per cent in the late 1980s, but has again declined to about 2.5 per cent in 1994-95. As might be expected, the bulk of

infrastructure investment has been in the public sector, which has, overall, accounted for about 75 per cent of total investment. It is mainly in "other transport" that the private sector has so far been active: this is primarily in the investment in the road cargo industry and in bus transport. The railways and communication sectors have been totally owned by the Government whereas there has been some marginal participation of the private sector in power. As a proportion of total public sector investment, that in infrastructure has ranged between about 35 per cent and 47 per cent during the 1980s and early 1990s.

It would seem that the productivity of the infrastructure sector has improved over the 1980s and early 1990s. With a marginal increase in overall investment from about 5 per cent to 5.5 per cent of GDP during these years, value added from infrastructure has risen substantially from about 6.5 per cent in 1980-81 to about 10 per cent now (Table 2.13). In other words, the value added has exhibited a growth rate somewhat higher than the overall growth rate in GDP. This

GROSS DOMESTIC PRODUCT: INDUSTRY OF ORIGIN (1980-1994)

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994-95
(Rs billion at current prices)															
GDP at Factor Cost	1224.27	1432.16	1593.95	1867.23	2085.33	2337.99	2600.30	2948.51	3527.06	4086.62	4778.14	5527.68	6301.82	7231.03	8541.03
GDPmp	1360.13	1597.60	1781.32	2075.89	2313.43	2622.43	2929.49	3332.01	3957.82	4568.21	5355.34	6167.99	7053.28	8010.32	9456.15
<i>Infrastructure Sectors</i>	77.94	94.46	114.43	136.43	159.25	189.92	221.04	262.06	311.97	364.54	443.77	537.24	652.11	752.14	880.28
<i>Electricity, Gas & Water Supply</i>	20.70	24.06	28.45	33.62	40.52	48.94	55.67	62.68	73.25	87.23	104.64	127.20	161.04	188.87	225.06
<i>Transport, Storage & Comm.</i>	57.24	70.40	85.98	102.81	118.73	140.98	165.37	199.38	238.72	277.31	339.13	410.04	491.07	563.27	655.22
<i>Railways</i>	11.24	16.28	21.23	24.17	24.74	31.36	37.65	43.56	47.51	55.75	64.33	73.42	84.46	96.48	107.83
<i>Other Transport</i>	36.80	43.47	51.99	63.68	77.24	91.00	105.10	124.68	152.29	177.85	223.11	275.22	330.64	372.93	433.09
<i>Storage</i>	1.22	1.46	1.59	1.83	2.12	2.60	2.80	3.17	3.34	3.88	4.45	4.77	5.13	5.73	6.67
<i>Communication</i>	7.98	9.19	11.17	13.13	14.63	16.02	19.82	27.97	35.58	39.83	47.24	56.63	70.84	88.13	107.63
<i>Other Sectors</i>	1146.33	1337.7	1479.52	1730.8	1926.08	2148.07	2379.26	2686.45	3215.09	3722.08	4334.37	4990.44	5649.71	6478.89	7660.8
(% of GDPfc)															
<i>Infrastructure Sectors</i>	6.4	6.6	7.2	7.3	7.6	8.1	8.5	8.9	8.8	8.9	9.3	9.7	10.3	10.4	10.3
<i>Electricity, Gas & Water Supply</i>	1.7	1.7	1.8	1.8	1.9	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.6	2.6	2.6
<i>Transport, Storage & Comm.</i>	4.7	4.9	5.4	5.5	5.7	6.0	6.4	6.8	6.8	6.8	7.1	7.4	7.8	7.8	7.7
<i>Railways</i>	0.9	1.1	1.3	1.3	1.2	1.3	1.4	1.5	1.3	1.4	1.3	1.3	1.3	1.3	1.3
<i>Other Transport</i>	3.0	3.0	3.3	3.4	3.7	3.9	4.0	4.2	4.3	4.4	4.7	5.0	5.2	5.2	5.1
<i>Storage</i>	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<i>Communication</i>	0.7	0.6	0.7	0.7	0.7	0.7	0.8	0.9	1.0	1.0	1.0	1.0	1.1	1.2	1.3
<i>Other Sectors</i>	93.6	93.4	92.8	92.7	92.4	91.9	91.5	91.1	91.2	91.1	90.7	90.3	89.7	89.6	89.7
(% of GDPmp)															
<i>Infrastructure Sectors</i>	5.7	5.9	6.4	6.6	6.9	7.2	7.5	7.9	7.9	8.0	8.3	8.7	9.2	9.4	9.3
<i>Electricity, Gas & Water Supply</i>	1.5	1.5	1.6	1.6	1.8	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.3	2.4	2.4
<i>Transport, Storage & Comm.</i>	4.2	4.4	4.8	5.0	5.1	5.4	5.6	6.0	6.0	6.1	6.3	6.6	7.0	7.0	6.9
<i>Railways</i>	0.8	1.0	1.2	1.2	1.1	1.2	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.1
<i>Other Transport</i>	2.7	2.7	2.9	3.1	3.3	3.5	3.6	3.7	3.8	3.9	4.2	4.5	4.7	4.7	4.6
<i>Storage</i>	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<i>Communication</i>	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.9	0.9	0.9	0.9	1.0	1.1	1.1
<i>Other Sectors</i>	84.3	83.7	83.1	83.4	83.3	81.9	81.2	80.6	81.2	81.5	80.9	80.9	80.1	80.9	81.0

Source: CSO, National Accounts Statistics.

is also broadly consistent with the experience of other countries, as noted above. In this respect, India seems to be nearer the experience of middle-income countries despite being at a low level of GNP per capita. This would also suggest that infrastructure services could be used more efficiently by the rest of the economy, or that the value added in other sectors is being underestimated.

Projecting Infrastructure Investment Requirements 1996-2006: The record of the 1980s and early 1990s viewed above suggests that, overall, there has been a tendency for the share of infrastructure investment in GDP to rise from an average of about 4.8 per cent to 5 per cent in the first half of the 1980s to about 5.5 per cent to 5.6 per cent during the second half of the 1980s, broadly coincident with the Seventh Plan period. As a proportion of the total gross domestic investment in the economy, throughout the 1980s, infrastructure investment comprised about 22 per cent to 24 per cent with this ratio showing some tendency to increase towards the latter half of the decade.

Examination of the record of the fast-growing East and South East Asian countries shows a similar pattern. As their gross domestic investment rates increased to over 30 per cent of GDP, rates of infrastructure investment rose correspondingly to levels of 7 to 8 per cent of GDP. It is also observed that infrastructure investment levels seldom exceed 8 per cent of GDP even if gross domestic investment levels begin to approach higher levels of 35 to 40 per cent of GDP, as they have in some of East-Asian countries in recent times.

Taking into consideration the Indian experience over the past 15 years, observing broad generalities of infrastructure investment across the world, and examining in particular the East and South East Asian experience over the past two decades, we have projected gross domestic investment in infrastructure in India to grow from the current level of 5.5 per cent of GDP to about 7 per cent in 2000-01 and 8 per cent in 2005-06 (Table 2.14). Thus it would continue to comprise 22 to 25 per cent of gross domestic investment. In absolute terms, total annual infrastructure investments are projected to rise from about Rs 600 billion (US \$ 17 billion) in 1995-96 to Rs 1,070 billion (US \$ 30 billion) in 2000-01 and Rs 1,800 billion (US \$ 50 billion) in 2005-06 at current 1995-96 prices and exchange rate of US \$ 1 = Rs 35. This implies total infrastructure investment in India in the next five years (1996-97 to 2000-01) to amount to about Rs 4,300 billion (US \$ 120 billion) and Rs 7,400 billion (US \$ 210 billion) in the following five years (2001-02 to 2005-06).

For a similar period (1995-2004), the World Bank has estimated that to maintain a 7 to 9 per cent economic growth rate, countries in East Asia would need to invest between 6.5 to 7 per cent of their GDP in infrastructure. The implication of this is that developing countries would need to invest between US \$ 1.2 to 1.5 trillion in power, telecommunica-

tions, transport, water supply and sanitation facilities.

Our estimates are therefore consistent with these overall estimates: India's requirements will be about 22 to 25 per cent of the East Asian requirements in infrastructure. We have, however, projected a slightly higher level of infrastructure investment as a proportion of GDP going upto about 8 per cent of GDP in 2005-06, in recognition of the fact that infrastructure backlog in India may be higher as compared to some of the East Asian countries.

Sectoral Projections: The macro-economic methodology for projecting economic growth and infrastructure investment does not provide adequate guidance for the sectoral composition of these requirements. The only guidance available is the continuation of past trends and the use of judgement in terms of the expected increasing share of different sectors. In order to derive the sectoral composition, we have made use of bottom-up estimates for each sector.

Except in the case of industrial parks, estimates have been made for investment requirements in each of these sectors. These estimates have been made independently, using different methodologies. In the case of power and telecommunications, there is considerable information available on the patterns of previous investment, being fully in the public sector, and on the expected requirements in the future, based on the various investment intentions that are currently being expressed. These projections have been generally smoothed to provide a regular growth rate in such investments over the next 10 years. In the case of roads, there is a general view that past investments have been inadequate and these need to be stepped up very significantly. Moreover, it is proposed to introduce Supernational Highways over the next 20 years. There is no experience of investment in super highways in the past. The projections for invest-

ment requirements for roads was first made for the next 20 years as a whole. These projections were then broken down into five-year periods from 1996-97 and then further smoothed out on an annual basis. Similar was the case of urban infrastructure where there are no reliable estimates for the past pattern of investments. In the case of ports, the projections have been made on the basis of trade expansion expected and by using certain physical coefficients for estimating the new investment requirements. We have not made specific estimates for railways or for other transport excluding roads and ports, and also storage. For these sectors, the increase in investment has been made on a trend basis.

The summary results for sectoral requirements are shown in Table 2.15. The aggregation in this fashion yields levels of investment which are far higher than the total infrastructure investment indicated by the macro-economic projections. According to the sum of the sectoral estimates, total investment would rise immediately to about 8 per cent of GDP in 1996-97 and further to about 11.5 per cent by the year

Various sectoral investments being indicated by different ministries are much higher than is feasible even in a high-growth scenario.

2005-06, as compared with the range of 5.5 per cent to 8 per cent of GDP indicated by the macro economic projections, and as suggested by the experience of other countries. It is therefore clear that the various sectoral investments that are being indicated by different ministries and by central experts are at levels much higher than is feasible even in a relatively high-growth scenario as has been projected in this report.

According to the sectoral projections, annual investment in power should increase from about Rs 480 billion and in 1996-97 to about Rs 670 billion in 2000-2001 and Rs 990 billion by 2005-06. Similarly, investment in urban infrastructure should increase from Rs 92 billion in 1996-97 to Rs 210 billion by 2000-01 and Rs 600 billion by 2005-06; in roads from about Rs 40 billion in 1996-97 to about Rs 100 billion by 2000-01, and Rs 150 billion 2005-06; in communications from about Rs 100 billion in 1996-97 to Rs 150 billion in 2000-01 and Rs 300 billion in 2005-06. The requirements of ports are somewhat more modest, rising from Rs 15 billion in 1996-97 to about 24 billion in 2000-01 and Rs 40 billion in 2005-06.

As the sectoral projections suggest, the two key areas where the present pattern of investment is inadequate are roads and urban infrastructure. The shares of other sectors as a proportion of GDP correspond roughly to the pattern witnessed in the last 15 years.

Since it is clear that the sectoral projections are far greater than any feasible level of infrastructure investment that can be expected, we have used the information available from the sectoral projections to distribute the total level of infrastructure investment on a sectoral basis on a more realistic basis. We have disaggregated the macro-economic infrastructure investment projections into different sectors by assuming the same composition of infrastructure investment obtained from the bottom-up estimates. The results are found in Table 2.16. It is found that if the bottom-up sectoral estimates are scaled down almost uniformly to about 70 per cent of their estimated levels, they should be feasible to achieve within the macro-economic constraints expected. According to this realistic projection, investment in power would range from about Rs 360 billion in 1996-97 to about Rs 500 billion in 2000-01, and Rs 690 billion in 2005-06. Thus resources of about Rs 2,000-2,100 billion (US \$ 60 billion) would be required for the power sector in the next five years and Rs 3,000-3,100 billion (about Rs 90 billion) in the following five years, making for a total of about Rs 5,000 billion (US \$ 150 billion) over the next 10 years. In telecommunications, the investment required would range from about Rs 76 billion in 1996-97 to about Rs 115 billion in 2000-01 and Rs 215 billion in 2005-06. That makes a total investment of about Rs 550 billion (US \$ 16 billion) over the next five years, and about Rs 840 billion (US \$ 25 billion) in the following five. In the case of roads, investment would have to be stepped up from about Rs 30 billion in 1996-97 to about Rs 75 billion in

2000-01 and Rs 100 billion in 2005-06. This amounts to about Rs 240 billion (US \$ 7 billion) over the next five years, followed by about Rs 440 billion (US \$ 12.5 billion) between 2001-2006. The investment needs in power, telecommunications and roads would seem to be eminently achievable.

In the case of urban infrastructure, however, because of the lack of adequate information on past investments, it is difficult to say whether the projections shown here are within the realistic realm or not. The analysis of requirements for investment in different forms of urban infrastructure suggests that if there is to be any hope of providing a semblance of urban infrastructure services required by a fast-industrialising country, the pace of investment in would have to be stepped up considerably. Our central-down projections suggest that investment on only urban infrastructure should increase from about Rs 70 billion in 1996-97 to Rs 160 billion in 2000-01 and Rs 420 billion 2005-06. Thus investment in urban infrastructure in the next five years would have to be of the order of Rs 550 billion (US \$ 15 billion) and about Rs 1,500 billion (US \$ 40 billion) in 2001-2006.

Public sector investment in infrastructure cannot reduce from current levels as a proportion of GDP. They should, in fact, rise marginally.

The Public-Private Divide: The public sector has been the dominant investor in infrastructure over the last 50 years. During the 1980s, when total infrastructure investment ranged from about 4.5 per cent to 5.5 per cent of GDP, public sector investment ranged from about 3.5 per cent to 4.3 per cent (Table 2.12). Private sector infrastructure investment has generally been in the 1-1.3 per cent range as a proportion of GDP. At present, most of the private sector share in infrastructure is the "other transport" sector, which consists mainly of the road cargo transport industry—almost fully in the private sector, and road passenger transport—shared by the public and private sectors.

The public sector supplies more than 90 per cent of investment in power, water supply and sanitation, railways, roads, telecommunications etc. The private sector is only a marginal player in each of these areas at present. Currently, private sector participation is being actively pursued in the provision of power, telecommunications and for a segment of roads. Discussion has begun on private participation in urban infrastructure provision, but arrangements enabling such participation are still to be made.

It is therefore clear that with the best of assumptions regarding private sector entry into the infrastructure sectors, we can only expect a gradual growth in its participation. We have therefore projected the share of the private sector to increase from the current 25 per cent to 40 per cent by 2000-01 and to about 45 per cent by 2005-06 (Table 2.14). This would mean an increase in private sector infrastructure investment from the current 1.5 per cent of GDP to about 2.8-3.0 per cent in 2000-01, and about 3.5 per cent in 2005-06. In absolute numbers, it implies an increase from the current Rs 160 billion to about Rs 430 billion in 2000-01, and about Rs 800 billion by 2005-06.

INDIA: PROJECTED INVESTMENTS IN INFRASTRUCTURE (MACRO ESTIMATES) (1990-2005)

P R O J E C T I O N S

	1990/91	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
(Rs billion at 1995/96 prices)*														
A. GDPmp	5355.3	8010.3	9456.2	10884.1	11637.8	12437.7	13318.9	14275.0	15371.4	16566.9	17898.0	19372.1	21013.4	22825.9
B. Gross Domestic Investment	1448.5	1733.3	2384.1	2825.5	3091.4	3391.1	3696.4	4075.5	4512.0	4930.0	5415.3	5938.8	6523.4	7179.5
a. Infrastructure	287.4	452.2	494.1	598.6	675.0	758.7	852.4	956.4	1076.0	1192.8	1324.5	1472.3	1639.0	1826.1
Electricity, Gas, Water Supply	144.1	213.8	233.0	318.6	348.6	382.4	416.8	459.5	508.8	555.9	610.6	669.6	735.5	809.5
Railways	30.8	55.8	59.6	72.9	79.8	87.5	95.4	105.2	116.4	127.2	139.8	153.3	168.4	185.3
Other Transport	83.3	124.4	128.9	130.6	162.9	197.0	240.1	281.3	328.6	376.2	427.4	488.6	558.5	636.8
Storage	0.7	0.6	0.6	1.2	1.3	1.4	1.5	1.7	1.9	2.0	2.2	2.4	2.7	2.9
Communications	28.6	57.5	72.1	75.4	82.5	90.4	98.6	108.7	120.3	131.5	144.4	158.4	174.0	191.5
b. Other	1161.1	1281.1	1890.0	2226.9	2416.4	2632.4	2844.0	3119.1	3436.0	3737.2	4090.9	4466.5	4884.3	5353.4
C. GDI—Public Sector	521.5	687.5	832.5	1088.4	1163.8	1243.8	1331.9	1427.5	1537.1	1656.7	1789.8	1937.2	2101.3	2282.6
a. Infrastructure	217.3	346.9	387.1	477.4	511.1	546.3	587.2	639.7	693.4	750.4	806.4	872.9	938.0	1019.4
Electricity, Gas, Water Supply	137.7	204.4	222.7	302.7	324.2	348.0	370.9	399.8	432.4	461.4	494.6	529.0	566.4	615.2
Railways	30.8	55.8	59.6	72.9	74.9	80.0	85.7	91.8	98.9	106.6	115.1	124.6	135.2	146.8
Other Transport	19.7	28.6	32.2	32.6	40.7	49.2	60.0	70.3	82.1	94.0	106.9	122.1	139.6	159.2
Storage	0.5	0.5	0.5	0.9	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.7	1.8
Communications	28.6	57.5	72.1	67.8	70.1	67.8	69.0	76.1	78.2	85.5	86.7	95.0	95.7	95.7
b. Other	304.2	340.6	445.3	611.0	652.7	697.4	744.7	787.8	843.7	906.2	983.4	1064.3	1163.3	1263.2
D. GDI—Private Sector	927.0	1045.8	1551.7	1737.1	1927.7	2147.3	2364.5	2648.0	2974.9	3273.4	3625.5	4001.5	4422.0	4896.9
a. Infrastructure	70.1	105.3	107.0	121.2	163.9	212.4	265.2	316.7	382.6	442.4	518.0	599.3	701.1	806.7
Electricity, Gas, Water Supply	6.4	9.4	10.3	15.9	24.4	34.4	45.8	59.7	76.3	94.5	116.0	140.6	169.2	194.3
Railways	0.0	0.0	0.0	0.0	4.9	7.5	9.7	13.4	17.6	20.7	24.6	28.7	33.2	38.5
Other Transport	63.5	95.8	96.7	97.9	122.2	147.7	180.1	211.0	246.4	282.1	320.6	366.4	418.9	477.6
Storage	0.2	0.1	0.1	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.1
Communications	0.0	0.0	0.0	7.5	12.4	22.6	29.6	32.6	42.1	46.0	57.8	63.4	78.3	95.7
b. Other	856.9	940.5	1444.6	1615.8	1763.8	1935.0	2099.3	2331.3	2592.3	2831.0	3107.5	3402.2	3721.0	4090.2
ICOR (5 years average, 1 year lag)	3.5	5.2	5.1	4.8	3.8	3.7	3.6	3.6	3.6	3.6	3.6	3.6	3.5	3.5
ICOR (1 Year Incremental)	4.0	5.6	3.2	3.5	3.6	3.7	3.7	3.7	3.5	3.6	3.5	3.5	3.5	3.4
E. GDI	27.0	21.6	25.2	26.0	26.6	27.3	27.8	28.6	29.4	29.8	30.3	30.7	31.0	31.5
F. GDI—Infrastructure	5.4	5.6	5.2	5.5	5.8	6.1	6.4	6.7	7.0	7.2	7.4	7.6	7.8	8.0
G. GDI-Infra as % of GDI	19.8	26.1	20.7	21.2	21.8	22.4	23.1	23.5	23.8	24.2	24.5	24.8	25.1	25.4
H. GDI-Public Sector	9.7	8.6	8.8	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
I. GDI-Public Sector-Infrastructure	4.1	4.3	4.1	4.4	4.4	4.4	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5
J. GDI-Infra-Pub as % of GDI Pub	41.7	50.5	46.5	43.9	43.9	43.9	44.1	44.8	45.1	45.3	45.1	45.1	44.6	44.7
K. GDI-Pub as % of GDI	36.0	39.7	34.9	38.5	37.6	36.7	36.0	35.0	34.1	33.6	33.1	32.6	32.2	31.8
L. GDI-Pub-Infra as % of GDI Infra	75.6	76.7	78.3	79.7	75.7	72.0	68.9	66.9	64.4	62.9	60.9	59.3	57.2	55.8

* Till 1995/96 at current prices, afterwards at 1995/96 prices.

INDIA: PROJECTED INVESTMENTS IN INFRASTRUCTURE (MACRO ESTIMATES) (1990-2005)

% of Gross Domestic Investment	P R O J E C T I O N S													
	1990/91	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Gross Domestic Investment—Public Sector	36.0	39.7	34.9	38.5	37.6	36.7	36.0	35.0	34.1	33.6	33.1	32.6	32.2	31.8
<i>a. Infrastructure</i>	75.6	76.7	78.3	79.7	75.7	72.0	68.9	66.9	64.4	62.9	60.9	59.3	57.2	55.8
<i>Electricity, Gas, Water Supply</i>	95.6	95.6	95.6	95.0	93.0	91.0	89.0	87.0	85.0	83.0	81.0	79.0	77.0	76.0
<i>Railways</i>	100.0	100.0	100.0	100.0	93.8	91.4	89.8	87.3	84.9	83.8	82.4	81.3	80.3	79.2
<i>Other Transport</i>	23.7	23.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
<i>Storage</i>	66.7	82.0	89.3	74.8	73.1	71.2	69.9	68.0	66.1	65.2	64.1	63.3	62.5	61.7
<i>Communications</i>	100.0	100.0	100.0	90.0	85.0	75.0	70.0	70.0	65.0	65.0	60.0	60.0	55.0	50.0
<i>b. Other</i>	26.2	26.6	23.6	27.4	27.0	26.5	26.2	25.3	24.6	24.2	24.0	23.8	23.8	23.6
Gross Domestic Investment—Private Sector	64.0	60.3	65.1	61.5	62.4	63.3	64.0	65.0	65.9	66.4	66.9	67.4	67.8	68.2
<i>a. Infrastructure</i>	24.4	23.3	21.7	20.3	24.3	28.0	31.1	33.1	35.6	37.1	39.1	40.7	42.8	44.2
<i>Electricity, Gas, Water Supply</i>	4.4	4.4	4.4	5.0	7.0	9.0	11.0	13.0	15.0	17.0	19.0	21.0	23.0	24.0
<i>Railways</i>	0.0	0.0	0.0	0.0	6.2	8.6	10.2	12.7	15.1	16.2	17.6	18.7	19.7	20.8
<i>Other Transport</i>	76.3	77.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0
<i>Storage</i>	33.3	18.0	10.7	25.2	26.9	28.8	30.1	32.0	33.9	34.8	35.9	36.7	37.5	38.3
<i>Communications</i>	0.0	0.0	0.0	10.0	15.0	25.0	30.0	30.0	35.0	35.0	40.0	40.0	45.0	50.0
<i>b. Other</i>	73.8	73.4	76.4	72.6	73.0	73.5	73.8	74.7	75.4	75.8	76.0	76.2	76.2	76.4

INDIA: PROJECTED INVESTMENTS IN INFRASTRUCTURE (MACRO ESTIMATES) (1990-2005)

P R O J E C T I O N S

% of GDP	1990/91	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
A. GDPmp (Rs billion at 1995/96 prices)	5355.34	8010.32	9456.15	10884.11	11637.83	12437.73	13318.91	14275.04	15371.38	16566.91	17897.99	19372.14	21013.44	22825.90
B. Gross Domestic Investment	27.0	21.6	25.2	26.0	26.6	27.3	27.8	28.6	29.4	29.8	30.3	30.7	31.0	31.5
a. Infrastructure	5.4	5.6	5.2	5.5	5.8	6.1	6.4	6.7	7.0	7.2	7.4	7.6	7.8	8.0
<i>Electricity, Gas, Water Supply</i>	2.7	2.7	2.5	2.9	3.0	3.1	3.1	3.2	3.3	3.4	3.4	3.5	3.5	3.5
<i>Railways</i>	0.6	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8
<i>Other Transport</i>	1.6	1.6	1.4	1.2	1.4	1.6	1.8	2.0	2.1	2.3	2.4	2.5	2.7	2.8
<i>Storage</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Communications</i>	0.5	0.7	0.8	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
b. Other	21.7	16.0	20.0	20.5	20.8	21.2	21.4	21.9	22.4	22.6	22.9	23.1	23.2	23.5
C. GDI—Public Sector	9.7	8.6	8.8	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
a. Infrastructure	4.1	4.3	4.1	4.4	4.4	4.4	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5
<i>Electricity, Gas, Water Supply</i>	2.6	2.6	2.4	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.7	2.7	2.7
<i>Railways</i>	0.6	0.7	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
<i>Other Transport</i>	0.4	0.4	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7
<i>Storage</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Communications</i>	0.5	0.7	0.8	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4
b. Other	5.7	4.3	4.7	5.6	5.6	5.6	5.6	5.5	5.5	5.5	5.5	5.5	5.5	5.5
D. GDI—Private Sector	17.3	13.1	16.4	16.0	16.6	17.3	17.8	18.6	19.4	19.8	20.3	20.7	21.0	21.5
a. Infrastructure	1.3	1.3	1.1	1.1	1.4	1.7	2.0	2.2	2.5	2.7	2.9	3.1	3.3	3.5
<i>Electricity, Gas, Water Supply</i>	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.6	0.6	0.7	0.8	0.9
<i>Railways</i>	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
<i>Other Transport</i>	1.2	1.2	1.0	0.9	1.0	1.2	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
<i>Storage</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Communications</i>	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4
b. Other	16.0	11.7	15.3	14.8	15.2	15.6	15.8	16.3	16.9	17.1	17.4	17.6	17.7	17.9

These are clearly large numbers.

Initially, the largest private sector investments can be expected in the power and telecommunication sectors. Later, as investment in highways becomes commercially feasible, and it becomes easier to invest in urban infrastructure, ports and airports, we can expect much greater private investment in these areas as well.

The World Bank has estimated that developing countries as a whole invest about US \$ 200 billion per year in physical infrastructure facilities. As much as 80 per cent is financed from domestic public resources, and less than 10 per cent from private capital, the remaining being international development assistance. Our assumptions about the pace of increase in private infrastructure investment are therefore at the optimistic end. They, however, take account of the rapidly changing scenario in different infrastructure sectors and are therefore regarded as realistic.

A key conclusion emerging from this discussion is that public sector investment in infrastructure cannot be expected to be reduced from the current levels as a proportion of GDP. If anything, they should rise marginally: we have projected them to range between 4 and 4.5 per cent of GDP over the next 10 years. Depending on the ability of the private sector to invest in different sectors, there could well be a shift in sectoral composition of public sector infrastructure investments. Overall, private sector investment must be seen as complementary to public sector investment rather than a substitute. The logical implication is that public sector infrastructure investment will have to be increasingly commercially viable if public resources invested in infrastructure are to increase at the same rate as GDP growth, which would keep their share constant.

Summary

This exercise in the estimation of infrastructure requirements over the next 10 years has involved full-scale macro-economic projections with certain built-in assumptions about expected growth of the Indian economy. A key issue that needs to be grasped is that the kind of economic growth projected will not be possible without a substantial improvement in all areas of infrastructure. Conversely, it will also not be possible to find the resources required for infrastructure that are implied in this exercise unless the country's economic growth accelerates. There is a close relationship between infrastructure investment and economic growth.

The projections made in this Report should be seen as indicators of the order of magnitudes that can be expected to be invested in infrastructure over the next decade or so. The spirit of the projections is that such investments will take place if the policy framework in each sector is made investor-friendly and transparent. To the extent that there will be leads and lags between different sectors in the setting up of appropriate regulatory mechanisms and other facilitation activities, there are likely to be imbalances between sectors over time.

For example, it is likely that the power and telecommunication sectors could receive greater investment than suggested by our projections in the initial years, whereas investment in roads and urban infrastructure could possibly come with some lag. However, we expect that our overall projections for total infrastructure investment will broadly emerge to be about right. It should also be mentioned at the outset that the Expert Group has not made any estimation regarding investment in the railways, airports and civil aviation. These investments could amount to significant sums. In these sectors we have merely extended past trends.

Accelerating Growth: The Indian economy has been projected to accelerate its growth from the current 6 to 6.2 per cent to 7.5 per cent by 2000-01 and 8.5 per cent by 2005-06. The achievement of such growth in GDP would require a growth in the investment rate from the current 25 per cent of GDP to about 29 per cent in 2000-01 and 31.5 per cent in 2005-06. The economy would have to become much more efficient if such aspirations are to be fulfilled: the Incremental Capital Output Ratio (ICOR) would have to decline to about 3.5 which is a level that approximates the efficiency levels achieved by the East Asian and South East Asian countries. The rate of industrial growth would have to accelerate from the 8 to 8.5 per cent a year achieved during the 1980s to a range of 10 per cent to 12 per cent per annum over the next 10 years.

Why Trade Needs to Expand: The implication of such growth for the external sector of the economy is a high degree of continuing trade expansion over the next 10 years. This is because achieving the desired investment level would need significant mobilisation of external capital inflows to finance the burgeoning requirements for the financing of industrial and infrastructure investment, and of the equipment imports implied by such expansion. The sustainability of such economic growth would require continuing high growth in exports, perhaps declining from the current 20 per cent annual growth to about 10 per cent by the end of the next decade, giving an average of about 15 per cent annual growth over the period. If this takes place, total exports should reach about US \$ 66 billion in 2000-01 and US \$ 115 billion by 2005-06. At these levels, exports would comprise about 15 per cent of GDP in 2000-01 and about 17 per cent by 2005-06, up from the current level of about 10 per cent. If exports manage to increase to these levels, it would become feasible for India to sustain a wider current account deficit which is required for the non-inflationary absorption of external capital inflows. It is suggested that a sustainable level of current account deficit would increase from the current level of 1.5 per cent of GDP to 2.5 per cent in 2000-01 and 3 per cent in 2005-06.

It would then be possible for the net capital inflow to rise from the current level of about US \$ 7 to 8 billion to about US \$ 17 to 20 billion by 2000-01 and about US \$ 25-30 billion by 2005-06. In order to keep the debt-service requirements at a

If an adequate level of resource generation is to take place for the required investments, public sector savings must rise significantly.

INDIA: PROJECTED SECTORAL ESTIMATES (1995-2005)

P R O J E C T I O N S

	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
(Rs billion at 1995/96 prices)											
A. GDPmp	10884.1	11637.8	12437.7	13318.9	14275.0	15371.4	16566.9	17898.0	19372.1	21013.4	22825.9
B. Gross Domestic Investment	2825.5	3091.4	3391.1	3696.4	4075.5	4512.0	4930.0	5415.3	5938.8	6523.4	7179.5
a. Infrastructure	655.0	730.3	859.2	990.2	1076.3	1208.7	1379.9	1549.7	1762.9	1991.3	2311.3
Power	300.0	308.0	336.0	364.0	392.0	434.0	476.0	518.0	560.0	616.0	679.0
Urban Infrastructure	75.0	92.4	113.8	140.1	172.6	212.5	261.7	322.3	397.0	488.9	602.2
Railways	72.9	79.8	87.5	95.4	105.2	116.4	127.2	139.8	153.3	168.4	185.3
Other Transport	130.6	146.9	176.6	205.2	239.9	290.9	330.9	376.4	418.2	465.4	529.9
Roads	30.0	38.8	47.8	59.7	75.9	97.9	105.7	114.4	124.2	135.2	147.6
Ports	9.6	15.0	16.8	18.9	21.3	23.9	26.5	29.3	32.5	36.0	39.9
Other Transport	91.0	93.1	111.9	126.5	142.8	169.1	198.8	232.7	261.5	294.2	342.4
Communications	75.4	102.0	144.0	184.0	165.0	153.0	182.0	191.0	232.0	250.0	312.0
Storage	1.2	1.3	1.4	1.5	1.7	1.9	2.0	2.2	2.4	2.7	2.9
b. Other Investment	2170.5	2361.2	2531.9	2706.2	2999.3	3303.3	3550.1	3865.7	4175.9	4532.0	4868.2
C. GDI (% of GDP)	26.0	26.6	27.3	27.8	28.6	29.4	29.8	30.3	30.7	31.0	31.5
a. Infrastructure	6.0	6.3	6.9	7.4	7.5	7.9	8.3	8.7	9.1	9.5	10.1
Power	2.8	2.6	2.7	2.7	2.7	2.8	2.9	2.9	2.9	2.9	3.0
Urban Infrastructure	0.7	0.8	0.9	1.1	1.2	1.4	1.6	1.8	2.0	2.3	2.6
Railways	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8
Other Transport	1.2	1.3	1.4	1.5	1.7	1.9	2.0	2.1	2.2	2.2	2.3
Roads	0.3	0.3	0.4	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6
Ports	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Other Transport	0.8	0.8	0.9	1.0	1.0	1.1	1.2	1.3	1.4	1.4	1.5
Communications	0.7	0.9	1.2	1.4	1.2	1.0	1.1	1.1	1.2	1.2	1.4
Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
b. Other Investment	19.9	20.3	20.4	20.3	21.0	21.5	21.4	21.6	21.6	21.6	21.3

Source: Estimated in Expert Group Sectoral Reports.

INDIA: SCALE-DOWN AGGREGATION OF PROJECTED SECTORAL ESTIMATES (1995-2005)

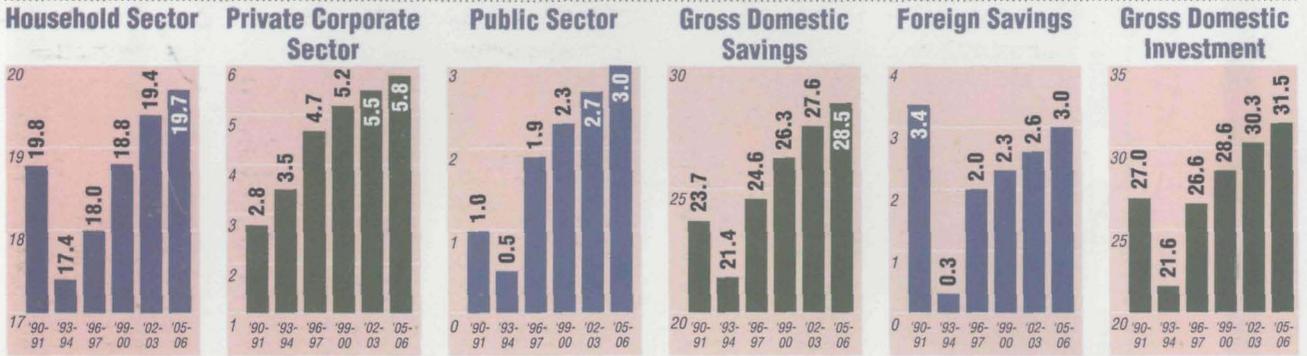
	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
(Rs billion at 1995/96 prices)											
A. GDPmp	10884.1	11637.8	12437.7	13318.9	14275.0	15371.4	16566.9	17898.0	19372.1	21013.4	22825.9
B. Gross Domestic Investment	2825.5	3091.4	3391.1	3696.4	4075.5	4512.0	4930.0	5415.3	5938.8	6523.4	7179.5
a. Infrastructure	598.6	675.0	758.7	852.4	956.4	1076.0	1192.8	1324.5	1472.3	1639.0	1826.1
Power	274.2	284.7	296.7	313.3	348.3	386.4	411.5	442.7	467.7	507.0	536.5
Urban Infrastructure	68.5	85.4	100.5	120.6	153.3	189.2	226.2	275.5	331.6	402.4	475.8
Railways	66.6	73.7	77.3	82.1	93.5	103.7	110.0	119.4	128.0	138.6	146.4
Other Transport	119.3	135.7	155.9	176.6	213.2	258.9	286.0	321.7	349.2	383.0	418.6
Roads	27.4	35.8	42.2	51.4	67.4	87.1	91.3	97.7	103.7	111.3	116.6
Ports	8.8	13.9	14.9	16.3	18.9	21.3	22.9	25.1	27.1	29.6	31.5
Other Transport	83.1	86.1	98.8	108.9	126.9	150.5	171.8	198.9	218.4	242.1	270.5
Communications	68.9	94.3	127.2	158.4	146.6	136.2	157.3	163.2	193.8	205.8	246.5
Storage	1.1	1.2	1.2	1.3	1.5	1.6	1.7	1.9	2.0	2.2	2.3
b. Other Investment	2226.9	2416.4	2632.4	2844.0	3119.1	3436.0	3737.2	4090.9	4466.5	4884.3	5353.4
C. GDI (% of GDP)	26.0	26.6	27.3	27.8	28.6	29.4	29.8	30.3	30.7	31.0	31.5
a. Infrastructure	5.5	5.8	6.1	6.4	6.7	7.0	7.2	7.4	7.6	7.8	8.0
Power	2.5	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.4
Urban Infrastructure	0.6	0.7	0.8	0.9	1.1	1.2	1.4	1.5	1.7	1.9	2.1
Railways	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.6
Other Transport	1.1	1.2	1.3	1.3	1.5	1.7	1.7	1.8	1.8	1.8	1.8
Roads	0.3	0.3	0.3	0.4	0.5	0.6	0.6	0.5	0.5	0.5	0.5
Ports	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other Transport	0.8	0.8	0.9	1.0	1.0	1.1	1.2	1.3	1.4	1.4	1.5
Communications	0.6	0.8	1.0	1.2	1.0	0.9	0.9	0.9	1.0	1.0	1.1
Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
b. Other Investment	20.5	20.8	21.2	21.4	21.9	22.4	22.6	22.9	23.1	23.2	23.5

Source: Table 2.14 and Table 2.15.

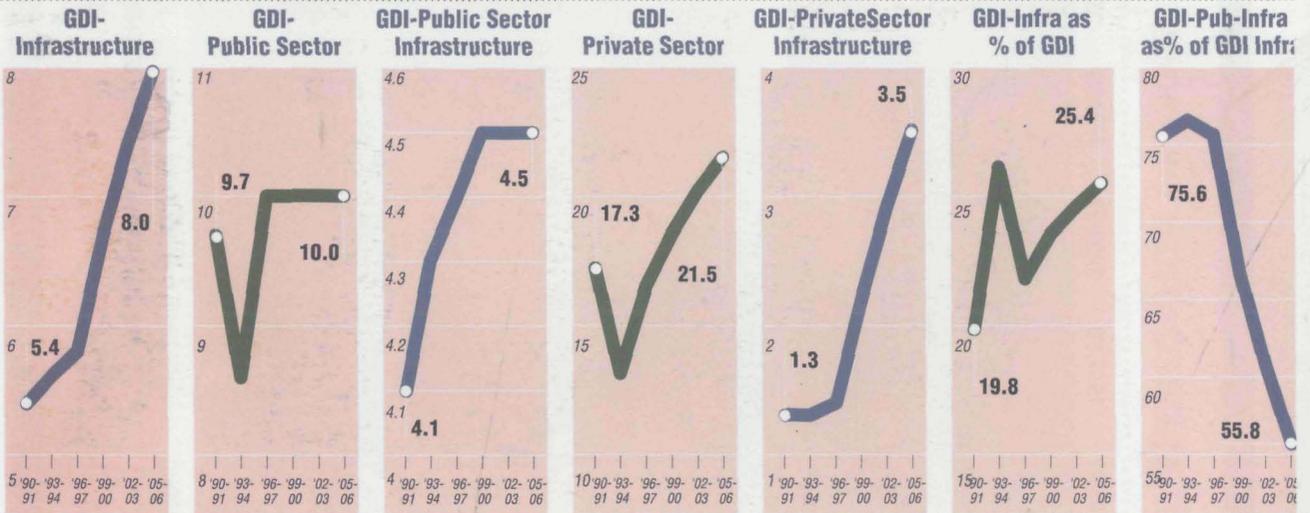
INFASTRUCTURE FUNDS:

GROSS DOMESTIC SAVINGS AND INVESTMENT

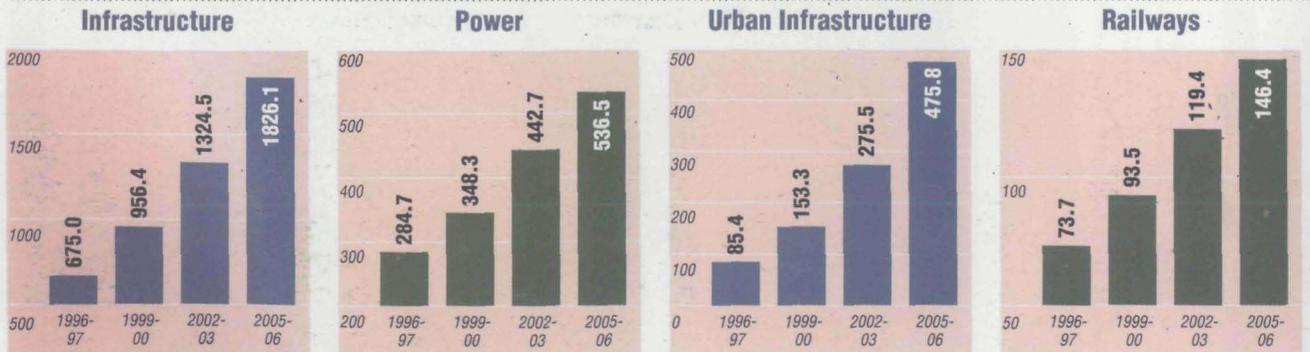
(% of GDP)



MACRO ESTIMATES AS % OF GDP



SCALE-DOWN AGGREGATION OF SECTORAL ESTIMATES



WHERE THEY WILL COME FROM

PROJECTED INFRASTRUCTURE INVESTMENT: MACRO ESTIMATES

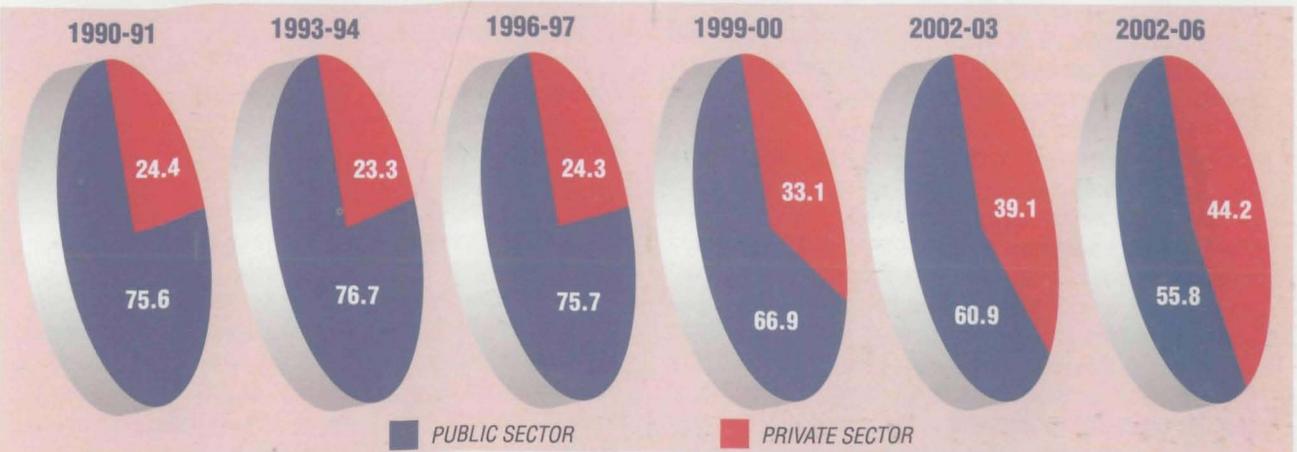
(Rs billion at '95/96 prices)*



*Till 1995/96 at current prices, afterwards at 1995/96 prices.

CHANGING SHARE OF PUBLIC AND PRIVATE SECTORS IN INFRASTRUCTURE INVESTMENTS

(In per cent)

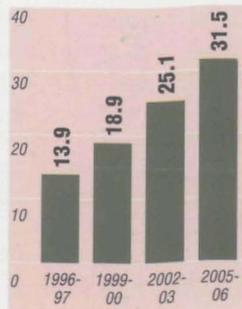


(Rs billion at 1995/96 prices)

Roads



Ports



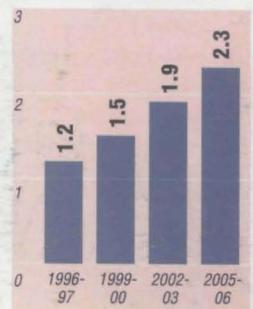
Other Transport



Communications



Storage



sustainable level, the debt-equity ratio of such net capital inflows would have to be in the region of unity. It should be noted that the implied gross annual debt flows would be an increase from the current level of about US \$ 6 to 7 billion to US \$ 12-13 billion by 2000-01 and US \$ 22 to 24 billion by 2005-06. The net foreign investment inflow implied by these projections, including both foreign direct and portfolio inflows is an increase from the current US \$ 4 to 4.5 billion to about US \$ 9 to 10 billion by 2000-01 and US \$ 15-16 billion by 2005-06.

The sustained inflow of such volumes of external capital would require an open foreign investment regime.

Simultaneously, attention should be paid to keeping the macro-economic fundamentals on a sustainable basis. A point worthy of note is that the expectation regarding official net debt flows is relatively pessimistic: therefore most of the new portfolio would have to be commercial, which would be highly dependent on the maintenance of high credit ratings for India and its borrowing entities. Keeping such a credit rating would be helped by the maintenance of a high level of foreign exchange reserves equivalent to about 6 to 7.5 months of imports. This would imply the level of reserves rising from about US \$ 17 billion to US \$ 50 billion in 2000-01 and US \$ 90

2

1

Private Financing of Infrastructure in Asia

In the next decade, the Asia-Pacific region is likely to spend more on telephones and power than anywhere else in the world. For instance, the region would account for 31 per cent of the projected investment from 1993 to 2000 in telephones. The capital needed to finance this development is estimated to run into trillions of dollars. This will force Asian governments to rely increasingly on private capital. The World Bank estimates that only 7 per cent of the investment in infrastructure in the developing countries currently comes from the private sector. This is likely to double by 2000.

Private capital is finding its way into infrastructure through privatisation of existing utilities as well as through construction of new projects on a build-operate-transfer basis allowing the contractors to build the project and then to make money by keeping a fixed share of revenues the projects generate. Private finance for infrastructure can be tapped from commercial banks, stockmarkets or bond markets. The banks are the first choice; yet, experience suggests that the appetite of commercial banks for infrastructure projects is limited. In fact, it is the capital markets which have emerged as the major source of private finance for infrastructure. Between 1988 and 1992, developing countries raised \$ 62 billion through privatisations, about a third of which involved infrastructure-related shares. Asia raised \$ 7 billion and is all set to increase its share. The floatation of Telecom Asia, a Thai company with no assets other than a concession to install three million phones, created the largest company on the Thai stock exchange, capitalised at over \$7 billion.

Bond markets are the third major source of private finance for infrastructure. They command large amounts of capital and are comfortable with maturities of 15 to 20 years which tend to bother banks. China's Finance Ministry announced in October, 1994 that it plans to issue \$10 billion worth of bonds over the next five years to help finance infrastructure. The bonds, however, still need sovereign guarantees to succeed. The snag is that with governments worrying over their debts, such sovereign guarantees are increas-

ingly hard to come by.

The most obvious problems for infrastructure projects are political. Political risk is not just the risk of dynastic upheavals. In many countries, infrastructure facilities are subsidised. Investors will put in financial capital only if they can be sure that a government will in return commit its political will to the tricky business of phasing out subsidies.

Just how tricky that business can be was illustrated by a recent spat between the Thai Government and a group of investors in an urban motorway in Bangkok. At the last moment, the Thais balked at raising road tolls to the level agreed in the contract and the deal unravelled. The episode set investors thinking. If tolls charged to affluent car users are so politically vulnerable, how will a subway or a bus system be financially viable?

There are also more obvious financial risks. Foreigners will be lending in dollars or yen, but a power plant in Indonesia will generate incomes in rupiah. If the rupiah were suddenly to depreciate in value against the dollar, would payments be guaranteed? And how is the currency risk balanced between the borrowers and the lenders? Questions like these become even more pointed in China where the currency is not yet convertible. Then the question is whether access to foreign exchange markets can be guaranteed at all. Looking further into the future, some investors are also beginning to worry about environmental risks.

Balancing all these concerns makes negotiating infrastructure deals complicated. Haggling between governments, contractors and bankers over billion-dollar projects takes years. But in the tug of war between investors and borrowers, the investors have one advantage. The longer the Asian countries wait, the more acute their infrastructure needs will become. And international financiers have a queue of potential borrowers competing for capital both in Asia and the rest of the world.

Source: The Economist: November 12, 1994

billion in 2005-06. Our projections suggests that total external debt would increase from the current level of about US \$ 100 billion to about US \$ 140 billion in 2000-01 and US \$ 200 billion in 2005-06. These projections imply that debt-service ratios would be maintained at between 15 and 20 per cent of current receipts.

A key conclusion from this exercise is that high growth in trade is absolutely essential if India is to attract external capital inflows of the volumes desired and on a sustainable basis. Infrastructure investments of the level projected therefore imply a sustained growth in exports which is necessary for both the servicing of increasing level of external liability and for equipment imports in the infrastructure sector. Of the external capital inflows projected, our expectation is that about 40 per cent could flow into the infrastructure sectors.

Domestic Savings Must Grow: Another important conclusion from this exercise is that expecting a much higher level of external capital inflows than those projected may well be unrealistic. Broadly speaking, external savings cannot be expected to finance much more than 10 per cent of total domestic investment requirements, or about 12 to 15 per cent of non-physical investments. The bulk of resources for overall investment for infrastructure would have to emanate from domestic savings.

Our analysis of domestic savings suggests that if an adequate level of resource generation is to take place in the country for the required investments, public sector savings must rise significantly over the next five to 10 years. Increase in public sector savings implies greater efficiency and financial viability of public sector enterprises (PSEs) such as the State Electricity Boards (SEBs). Thus improvement in public sector savings is likely to crowd in private savings flowing into infrastructure sectors. Public sector savings have been projected to improve from the current level of about 1.7 per cent of GDP to 2.5 per cent by 2000-01 and 3 per cent by 2005-06. It would, however, be desirable for public sector savings to be targeted to improve even more than these projections.

The private corporate sector has exhibited a very encouraging trend in the generation of savings through higher profits and retained earnings in the last few years. Their share in total savings can be expected to continue to increase as more segments of the economy become corporatised. Similarly, household savings show a continuing increase in financialisation since the early 1980s, along with a corresponding fall in physical savings. We have projected house-

hold financial savings to increase from the current level of 11 per cent of GDP to about 13 per cent in 2000-01 and 14.5 per cent in 2005-06. Accounting for the fall in physical savings, total household savings are projected to increase only modestly from the current 18 per cent of GDP to about 19.5 per cent in 2000-01 and 20 per cent in 2005-06. Whereas the capital market can be expected to continue to mobilise household savings for investment in equity, new measures will be needed to direct an increasing volume into long-term debt instruments and into contractual savings such as life insurance, pension and provident funds. This will require urgent reforms in these sectors so that India's fast-urbanising population gets easy access to such safe savings instruments. These are particularly important for infrastructure sectors which require financial resources which have longer maturities, as are typically provided by life insurance, provident and pension funds.

The Investments Required: This macro-economic exercise suggests that it is quite feasible for total investments in infrastructure to increase from the current level of 5.5 per cent of GDP to about 7 per cent by 2000-01 and 8 per cent by 2005-06. In absolute terms, this implies that the annual level of investment could rise from the current Rs 600 billion (US \$ 17 billion) to about Rs 1,100 billion (US \$ 30 billion) by 2000-01 and Rs 1,800 billion (US \$ 50 billion) by 2005-06. This implies total infrastructure investment requirements of about Rs 4,000 to 4,500 billion (US \$ 115 to 130 billion) over the next five years. This would rise to about Rs 7,500 billion (US \$ 215 billion) in the following five years (2001-02 to 2005-06). If, as we expect, about 40 per cent of total external capital inflows go into the financing of infrastructure, we could expect about 15 per cent of total capital requirements for infrastructure to be externally financed. The rest—as much as 85 per cent—will have to be domestically financed.

The Expert Group also made bottom-up estimates for requirements in each infrastructure sector. The aggregate of the estimates provided by sectoral experts exceeded the macro-estimates given above by about 40 to 50 per cent. That may be seen as an indicator of the gap between what is feasible and what is desired for achieving a more rapid attainment of a decent level of infrastructure services in the country. To the extent that each sector will receive investments in accordance with facilitating regulatory frameworks and commercial viability, there would be leads and lags in investment levels between the sectors as compared to the projections made here.

The share of the private corporate sector and household sector financial savings should continue to rise as a proportion of total savings.



INDIA: BALANCE OF PAYMENTS : CURRENT ACCOUNT (1980-1994)

(US \$ MILLION)	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Interest Payments	4771	4474	4040	4151	4528	4450	4441	4561	5136	5724	6353	7033	7768	8532	9273	10136
<i>Official</i>	1492	1513	1629	1701	1845	1933	1948	1936	1907	1880	1887	1914	1954	1998	2038	2124
<i>Private</i>	2246	1931	1741	1812	1987	1896	1966	2107	2703	3296	3882	4489	5136	5809	6463	7192
<i>Other</i>	1033	1029	670	638	697	622	527	518	526	548	584	631	678	725	773	820
Disbursements	10919	7072	9132	5373	8841	5855	10175	13278	13782	15520	17737	19643	21834	23258	25576	27471
<i>Official</i>	3570	4213	3296	3666	3067	2920	3719	3324	3230	3670	4137	4343	4434	4458	4376	4371
<i>Private</i>	3016	2810	2942	3158	3464	3148	5506	8954	9502	10750	12500	14200	16300	17700	20100	22000
<i>Other</i>	4333	49	2894	-1451	2311	-213	950	1000	1050	1100	1100	1100	1100	1100	1100	1100
Amortisation	3123	3028	3283	4303	5368	6766	7197	4902	5319	6585	7684	8803	10949	12517	14417	16294
<i>Official</i>	1223	1467	1658	2373	1817	1961	2423	2628	2737	2824	2838	2996	3128	3237	3364	3621
<i>Private</i>	1175	1102	1292	1796	2377	3182	3806	1632	2170	3511	4818	5807	7822	9280	11053	12673
<i>Other</i>	726	460	334	134	1174	1623	969	643	411	250	28	0	0	0	0	0
Debt Servicing	7894	7502	7323	8454	9896	11216	11638	9463	10454	12309	14037	15836	18717	21049	23690	26430
<i>Official</i>	2715	2980	3287	4074	3662	3894	4370	4563	4644	4704	4725	4910	5082	5235	5401	5745
<i>Private</i>	3421	3033	3033	3607	4364	5078	5772	3739	4873	6807	8700	10296	12957	15088	17516	19865
<i>Other</i>	1758	1489	1004	772	1871	2245	1496	1161	937	798	612	631	678	725	773	820
Debt Outstanding	81983	83947	89822	92104	98990	99515	102367	110693	119157	128341	138894	150433	162218	174059	186518	199194
<i>Official</i>	48429	49512	54018	56422	62552	64503	65799	66495	66988	67834	69132	70479	71785	73006	74018	74767
<i>Private</i>	22387	23914	24667	27015	27037	27947	30023	37795	45626	53615	62297	71890	81769	91789	102636	113963
<i>Other</i>	11167	10521	11138	8667	9401	7065	6546	6403	6542	6892	7464	8064	8664	9264	9864	10464

GROSS DOMESTIC SAVINGS AND INVESTMENT (1980-1995)

(RS BILLION AT CURRENT PRICES)

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95
I. Household Sector	218.5	237.1	237.1	304.9	316.4	380.2	416.4	566.2	682.5	824.7	1062.8	1092.7	1187.0	1391.5	1786.96
<i>A. Financial Savings</i>	86.1	95.9	125.6	135.5	178.8	185.4	232.1	268.2	271.8	371.7	463.5	620.5	593.3	861.3	1053.0
<i>Currency</i>	16.3	9.6	20.3	27.8	28.5	22.2	30.9	48.2	42.6	76.6	62.5	81.6	65.6	133.7	160.16
<i>Net Deposits</i>	29.9	30.0	46.2	38.8	56.5	53.0	80.8	76.8	44.7	49.0	78.4	146.1	147.1	257.0	359.69
<i>Shares and Debentures</i>	4.4	5.1	7.7	7.8	13.2	19.8	23.3	20.1	25.6	49.0	84.1	157.0	129.4	135.6	115.98
<i>Net claims on Govt.</i>	5.8	16.6	11.4	17.8	29.2	32.2	26.7	33.5	50.3	60.6	73.6	44.6	35.3	60.6	101.1
<i>Life Insurance Funds</i>	8.6	9.8	11.5	13.0	14.5	16.8	19.8	24.5	33.1	41.5	53.4	66.2	67.7	92.0	109.9
<i>Provident & Pension funds</i>	21.2	24.9	28.6	30.5	36.9	41.4	50.7	65.1	75.5	95.1	111.6	125.0	148.2	182.5	206.19
<i>B. Savings in Physical Assets</i>	132.4	141.1	111.5	169.3	137.6	194.9	184.3	298.0	410.7	453.0	599.2	472.2	593.8	530.2	733.94
II. Private Corporate Sector	22.8	25.0	29.1	31.7	39.5	53.2	52.1	57.9	83.2	116.5	149.4	194.9	198.4	276.7	359.66
III. Public Sector	46.5	72.5	78.2	67.8	65.3	84.6	80.0	72.2	81.0	74.2	54.4	118.9	108.2	43.7	159.86
Gross Domestic Savings	287.9	334.6	344.4	404.4	421.1	518.0	548.5	696.3	846.7	1015.4	1266.5	1406.5	1493.7	1711.8	2306.5
IV. Foreign Savings	22.9	31.1	29.3	31.0	41.8	73.4	77.3	83.0	124.6	123.0	182.0	40.2	112.7	21.5	77.62
Gross Domestic Investment	310.7	365.7	373.7	435.4	462.9	591.4	625.8	779.3	971.3	1138.4	1448.5	1446.7	1606.3	1733.3	2384.1

Source: CSO, National Accounts Statistics.

ANNEX A2.1

Our projections are based on a interlinked model containing various sub-models. These models are: (i) Investment Model; (ii) Economic Growth Model; (iii) Savings Model; (iv) Balance of Payments Model; and (v) Debt Model. Spreadsheets have been developed for all the sub-models except the model which has been developed in Javelin, a database software. This framework is designed to estimate macro-economic variables for India for the next 10 years.

Investment Model

This model estimates the total investment requirements in infrastructure; estimates the share of public sector participation in this investment, and disaggregates the investment requirements by sector. The Gross Domestic Investment, Public Sector Investment, Infrastructure Investment, and Public Sector Infrastructure Investment are expressed as a percentage of GDP. Sectorwise investments have been calculated, by using past trends and in some cases with exogenous ratios (for details see Annexures II and III). The Investment Capital Output Ratio (ICOR) is maintained at a level below 4.0 per cent to ensure efficiency in the economy.

Economic Growth Model

The Economic Growth Model has been constructed to estimate the Real Growth in the Economy. In this framework, Gross Domestic Product (GDP) of various sectors has been projected and these projections are then added up to get the aggregate GDP at factor cost. The GDP at market prices is defined as GDP at factor cost plus Net Indirect Taxes (indirect taxes minus subsidies). The underlying assumptions for subsidies and taxes are (i) decline in subsidies as percentage of GDPfc; (ii) decline in the ratio of customs duties over imports; (iii) increase in ratios of excise duties, sales taxes and other indirect taxes to GDP.

BOP Model

This model projects the Balance of Payments for the next 10 years. The underlying assumptions in this model are (i) exports and imports double in next five years; (ii) in the terminal year, exports and imports reach 18 and 20 per cent of GDP respectively; (iii) current account balance as percentage of GDP reach 3 per cent of GDP; (iv) reserves are seven months of imports by terminal year;

(v) reduction in import of capital goods; (vi) increase in the foreign investment with lower component of portfolio investment; (vii) increase in commercial borrowings.

The rate of return on foreign investment in the economy is assumed to be of the order of 14 per cent after a lag of three years. Of this, 50 per cent will be retained within the economy for reinvestment in capital. (for more details see Annexure II). Factor payments and capital account estimates are projected using the Debt Model.

Savings Model

This estimates the financial requirement of the projected investments. Gross Domestic Savings is defined as Gross Domestic Investment obtained from the Investment Model minus Foreign Savings obtained from the BOP model. Domestic Savings are further disaggregated into Public Sector Savings, Private Corporate Savings, and Household Sector Savings. Household Sector Savings are disaggregated into Financial Assets and Physical Assets.

Debt Model

Debt projections are made using a debt module. Shortfall in the current account has been used as a basis for projecting the debt flows. The main assumptions are: (i) major increases will be from private creditors; and (ii) Interest rate on loans from private creditors is assumed at Libor plus 150 basis points. The debt model computes the disbursement and repayment schedule for a given debt commitment.

The Major Interlinkages

(a) While calculating the Net Indirect Taxes to estimate Gross Domestic Product, customs duties have been calculated using imports projections from the BOP model.

(d) Gross Domestic Savings have been estimated using the Gross Domestic Investment estimated in the Investment Model and Current Account Balance (Foreign Savings) from BOP Model.

(e) In the BOP projections, Factor Payments are based on the Debt Model. Except Foreign Investment, all other variables in the capital account are estimated from the Debt Model. Based on these projections, BOP Factor Payments also have been computed.

ANNEX A2.2

A. INVESTMENT MODEL

I. Gross Domestic Investment (Rs current prices) = $GDI_{(K\$)} * [GDI_{(K\$)} \text{ Deflator}/100] * \text{Exchange Rate}$

a) $GDI_{(K\$)} = GDI_{(KR)} / \text{Exchange Rate of 1980/81}$

b) $GDI_{(KR)} = \text{Fixed Investment}_{(KR)} + \text{Increase in Stock Ratio}_{(KR)}$

c) $\text{Fixed Investment}_{(KR)} = \text{Fixed Investment}_{(KR)} \text{ as \% of } GDPfc_{(KR)} * GDPfc_{(KR)}$

d) Fixed Investment_(KR) as % of GDPfc_(KR): Exogenous

e) $\text{Increase in Stock Ratio} = \text{Increase in Stock Ratio as \% of Fixed Investment}_{(KR)} * \text{Fixed Investment}_{(KR)}$

f) Increase in Stock Ratio as % of Fixed Investment_(KR): Exogenous

g) $GDI_{(K\$)} \text{ Deflator} = GDI_{(K\$)} \text{ Deflator}^{-1} * (1 + \text{Growth in } GDI_{(K\$)} \text{ Deflator})$

h) $\text{Growth in } GDI_{(K\$)} \text{ Deflator} = 0.02 * \text{Dollar Deflator Growth of Imports (Goods)} + 0.98 * \text{GDP implicit dollar Deflator growth}$

i) $\text{GDP Implicit Dollar Deflator Growth} = \text{GDP Implicit \$ Deflator} / \text{GDP Implicit \$ Deflator-1}$

j) $\text{GDP Implicit Dollar Deflator} = [\text{GDPmp (Rs.)} / \text{Exchange Rate} / \text{GDPmp}_{(K\$)}]$

k) GDPmp(Rs), Exchange Rate, GDPmp(K\$): National Accounts Projections

l) $\text{Dollar Deflator of Imports (Goods)} = \text{Imports of Goods (customs)} / \text{US \$ current} / \text{Imports of Goods (customs)}_{(K\$)}$

1) Imports of Goods (customs) US \$ current: BOP Projections

2) $\text{Imports of Goods (customs)}_{(K\$)} = \text{Food}_{(K\$)} + \text{Other Consumer Goods}_{(K\$)} + \text{P.O.L}_{(K\$)} + \text{Capital Goods}_{(K\$)} + \text{Intermediate}_{(K\$)} + \text{Import discrepancy}$

a) $\text{Food}_{(K\$)} = \text{Food Grains} + \text{Edible Oils} + \text{Others}$

Food grains: BOP Projections

Edible Oils: BOP Projections

$\text{Others} = \text{Other Food}^{-1} * (1 + \text{Growth of Other Food Imports})$

$\text{Growth of Other Food Imports} = \text{Imports of Other Food, elasticity} * (\text{Private Consumption}_{(K\$)} / \text{Private Consumption}_{(K\$)})^{-1}$

Imports of Other Food, elasticity: BOP Assumptions

Private Consumption_(K\$): BOP Projections

b) $\text{Other Consumer Goods} = \text{Other Consumer Goods}^{-1} * (1 + \text{Growth in Imports of Other Consumer Goods})$

$\text{Growth in Imports of Other Consumer Goods} = \text{Imports of SITC 8\&9, Elasticity to Private Consumption} * (\text{Private Consumption}_{(K\$)} / \text{Private Consumption}_{(K\$)})^{-1}$

Imports of SITC 8&9, Elasticity to Private Consumption: BOP Assumptions

c) $\text{P.O.L. Imports} = \text{Crude Oil} + \text{Petroleum products}$

$\text{Crude Oil} = \text{Crude Oil}^{-1} * (\text{Volume of Crude Imports} / \text{Volume of Crude Imports-1})$

$\text{Volume of Crude Imports} = \text{Consumption} + \text{Stock} - \text{Production}$

Consumption, Stock, Production: Exogenous

$\text{Petroleum Products} = \text{Petroleum Products}^{-1} * (\text{Volume of Petrol Imports} / \text{Volume of Petrol Imports-1})$

$\text{Volume of Petrol Imports} = \text{Consumption} + \text{Stock} + \text{POL Exports} - \text{Production from Petrol} - \text{Production from Gas}$

$\text{Consumption} = \text{Consumption}^{-1} * (1 + \text{Elasticity of Consumption w.r.t GDPfc} * \text{Real GDPfc Growth})$

Elasticity of Consumption w.r.t GDPfc: BOP Assumptions

Real GDPfc Growth: National Accounts Projections

Stock, POL Exports: Exogenous

$\text{Production} = \text{Production from Petrol} + \text{from Gas}$

Production from Petrol: Exogenous

$\text{Production from Gas} = \text{Production from Gas}^{-1} * (1 + \text{Growth in Production})$

Growth in Production from Gas: BOP Projections

d) $\text{Capital Goods} = \text{Capital Goods}^{-1} * (1 + \text{Growth in Capital Goods exports})$

$\text{Growth in Capital Goods Exports} = \text{Import of capital goods, Elasticity to investment} * (\text{Growth in fixed investment}_{(K\$)})$

Import of Capital Goods elasticity: BOP Assumptions

e) $\text{Intermediate Goods} = \text{Primary} + \text{Manufactures}$

$\text{Primary Goods} = \text{Primary Goods}^{-1} * (1 + \text{Growth in Primary Goods})$

$\text{Growth in Primary Goods} = \text{Primary, Elasticity to GDP(Industry)} * \text{Growth in GDP(Ind)}_{(K\$)}$

$\text{Growth in GDP(Ind)}_{(K\$)}$

Primary, Elasticity to GDP (Industry): BOP Assumptions

Growth in GDP (Industry)_(K\$): National Accounts Projections

f) $\text{Manufactures} = \text{Manufactures}^{-1} * (1 + \text{Growth in Manufactures imports})$

$\text{Growth in Manufactures imports} = \text{Manufactures Elasticity to GDP(Ind)} * \text{Growth in GDP(Ind)}_{(K\$)}$

Manufactures Elasticity to GDP(Ind): BOP Assumptions

g) Import discrepancy: Exogenous

II. ICOR (5 years average, 1 year lag) = $\{GDI_{(KR)}^{-1} + GDI_{(KR)}^{-2} + GDI_{(KR)}^{-3} + GDI_{(KR)}^{-4} + GDI_{(KR)}^{-5}\} / \{GDPmp_{(KR)} - GDPmp_{(KR)}^{-5}\}$

III. ICOR (1 year incremental) = $GDI_{(KR)}^{-1} / [GDP_{(KR)} - GDP_{(KR)}^{-1}]$

SECTORAL PROJECTIONS

I. $GDI_{Inf} = GDI_{Inf}$ as % of $GDPmp * GDPmp$

GDI_{Inf} as % of GDPmp: Exogenous

Infrastructure has been divided into 5 major sectors. They are:

1) Electricity, Gas and Water Supply = Electricity etc. share in $GDI_{Inf} * GDI_{Inf}$

$\text{Electricity etc. share in GDI} = 6 \text{ years (1989/90 to 1994/95) average ratio: Exogenous.}$

2) $\text{Railways} = \text{Railways share in } GDI_{Inf} * GDI_{Inf}$

Railways share in GDI = 6 years (1989/90 to 1994/95) average ratio: Exogenous.

3) $\text{Communications} = \text{Communications share in GDI} * GDI.$

Communications share in GDI = 6 years (1989/90 to 1994/95) average ratio: Exogenous.

4) $\text{Storage} = \text{Storage share in GDI} * GDI.$

Storage in share in GDI = 6 years (1989/90 to 1994/95) average ratio: Exogenous.

5) Other Transport: Residual

II. GDI-Public Sector = GDI-Public Sector as % of $GDPmp * GDPmp$

GDI-Public Sector as % of GDP: Exogenous

III. GDI-Public Sector-Infrastructure = GDI-Pub-Inf. as % of $GDPmp * GDPmp$

GDI-Pub-Inf. as % of GDPmp: Exogenous

Infrastructure has been divided into 5 major sectors. They are:

1) $\text{Electricity, Gas and Water Supply} = \text{Electricity etc. share in } GDI_{Elec} *$

GDI_{Elec} .

Electricity etc. share in GDI_{Elec} : Exogenous.

2) Railways = Railways share in GDI_{Rly} * GDI_{Rly}

Railways share in GDI_{Rly} : Exogenous.

3) Communications: Exogenous

4) Storage = Storage share in GDI_{Inf} * GDI_{Inf} .

Storage in share in $GDI = 5$ years (1988/89 to 1992/93) average ratio: Exogenous.

5) Other Transport = Other Transport share in GDI_{OT} * GDI_{OT}

Other Transport share in GDI_{OT} : Exogenous.

IV. GDI-Private Sector: Residual

V. GDI-Private Sector-Infrastructure: Residual

B. ECONOMIC GROWTH MODEL

I. Gross Domestic Product at market prices = GDP at factor cost + Net Indirect Taxes

1) $GDP_{fc} = GDP_{fc(KR)} * (GDP_{fc} \text{ Deflator}/100)$
KR: Constant Rupees (1980/81 prices)

A) $GDP_{fc(KR)} = Agr. \text{ and Allied}(KR) + Manufacturing(KR) + Mining \text{ and Quarrying}(KR) + Other \text{ Industry}(KR) + Services \text{ etc.}(KR)$

a) $Agr. \text{ and Allied}(KR) = Agr. \text{ and Allied}(KR)^{-1} * (1 + \text{Real Growth in Agr. and Allied})$

Real Growth in Agr. and Allied: Exogenous

b) $Manufacturing(KR) = Manufacturing(KR)^{-1} * (1 + \text{Real Growth in Manufacturing})$

Real Growth in Manufacturing: Exogenous

c) $Mining \text{ and Quarrying}(KR) = Mining \text{ and Quarrying}(KR)^{-1} * (1 + \text{Real Growth in Mining and Quarrying})$

Real Growth in Mining and Quarrying: Exogenous

d) $Other \text{ Industry}(KR) = Other \text{ Industry}(KR)^{-1} * (1 + \text{Real Growth in Other Industry})$

Real Growth in Other Industry: Exogenous

e) $Services \text{ etc.} = Services^{-1} * (1 + \text{Real Growth in Services})$

Real Growth in Services: Exogenous

B) $GDP_{fc} \text{ Deflator} = GDP_{fc} \text{ Deflator} * (1 + GDP \text{ Inflation})$

GDP Inflation: Exogenous (1996/97 onwards, inflation assumed to be 'zero', to calculate the imports at 1995/96 prices)

2. Net Indirect Taxes = Indirect Taxes - Subsidies

A. Direct Taxes = Customs Duties + Excise Duties + Sales Tax + Other Indirect Taxes

a) $Customs \text{ Duties} = Import \text{ Duties as \% of Import of Goods} * Merchandised \text{ Imports}$

Import Duties as \% of Import of Goods: Exogenous

$Merchandised \text{ Imports} = Import \text{ Goods (current US \$)} * Exchange \text{ Rate}$

Imports of Goods (current US \$): BOP Projections

Exchange Rate: Exogenous

b) $Excise \text{ Duties} = Excise \text{ duties as \% of } GDP_{fc} * GDP_{fc}$

Excise duties as \% of GDP_{fc} : Exogenous

c) $Sales \text{ tax} = Sales \text{ tax as \% of } GDP_{fc} * GDP_{fc}$

Sales tax as \% of GDP_{fc} : Exogenous

d) $Other \text{ Indirect Taxes} = Other \text{ Indirect Taxes}^{-1} * (GDP_{fc}/GDP_{fc}^{-1})$

B. Subsidies = Subsidies as \% of $GDP_{fc} * GDP_{fc}$

Subsidies as \% of GDP_{fc} : Exogenous

3. Net Indirect Taxes $_{(KR)} = Net \text{ Indirect Taxes} * (100/NID \text{ Deflator})$

$Net \text{ Indirect Taxes Deflator} = NID \text{ Deflator}^{-1} * (1 + GDP \text{ Inflation})$

C. BALANCE OF PAYMENTS MODEL

I. Merchandise Exports

1. Merchandise Exports = Primary Goods + Manufacturing Goods + Statistical Discrepancy

2. Primary Goods = Fish + Rice + Cashews + Coffee Tea + Spices + Iron Ore + Other Primary Goods

Primary Goods: P_i

$P_i = P_{i(K\$)} * (\text{Price Deflator for } P_i/100); K\$ \text{ Constant Dollar}$

$P_{i(K\$)} = P_{i(K\$)}^{-1} * (1 + K\$ \text{ growth rate of } P_i)$

K\$ growth rate of P_i : Exogenous

Growth in Price Deflator for P_i is calculated from the Commodity Price Indices projections. Commodity Price Indices are exogenous. However, 1996/97 onwards we have assumed 'zero' price rise (i.e. Exports are projected at 1995/96 prices).

3. Manufacturing Goods = POL exports + Non-POL exports.

4. POL Exports = POL Exports Deflator * [POL Export Price (\$/T)]

POL Deflator: Exogenous

$POL \text{ Export Price } (\$/T) = POL \text{ Export Price } (\$/T)^{-1} * (1 + \text{Price increase in POL})$

Price increase in POL: Exogenous

5. Non-POL exports = Non-POL Exports $_{(K\$)} * (\text{Manufacturing Deflator}/100)$

$Non-POL \text{ Exports}_{(K\$)} = Non-POL \text{ Exports}^{-1} * (1 + \text{Growth in Non-POL Exports})$

Growth in Non-POL Exports: Exogenous

$\text{Growth in Manufacturing Deflator} = MUV \text{ Growth}$

MUV Growth: Exogenous (1996/97 onwards we have assumed 'zero' growth; i.e. Exports are projected at 1995/96 prices).

6. Statistical Discrepancy: Exogenous

II. Merchandise Imports

7. Merchandise Imports = POL Imports + Non-POL Imports + Non-Customs

8. POL Imports = Imports of Crude Oil + Imports of Petroleum Products

$Imports \text{ of Crude Oil} = Imports \text{ of Crude}_{(K\$)} * (\text{Crude Oil Deflator}/100)$

a) $Imports \text{ of Crude}_{(K\$)} = Imports \text{ of Crude}_{(K\$)}^{-1} * (\text{Volume of Crude Import}/\text{Volume of Crude Import}^{-1})$

b) $\text{Volume of Crude Import} = Oil \text{ Consumption} + Oil \text{ Stock} - Oil \text{ Production}$

c) Oil Consumption, Oil Stock, Oil Production : Exogenous

d) $Crude \text{ Oil Price Deflator} = Crude \text{ Oil Price Deflator}^{-1} * (1 + \text{Growth in Petrol Price Deflator})$

e) $Petrol \text{ Price Deflator} = Petrol \text{ Price Deflator}^{-1} * (IEC \text{ oil price } (\$/BBL)/IEC \text{ oil price } (\$/BBL)^{-1})$

f) $IEC \text{ Oil Price } (\$/BBL) = IEC \text{ Oil Price } (\$/BBL)^{-1} * (1 + PrimaryFY / PrimaryFY^{-1})$

g) $PrimaryFY = 0.75 * PrimaryCY + 0.25 * PrimaryCY^{+1}$

h) PrimaryCY: Exogenous (1996/97 onwards, change in PrimaryCY is assumed to be 'zero' to calculate imports at 1995/96 prices).

$Imports \text{ of Petroleum Products} = Imports \text{ of Petroleum-Products}_{(K\$)} * (\text{Petrol Deflator}/100)$

a) $Imports \text{ of Petrol. Products}_{(K\$)} = Imports \text{ of Petrol Products}_{(K\$)}^{-1} * (\text{Volume of Petrol Products Imports}/\text{Volume of Petrol Products Imports}^{-1})$

b) $\text{Volume of Petrol Products Imports} = Consumption + Stock + Petrol \text{ Exports} - Production \text{ from Petrol} - Production \text{ from Gas}$

c) $Petrol \text{ Consumption} = Petrol \text{ Consumption}^{-1} * [1 + Elasticity \text{ of}$

Consumption w.r.t to GDPfc * GDPfc_(KR)]

d) Elasticity of Consumption w.r.t. GDPfc: Exogenous

GDPfc_(KR): Gross Domestic Product at factor cost in constant prices

e) Petrol Stock: Exogenous

f) POL Exports: Exogenous

g) Production from Petrol = Production from Petrol⁻¹ * (1 + Growth in Production)

h) Growth in Petrol Production: Exogenous

i) Production from Gas = Production from Gas⁻¹ * (1 + Growth in Production)

j) Growth in Gas Production: Exogenous

9. Non-POL Imports = Food + Other Consumer Goods + Capital Goods + Intermediate Goods Imports.

Food Imports = Food Grains + Edible Oils + Other

a) Food Gains = Food Grains⁻¹ * (1 + Growth rate in Food Grains Imports)

b) Growth rate in Food Grains Imports = Food Price Deflator_{FY} / Food Price Deflator_{FY}⁻¹

c) Food Price Deflator_{FY} = 0.75 * Food Price Deflator_{CY} + 0.25 * Food Price Deflator_{CY}⁺¹

d) Food Price Deflator_{CY}: Exogenous (1996/97 onwards, change in this Deflator assumed to be 'zero', to calculate the imports at 1995/96 prices).

e) Edible Oils = Edible Oils⁻¹ * (1 + Food Price Deflator_{FY}/100)

f) Other Food = Other Food⁻¹ * (1 + Growth rate in Food Price Deflator) * Other Consumer Goods = Other Consumer Goods_(K\$) * (Deflator/100)

a) Other Consumer Goods Imports_(K\$) = Other Consumer Goods_(K\$)⁻¹ * (1 + Consumer Goods Deflator/100)

b) Consumer Goods_(K\$) = Other Consumer Goods_(K\$)⁻¹ * (1 + MUV growth)

c) Other Consumer Goods Deflator = Deflator⁻¹ * (1 + MUV growth)

d) MUV Growth: Exogenous (1996/97 onwards, change in this Deflator assumed to be 'zero', to calculate the imports at 1995/96 prices).

Capital Goods = Capital Goods_(K\$) * (Capital Goods Deflator/100)

a) Capital Goods_(K\$) = Capital Goods_(K\$)⁻¹ * (1 + Capital Goods_(K\$) growth)

b) Growth rate in Capital Goods_(K\$) = Import Elasticity of capital goods to Investment * Growth rate in Fixed Investment_(K\$)

c) Growth rate in Fixed Investment_(K\$) = Fixed Investment_(K\$) / Fixed Investment_(K\$)⁻¹

d) Fixed Investment_(K\$) = Gross Fixed Investment_(KR) / 980 Exchange Rate

e) Gross Fixed Investment_(KR): Investment Projections

f) Import Elasticity of Capital Good w.r.t. to Investment: Exogenous

Intermediate Goods = Primary Goods + Manufacture Goods

a) Primary Goods = Primary Goods_(K\$) * (Primary Deflator/100)

b) Primary Goods_(K\$) = Primary Goods_(K\$)⁻¹ * (1 + Growth in Primary Imports)

c) Growth rate in Primary Imports = Primary Elasticity to GDPfc_(ind) * Real growth rate in GDPfc_(ind)

d) Primary Elasticity to GDPfc_(ind): Exogenous

e) Real Growth rate in GDPfc_(ind): National Accounts Projections

f) Primary Deflator = Primary Deflator⁻¹ * (1 + Primary Inflation)

g) Primary Inflation = Primary_{FY} / Primary_{FY}⁻¹

h) Primary_{FY} = 0.75 * Primary_{CY} + 0.25 * Primary_{CY}⁺¹

i) Primary_{CY}: Exogenous (1996/97 onwards, change in this Deflator assumed to be 'zero', to calculate the imports at 1995/96 prices).

j) Manufacture Goods = Manufacture_(K\$) * (Manufacture Deflator/100)

k) Manufacture Goods_(K\$) = Manufacture Goods_(K\$)⁻¹ * (1 + Growth in Manufacture Imports)

l) Growth rate in Manufacture Imports = Manufacture Elasticity to GDPfc_(ind) * Real growth rate in GDPfc_(ind)

m) Manufacture Elasticity to GDPfc_(ind): Exogenous

n) Real Growth rate in GDPfc_(ind): National Accounts Projections

o) Manufacture Deflator = Manufacture Deflator⁻¹ * (1 + Manufacture Inflation)

p) Manufacture Inflation = Manufacture_{FY} / Manufacture_{FY}⁻¹

q) Manufacture_{FY} = 0.75 * Manufacture_{CY} + 0.25 * Manufacture_{CY}⁺¹

r) Manufacture_{CY}: Exogenous (1996/97 onwards, change in this Deflator assumed to be 'zero', to calculate the imports at 1995/96 prices).

Non-Custom Imports: Exogenous

III. Trade Balance = Exports(goods) - Imports (goods)

IV. Invisible Balance (net) = Non-Factor Services (net) + Net Investment Income + Private Transfers (net)

Non-Factor Services (net) = Non-Factor Services Receipts - Non-Factor Services Payments

a) Non-Factor Services Receipts = NFS receipts⁻¹ * (1 + Growth rate in Exports(goods)/NFS receipts ratio)

b) NFS receipts ratio: Exogenous

c) Non-Factor Services Payments = NFS payments⁻¹ * (1 + Growth rate in Imports(goods)/NFS receipts ratio)

d) NFS payments ratio: Exogenous

Net Investment Income = Factor Services Receipts - Factor Services Payments

a) Factor Services Receipts = Reserves Target * (Libor rate/Factor Services receipts ratio)

b) Libor rate: Exogenous

c) Factor Services receipts ratio: Exogenous

d) Factor Services Payments = Interest Payments on Long Term Debt + IMF Charges + Short Term Debt + Other Factor Payments

e) Interest Payments on Long Term Debt, IMF Charges, Short-Term Debt: Debt Projections

f) Other Factor Payments = Foreign Investment Stock⁻³ * (0.07)

g) Foreign Investment Stock = Foreign Investment Stock⁻¹ + Direct Foreign Investment + Portfolio Investment + Retained Earnings

h) Direct Foreign Investment, Portfolio Investment: Exogenous

i) Retained Earnings = Foreign Investment Stock⁻³ * (0.07)

Private Transfers (net) = Private Transfers Receipts - Private Transfers Payments

a) Private Transfers Receipts = Workers Remittances * Transfers receipts growth

b) Workers remittances: Exogenous

c) Transfers receipts growth: Exogenous

d) Private Transfers Payments = Private Transfers Payments⁻¹ * (1 + MUV Growth)

IV. Current Account Balance = Trade Balance + Invisibles Balance (net)

V. Capital Account Balance (with IMF) = Grant Aid + Official Borrowings (net) + Commercial Borrowings (net) + Private Non-Guaranteed Borrowings (net) + Net IMF Credit + Net NRI Deposits + Bilateral Balance + Foreign Investment

a) Grant Aid, Official Borrowings, Private Non-Guaranteed Borrowings, Net IMF Credit, Net NRI Deposits : Debt Projections

b) Bilateral Balance: Exports of Goods to Former Soviet Union (Exogenous)

VI. Change in Reserves = Current Acc. Balance—Capital Account Balance

D. SAVINGS MODEL

I. Gross Domestic Investment as % of GDP: Investment Projections

II. Foreign Savings = -Current Account Balance

Current Account Balance: BOP Projections

III. Gross Domestic Savings = Gross Domestic Investment - Foreign Savings

IV. Public Sector Savings as % of GDP: Exogenous

V. Private Corporate Savings: Exogenous

VI. Household Sector Savings = Gross Domestic Savings - Public Sector Savings - Private Corporate Savings

VII. Financial Savings = Household Sector Savings - Savings in Physical Assets

VIII. Net Deposits, Share and Debentures, Net Claims on Govt., Life Insurance Funds, Provident and Pension Funds, Savings in Physical Assets: Exogenous

IX. Currency with the Public: Residual

E. DEBT MODEL

Interest Payments = Official Creditors + Private Creditors + Private Non-Guaranteed Debt + IMF Charges + Short-Term Debt

I. Official Creditors = Multilateral + Bilateral

A. Multilateral = Concessional + Non-Concessional

A1. Concessional = IDA + IBRD + Other

A2. Non-Concessional = IBRD + Other

B. Bilateral = Concessional + Non-Concessional

II. Private Creditors = Suppliers + Commercial Banks + Bonds + Other Private

III. Private Non-Guaranteed Debt

Interest Payments = Interest Payments Existing Debt + Interest Payments on New Debt

IBRD Concessional Interest Payments: Exogenous

Interest Payments on Existing Debt: Exogenous

Interest Payments on New Debt = (Interest rate * New Debt - 1)/2 + [Interest rate * (New Debt⁻¹) - Repayments/2]/2

IV. IMF Charges: Exogenous

V. Short-Term Debt = (Short-Term Debt Stock⁻¹ + Short-Term Debt Stock) * (Libor/1.6)

Capital Account

Disbursements

I. Official Creditors = Multilateral + Bilateral

A. Multilateral = Concessional + Non-Concessional

A1. Concessional = IDA + IBRD + Other

A2. Non-Concessional = IBRD + Other

B. Bilateral = Concessional + Non-Concessional

II. Private Creditors = Suppliers + Commercial Banks + Bonds + Other Private

III. Private Non-Guaranteed Debt

Disbursements = Pipeline Disbursements + New Disbursements

IBRD Concessional Disbursements: Exogenous

Pipeline Disbursements: Exogenous

New Disbursements: Calculated from New Commitments, using Time Delay Blocks

New Commitments: Exogenous

IV. IMF Charges: Exogenous

V. Short-Term Debt: Exogenous

VI. NRI Deposits (net): Exogenous

VII. Grant Aid: Exogenous

Repayments

I. Official Creditors = Multilateral + Bilateral

A. Multilateral = Concessional + Non-Concessional

A1. Concessional = IDA + IBRD + Other

A2. Non-Concessional = IBRD + Other

B. Bilateral = Concessional + Non-Concessional

II. Private Creditors = Suppliers + Commercial Banks + Bonds + Other Private

III. Private Non-Guaranteed Debt

Disbursements = Pipeline Disbursements + New Disbursements

IBRD Concessional Repayments: Exogenous

Pipeline Repayments: Exogenous

New Repayments: Calculated from New Commitments, using Time Delay Blocks

IV. IMF Charges: Exogenous

V. Short-Term Debt: Exogenous

SET OF ASSUMPTIONS USED IN THE INTERLINKED MODEL

	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
I. Investment Model											
Increase in Stock Ratio (% of fixed inv)	11.5	12.0	12.5	12.6	12.6	12.6	12.7	12.7	12.7	12.7	12.7
Fixed Investment Ratio (% of GDP)	25.0	25.6	26.2	26.7	27.5	28.3	28.7	29.2	29.6	30.0	30.4
(% of GDPmp)											
GDI—Infrastructure	5.5	5.8	6.1	6.4	6.7	7.0	7.2	7.4	7.6	7.8	8.0
GDI-Public Sector	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
GDI-Public Sector-Infrastructure	4.4	4.4	4.4	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5
(% of GDI)											
Gross Domestic Investment—Public Sector											
Communications	90.0	85.0	75.0	70.0	70.0	65.0	65.0	60.0	60.0	55.0	50.0
Other Transport	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
II. Economic Growth Model											
Gross Domestic Product at Factor Cost											
Agriculture and Allied Services	3.0	3.0	3.1	3.1	3.2	3.2	3.2	3.3	3.3	3.4	3.5
Manufacturing	10.0	10.2	10.4	10.6	10.8	11.0	11.2	11.4	11.6	11.8	12.0
Mining and Quarrying	4.0	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2	4.2
Other Industry	5.5	6.0	6.5	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Services etc.	6.8	7.0	7.2	7.2	7.5	8.2	8.6	8.8	9.0	9.0	9.0
Inflation (GDP Implicit deflator)	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Import Duties/Imports of Goods	25.5	25.0	24.5	24.0	24.0	24.0	23.5	23.0	22.5	22.5	22.5
Excise/GDPfc	5.3	5.3	5.3	5.3	5.2	5.1	5.0	5.0	5.0	5.0	5.0
Sales Taxes/GDPfc	4.0	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.0	4.0	4.0
Other Indirect Taxes/GDPfc	2.3	2.3	2.3	2.3	2.2	2.1	2.1	1.9	1.9	1.9	1.9
Subsidies/GDP	3.2	3.1	3.1	3.0	3.0	2.9	2.9	2.9	2.8	2.8	2.8

contd...

SET OF ASSUMPTIONS USED IN THE INTERLINKED MODEL

1995-96 1996-97 1997-98 1998-99 1999-00 2000-01 2001-02 2002-03 2003-04 2004-05 2005-06

III. BOP Model

(Annual \$ Growth Rates)

Manufacturing Exports	21.0	24.0	19.5	18.3	16.8	15.3	13.4	12.5	12.5	12.3	12.3
POL Product Exports	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Primary Exports											
Fish	4.0	4.0	4.4	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Rice	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Cashews	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Coffee	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Tea	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Spices	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Iron Ore	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Other Primary	6.5	9.0	9.0	9.0	9.0	10.0	9.0	9.0	9.0	9.0	9.0
Import Elasticities											
Imports of Capital Goods, Elasticity to Investment	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Primary, Elasticity to GDP_industry	1.5	1.1	1.0	1.0	1.1	1.1	1.0	0.9	0.9	0.9	0.9
Manufactures, Elasticity to GDP_industry	5.2	5.0	3.1	2.4	1.7	1.6	1.4	1.3	1.3	1.2	1.1
Foreign Investment (US\$ million)											
Direct Foreign Investment	1875	3500	4000	4500	6000	6500	7500	8000	8500	10500	11000
Portfolio Investment	2098	2000	2500	2500	2500	2500	2500	2700	3000	3500	4000

IV. Savings Model

Financial Savings											
Net Deposits	3.8	3.6	3.7	3.7	3.8	3.9	4.0	4.0	4.0	4.0	4.0
Shares and Debentures	1.2	1.6	1.7	1.8	1.9	2.0	2.1	2.3	2.5	2.6	2.8
Net claims on Govt.	1.1	1.1	1.0	1.0	1.0	1.0	0.9	0.9	0.8	0.8	0.8
Life Insurance Funds	1.2	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.0
Provident and Pension funds	2.2	2.2	2.2	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.0
Savings in Physical Assets	7.0	6.7	6.4	6.2	6.1	6.0	5.7	5.4	5.2	5.1	5.0
Private Corporate Sector Savings	4.5	4.7	4.9	5.0	5.2	5.3	5.4	5.5	5.6	5.7	5.8
Public Sector Savings	1.8	1.9	2.0	2.1	2.3	2.4	2.5	2.7	2.8	2.9	3.0

contd...

SET OF ASSUMPTIONS USED IN THE INTERLINKED MODEL

	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
V. Debt Model											
Interest Rates (%)											
Multilateral											
IDA	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Other Concessional	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
IBRD	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10
Other Non-Concessional	7.78	7.78	7.78	7.78	7.78	7.78	7.78	7.78	7.78	7.78	7.78
Bilateral											
Concessional	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80
Non-Concessional	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Private Creditors											
Suppliers	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80
Commercial Banks	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80
Bonds	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80
Other	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80
Private Non-Guaranteed	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80
Short-term Debt	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94
Commitments (US\$ million)											
Multilateral											
IDA		1445	740	1100	1100	1100	1100	1100	1100	1100	1100
Other Concessional		50	50	50	50	50	50	50	50	50	50
IBRD		2880	1000	1600	1600	1600	1600	1600	1600	1600	1600
Other Non-Concessional		100	150	250	300	300	300	300	300	300	300
Bilateral											
Concessional		1800	1500	1200	1100	1200	1200	1200	1200	1200	1200
Non-Concessional		125	125	125	125	125	125	125	125	125	125
Private Creditors											
Suppliers		1000	3000	3500	4000	5000	5500	7000	7600	9500	10500
Commercial Banks		3000	4000	4000	4000	4500	5000	5400	6000	6300	7000
Bonds		0	0	0	0	0	0	0	0	0	0
Other		375	450	500	750	1000	1200	1400	1600	1800	2000
Private Non-Guaranteed		1000	1500	1500	2000	2000	2500	2500	2500	2500	2500
Short-term Debt		4826	5326	5876	6476	7076	7676	8276	8876	9476	10076

The Question of Commercialisation

THE COMMERCIALISATION of infrastructure projects can be formatted on the basis that recovery of investments is through a system of user charges. Such user charges bear a direct relation to the specific benefits that the facility provides the user.

There is a strong externality argument predicated on the intangible and sometimes unquantifiable effects that accrue as the secondary and tertiary benefits of infrastructure projects. This provides the essential rationale for the Government providing fiscal incentives to firms setting up these projects. The argument is that such socio-economic benefits do not accrue to the project sponsor as they are not captured by user charges. There is hence merit in a proposal that part of the benefits that do not accrue to society at large could be provided to the project by way of fiscal incentives so as to directly attract and create investor interest.

Such incentives would provide a platform for integration of the developmental requirements of the specific project with the resource potential of capital markets, effectively prioritise the implementation of projects of socio-economic importance on a self-sustaining basis, and develop new institutional structures that allow for the creation of infrastructure assets effectively and with significant technology upgradation.

Commercialisation would involve giving service providers, whether in the public sector or private, well-defined budgets based on revenues from users, and managerial and financial autonomy, while, at the same time, holding them accountable for their performance.

The basic premise for private sector participation in infrastructure development is its capability to commercialise these projects. The efficacy of commercialisation would also be contingent upon the ability to segregate payers and non-payers and prevent any incidence of free-riding. The scope for enforcing excludability (that is, a user can be prevented from consuming the service) would be one of the key parameters for facilitating commercialisation. The role of private sponsors is not merely limited to extending capital, but would incorporate their contribution as proficient and accountable operators of the facilities. The other critical factor is the pricing of infrastructure services. The long track record of uneconomic pricing and the extensive use of subsidies would be the principal obstacle in enforcing market-based pricing of these services.

In India, Plan allocations were the principal means of financing capacity creation in the infrastructure sector. This procedure, being supply-oriented, often did not take adequate cognisance of the existing and anticipated levels of demand. Large errors have been made in different countries: either overinvestment in infrastructure much before the actual appearance of demand or, conversely, underinvestment because of failure to anticipate the demand. Consequently significant portions of these investments have not provided adequate returns. Commercialisation would necessitate a demand orientation. The challenge for policy is, on the one hand, to find appropriate market signals which indicate the future trends of infrastructure demand, and on the other, to coordinate the supply in such a manner that investment in these

crucial sectors is made in an efficient manner which then provides appropriate returns.

Problems of Commercialisation...

Some initiatives have been taken recently to broaden the infrastructure sector's resource base beyond government budgetary allocations. Some organisations like MTNL, ITI, NTPC, NHPC and Indian Railways have mobilised funds from the capital market by issuing bonds. However, these bonds have been sold through private placement with Government-owned institutions only, and not on the basis of market-driven demand.

The key problem in commercialisation of infrastructure projects is the appropriate allocation of risk. When infrastructure is provided by the public sector, all the risks are internalised within the Government and hence the issue of risk allocation does not arise. Successful design of an infrastructure project involves the appropriate demarcation and allocation of risks to the different stakeholders in the project. Clarity in this allocation is essential as the tendency of each stakeholder is to shift the risk to others. In fact, the quest of many private investors, both equity and debt holders, is to shift as much risk as possible to the Government. It is thus of the utmost importance that the Government provide clarity on which risks it should itself, appropriately, bear, and which are to be borne by the different stakeholders. This requires commercialisation of risk itself and financial structuring as well as regulation.

Inadequacy of Traditional Corporate Financing Approaches:

From the point of view of funding agencies (financial institutions and banks) the capital-intensive and long-gestation characteristics of infrastructure projects would necessitate sizeable institutional funds staying locked in for long periods. This is all the more apparent when there is a bunching of projects. On the other hand, sources of institutional funds are progressively leaning towards shorter redemption periods due to uncertainties regarding future interest and inflation rate movements, among other things. Thus, the conventional approach to corporate financing—term loans from financial institutions and equity offerings in the capital market—would be inadequate to match the risk-return profile and payback periods of infrastructure investments.

The first obstacle here would be the size of investments required for these projects. With no track record, the scope of equity financing in such investments would be limited to 15 to 20 per cent of the project cost. The term-lending institutions in India (which extend loans for five to seven years) would find it extremely difficult to visualise lending horizons of 18 to 20 years. More importantly, none of these traditional sources of finance contribute as a risk-mitigating measure for infrastructure projects. It is important to note that it is only through the integration of the resource requirements of the infrastructure sector with the retail capital market that the

projects could derive a steady flow of resources. Capital market financing includes privately placed debentures, but excludes long-term loans from banks and financial institutions. Infrastructure companies can raise capital from the market through the issue of equity, debt and hybrid instruments. The debt-equity ratio for these projects is often quite high and could go up to 4:1. Funds raised through issuing debt are therefore likely to exceed the funds raised through issue of equity. Also, the debt instruments will have to be structured to match the cash flows from the projects. The cash flows in the initial period are low in case of most infrastructure projects. Thus, much will depend on the design of instruments to enhance their attractiveness through higher returns.

The experience of Asian countries indicates that infrastructure financing from the private sector generally includes direct equity investment by sponsors, bank and syndicated loans, and participation by export credit agencies. Share and bond issues in local and international capital markets have been, till date, very rare. However, under appropriate circumstances and if properly structured, projects can have access to international capital markets.

Large amounts of money are potentially available from international pension funds and other institutional investors. They have displayed their willingness to invest in emerging markets but seek acceptable risk, dependable payment, and suitable returns. An important development is the emergence of equity funds specialising in infrastructure projects. These funds are the direct product of increased interest of pension funds and other institutional investors in developing Asian countries.

Risk Profile of Infrastructure Projects: The crucial elements in the financing of infrastructure investment is first assessing the severity of each risk and then identifying the party in the best position to manage a risk.

The three broad stages in an infrastructure project with different risk profiles and financing requirements may be identified as follows:

- **Development Risk:** The initial very high-risk phase where only equity capital can be used for financing.
- **Construction Risk:** The next high-risk phase where cost and time spillovers tend to distort the future revenue generation and profitability prospects of the project. The construction phase may be financed by a combination of equity and debt with guarantees.
- **Operating Risk:** This risk emerges due to underestimation of operating costs and occasionally, an overestimation of the output from the proposed infrastructure facility. Since the pricing of infrastructure services is monitored closely by the Government, the burden of underestimation of operating costs cannot be passed on entirely to the users. However, the operation phase is considered to be relatively low-risk and may be financed through bond issues.

The operation phase may, in turn, be divided into the introductory operation phase and the project stabilisation phase.

Appropriate allocation of risks to the different stakeholders is essential as each stakeholder tries to shift the risk to others.

During the introductory operating phase, the revenue stream is thin and operational bottlenecks hinder achievement of high-capacity utilisation. It is only during the project stabilisation stage that risks reduce considerably and revenues are more steady and predictable.

Besides the above, there are other risks:

■ **Demand risk:** This is a result of an overestimation of the demand and "willingness to pay" for the proposed infrastructure facility. In several cases, like the toll road network in Mexico, the demand for the facility is high but inadequate willingness to pay on the part of the users has raised serious questions about the future of such projects.

■ **Financial risk:** Of specific relevance to infrastructure projects are foreign exchange and interest rate risks. Given that infrastructure projects involve costs and revenues in the local currency, the foreign exchange exposure taken for such investments, especially in the nature of off-shore debt, can prove to be risky. The interest rate risk emanates from the dependence on long-term debt (domestic and foreign) for meeting capital costs.

■ **Market risk:** This is important when consumers can choose alternative services such as with toll roads, railways and even ports. Occasionally, the Government absorbs this risk explicitly or by default. In a Mexico toll road, the Government awarded the concession guaranteeing a minimum amount of traffic. If this could not be achieved, then the concession period would be extended. It is difficult to hedge against market risk. However, when there is a single buyer for the output like the SEBs, the market risk is taken by the purchaser.

■ **Political risk:** Inadequate clarity in government policies and selection procedures has made political risk the fulcrum of infrastructure development. With an increase in the clarity in and conviction behind government policies, the extent of political risk is expected to decrease sharply.

This risk profile would be the guiding map in designing financing packages for infrastructure investments. Despite these features, projects are rarely staggered or executed in an incremental manner. This is primarily due to the nature of the transaction and negotiation costs involved, which rarely vary with the size of the project. For instance, the efforts made by a private sponsor for negotiating a 500 MW power plant would be comparable to the efforts required for a 1,500 MW project. This adds to the lumpiness of the investments.

...And Some Solutions

Structured Financing Options as Risk-mitigating Measures:

The principle of recovery of investment by levy of user charges has not been subscribed to in the financing of Indian infrastructure projects. The generation of revenue and profit streams has rarely been a significant objective tied to the creation of a specific asset. Consequently, there is no tangible profit motive to drive speedy project implementation. It is

The essential element in a structured financing option is that investment is directly linked to revenue-generating capability.

essential that the project structuring and the cash flow streams (either based on a single source as in a toll or through a mix such as part-recovery through the realisation of enhanced land values etc) be identified. The assessment of the cash flow streams of an infrastructure project determines the eventual financing structure and the range of instruments required to realise it. In all cases, the viability of the project should be assessed at commercial rates of return.

The essential element in a structured financing option is that the investment in a project is directly linked to its revenue-generating capability. In other words, the financial structure is devised such that the project cash flows are adequate to meet the debt-servicing obligations. In addition, the project's assets are extended as recourse to the lenders. This implies that in an event of

default on the structured instrument, the debt holder's recourse would be limited to the underlying assets.

Infrastructure projects require a multiplicity of players to participate in the financing, and consequently, need to be domiciled—not in any single institution's balance sheet—but in project-specific Special Purpose Vehicles (SPVs). Many new infrastructure projects are envisaged through SPVs which bring together private sponsors and other equity holders which may include concerned government agencies. The equity component is brought by the private sponsor and/or government agencies. The debt component, consisting of instruments floated by the SPV, is serviced from project-related cash inflows. At the same time, the private sponsors can pledge additional cash inflow streams for meeting the debt-servicing obligations, in case the project-related revenues are inadequate.

Project financing which permits sponsors to raise funds secured by the revenues and the assets of a particular project is often used in new ventures with no track records. The funding is provided by conventional equity contributions and debt. This technique requires a clear demarcation of risk which is not present in traditional project financing. Thus a key issue in infrastructure financing relates to what recourse the lenders have if investments fail to produce the expected returns. The financing is said to be non-recourse if the lenders are repaid only from the cash flow generated by the project or, in the event of complete failure, from the value of the project's assets. There may also be limited or full recourse to the parent company/sponsors.

Financial markets nowadays have growing experience of non-recourse infrastructure financing, where the focus is not to tie down the balance sheet of the promoter. Financing is not primarily dependent on the credit support of the sponsors or the value of the physical assets involved. So the project risks have to be pooled and then unbundled and distributed among the various players. The risks can then be apportioned over the three phases of the project. It is interesting how the recourse changes over the three phases:

■ **Construction phase:** The completion risk has to be borne by the equipment suppliers and the promoters. There is full

recourse during this phase as the equipment suppliers' guarantee to the promoter is transferred to the bank.

■ **Start-up phase:** The operational risk of getting the project up and running will vest squarely on the promoters. In this phase, the bank will obtain letters of comfort (not a guarantee) from the parent company in favour of the bank. This is a case of limited recourse financing.

■ **Operational stage:** The comfort accrues only from the cash flows of the project which are committed and there is no recourse. Thus the management risk devolves on the financiers. Here the banks cannot turn to the promoters for the recourse. However, to instil confidence, the banks would get first preference in payments.

The advantages of such a funding scheme are as follows:

- The cost of financing is a good enough reflection of its worth without any subsidisation offered by the parent promoters.
- The project loans are secured by the assets of the project and hence there is no need for it to be secured by other guarantees.
- The risk of project failure is distributed.
- For the promoter, the benefit is that the company's balance sheet is not tied to the project.

This is an alternative to the practice of corporate guarantees. The guarantees fall away as the project takes off. Thus one moves from full-recourse to non-recourse lending, thereby freeing the balance sheet after the initial years. The success of this funding option will depend upon the promoter's desire to move away from the time-tested technique of recourse funding and the ability of lenders to take such risks. If proved successful, this risk allocation scheme could be the model for funding infrastructure projects.

Amongst the structured financing options, innovative debt instruments can play a very significant role in terms of matching the project's debt-servicing obligations with its revenue-generating prospects. For instance, zero-coupon bonds, can be deployed for the initial phases of projects, as they do not require regular debt-servicing outflows. Since these bonds are redeemed at face value at the end of the tenure, they can be suitable for financing the construction phase. The other instrument that has gained investor acceptability, as indicated by the case of Sardar Sarovar Nigam Ltd, is the deep-discount bond for financing long payback-period projects. These instruments have structured premature exit options for the investors and the issuers, which give scope for managing the debt burden on the basis of the revenues generated by the project.

The Concessionaire Approach: This method has been adopted recently by many developing countries for attracting private sector funds for infrastructure development. The participation of private sponsors can be depicted on the following scale. The

level of private sector involvement decreases from left to right.

Private Sector Participation			Government Participation
BOO	BOT	BOLT	Wholly Government Controlled

At one end of the scale is the Build-Own-Operate arrangement (BOO), in which the private sponsors, as evident, builds, owns and operates the infrastructure facility for the entire life of the project. Such an arrangement is usually considered favourable by the lenders to the project as the private operator owns all the assets and the collateral, and recourse can be clearly established. Further, this simplifies the procedure for project execution, and time and cost overruns are expected to be minimal. BOO is favoured for power projects where no transfer is envisaged, or, as in the case of telecommunications, there is a possibility of extension of the license. From the private sponsor's perspective, this arrangement does not imply any risk sharing with the Government. Worldwide, BOO arrangements account for an insignificant proportion of infrastructure projects involving active private sector participation.

At the other end of the scale are projects wholly owned and operated by the Government. The alternate modes, which fall between these two extremes, are the feasible options for increasing private participation.

The most prominent, and possibly the most widely used, is the Build-Operate-Transfer (BOT) arrangement. In this case, the private investor (concessionaire) builds, operates and transfers the facility back to the Government at the end of a specified period, called the concession period, in a condition and on terms determined in the original agreement. During the concession period, the contractor is allowed to charge the users of the facility a toll/tariff that is sufficient to recover the cost and earn a risk-adjusted return on his investment. In India, BOT projects are being envisaged for the surface transport sector.

The BOT arrangement involves the Government's active participation. Presently, considerable effort is required for seeking clearances, drawing up contractual agreements and finalising the risk allocation procedures. This has emerged as a limiting feature for BOT projects. However, the superior risk allocation under BOT is likely to improve its acceptability and application. Another important feature is that BOT rarely involves direct transfer of public assets from the Government to the private sponsors (a highway constructed under BOT would involve the transfer of government land to the private concessionaire for the specified concession period and then back to the Government at the end of this period). This improves the political acceptability of such arrangements.

The main differences between these modes of private sponsor participation are indicated in the table.

Credit Enhancement Measures for Infrastructure Projects: Structuring of debt instruments is an important risk-mitigating mechanism which improves the credit quality of the instruments. This usually happens through

Arrangement	Ownership of Assets	Operator of the Facility during the concession Period	Transfer of Assets after Concession Period
BOO	Private	Private	No
BOT	Government	Private	To Government
BOLT	Private	Private/Government	Yes

one or more forms of credit enhancement. Credit enhancement mechanisms enable the borrower or issuer of debt to obtain a higher credit quality—which implies a higher credit rating—than would have been possible on a standalone basis. This benefits the issuer in terms of lower interest costs and easier marketability.

The extent of credit enhancement that needs to be provided could be based on an internal appraisal or the assessment of an external credit rating agency in cases where track record is not readily available. In the primary phase, the placement of bonds would thus be effected at the wholesale level where credit enhancements would not be required. Post-commissioning, with the commencement of cash flows, the credit enhancement could be discharged with payments directly linked to the "toll collection".

What follows is a brief description of various credit enhancement measures that can be deployed to improve the credit quality of infrastructure investments.

Debt Subordination: A pool of assets can be divided into senior and subordinated interests. In the event of a default, the senior securities have first claim on assets in the pool as well as cash flows. This protects against expected losses and deterioration in performance of the assets and is known as overcollateralisation. The subordinated investors, on the other hand, absorb the first losses in exchange for a higher return. Subordinate debt is usually unsecured by any assets and often has higher coupon rates and are extended by sponsors to meet the interest payment obligations or to meet repayment obligations when bond holders decide to exercise their put option. Thus essentially it is unsecured finance that is senior to equity capital but junior to senior debt.

Guarantees: In the course of business, banks and financial institutions are called upon to extend non-fund-based credit facilities like guarantees. These may be short-term or deferred payment guarantees extending over a period of time, and depending upon the purpose, may be classified as performance or financial guarantees.

Financial guarantee, commonly referred to as "bond insurance", is a mechanism whereby a financial guarantee company lends its high credit rating to a debt instrument in return for a fee. Financial guarantee is thus a form of credit enhancement i.e. it enables the issuer of debt to obtain a higher credit rating than would have been possible on a standalone basis. A financial guarantee company guarantees full and timely payment of principal and interest to the bondholders. Usually a bond issuer is required to deposit the periodical coupon payments (based on the schedule of receivables from the underlying pool of assets or revenues) with a trustee a few days prior to the scheduled date of payment. If the trustee does not receive the anticipated payment, it notifies the financial guarantee company which then advances funds to make full and timely payment to the investors. The guarantee is irrevocable

and non-cancellable and the financial guarantee company's commitment is for the entire maturity of the bonds to the extent of the claims on the defaulted debt-service payments. In USA, which is the largest market for financial guarantees, the securities insured are primarily municipal bonds and asset-backed securities issued by corporates/ banks.

As a part of its policy to attract private capital into the power sector in India, the GoI had agreed to issue Central Government guarantees in a few initial private power projects. This was a confidence-building measure necessary for the initial batch of projects. The counter-guarantees extended by the Central Government for the fast-track power projects and similarly the State Government guarantees for ensuring fulfilment of debt-servicing obligations are an example of credit enhancement. Though these guarantees increase the comfort levels of the lenders in the initial phases, extensive use of these measures can lead to fiscal distress and overexposure for the concerned governments.

When providing a guarantee, a government incurs a contingent liability, that is a liability conditional on some future event. Though contingent liabilities do not result in immediate payment, they generate future expected obligations, implying the need for careful accounting and administration. When the magnitudes of liabilities incurred are large and these are not adequately accounted for, payments resulting from default result in intergenerational inequity. Most governments do not account for the contingent liabilities that are incurred when an investment is guaranteed. Government budgets are typically on cash basis, implying that only cash outlays are accounted for. Thus a direct loan of Rs 100 made from government revenues is recorded as an outflow of Rs 100; however, a government guarantee of a Rs 100 loan made by a private lender is recorded as a zero outlay, since no expenditure has been incurred in that accounting period. The guar-

antee is accounted for only when a default occurs and the obligation has to be honoured. Fiscal prudence is maintained by setting a largely arbitrary upper limit on the total value of guarantees. Guarantees are counted against this upper limit in various ways, including, in extreme cases, at the full face value of the underlying loans guaranteed plus interest payment due even though the expected probability of default is significantly less than one.

Escrow Accounts: An alternative to a GoI guarantee is an escrow account agreement between lenders, the project company and trustee bank. In this arrangement, the inflows from the concerned project are pooled into a separate bank account, managed by the trustees, and all debt-servicing obligations are fulfilled before releasing them for further utilisation. The use of escrow accounts is to allow project lenders to control the proper use of the project company's cash flow and add comfort to lenders. All project company revenues will be remitted directly to the escrow account.

Most governments do not account for the contingent liabilities that are incurred when an investment is guaranteed.

In India, the private sector power generating units sell all their power to the SEBs and so an escrow account could be created on a few identified large consumers which is sufficient to satisfy the monthly tariff obligation of the Board to the private sector company. The limiting feature of such a mechanism is that it can be utilised only for on-stream projects. Moreover, this arrangement may induce liquidity problems and reduce the debt-bearing capability of the issuing entities if most or all superior-quality receivables have been pledged for debt servicing.

The World Bank Alternative: In September 1994, the World Bank approved the proposal to make guarantees of private sector loans a mainstream instrument of the bank's operation through different means. The Bank's view is that these guarantees are most likely to be used for infrastructure financing. Since the guarantee is intended to be a catalytic instrument, the Bank offers only partial guarantees, and risks are clearly shared between the World Bank and private lenders.

A partial guarantee has positive incentive effects. Since only part of the transactions are covered by the guarantee, the borrower has an incentive to be efficient and the lender has an incentive to monitor the borrower's activities. A good example

is the presence of deductibles in auto insurance, which gives the driver an incentive to be careful while driving. The World Bank's guarantee, similarly, covers only a portion of the risks, leaving significant commercial risks to be borne by private investors and lenders, creating incentives for the private parties to maintain commercial discipline.

The risk-sharing may be for specific risks (the partial risk guarantee) or for part of the financing (the partial credit guarantee). A partial risk guarantee covers risks arising from non-performance of sovereign contractual obligations or from force majeure aspects in a project. A partial credit guarantee typically extends maturities beyond what private creditors could otherwise provide—for example, by guaranteeing late-dated repayments or by providing incentives for lenders to roll over medium-term loans.

The guarantee can work to the advantage of the borrowers and host-country governments in many ways. For governments, the partial risk guarantee reduces the government's contingent liability to the minimum required to make the project feasible—with the private sector taking on all or a substantial part of the commercial risks.

Partial credit guarantees cover all events of non-payment for a designated part of the financing. These guarantees

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Privatisation of Physical Infrastructure: Three Cases

THE experience of the developed countries suggests that private involvement in physical infrastructure can assume different forms. Three cases discussed below illustrate the diversity:

Germany: In Germany, responsibility for water supply is frequently combined with other utilities (such as electricity, district heating and public transport) into an integrated municipal utility company (Stadtwerk). The Stadtwerk has been the backbone of the country's local infrastructure, because the integration of finances has permitted a deliberate policy of cross-subsidisation, particularly of urban public transport. It has also generated economies of scope or scale. The Stadtwerke are for the most part owned and controlled directly by the municipalities.

In recent years, municipalities have begun to experiment with new arrangements in response to the increasingly stringent financial conditions that they face. The municipality of Wedemark contracted with a private company to integrate a number of local sewerage systems into a single modern network and to construct a new sewage treatment plant. The municipality sold the existing installations to the private company benefiting the public budget. After 25 to 30 years, the plant will revert to municipal ownership. The private company has achieved economies compared to the cost estimated had the responsibility remained with the public sector.

The municipality of Rostock in former East Germany has transferred ownership of its water services to Eurawasser, a subsidiary of the French company Soc. Lyonnaise des Eaux-Dumez, and the German company Thyssen. Eurawasser is expected to make new capital expenditure of some DM 800 million over the next 20 years.

United Kingdom: Since the early 1980s, the UK government has carried out a radical restructuring of the water supply and sewage treatment in England and Wales. The previously public instrumentalities responsible for water and sewerage have been fully privatised and licensed as monopoly suppliers in such a way as to ensure complete geographical coverage. The privatisation was by means of a public floatation of shares. Significant shareholding in some newly-formed companies has been purchased by the two major private water companies of France.

The privatisation of water was accompanied by the establishment of three regulatory agencies. The Office of Water Services (OFWAT), under its Director General, acts as economic regulator for the industry, while the National Rivers Authority and the Drinking Water Inspectorate (a branch of the responsible government department) are responsible for environmental and technical standards. Implementation of the European directives is in the hands of these two agencies.

encourage transformation of shorter-term financing to longer-term by covering a part of the commercial financing, usually the later maturities. In recent operations, the World Bank covered late repayments, stretching the normal lending terms offered by the market.

The World Bank's guarantee can be used flexibly for commercial debt financing to private or public entities in developing countries. But unlike MIGA, the World Bank does not guarantee equity capital. Nor does it guarantee loans from other official multilateral financial institutions or export credit agencies.

It is important to note that the World Bank's guarantee requires a counter-guarantee from the Government of the country where the project is located. When the World Bank guarantee covers the Government's undertaking to a private sector project, the counter-guarantee is a further demonstration of the Government's commitment to meet those undertakings. A question is often raised that if the World Bank requires a counter-guarantee from the Government, doesn't the

User charges should be fixed such that the investor receives appropriate returns, and the charges are seen to be fair by the using public.

Government end up guaranteeing private investors? The answer is no. The World Bank's partial risk guarantee is specifically designed to back only the obligations a Government has given to an investor. In typical projects, these undertakings would include no assurance of commercial success, but only aspects under the Government's control. By providing a guarantee against the failure of the Government to fulfil these obligations, the World Bank merely adds credibility to the project, allowing the investor to mobilise financing from international financial markets.

Competition

The scope for competitive supply of infrastructure varies greatly across sectors, within sectors, and between technologies. Broadening competition means arranging for suppliers to compete for an entire market (for instance, firms bidding for the exclusive right to operate a port for 10 years), for customers within a market (telephone companies compet-

The Director General of Water Services (DGWS) licences the companies so as to ensure total coverage of England and Wales. The DGWS has a duty to promote competition and this was strengthened by additional legislation in 1992. The new provisions permit competitive supply of large water users by independent suppliers within the areas licensed as monopolies for designated companies. Proposals for mergers between water companies have to be referred to the Monopolies and Mergers Commission.

The DGWS exercises his main economic control through the regulation of water price and sewerage charges. Permissible increases are governed by a formula of the form $(RPI + K)$, where RPI is the UK Retail Price Index and the K factor is determined by the DGWS. The factor K is itself a combination of two elements: an efficiency X factor, which is negative and is intended to reflect the scope for increasing efficiency, mainly in relation to existing capital stock; and a Y factor, a cost passthrough element which reflects the need for additional investment and the cost of works.

The DGWS is required to review the K factors every five or 10 years, but is empowered to alter them more frequently in relation to particular companies (at his own or the company's instigation) where there are significant variations in their investment programmes. The water companies' investment programmes require the submission of business plans to the DGWS.

In practice, the element in the price control formula that relates to new capital expenditure constitutes a de facto control on the companies' rate of return on capital, since in determining what allowance to make for the required new investment, the DGWS has to take a view about the appropriate cost of capital. The calculations depend critically on the costing of proposed works - which is provided by the companies themselves but is subject to indepen-

dent certification.

New Zealand: The New Zealand government is committed to "light-handed regulation" of the energy sector. It has included both the electricity and gas industries in its programme of deregulation and privatisation, although with neither has it been able to progress as fast as with some other publicly-owned trading companies.

In 1987, the publicly-owned electricity industry was corporatised as Electricorp, and responsibility for production was separated from responsibility for marketing. In 1992, as a consequence of the Energy Sector Reform Act, electricity generation was officially deregulated. Responsibility for the high voltage transmission grid was given to TransPower. The area distribution authorities were corporatised at the same time. The New Zealand Government also established a committee to consider how TransPower could be separated from the generation system and turned into an independent corporation.

At the same time, local gas utilities were corporatised and required to maintain separate accounts for their transport of gas by pipeline and their retail operations. The market for bulk gas supply was opened up to competition and area franchises were abolished.

In contrast to the UK, the New Zealand government did not consider it necessary to institute specific regulatory controls, relying on the power of the Commerce Act to police anti-competitive behaviour and the abuse of monopoly power. Critics of this system note that the courts are only likely to be brought into action following an abuse and that the issues may become protracted.

Source: Kirwon, Richard (1993)

ing to serve users), and for contractors to provide inputs to a service provider (firms bidding to provide power to an electric utility). Competition promotes efficiency and provides users with options that, in turn, make infrastructure providers more accountable. But it also makes effective regulation more important, and often demands innovative regulatory mechanisms.

The Importance of Regulation

Deregulation, decentralisation, and privatisation have become the new buzzwords in infrastructure. Earlier, economists' attention was directed at identifying causes of market failures such as the existence of imperfect competition, imperfect information, and the absence of markets. Most of these conditions were found to exist in the case of public utilities and in the provision of transportation infrastructure and services. The solution was the provision of these services by the Government or by government entities.

In recent years, economists have, however, focused much more on the identification of government failures of different kinds. It has been argued that often, those in power—politicians and bureaucrats alike—are not activated by public interest but act much more in their own self-interest. It is also

argued that government representatives and their organisations suffer from lack of adequate information. Third, in the presence of government monopolies, private interest groups are able to use the Government at the expense of public interest. As a result of such concerns, the common current trend of public policy is to introduce greater competition and institutional decentralisation to induce the availability of greater information and to create markets for the supply of infrastructure services. The availability of new technology has also made it possible to price certain services and to collect user charges. In many cases this was not possible earlier.

Private participation in infrastructure implies the awarding of concessions on some exclusive basis, which enable private investors to invest and then earn returns exclusively. It is therefore of utmost importance that transparent procedures are used for the award of such contracts and concessions. Furthermore, since these concessions exist for long periods of time—20 to 30 years—appropriate institutions need to be created so that the terms of the concessions can be altered according to need. Such institutional frameworks require general public acceptability and transparency.

If user charges are to be fixed, rate setting must be such that the investor receives appropriate returns. It should also

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Argentina: The World's Largest Water Management Contract

BUENOS Aires, with a population of over 90 million, has long suffered from severe water shortages, leaks, ruptured water mains, lack of adequate water pressure, and poor sanitary conditions - the result of more than four decades of poor planning and maintenance. Ultimately, the Argentine Government sold the State company Obras Sanitarias de la Nacion (OSN) in 1993 to Aguas Argentinas, a company formed by seven local and foreign partners led by Lyonnaise des Eaux. During the first two-and-a-half years of the 30-year concession agreement, Aguas Argentinas has defined its long-term objectives while achieving short-term results in three crucial areas in which the State company never succeeded: delivering clean water; adapting and modernising water sewerage facilities; and earning profits.

The day-to-day operation of Aguas Argentinas is managed by Lyonnaise des Eaux, a Paris-based world leader in water supply and waste management, which owns 25 per cent of the company's equity. Sociedad Commercial del Plata (19.5 per cent of equity) is one of Argentina's largest local groups, with investments in oil and gas, engineering, construction, and railroads. Sociedad General de Aguas De Barcelona (10.8 per cent) serves 70 per cent of the private water market in Spain and assists the French group in the hands-on management of Aguas Argentinas. Meller (10.2 per cent) is one of Argentina's largest textile firms

and has also branched out into the telecommunications and public work sectors. Banco de Galicia y Buenos Aires (7.7 per cent) is the largest Argentine private bank and one of the few local companies traded on the New York Stock Exchange. Compagnie Generale des Eaux (7.6 per cent) is the other large French waterworks company, with properties in Asia, Africa, Australia, Germany, Spain and Italy. Anglian Water (4.2 per cent) is the former British state water company, recently privatised.

The remaining 15 per cent is held by company employees in a shared ownership program, or ESOP (10 per cent) and the International Finance Corporation (IFC), the private lending institution of the World Bank (5 per cent).

The new consortium took over an overstuffed, under-achieving and generally chaotic operation, and immediately instituted sweeping changes. They included early and voluntary retirement programmes that reduced the number of employees from 7,500 to 3,600. This 52 per cent staff reduction came on top of terminating many costly and unnecessary service contracts. Now the company has embarked on implementing much-needed capital expenditures to upgrade and expand infrastructure.

An important facet of the programme's first stage was the installation of meters and other devices to measure water delivery to consumers. When Aguas Argentinas took over the

be seen to be fair by the using public and it must be affordable if the facility is to be successful. The mediation between such conflicting needs is the job of Government. A great deal of experience regarding this exists both in the West and the East. In some infrastructure areas such as telecommunications, the participation of the private sector is new even in most developed countries, except for the US. Indeed, the private sector has been introduced into this area in many different ways by different countries. There are no clear answers but lessons can be learnt from different experiences.

Public-Private Partnerships

During this period of transition from 100 per cent State investment in infrastructure towards increasing participation of the private sector, we should recognise that there will be continued need for State support in many infrastructure projects. Public-private partnerships should become the order of the day.

system, there were only 31,000 meters for 2.07 million customers. Within 18 months, the number had jumped fourfold to 143,000 meters for 2.24 million customers. Resolving the dilemma and ending the chaos caused by having tens of thousands of users and no way to measure consumption was crucial to opening up outside loan sources for the company. The collection rate for payments is now 95 per cent, according to company data.

One tangible result of the company's reorganisation is the agreement Aguas Argentinas signed with the IFC in November 1994 for a \$172.5-million loan. In a separate transaction, the IFC also purchased its current 5 per cent equity stake in the company. These accords demonstrate the confidence that the foreign investment community has in the future of Aguas Argentina. Recently, Aguas Argentinas officially unveiled a four-year \$1-billion programme to add 1.6 million consumers to the potable water network in Buenos Aires and link 900,000 residents to a modern waste collection system. Financing sources for the programme include another loan from the IFC of up to \$200 million, transfer of \$100 million that the Inter-American Development Bank had allotted to the Argentine government for waterworks projects and a \$90-million loan currently being negotiated with the European Investment Bank.

Argentine President Carlos Menem, officiating at the announcement of the project, called Aguas Argentinas "a huge success story in Argentina and in the world, one of the prime examples of positive results achieved from the privatisation process."

Source: *Infrastructure Finance*, December/January 1995-96

Government equity participation, on a sustained basis, would be contingent upon the ease with which it can exit on a project-by-project basis.

Investments made by the State should be regarded as promotional equity investments which have the effect of bringing in other private equity as well as debt funds. Such equity investment by the State would provide comfort to prospective investors and thereby facilitate the raising of resources for infrastructure investment. As an additional incentive, the Government could stipulate that dividends need not be paid during the construction period. Disinvestment of Government-held equity could occur after the project reaches the commercialisation phase. Such equity investment can then be recouped and applied elsewhere as such projects succeed, much in the nature of venture capital.

Therefore, government equity participation in infrastructure projects, on a sustained basis, would be contingent upon the ease with which it can exit on a project-by-project basis. This, in turn, would depend upon the efficacy of the domestic capital market in facilitating listing on an exchange and subsequent divestiture. Equity participation by the Government could be seen as a trigger that would induce further capital inflow by private sector promoters. In other words, the participation of the Government in the form of equity should be perceived not just in terms of cash infusion, but also one of providing credibility to private sponsors. Similarly, the provision of government debt in infrastructure projects could be made more sustainable if there is securitisation after the income stream is assured.

Government Funds as Venture Capital: The basic issue is that since government resources have become extremely scarce, it must be ensured that they are allocated to the best use. So far, infrastructure investment in the public sector has been governed by investment allocations made through the planning mechanism: Plan funds are allocated to different sectors and different public sector entities in the form of grants, equity in public sector corporations, and as loans. Loans are given both to public sector corporations and on an inter-governmental basis from the Central Government to State Governments. Loans are also given directly to public sector corporations, whose resort to borrowing funds directly from the capital markets is also governed by the Plan mechanism.

At present, the Central Government has a negative balance of current revenue. Consequently all funds being channelled as Plan funds are essentially borrowed by it, and with the monetisation of the fiscal deficit being reduced, almost all of it from the capital market at market interest rates. The Government is therefore essentially acting as a large financial intermediary sourcing funds from the market and allocating them for different kinds of investments through the Plan mechanism. As was shown earlier, the share of budgetary support as a proportion of total Plan outlay has been falling precipitously over the last five to 10 years. It is therefore clear that these funds must be used extremely carefully and, in principle, to mainly leverage other funds for infrastructure and other investments.

Allocations for investment in public goods in different sectors will clearly have to continue through the normal governmental mechanism of allocations to Central Ministries and State Governments. These can continue to be disbursed as grants and loans. However, for infrastructure investment, where such investments are generally made by corporate and other bodies, allocation of budgetary funds should essentially be made as equity or equity-like flows into these corporate bodies. In principle, the Government should use these funds in the same manner as venture capital. As has been emphasised earlier, infrastructure investment is particularly risky during the construction period and in the initial years of a project before a clear income stream emerges. The Government should therefore consciously use its scarce resources to take significant equity positions in infrastructure projects which otherwise would not receive adequate funding. Such use of public funds can then crowd in commercial equity funds as well as debt from different sources. Through this methodology, significant leverage would result for Government funds.

Furthermore, since in areas such as water supply, sewerage, and roads, rates of return may well be lower than commercial rates of return for some time to come, the Government could voluntarily provide this equity on the basis of zero-dividend returns for an initial period such as five, 10 or 15 years as may be warranted by each specific project. Commercial funds could then be obtained on commercial rates of return and yet fund infrastructure projects whose average rate of financial return may be lower than market rates. This could be justified on the basis of positive externalities that generally exist in such projects. Once the project becomes commercially viable and income streams become secure, the Government could disinvest and reinvest in any new projects through the same mechanism. The Government would then function as a giant infrastructure venture capitalist.

This kind of public-private partnership will be essential for the promotion of infrastructure investment and for obtaining the best use of Government funds. Institutional mechanisms for administering such a programme would have to be worked out at both the state and Central levels.

Valuing Government Guarantees: Partial government guarantees of private financing can be an effective tool for maintaining public-private partnerships. Governments the world over are increasingly using guarantees to private lenders rather than directly finance priority infrastructure projects. When guarantees are targeted to mitigate carefully defined policy or regulatory risks—which the private sector will not bear—the financial obligation of the Government can fall substantially relative to the traditional situation where the Government fully-finances projects and bears all project risks. Guarantees are simply another method of using government resources to leverage other funds for infrastructure investment.

Though government guarantees targeted to specific sovereign risks are relatively new, loan guarantees that cover some or all of the risk of repayment have been frequently used by Governments to pursue policy objectives. It has been observed that such loan guarantees are of significant value, particularly when the underlying risk is high and the term of the loan exceeds 10 years. As such, when Governments give guarantees,

they are providing substantial comfort to lenders.

But such guarantees involve risks which are often unexpectedly high for both the Government and the private investor. The Government faces the risk of unforeseen liabilities that may occur when the guarantee is called and when it may possibly lack the necessary budgetary resources to honour the guarantee. Similarly, because of this possibility of unforeseen future risk, the private investor also often finds government guarantees to be less than credible, particularly at lower levels of government. The market also often does not value such guarantees and hence the credit enhancement provided by government guarantees is negligible. We therefore suggest that Government at both Central and state levels should consider setting up a Contingent Valuation Funds for providing additional back-up to any infrastructure project guarantees that are given. It is possible to value guarantees and thereby to set aside specific funds from the budget on an annual basis so that the Contingent Valuation Fund would have adequate resources to fund the guarantees in case they are called. Such a mechanism would both provide safety to the Government as well as additional comfort to creditors. Moreover, the valuation of the guarantee would also provide transparency to the guarantees being given as well as signals to Government whether it should give such guarantees or not.

In the context of public-private partnerships, the Government can also make contributions in kind. For instance, in the development of roads and highways, the Government has to play the crucial role of acquiring the land and providing it to the private concessionaire.

Summary

A solution to the problems associated with the traditional approach to infrastructure development can be found in commercialising these projects. The recovery of investments should be through a system of user charges which bear a direct relation to the benefits that the facility provides to the user.

The key problem in commercialisation of infrastructure projects is the appropriate allocation of risk. When infrastructure is provided by the public sector, all the risks are internalised within the Government and hence the issue of risk allocation does not arise. Successful design of an infrastructure project involves the appropriate demarcation and allocation of risks to the different stakeholders in the project. Clarity in this allocation is essential as the tendency of each stakeholder is to shift the risk to others.

Infrastructure financing is said to be non-recourse since the lenders are repaid only from the cash flows generated by the project. For non-recourse financing, it is essential that the project structuring and cash flow streams be identified. The assessment of the cash flow stream of an infrastructure project determines the eventual financing structure and the range of instruments required to realise it. In all cases, the viability of the project should be assessed at commercial rates of return.

The concessionaire approach has been adopted recently by many developing countries for attracting private sector funds for infrastructure development. The most prominent, and possibly the most widely used, is the Build-Operate-Transfer (BOT) arrangement. In this case, the private

investor (concessionaire) builds, operates and transfers the facility back to the Government at the end of a specified period (concession period). In India, BOT projects are being envisaged for the surface transport sector.

During this period of transition from 100 per cent State investment in infrastructure towards increasing participation of the private sector, we should recognise that there will be continued need for State support in many projects. It is thus imperative to promote public-private partnerships. Infrastructure investment is particularly risky during the construction period and in the initial years of a project before a clear income stream emerges. The Government should therefore consciously use its scarce resources to take significant equity positions in projects which otherwise would not receive adequate funding and use this to crowd in commercial equity funds as well as debt from different sources. Through this methodology, significant leverage would be obtained for Government funds in infrastructure. Once the project becomes commercially viable, and income streams become secure, the Government could disinvest and reinvest in new projects in the nature of a venture capitalist.

Governments are increasingly using guarantees to private lenders rather than directly financing infrastructure projects. Though government guarantees targeted to specific sovereign risks are relatively new, loan guarantees that cover some or all of

Government should set up a Contingent Valuation Fund to provide additional backup to any infrastructure project guarantees that are given.

the risk of repayment have been frequently used by Governments to pursue policy objectives. It has been observed that such loan guarantees are of significant value, particularly when the underlying risk is high and the term of the loan exceeds 10 years. As such, when Governments give guarantees, they are providing substantial comfort to lenders.

But such guarantees involve risks which are often unexpectedly high for both the Government and the private investor. The Government faces the risk of such unforeseen liabilities that may occur when the guarantee is called and when it may possibly lack the necessary budgetary resources to honour the guarantee. Similarly, because of this possibility of unforeseen future risk, the private investor also finds government guarantees to be less than credible, particularly at lower levels of government. The

market also often does not value such guarantees and hence the credit enhancement provided by government guarantees is negligible. It is therefore suggested that Government at both Central and state levels should consider setting up Contingent Valuation Funds for providing additional back-up to any infrastructure project guarantees that are given. It is possible to value guarantees and set aside specific funds from the budget on an annual basis so that the Contingent Valuation Fund would have adequate resources to fund the guarantees in case they are called.



The Role of the Capital Market

ALMOST ALL of infrastructure investment was earlier made by the public sector. Government funds were allocated to different levels of government and infrastructure entities essentially through the Plan process. These funds were allocated in the form of grants to different levels of government; or as equity or debt contributions to public sector entities such as public sector corporations including specialised financial intermediaries such as the Housing and Urban Development Corporation (HUDCO), state electricity boards, various authorities, departmental undertakings and the like. A major fiscal change that has taken place over the last decade is that there is now no positive balance of current revenue (BCR) to allocate for investment for any purpose. Consequently, all infrastructure investment made by the Government is essentially from borrowed funds. The Government is, in this aspect, acting as a giant financial intermediary borrowing funds from the market and allocating them as equity and debt, except that there is little project-specific accountability. Our projections suggest that investment requirements for infrastructure will increase gradually from the current 5 to 5.5 per cent of GDP to about 7 per cent in 2000-01 and 8 per cent in 2005-06. We have projected the Government share in this investment to increase from the current 4.5 per cent of GDP to about 5.0 per cent over the period. Government investment will therefore have to increase at a rate slightly higher than that of GDP growth. Thus almost all the incremental growth in infrastructure investment will

have to come from the private sector. Consequently, huge demands will be made on the capital markets for raising resources by the Government and private sector alike. The share of external savings in financing domestic capital formation, while increasing substantially in terms of absolute volume, is expected to increase from the current 1.5 per cent of GDP to about 2.5 per cent by 2000-01 and 3.0 per cent by 2005-06. It has been assumed that a third of net foreign capital flows can be expected to flow into infrastructure. This corresponds to the share of the infrastructure sector in total non-household sector investment. The rest will have to be mobilised from the domestic capital market: hence the need for capital market reforms.

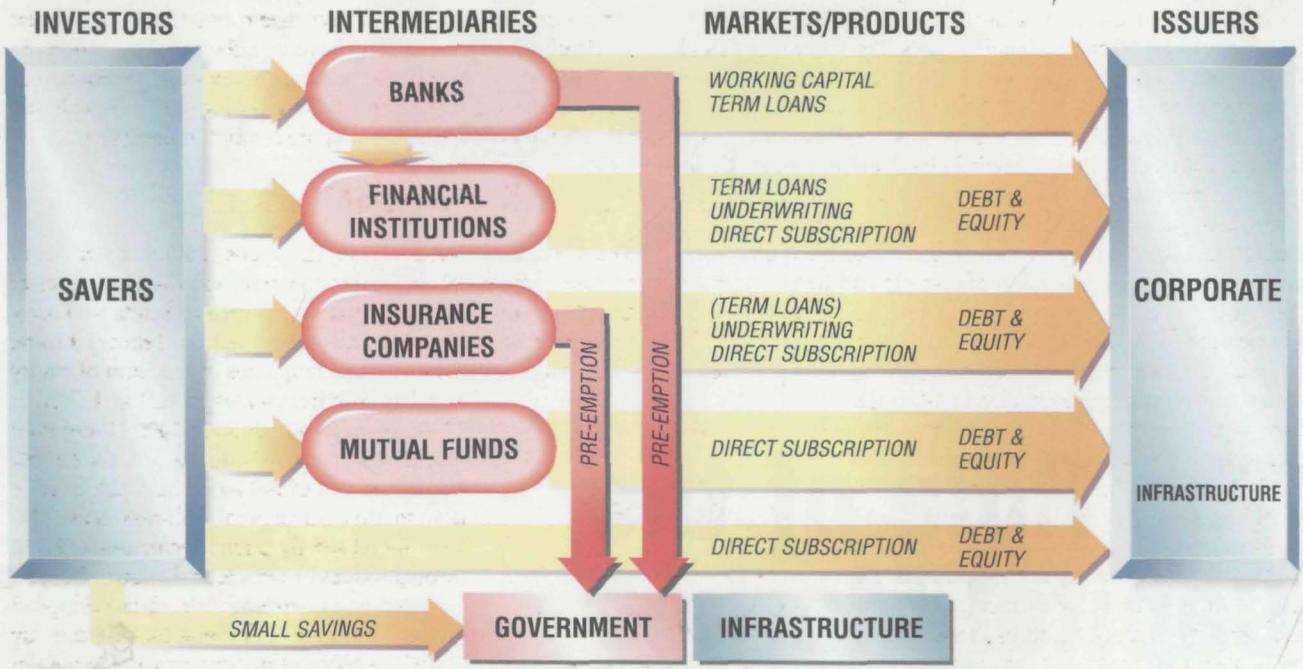
The distinctive economic and technical features of infrastructure services make infrastructure investment vastly different from other forms of industrial investment. Consequently financing of infrastructure investment merits special attention and analysis. The features which make infrastructure services distinctive are:

- Infrastructure output is generally not tradable across sovereign borders (except in a few cases like electricity and telecommunications), and
- Infrastructure investment is invariably location- or site-specific and often jurisdiction-specific

These characteristics of infrastructure investment and output differentiate infrastructure finance from other types of institutional and corporate finance. More particularly, the fac-

SOURCES OF FUNDS FOR INFRASTRUCTURE

Infrastructure funding—pre-reform



tors which differentiate infrastructure investment and its financing are :

- High capital costs in relation to operating and maintenance costs because of lumpiness of equipment and extensive delivery networks.
- Substantial sunk costs because a high proportion of total costs have to be irrevocably committed upfront before the project becomes operational. This leads to low credit quality of projects in early years.
- The high capital and sunk costs in combination with long gestation periods and irregular revenue flows lead to long pay-back periods leading to longer debt maturities and higher-than-average debt-equity ratios.
- Arising out of these three factors are the high costs of entry and exit which reduce the competitiveness and hence contestability of infrastructure services.
- High risk arising from a number of sources.

Empirical evidence from the developed and newly-industrialising countries—where infrastructure services have begun to be commercialised—suggests that while domestic infrastructure finance has been generally conventional, cross-border finance has given rise to a host of innovative financing techniques and instruments. Over 60 instruments which are variants and hybrids of short and long-term debt instruments (commercial paper, bonds, etc) as well as quasi-debt instruments (warrants, preferred stock, etc) representing a varied combination of yields, maturities and currencies have emerged in the capital markets. The resulting complexity of arrange-

ments suggests that foreign financing of infrastructure is tending to be increasingly project-specific.

Empirical evidence further suggests that infrastructure projects, irrespective of their sectoral characteristics, have high leverage ratios. Since the level of retained earnings (after meeting capital servicing costs, tax payments and statutory capital reserve requirements, if any) over and above the depreciation provisions is low, infrastructure firms typically fund projects through debt finance. They also tend to diverge from the conventional "pecking order" of corporate finance, vis-à-vis using retained earnings in preference to debt and debt in preference to public issues of equity capital to fund asset acquisition. A classic example of this is the Euro-tunnel—among the largest infrastructure projects implemented globally—which was funded pre-dominantly out of debt funds (£7 billion out of a total capital of £8 billion). Not only is the initial recourse to debt funding very high for infrastructure investments, but subsequent expansion/ renovation/ modernisation are also funded substantially through debt finance. Irrespective of where these investments originate—foreign or domestic, private or public sector, new or expansion projects or as privatisation of existing entities—it is clear that there would be a huge gap between investment demand and the financing supply. While some of the traditional modes of financing infrastructure—taxes, project financing from banks and financial institutions, raising equity and debt from the domestic capital markets and also foreign direct investment—would continue, at least in the short run, the magnitude of the gap between demand and supply would compel a search for

alternative ways of financing these investments.

These characteristics of infrastructure financing place much higher requirement for raising debt resources from the capital market. Thus a key requirement for the Indian capital market is the development of a vibrant bond market. The market for equity has developed substantially in India over the last decade. However, much remains to be done for developing both the primary and secondary bond markets. The latter is essential for imparting liquidity for bond holders. The primary market cannot grow without the development of the secondary market.

Second, given the risks associated with infrastructure projects, considerable work needs to be done to mitigate these risks and to provide better comfort to investors. This can be done through better design of projects, professional project evaluation, appraisal, monitoring and the like. Such processes contribute to the credit quality of projects and hence increase the likelihood of market financing. These activities are generally performed by financial intermediaries of different kinds and can be categorised under the general head of credit enhancement. It may be expected that in the first stages of commercialisation of infrastructure, it would be financial intermediaries who would be able to raise debt resources at reasonable costs from the capital market and intermediate them to project entities.

Third, in view of the long debt maturity needs of infrastructure financing, it is probable that the financial intermediaries themselves will need credit enhancement in order to enable them to raise long-term debt.

The central issue in finance for infrastructure investment is not merely the adequacy of funds, but more importantly the institutional framework and the other related mechanisms which facilitate convergence of investment horizons of ultimate savers and borrowers in the economy.

Mitigation and Management of Risk

Because of the many risks involved in the implementation of infrastructure projects, the possibility of raising commercial financial resources is crucially dependent on the appropriate mitigation and management of risk. Chapter III has already discussed in some detail the risks encountered in infrastructure projects and which typically hinder commercialisation. Table 4.1 lists the categories of risk involved, who should bear these risks and the financial possibilities of covering or mitigating them.

If private investment in infrastructure has to proceed on a sustainable basis, it is necessary to reduce both the perception and the reality of risk. The basic approach to risk management should be based on the principle that the party best able to manage a risk at least cost should mitigate it. Consequently, the private sponsor would need to bear the commercial and managerial risks, while the Government would need to manage the country and the political risk. The latter would involve the set of policies and actions necessary to promote overall economic growth

and private sector development—both domestic and foreign—across the economy. These policies and actions would encompass two elements. The first would involve maintenance of a stable macro-economic environment to ensure price and exchange rate stability and facilitate stable and modest real interest rates. If foreign investor interest has to be sustained, the policy actions for moving towards foreign exchange convertibility would also be significant. The second element would cover the creation of a transparent and equitable regulatory framework governing corporate activity, stable and predictable tax regimes, a credible and reliable judicial system and dispute resolution mechanism.

The Indian Capital Market

The 1980s and 1990s: During the 1980s, the most significant feature of financial sector development was the emergence of the capital market as an important source of funds for corporate units in the private and public sectors. Primary capital mobilisation by private sector companies in the form of equity and debt rose from a meagre Rs 1.96 billion in 1980 to over Rs 43 billion in 1990-91 and then recorded a quantum jump to over Rs 260 billion by the end of 1994-95 (Chart 4.2). In addition to this, substantial volumes have also been mobilised by public sector units (PSUs) through issues of taxable and tax-free bonds.

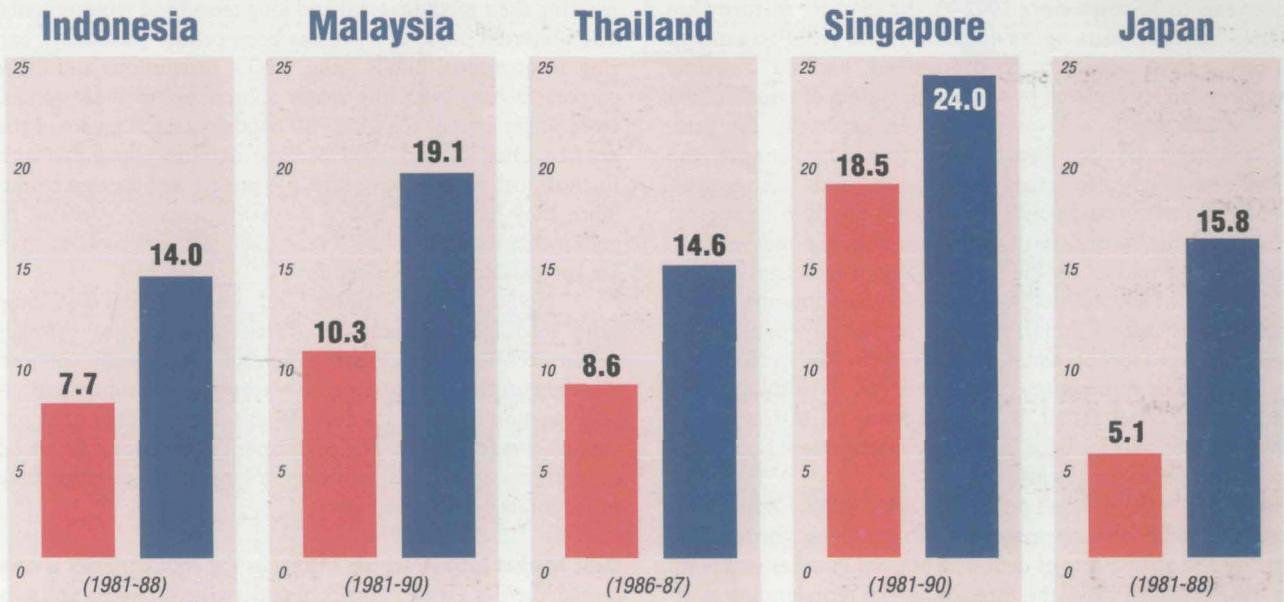
According to disaggregated data compiled by the Centre for Monitoring Indian Economy (CMIE), in terms of instruments and issuers in the public and private sector, for the period 1990-91 to 1994-95, the total volume of capital issues has risen nearly fivefold. The average number of issues per month has risen from 30 in 1990-91 to almost 200 in 1994-95. In terms of amounts mobilised, it doubled between 1988-89 and 1990-91 and further quadrupled to Rs 450 billion by 1994-95 (Table 4.3). While public and rights issues were the preferred modes for issue of capital upto the mid-eighties, since then, private placements with investment institutions, mutual funds and commercial banks have become a popular and cheaper form of raising capital by private and public sector companies. The absence of an active secondary market in debt instruments—particularly corporate bonds—resulted in serious irregularities in the trading of these bonds, culminating in the securities “scam” in early April 1992. As a fallout of these developments in the debt market, the Government banned “ready forward” transactions in all debt instruments, barring 91-day Treasury bills (auctioned issues) and certain “notified” dated securities.

In marked contrast to the 1980s, when debt predominated in the resources mobilised from the primary market, equities and convertible debt have come to dominate the primary issuance in a big way during the 1990s. Bulk of the equity issues have come from companies in the private sector. Trends in the debt-equity ratio for the private corporate sector—based on company finance studies by ICICI—indicate that recourse to debt finance has slowed down, particularly after 1992-93. The debt-equity ratio which had fluctuated between 0.83 and 0.96 from 1985-86 to 1992-93, declined sharply to 0.76

For private investment in infrastructure to proceed on a sustainable basis, both the perception and reality of risk need to be reduced.

RISKS IN FINANCING INFRASTRUCTURE PROJECTS

Type of Risk	Who Controls	Covering/ Mitigating
A. Commercial : Project specific		
a) Project concept and cost	Sponsor	Independent cost review, review of similar projects, use of tested technology, contracts for construction and operation and supply
b) Project supplies	Supplier	Supply contract (e.g. coal to power station), sometimes "supply or pay" basis, Government guarantee for supplier performance
c) Market (multiple users: toll road)	None	Independent surveys to verify demand forecasts; agreements to provide access to market (e.g. concessions to supply telecom services); competitors/ substitutes
d) Market (single purchaser: power)	Purchaser	Take or pay contract, revolving L/C from purchaser to provide advance payment cushion.
e) Sponsor commitment and strength	Sponsors	Substantive equity commitments, lead sponsor strength, credit review, technical strength, commitments to meet cost overruns.
f) Contractor or operator	Contractor	Technical/geographical experience and performance; financial strength; contractual arrangements; insurance arrangements
B. Commercial: Economic Environment		
a) Currency/ interest risk	Varies, but partly host Government	Hedging, sponsor guarantees to cover cost overruns during construction, use of local financing, Government agreement to link project tariff to debt-service costs if devaluation affects both.
b) Inflation	Partly host Government	If regulated, Government agreement to link tariffs for project's output to an inflation index.
C. Non-Commercial : Project Specific		
a) Regulatory	Host Government	Detailed concession agreement, specifying conditions.
b) Expropriation	Host Government	Previous record; concession terms; insurance
D. Non-commercial: Non Project Specific		
a) Country risk	Host Government	Country exposure limits, Government guarantees of exchange availability, payments made to an offshore escrow account directly.
b) Political risk	Government	Insurance, buy out clauses
c) Legal risk	Host Government	International arbitration
d) Force Majeure risk	No party	Insurance



Source: World Bank: *The East Asian Miracle*

in 1993-94 and then to 0.55 in 1994-95.

PSUs operating in infrastructure areas continue to be the principal issuers of debt securities in the primary market. With the deregulation of interest rates on capital market debt instruments in 1991, PSUs have been forced to offer market-determined interest rates on such debt instruments. The high interest rate regime since early 1995 has impinged on the ability of these PSUs to raise resources through debt issues—both via public issues as also private placements. Given their inability to absorb the higher interest costs, the PSUs have refrained from borrowing and deferred expenditure plans—thereby affecting gross domestic investment in the economy.

The re-entry of Indian corporates into global capital markets in a big way in 1993-94, has brought about an additionality of resources to the market. This has been further augmented by portfolio investments by FIIs in the secondary market. In 1993-94, private corporate units mobilised Rs 79 billion through global depository receipts (GDRs) and foreign currency convertible bonds (FCCBs). Subdued interest in Indian paper among foreign investors, particularly after November 1994, resulted in marginally lower mobilisation at Rs 67 billion in 1994-95 (Chart 4.4).

The equity market has been highly active as the bulk of the resources raised by the private sector in the primary market are in the form of direct equity or convertible debentures. In the secondary market, the market capitalisation of the 7,000-odd listed companies in 23 stock exchanges has risen at a very fast pace, particularly since 1990-91. At the end of December 1995, aggregate market capitalisation of stocks listed on The Stock Exchange, Mumbai, amounted to Rs 4,260 billion (US\$128 billion) which was almost 30 per cent below its historical high of Rs 5,955 billion (US\$190 bil-

lion) reached in September 1994. This growth in market capitalisation conceals the fact that the secondary market still operates with antiquated trading and settlement systems, which have resulted in imperfect information flows. With the setting up of screen-based trading on The Stock Exchange, Mumbai, the National Stock Exchange (NSE) and the Over The Counter Exchange of India (OTCEI), some of these imperfections have been rectified. Further, the establishment of depositories—likely by the end of 1996—is expected to iron out many of the glitches which have affected secondary market trading in equities. Notwithstanding these developments in the equity market, the debt market has remained undeveloped due to an illiquid secondary market in debt instruments.

The Indian Debt Market: Current Status

The debt market in India can be broadly categorised into two segments—the money market and the bond market. The matrix of issuers, investors and instruments in the debt market is presented in Table 4.5. Measured in terms of the outstanding value of debt instruments, the size of the tradable debt market has been estimated at Rs 3,000 billion—comprising Rs 2,650 billion of bonds and Rs 350 billion of money market instruments (Table 4.7). Apart from this, there is an untraded debt market estimated at about Rs 600 billion, comprising small savings instruments about Rs 440 billion and company fixed deposits of Rs 160 billion. Between 1980-81 and 1994-95, the tradable bond market has expanded almost tenfold, with Central Government bonds accounting for a dominant share.

With the deregulation of interest rates, both in the capital market (in 1991) and the credit market (in 1991 and 1994),

5.30
2-10

there have been significant changes in the issuance methods and trading pattern of bonds. The most significant changes have occurred in the Government bond market. Unlike the pre-1992 period, when bonds had issuance maturities ranging from five years to 30 years, since 1992-93, the issuance maturity has varied from two years upto a maximum of 10 years. Issuance of bonds at fixed rates with pre-determined "notified" amounts has been largely replaced by an auction system of issuance; the earlier practice is still used however, especially for State Government bonds. Apart from fixed-rate bonds, the Government has also issued floating-rate bonds, zero-coupon bonds and partly-paid bonds. However, liquidity continues to be thin in the secondary market, even with the moveover to screen-based trading on the NSE. Pricing of securities at market-determined rates has generated increased interest among market participants and facilitated the use of open market operations as a tool of monetary policy by the RBI. In effect, the issuance of Government securities, instead of being used for funding the fiscal deficit, is now becoming an instrument of internal debt management, monetary management and short-term liquidity management.

Market-determined pricing has also facilitated the use of issuance yields on Government securities as benchmarks for pricing and structuring of debt instruments in other segments of the market. In 1994, the three industrial term-lending institutions IDBI, ICICI and SCICI issued floating-rate bonds (FRBs) for the first time, with interest rates pegged to the issuance yields on Treasury bills. However, with the instrument not gaining sufficient acceptance among investors, there has been no further issuance of FRBs.

The gradual withdrawal of budgetary support to PSUs by the Government since 1991 has compelled them to look at the

bond market for mobilising resources. While the more profitable units such as SAIL, MTNL, NTPC, and NPC etc have been raising resources from the bond market since 1986, a number of PSUs have entered the market during the last two years for meeting their medium-term and long-term fund requirements. The preferred mode of issue has been private placement, barring an occasional public issue. Banks, institutions and other corporates have been the major subscribers to these issues. Over 50 per cent of the total PSU bonds outstanding are of the tax-free category and have become extremely popular with institutional players and profitable private and foreign banks. Since they have been issued as instruments transferable by endorsement and delivery, a reasonably active secondary market has existed for these bonds.

Private corporate units fund their medium and long-term resource requirements (three to 10 years) through debentures—either non-convertible or partly/ fully convertible debentures through private placement or public issues. A large portion of the pure debt debentures is issued on a private placement basis to the investment institutions, financial institutions and banks. However, a large retail investor base in corporate bonds also exists.

Debt Market Infrastructure: Insofar as the equity market is concerned, there is a wide network of underwriters, brokers and sub-brokers. All this infrastructure has become possible primarily because equity markets have grown at a reasonably satisfactory rate over the last five decades. There is considerable liquidity and secondary market trading in equities. Hence, when companies come to the primary market with equities, there is assured infrastructural support as also the prospect of secondary market liquidity. All these conditions do not hold good for debt instruments.

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3

THE PRIMARY CAPITAL MARKET : ISSUERS AND INSTRUMENTS

(RS. BILLION)

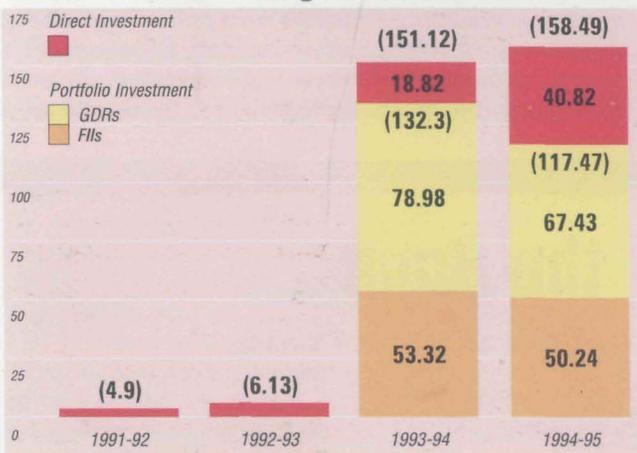
	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95
No. of Capital Issues	253	379	351	497	1,039	1,278	2,024
Capital Issues Amount	54.65	122.87	110.45	145.96	303.64	383.94	447.93
As per cent of GDS	6.4	12	8.7	10.3	21.6	24.2	N. A
By Type of Security							
a) Equity	10.6	18.98	42.45	66.78	202.86	233.79	333.57
b) Convertible Debt	17.56	52.63	25.36	37.17	75.71	83.97	80.21
c) Non-Conv. Debt	2.99	22.97	5.81	1.46	15.04	31.98	28.1
d) PSU Bonds	23.5	28.29	36.83	40.55	10.03	34.2	6.05
By Type of Issue							
a) Public	25.13	44.3	48.54	70.61	170.24	192.33	246.05
b) Rights	13.62	33.97	23.81	34.24	117.35	129.62	111.55
c) Private Placement	15.9	44.6	38.1	41.11	16.05	61.99	90.33
By Type of Issuer							
a) Private Sector Cos.	29.77	67.71	44.08	54.13	192.21	208.37	334.37
b) Public Sector Cos.	20.58	44.44	39.08	40.54	14.43	100.64	31.13
c) Public Mutual Funds	4.3	10.72	27.29	51.29	97	60.54	69.8
d) Private Mutual Funds	0	0	0	0	0	14.39	12.63

Source: CMIE The Primary Capital Market October 1995

Issuer	Instrument	Issuance Maturity	Investors
Central government	Gov Securities	2 to 10 years	Banks, LIC/GIC, UTI, RBI, MFs, PFs, NBFCs
Central government	T-Bills	91/364 days	Banks, RBI, PFs (now), NBFCs
State government	Dated Securities	5 to 10 years	Banks, LIC/GIC, PFs
Government Agencies & Public Sector Undertakings (PSUs)	Government	5 to 10 years	Banks, LIC, PFs, UTI, MFs, and Public Sector Corporates guaranteed bonds
PSUs	PSU Bond/Structured Obligation	5 to 10 years	Banks, LIC/GIC, UTI, MFs, Corporates, Trusts
Private Sector Corporates	Corporate Debentures	1 to 12 years	UTI, MFs, LIC, GIC, FIs, NBFCs
Public & Private Sec. Corporates	Commercial Paper	3 months	Banks, UTI, MFs, FIs, NBFCs
Banks & Financial Institutions	a) Bonds	5 years & above 3 months (banks), 1-3 yrs (FIs)	a) Trusts, PFs, Individuals, NBFCs
	b) Certificates of Deposit		b) Banks, Corporates, MFs

FOREIGN INVESTMENT INFLOWS

Total Foreign investment (Rs. billion)



Source: World Bank: The East Asian Miracle

The debt market has not really developed due to several policy constraints which, in turn, discouraged growth of the required market infrastructure. A few of these policy constraints have been removed but a lot remains to be done. It will take quite some time to build proper infrastructure which can support the debt market. The formalising of the debt market will also make it possible to expand the participant base by bringing in more large players like money market mutual funds, FIs, large corporates along with retail investors.

In terms of size, the equity and the bond markets give a deceptive perception of breadth and depth (Table 4.6). Financial sector reform since 1992 has spurred the dull equity market and created conducive conditions for activating an otherwise dormant bond market. However, liquidity continues to be limited, particularly in the bond market. It is against this backdrop that the future role of the capital market in funding massive infrastructure investments needs to be viewed.

Given the large size of the country and the many potential infrastructure entities, the Indian bond market has the potential of being among the larger bond markets in the world. Debt issuers are many. The Central government and State Governments are already active mobilisers of debt resources. In the future, if the bond market develops, other public sector entities such as urban development authorities, municipal corporations, and state government infrastructure corporations would be active bond issuers as well. In addition, with the entry of the private sector into infrastructure, new entities such as telecom companies, independent power producers, industrial park developers, road developers and the like will come into being and are potential bond issuers. Thus within a short period of time, there will be literally hundreds of potential bond issuers. Whereas many of these entities would need credit enhancement to be able to enter the market to begin with, it is expected that banks and financial intermediaries would be the most active partici-

Further, being a market of a limited number of large investors, the debt market began as a telephone market and had remained so till recently with settlement done physically, directly between the participants. The telephone trades had some major lacunae associated with them in that there was no single system/agency from which information on all trades could be obtained. Moreover, it did not protect the identity of the counterparties, and investors could never be sure whether they got the best price in the market. Many of these lacunae spurred the need for setting up the NSE system in June 1994 which is the first formal debt trading system in the country.

No.	Item	1985-86	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95
1.	Stock Market Capitalisation	222	554	1,103	3,541	1,771	3,984	4,688
2.	Bank Deposits	845	1,670	1,925	2,308	2,686	3,151	3,869
3.	Outstanding Bonds	643	1,392	1,590	1,825	1,978	2,357	2,614
4.	GDP (at current prices)	2,338	4,058	4,727	5,516	6,279	7,090	9,456
5.	1 as per cent of 4	8.9	13.7	23.3	64.1	28.2	56.1	49.6
6.	2 as per cent of 4	36.5	41.1	40.7	41.8	41.8	44.5	40.9
7.	3 as per cent of 4	27.5	34.3	33.6	33.1	31.5	33.2	27.6

Source: The Indian Bond Market, June 1995

pants in the early stages of the bond market.

Because of the absence of a secondary market, the retail segment is largely absent in the Indian debt market. Among institutional suppliers, the pattern in most debt markets is that it is the insurance companies, pension funds, provident funds and mutual funds who are the key suppliers. For a market to operate, there must be an adequate number of players to ensure anonymity and to inject into it enough diversity of opinion. In India, because of the nationalisation of banks, financial institutions, insurance, and pension and provident funds, these conditions do not exist at present, although some movement has taken place in the last five years. Thus, for the debt market infrastructure to develop, it is imperative that many new entities in each of these categories be allowed to develop and grow. For the infrastructure sector, where debt maturities have to be long, it is the life insurance funds, and provident and pension funds that would be the most important.

Infrastructure Investment And Financing

The Future Macro-economic Framework: Between 1995-96 and 2005-06, real GDP growth is projected to rise monotonically—from around 6.2 per cent in 1995-96 to over 8 per cent in the terminal year. This growth in GDP would be supported by an investment rate which is expected to rise from the current level of 25 per cent to over 31 per cent at the end of the ten-year period in 2005-06. The growing investment would continue to be funded predominantly out of domestic savings. The domestic savings rate (GDS/GDP), is envisaged to increase from 24.5 per cent in 1995-96 to 28.5 per cent in 2005-06—the step-up being predicated on a significant expansion in public sector savings. The increased public savings are projected to arise out of an improvement in efficiency, a move towards market-based pricing of public sector services—especially infrastructure services—and progressively increasing commercial orientation of public sector enterprises. Improvements in the functioning of

The Age of the Bond

THE 1980s were the age of equities in Asia. The 1990s will be the decade of the bond. Enthusiasm about the prospects for fixed-income securities in Asia is widespread. In 1991, Asian issuers outside Japan raised \$2.7 billion on the international bond markets. In 1993, that figure leapt to \$13 billion—over twice the \$5.2 billion that Asian companies raised through share offerings. If convertible bonds, which can be turned into shares, are included, a further \$7 billion is added to the total issued on the international markets in 1993. The potential of the Asian bond market has moved Moody's, the American credit-rating agency, to open an Asia-Pacific office in Hong Kong in June, 1994. By the end of third quarter in 1994, despite the global slump in bond prices, Asian issuers had raised \$10 billion worth of international bonds. The comparative balance between the debt and equity markets in Asia and the US is a strong indicator of the scope for more development of the bond market in Asia. In America, 45 per cent of the companies' funds are raised through the corporate bond market;

in developing Asia, the figure is less than 1 per cent.

Asian issuers should now be in a much stronger position than ever before to raise debt. Countries like Thailand, Malaysia, Singapore and South Korea have been growing at over 7 per cent a year for over 20 years. The region has an established record of low inflation, giving it an edge over Eastern Europe and Latin America. The sovereign debts of Malaysia, Thailand, South Korea, Singapore, Taiwan and even China are all rated investment grade by credit rating agencies. Gaining the confidence of the bond markets is important because Asian countries have an increasing need for long-term capital. Although both bank and equity finance will have to play a role in financing infrastructure development, bond markets—which specialise in the long-term maturities required by infrastructure projects—should eventually bear more of the strain.

Still, the Asian bond has some way to go to match its equity counterpart. Whereas Asian issuers have learnt to tap international bond markets, in most countries, domestic bond markets

the capital market will provide better savings instruments to savers. This is expected to contribute to more efficient financial intermediation and hence a rise in the propensity to save.

As in the past, the household sector would continue to provide the bulk of domestic savings, but this would be augmented substantially by the private corporate and the public sectors. As the process of economic liberalisation goes forward, and the Indian economy gets aligned globally, opportunities for foreign investments in India would expand. This would get reflected in the share of foreign savings funding domestic investments—which is expected to double from 1.5 per cent in 1995-96 to 3 per cent in 2005-06.

Within the broad framework outlined above, the private sector is expected to play an increasingly larger role in fostering economic development. The share of the private sector in aggregate domestic investment is expected to rise from a little over 60 per cent in 1995-96 to nearly 70 per cent by 2005-06. The increased involvement of the private sector would be in both infrastructure as well as non-infrastructure sectors.

The Public-Private Divide

The Public Sector: Although the role of the public sector in infrastructure would diminish, with the gradual entry of the private sector initially into areas such as power, telecom and subsequently into roads, railways, ports and urban infrastructure, the public sector would still account for over 50 per cent of the total investment in infrastructure by the end of 2005-06.

In absolute terms, annual public sector investment in infrastructure is slated to rise from Rs 477 billion in 1995-96 to about Rs 690 billion in 2000-01 and Rs 1,000 billion in 2005-06 (Table 4.8). In the past, these investments were funded through budgetary support, internal and extra-budgetary resources (IEBR) of public enterprises and project-specific for-

ign aid. Given the government's commitment to reduce/phase out budgetary support to such investment, we expect that budgetary support will be used to fill the funding gap. The other sources of funds, and the proportions in which they would finance the investments over the 10-year period have been assumed as under:

Source	Per cent of Investment
Internal generation	Assumed to rise from 40 per cent to 50 per cent
Market Borrowing FIs and Banks	Assumed constant at 20 per cent Assumed to decline from 10 per cent to about 7.5 per cent
Foreign Savings	Proportion which public sector investment in infrastructure bears to total investment as applied to aggregate foreign savings inflow.

The result of these assumptions is that the budgetary support can be projected to remain roughly constant in real terms (at 1995-96 prices) at the current level of just over Rs 100 billion throughout the next 10 years. As has been argued in Chapters II and III, commercialisation of infrastructure and entry of the private sector cannot take place unless the performance of public sector enterprises improves progressively. Internal generation from public enterprises is therefore projected to rise from the current approximately Rs 200 billion, to about Rs 300 billion in 2000-01, and Rs 500 billion in 2005-06. Thus, the financing of public sector investment in infrastructure from internal generation of funds is projected to increase from the current level of about 40 per cent to about 45 per cent in 2000-01 and 50 per cent by 2005-06. Direct market borrow-

are underdeveloped. Trading in Asian bonds is still done in Western Europe. Even in the international bond markets, the profile of the Asian issuers is heavily skewed towards governments and large issuers. None of the \$2.2 billion Chinese dollar-denominated bonds issued in the Euromarket since 1993 has been corporate debt. It is also not certain that economic development will necessarily lead to the development of a corporate bond market. The case in point is Japan. Japanese banks have retained a lock on corporate lending. Japanese companies raise only 4 per cent of their funds through the bond markets. There is also a traditional bias against debt.

Many buyers of Asian debt are dissatisfied with the operation of the market. The critics argue that although investment banks are keen to underwrite new issues, they are less interested in making a secondary market in Asian bonds. It is also feared that the investment bankers are offering unrealistically favourable terms to the issuers. This may allow them to raise cheap money in the short run, but it carries the risk of being shunned by the investors and tarnishing the good name of the issuer.

The problems can be tackled by a more accommodating

regulatory environment. Asian governments are conscious of the need to promote bond markets just as they promoted stockmarkets in 1980s. In the past three years, Thailand, Malaysia, Indonesia and India have all set up domestic bond rating agencies and passed laws insisting that the companies must have credit ratings if they want to sell debt.

Governments are realising that the domestic bond markets in Asia cannot grow if they are treated as a means of generating forced savings. A number of governments made purchase of their securities compulsory for banks and other financial institutions, often at below market rates. The Chinese extended forced purchase even to individuals. Active primary and secondary markets in government and corporate bonds are more likely to succeed when governments allow the market to determine the value of their debt. Since 1993, the price of Indian government bonds has been determined through open-market auctions. Other governments are likely to follow this example.

Source: *The Economist*, November 12, 1994.

THE INDIAN DEBT MARKET: A PROFILE

(RS. BILLION)

As on March 31	1971	1976	1981	1986	1989	1990	1991	1992	1993	1994	1995
<i>Types of Fixed Income Securities:</i>	5	5	5	6	8	8	8	8	8	8	8
Bond Market Instruments											
Central Government Bonds	44	71	157	353	552	625	697	777	852	1,132	1,305
State Government Bonds	12	21	30	61	107	129	155	190	225	261	305
Government-guaranteed Bonds	25	42	60	125	205	238	274	312	341	364	372
PSU Bonds	0	0	0	4	72	110	164	216	230	270	332
Corporate Bonds	n.a.	n.a.	20	100	280	290	300	330	330	330	300
Total Bonds O/S = A	81	134	266	643	1,216	1,392	1,590	1,825	1,978	2,357	2,614
Money Market Instruments											
Treasury Bills	25	58	129	260	143	252	70	88	193	267	256
Per cent held by RBI	n.a.	n.a.	n.a.	n.a.	86	94	72	70	87	n.a.	n.a.
Certificate of Deposit (CD)	0	0	0	0			48	70	117	59	35
Commercial Paper (CP)	0	0	0	0				2	15	33	30
Money Mkt. Debt O/S = B	25	58	129	260	143	252	118	160	325	359	321
Debt securities O/S (Total = A+B)	106	192	395	903	1,359	1,644	1,708	1,986	2,303	2,717	2,935

RESOURCE REQUIREMENTS FOR INFRASTRUCTURE

(RS. BILLION)

Item	1990-91	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Gross Domestic Investment	1448.5	1733.3	2384.1	2826	3089	3389	3697	4076	4512	4929	5414	5939	6524	7178
of which														
Z Total Investment in Infrastructure	287.4	452.2	494.1	598	674	757	851	955	1075	1191	1322	1470	1636	1823
X —Private Sector	70.1	105.3	107.0	121	164	212	265	316	382	442	517	598	700	805
Y —Public Sector	217.3	346.9	387.1	477	510	545	586	639	693	749	805	871	936	1018
P Public Sector Invt. Funded by														
P1 —Budget Support(Y-P2-P3-P4-P5)	18.6	97.9	97.9	107	112	115	108	106	106	104	107	115	107	114
of which														
P1.1 —From Capital Market (=70 %P1)	13.0	68.5	68.5	75	78	80	76	74	74	73	75	80	75	80
P2 —Internal generation	86.9	138.8	154.8	191	204	218	246	281	312	352	386	418	468	509
P3 —Foreign Savings	46.6	6.2	18.2	36	41	49	59	66	74	80	86	94	104	115
P4 —Market Borrowings	43.5	69.4	77.4	95	102	109	117	128	139	150	161	174	187	204
P5 —Fls/Banks	21.7	34.7	38.7	48	51	55	56	57	62	64	64	70	70	76
R Private Sector Invt. Funded by														
%Retained Earnings of Pvt. Sector deployed in Infra (Assumed)				2%	5%	7%	10%	12%	14%	16%	18%	19%	20%	20%
R1 Retained Earnings of Pvt. Sector Invested in Infrastructure				10	27	43	66	89	114	143	177	206	239	264
R2 Forex Savings	15.0	1.9	5.0	9	13	19	26	33	41	47	55	65	78	91
R3 Funding of Pvt. sector thru' intermediation and Cap. Mkt.(X-R1-R2) of which	55.1	103.4	102.0	102	123	150	172	195	227	252	285	328	383	450
Pvt. Sector—Loans from Fls + Banks (Assumed)				20%	22%	24%	26%	27%	28%	29%	30%	29%	27%	26%
R4 Fl + Bank Support to Pvt. Sector Infrastructure Projs.				24	36	51	69	85	107	128	155	174	189	209
R5 Bal. from Cap. Mkt.(for Pvt. Sector)=R3-R4				78	87	100	103	109	120	124	130	154	194	241
R6 Tot. Resources from K-Mkt.(for Pub.&Pvt. Secs for Infra.)=P4+R5+P1.1				248	267	289	296	311	333	346	366	409	456	524
K0 Fl+Bank Support to Infra.(P5+R4)				72	87	105	125	143	169	192	220	243	259	286
of which														
K1 Internal Generation (30 per cent of Disbs.)				22	26	32	37	43	51	58	66	73	78	86
K2 Borr. by Fls from K-Mkt.(70 per cent of Disbs.)				50	61	74	87	100	118	134	154	170	181	200
K3 Tot. Resources from K-Mkt. (for Pub.&Pvt. Secs for Infra. + Fls)=R6+K2				298	328	363	383	411	451	481	520	579	638	724

ings by public sector entities being kept at about 20 per cent of total requirements, rise from about Rs 100 billion now to Rs 138 billion in 2000-01 and Rs 200 billion in 2005-06. Support from banks and financial institutions is slated to decline from the current 10 per cent to 9 per cent in 2000-01. This is consistent with the idea that the bond market will become more active. Foreign financing for public sector infrastructure projects is expected to increase from the current about Rs 40 billion (US\$1.2 billion) to about Rs 75 billion (US\$2.2 billion) by 2000-01 and Rs 115 billion (US\$3.3 billion) by 2005-06. As a share of total public sector infrastructure investment, the share of foreign financing ranges between 8 and 12 per cent through the period. Consequently, the key to public sector investments on infrastructure is a continuing substantial improvement in internal savings. If that does not take place, their ability to tap capital markets for resource raising will itself be impaired.

The Private Sector: The share of the private sector in infrastructure investment has been projected to rise from the current 1 per cent of GDP to about 2.5 per cent of GDP by 2000-01 and 3.5 per cent by 2005-06. This means that in absolute terms this investment will have to rise from about Rs 120 billion in 1995-96 to Rs 380 billion in 2000-01 and Rs 800 billion by 2005-06. In order to assess the financing pattern of private sector investments in infrastructure, reference was made to the company finance studies prepared by ICICI, IDBI and CMIE. The broad pattern discernible from these studies was that established companies, with a reasonably good track record, had shifted away from external sources of funds towards internal sources—particularly since 1993-94. Further, the extent of reliance on funds from banks and financial institutions by well-established companies has fallen, with their share in gross capital formation declining to a low of 5 per cent in 1993-94. However, this would not hold true for greenfield projects or for recently established companies. On the basis of these studies, we have assumed that retained earnings would fund a progressively larger proportion of capital formation in the private corporate sector. To begin with, in 1995-96, 2 per cent of the retained earnings of the private corporate sector would be reinvested in infrastructure projects. By 2000-01, this would rise to just under 15 per cent, and then stabilise at about 20 per cent by 2004-05. Retained earnings financing private sector infrastructure would then rise from the current Rs 10 billion or so to over Rs 110 billion in 2000-01 and Rs 265 billion in 2005-06. Funding support from banks and FIs is assumed to rise from 20 per cent in 1995-96 to 28 per cent in 2000-01 and then taper off from 30 per cent in 2002-03 onwards to reach a level of 26 per cent by 2005-06. It must be borne in mind that industry exposure norms will constrain banks and FIs from over-extending themselves in the infrastructure sector. Based on a trend rate of growth of 15 per cent (actual growth between 1987-88 and 1994-95 was about 30 per cent for the all-India financial institutions or AIFIs), total disbursements of the AIFIs in 2005-06

would aggregate about Rs 1,160 billion. Thus the total assistance to the infrastructure sector from banks and FIs would rise from the current Rs 25 billion to about Rs 100 billion in 2000-01 and Rs 200 billion by 2005-06. Retained forex savings going into private sector infrastructure have been assumed to bear the same proportion which private investment in infrastructure bears to total investment in the economy. External financing of private sector infrastructure would then rise from the current Rs 10 billion (US\$300 million) or so to about Rs 40 billion (US\$1.2 billion) in 2000-01 and Rs 90-100 billion by 2005-06 (US\$3 billion). These volumes look like relatively modest numbers but, together with the external capital inflow into public sector projects, is consistent with total expected net external capital inflows. As a share of private sector investment in infrastructure investment, net external capital inflows cannot be expected to finance much more than 10-12 per cent of the requirements. The balance investment would have to be funded from the domestic capital markets—equity and debt.

On the basis of these assumptions, the direct draft of the private sector on the capital market for infrastructure financing would rise to about Rs 120 billion by 2000-01 and Rs 240 billion in 2005-06.

Private sector entry into infrastructure in a big way will be possible initially only by financial support from the banks and the FIs, who have so far provided assistance by way of underwriting of equity and debenture issues, loan finance and also guarantees in respect of foreign currency loans obtained from international banks. However, to meet the requirements of infrastructure projects, FIs would also need to approach the primary market to augment their pool of loanable long-term resources. Assuming that 70 per cent of the aggregate disbursements during any given year would be funded out of additional borrowing (both debt and equity), FIs would need to mobilise about Rs 100 billion by 1999-2000 and nearly Rs 200 billion by 2005-06 in the capital market.

In order to estimate the total demand for funds to be raised from the capital market, it is also necessary to account for the direct market borrowing of the public sector along with the borrowings of the Government itself which go into budgetary support. It has been assumed that 70 per cent of budgetary support would be financed by government borrowing. On this basis, the total funding requirements for infrastructure to be financed from the domestic Indian capital market are seen to rise from the current Rs 250 billion to about Rs 410 billion by 2000-01 and Rs 720 billion by 2005-06. This volume of resource mobilisation amounts to just about 40 per cent of total infrastructure investment requirements. It should be noted that this estimate is based on rather optimistic assumptions about internal generation of funds in both the public and private sectors. Thus this projection for capital market requirements should be regarded as the minimum trajectory expected. To obtain an understanding of the full dimension of capital market development that is required over the next 10 years, we place in perspective the resource requirements of the infra-

As a share of private sector infrastructure investment, net external capital inflows cannot be expected to be more than 10-12 per cent.

structure sector within the full resource requirements of capital formation in the country as a whole.

Gross Capital Formation and its Financing: Akin to the exercise carried out in the previous section, we have attempted to estimate the resources required from the capital market for funding non-infrastructure investments in the economy (Table 4.9). When juxtaposed with the estimates obtained earlier for infrastructure investments, we get a rough idea of the magnitude of aggregate domestic capital market funding of gross capital formation in the economy (Table 4.10). For funding of public sector investments in non-infrastructure sectors, we have used the same assumptions as mentioned in the previous section. As regards private sector investments (excluding household sector investments in physical assets), we have looked at a recent World Bank study (The Emerging East Asian Bond Market, June 1995), which estimates capital market funding of private sector investment in East Asian economies. In East Asia, companies typically fund about 40 per cent of investment from internal sources, and balance 60 per cent from external sources, including foreign savings of about 1 per cent. By the end of the century, these proportions are expected to change to about 35 per cent and 65 per cent respectively and further to 30 per cent and 70 per cent by 2005. Foreign savings which finance about 1 per cent of capital formation currently are expected to rise to 3 per cent by 2000 AD and 4 per cent by 2005. The modest rise in foreign savings is mainly because these countries have already attracted large volumes of foreign investment in recent years and most well-established companies have already reached their foreign ownership limits. Within external sources of funds, capital market funding is projected to rise from 19 per cent of capital formation to over 27 per cent by 2000 AD and further to over 35 per cent by 2005. In India, corporate sector data reveals that, in recent years, high and rising corporate profitability has enabled companies to increasingly fund capital formation through reinvestment of earnings and depreciation provisions. In 1994-95, internal sources funded 34 per cent of capital formation for a sample of over 4,000 public and private sector companies. The broad pattern of corporate sector financing which emerges over the last 10 years is that 30 per cent of funds were raised internally while 70 per cent were from external sources. However, the structure of external sources has undergone a change in recent years with a larger reliance on the capital market combined with a sharp decline in resources raised from FIs and banks. The process of disintermediation has been spurred by deregulation of capital market debt instruments and free pricing of equity capital—the latter getting reflected in the increased issuance of fresh capital, particularly by private sector companies.

In the backdrop of these developments in corporate finance, we have attempted to estimate the resource support which the capital market would provide non-infrastructure investments. As regards public sector investments in non-

infrastructure industries, the funding pattern has been assumed to be the same as for infrastructure investments. For deriving the funding pattern for private sector investments, we have used the World Bank study referred to earlier but have also made some assumptions which closely approximate current funding practices of institutional lenders. Foreign savings invested in non-infrastructure private sector industries have been derived as a residual after apportionment to public sector investment as well as private sector infrastructure investment. The balance non-infrastructure investment in the private sector would have to be funded from domestic resources. Private corporate savings getting reinvested in non-infrastructure industries have also been derived as a residual after taking into account investment of these savings in infrastructure industries. Based on data used in the World Bank study, we have assumed that fresh issuance of equity capital would be to the extent of 10 per cent of capital formation and this ratio would remain constant at this level during the 10-year period under review. Ploughback of profits and fresh equity

issuance would provide the domestic equity component of the funding process. The balance of domestic resources would be in the form of debt funding to be raised, one, directly from the capital market and, two, from intermediaries such as banks and financial institutions. As an active and liquid market for corporate debt emerges, we expect companies to mobilise increasing amounts directly from the capital market in the form of bonds and other securitised debt instruments. Based on this expectation, we have assumed that capital market debt would rise from 9 per cent of capital formation in 1995-96 to 15 per cent by 2000-01 and further to 20 per cent in 2005-06—an assumption which is in line with that made by the World Bank in the aforementioned study for East Asian countries. The balance of debt funding would come from commercial banks and financial institutions. A part of the funding which

Private sector investment in infrastructure will have to rise from Rs 120 billion now to Rs 380 billion in 2000-01 and Rs 800 billion in 2005-06.

financial intermediaries would provide would undoubtedly be raised from the capital market itself—we have therefore assumed that such mobilisation would be at 70 per cent of the disbursements made during the year.

On the basis of these assumptions, we have estimated aggregate capital market support to non-infrastructure investments would rise from about Rs 530 billion in 1995-96 to about Rs 1,000 billion by 2000-01 and to Rs 2,500 billion in 2005-06 (Table 4.9). The aggregate picture for infrastructure and non-infrastructure investments and the pattern of funding is presented in Table 4.10. Four broad conclusions emerge from the data contained in the table. Between 1995-96 and 2005-06,

■ Internal generation will fund a marginally lower proportion of gross capital formation in the economy, about 45 per cent in 1995-96 declining to 42 per cent in 2000-01 and to 40 per cent in 2005-06.

■ Among other domestic sources, loans from FIs will initially rise sharply—from 13.7 per cent of gross domestic capital formation (GDCF) in 1995-96 to 17.3 per cent in 2000-01 and

NON-INFRASTRUCTURE RESOURCE REQUIREMENTS

(RS. BILLION)

Item	1990-91	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Z GDI in Non-Infra. (excl. H/h sector) of which	562	751	1156	1467	1637	1837	2021	2251	2517	2795	3127	3464	3818	4216
X Private Corporate Sector	258	410	711	857	986	1141	1277	1475	1674	1890	2145	2401	2656	2955
Y Public Sector	304	341	445	610	651	696	744	777	843	905	982	1063	1161	1261
P1 Public Sector Funding out of —Budget Support(Y-P2-P3-P4-P5) of which	26	96	113	137	142	147	138	129	129	126	131	140	132	141
P1.1 —From Capital Market (=70 % of P1)	18	67	79	96	100	103	96	91	90	88	92	98	93	99
P2 —Internal generation	122	136	178	244	261	278	312	342	379	425	471	510	581	630
P3 —Foreign Savings	65	6	21	46	53	62	74	80	90	96	105	115	129	143
P4 —Market Borrowings	61	68	89	122	130	139	149	155	169	181	196	213	232	252
P5 —Fls/Banks	30	34	45	61	65	70	71	70	76	77	79	85	87	95
R1 Private Sector Funding out of Internal Generation	149	277	360	479	519	566	598	652	700	750	806	877	957	1057
R2 Foreign Savings	55	7	33	65	80	102	128	153	179	201	229	260	295	334
—Foreign debt	36	5	22	42	52	66	83	99	116	131	149	169	192	217
—Foreign equity	19	3	12	23	28	36	45	53	63	70	80	91	103	117
R3 Funding of Pvt. sector thru' intermediation and Cap. Mkt.(X-R1-R2)	53	126	318	312	387	473	551	670	796	939	1110	1264	1405	1564
R4 Bank + FI Support to Non-Infra.	4	48	183	149	190	233	270	316	377	448	531	591	635	677
R5 Bal. from K-Mkt Directly = R3-R4	49	78	135	163	197	240	281	354	419	491	579	672	770	886
R6 Tot. Resources from K-Mkt. (for Pub. & Pvt. Secs for Non-Infra)=P4+R5+P1.1	128	213	303	380	427	481	526	600	677	760	867	983	1095	1237
K0 FI+Bank Support to Non-Infra.(P5+R4) of which	35	82	227	210	255	303	341	386	453	524	610	676	722	772
K1 Internal Generation (=30 % of Disbs)	10	25	68	63	77	91	102	116	136	157	183	203	217	232
K2 Support from K-Mkt (=70 % of Disbs.)	24	58	159	147	179	212	239	270	317	367	427	473	505	540
K3 Tot. Resources from K-Mkt.(for Pub. & Pvt. Secs for Infra. + Fls.)=R6+K2	152	271	462	528	606	694	765	870	994	1127	1294	1456	1601	1778

GROSS CAPITAL FORMATION

Item	1995-96				2000-01				2005-06			
	Infra	Non-Infra	Total	As % of GCF	Infra	Non-Infra	Total	As % of GCF	Infra	Non-Infra	Total	As % of GCF
Gross Capital Formation	598	1467	2065	100.0 %	1075	2517	3591	100.0 %	1823	4216	6038	100.0 %
Funded by												
Internal Generation	200	723	924	44.7 %	426	1079	1504	41.9 %	773	1688	2461	40.7 %
External Sources	397	744	1141	55.3 %	649	1438	2087	58.1 %	1050	2528	3578	59.3 %
- Budgetary Support	107	137	243	11.8 %	106	129	235	6.5 %	114	141	255	4.2 %
of which												
—from Capital Market	75	96	170	8.2 %	74	90	164	4.6 %	80	99	179	3.0 %
- Capital Market	173	285	458	22.2 %	259	587	846	23.6 %	444	1139	1583	26.2 %
- Loans from FIs	72	210	282	13.7 %	169	453	622	17.3 %	286	772	1058	17.5 %
of which												
from Capital Market	50	147	198	9.6 %	118	317	435	12.1 %	200	540	740	12.3 %
- Foreign savings	46	112	157	7.6 %	115	269	384	10.7 %	206	477	683	11.3 %
Gross Mobilisation from Capital Market	298	528	826	40.0 %	451	994	1446	40.3 %	724	1778	2501	41.4 %
—Direct Capital Mkt.	173	285	458	22.2 %	259	587	846	23.6 %	444	1139	1583	26.2 %
—FIs and Government from Capital Market	125	243	368	17.8 %	193	407	600	16.7 %	280	639	919	15.2 %

thereafter remain almost unchanged at 17.5 per cent in 2005-06. The implications of this are that even as FIs experience disintermediation in non-infrastructure industries, they will necessarily have to fund infrastructure investments in the initial years, and thereafter as capital markets mature, FIs will play a secondary role in funding capital formation.

■ The domestic capital market will emerge as the single most important source of funds for the corporate sector and the government—directly funding over 25 per cent of capital formation in the economy in 2005-06 as against 22 per cent currently and 24 per cent in 2000-01. Indirect funding through intermediaries would add another 15 per cent to the resources mobilised from the capital market.

■ Foreign savings would supplement resources raised from the domestic market in funding capital formation. The share of foreign savings in GCF would rise from 7.6 per cent now to over 11 per cent by the end of 2005-06.

In absolute numbers, this means that total resources (both public and private, and infrastructure and non-infrastructure) being raised in the domestic capital market would

The domestic capital market will directly fund over 25 per cent capital formation in the economy in 2005-06 as against 22 per cent currently.

have to rise from the current Rs 800 billion to about Rs 1,400 billion by 2000-01 and Rs 2,500 billion in 2005-06. For the private sector alone, it means an increase from the current Rs 350 billion to about Rs 850 billion in 2000-01 and Rs 1,750 billion by 2005-06. Over the next 10 years, private sector requirements of funds from the domestic capital market will therefore increase fivefold in real terms.

These data should only be seen to be indicative of the orders of magnitudes involved. A large number of assumptions have been made in deriving the magnitudes arrived at. Nonetheless, it is clear that the competition for funds will be fierce. With all the attendant problems surrounding infrastructure projects, the job of raising the magnitude of funds indicated would be extremely difficult. It is in this context that we have to view the capital market reforms proposed in this report

along with some of the fiscal suggestions put forward.

We have not been able to make adequate estimates of the debt and equity portion of the funds required. However, as indicated earlier, debt requirements for infrastructure are very substantial and therefore development of the debt market is of particular significance.

4

2

Securitisation and Credit Enhancement: IFC Taps the Asset-Backed Securities Market

TO securitise part of its mature loans portfolio, International Finance Corporation (IFC), the private sector lending arm of the World Bank, along with CS First Boston, launched, on June 23rd, 1995, a \$400 million offering of asset-backed bonds. The bonds were secured on stakes in 73 loans granted by the IFC to private companies in 11 countries. The offering, filed with the US Securities and Exchange Commission (SEC), marked the first time that a pool of loans made to companies in developing countries was securitised and sold through a public offering on global asset-backed security (ABS) markets. Some \$340 million of senior notes rated Aa2 by Moody's Investors Services and AA by Duff & Phelps, were sold through a global offering. Credit enhancement was provided by a privately placed \$40 million F tranche, rated Baa3 by Moody's.

A final line of protection was provided by a \$20 million C tranche, retained by the IFC, plus a \$20 million cash liquidity facility. The liquidity account was to collect all excess cash including the principal and interest from the retained notes until reaching 10 per cent of the outstanding A and B receivables at the end of the second year. At that time, the facility was to amortise pro rata for the remain-

der of the deal. Tranche A, priced at 40 basis points over US dollar six-month Libor, was placed publicly on the New York Stock Exchange. Tranche B was placed privately with relationship banks of the IFC and tranche C was held by the IFC on its own books.

Bond holders assume risk on two fronts—commercial and sovereign. Each of the 73 borrowers was given a shadow rating by the rating agencies which were combined into one aggregated rating. The risk of commercial default was negligible as the pool of borrowers was so diversified across country and sector. No borrower represented more than 2.5 per cent of the pool.

The issue set a precedent in the asset-backed market because it included sovereign risk in the form of currency transfer risk. There was no guarantee even if borrowing companies had the funds to meet debt-servicing commitments that their central banks would have the available foreign currency.

The rating agencies did not concentrate on individual sovereign risks but on groups of countries, analysing how their economies moved in tandem with one another. The agencies con-

Mobilising Debt and Equity Finance: Possible Sources of Funds

The Importance of Household Savings : A significant part of the increase in gross savings in the economy has come from the household sector, which continues to be a net saver. The sector today accounts for nearly 80 per cent of the aggregate national savings (Table 4.11). The increase in household sector savings has occurred notwithstanding high levels of personal taxation and moderate to high inflation. The share of public sector in national savings has been continually on the decline while that of the private corporate sector has nearly doubled over the past five years. However, the corporate sector continues to account for a small proportion of aggregate national savings. Although stepping up the magnitude and relative contribution of the public sector in gross domestic savings has been one of the stated objectives of every Five-Year Plan, it has never been achieved because many of the investments undertaken in the public sector in earlier Plan periods have not borne fruit at the time or on the scale that had been anticipated. Improving public sector savings appreciably is the most important issue which the monetary authorities and the Finance Ministry would have to contend with, to accommodate higher levels of private and public investment in the coming years.

According to the World Bank's study on the East Asian

cluded that the pool could withstand all of the Latin American borrowers not servicing debts for two years. Investors are also protected by the IFC's preferred creditor status. The average cost of default for IFC loans is 50 basis points a year. This compares well with bonds secured on credit card receivables which carry default costs of 4 per cent a year on average.

The pool was also structured to minimise concentration of risk at a national level, with Chile and Mexico ranking as the largest participating countries, both accounting for 15 per cent of the pool. Individual loans constitute a maximum exposure of 2.5 per cent and on average equaled 1.37 per cent of the pool. The pool was further diversified by industry with a maximum exposure of 10 per cent per sector. Moreover, exposure ceilings prohibited concentrations above 5 per cent per industry in any given country.

The deal was the culmination of a two-year securitisation effort which was to have been launched in November 1994, but was first delayed by the need to familiarise investors with a new form of asset-backed security and later by the devaluation of the Mexican peso.

The IFC now anticipates tapping cheaper funding in the ABS market. The corporation is securitising part of its mature loan portfolio with the aim of mobilising additional capital. The \$400 million was removed from the IFC's books, thus freeing up 18 per cent of this amount—representing the corporation's reserve requirement—to hold as reserves on new loans.

Source: *Project and Trade Finance*, August 1995

Miracle, India's private savings (households and private corporate sector) is eminently comparable with that of Malaysia and other successful East Asian economies. However, the public sector savings performance has been much worse and has been deteriorating. From around 3 per cent of GDP in the mid-eighties, it has declined continually and was close to 1.70 per cent by 1994-95. (Table 4.12)

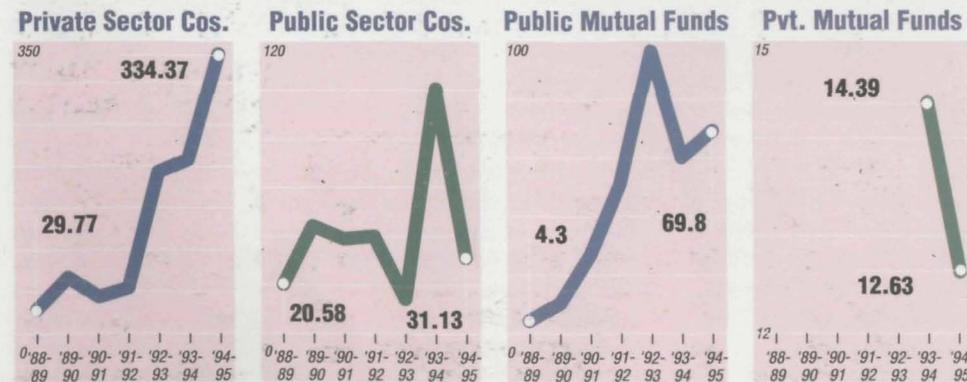
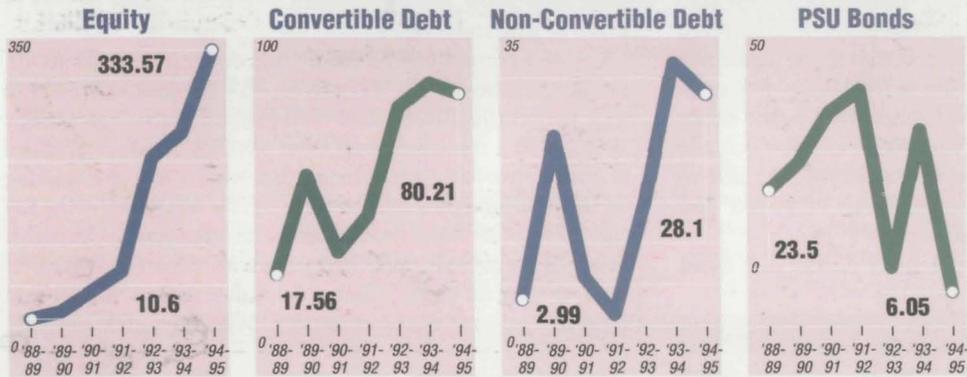
The increase in the household sector savings has been accompanied by a marked change in its composition (Table 4.13). Household savings in financial assets, which was only Rs 86 billion in 1980-81 rose impressively to Rs 464 billion by 1990-91 and further to Rs 811 billion by 1993-94. The financial savings of the sector are invested in the form of bank deposits, life insurance, provident and pension funds, small savings, corporate equities and debentures and mutual funds. Bank deposits, life insurance and mutual funds find their way to the corporate sector and government by way of loans or investments.

As a proportion of gross savings of the household sector, savings in financial assets rose from 39.4 per cent in 1980-81 to 43.2 per cent in 1990-91 and then jumped to 64.7 per cent by 1993-94. This transformation from physical to financial assets is quite remarkable considering that upto 1991, the banking sector and the capital market were tightly regulated by the RBI and had not developed sufficiently to offer a wide choice of financial assets to savers. It is only with the deregulation of interest rates on capital market debt instruments in 1991 and the free pricing of equity capital in 1992, that the capital market has been able to offer individual investors a wider range of debt and equity securities than hitherto. Another notable change in the composition of financial assets is the shift away from "contractual" savings towards "discretionary" savings. The share of contractual savings in the form of life insurance, provident and pension funds has declined sharply from an average of around 35 per cent in the 1980s to about 29 per cent by the end of 1993-94. Simultaneously, the share of discretionary savings (bank and other deposits, shares and debentures, mutual fund units etc.) have risen from 40 per cent to 50 per cent during the same period. Within discretionary savings, investments in shares, debentures and units of mutual funds have grown spectacularly from a meagre Rs 4.43 billion in 1980-81 to Rs 152.20 billion in 1993-94.

Thus, the 1980s and beyond have seen a structural change in the household sector savings preferences. The capital markets emerged as an important source of funds for the corporate sector, particularly after 1985, marking a shift away from institutional funding. It also marked the emergence of mutual funds as vehicles for investments of household sector savings in the capital market. However, in 1995-96, as the economy faced a serious liquidity crunch—arising out of vigorous industrial expansion and profligate government borrowing—the question emerges whether the existing level of savings would be adequate to sustain accelerating economic growth. The "high" rates of savings of the past, it would appear, were adequate to fund industrial growth through sub-optimal capacities and restrained domestic demand. As the household sector is the major contributor to savings, appropriate policy measures are necessary to encourage its savings intensity. Further, as the economy seeks to globalise through global-scale indus-

THE PRIMARY CAPITAL MARKET

(Rs. billion)

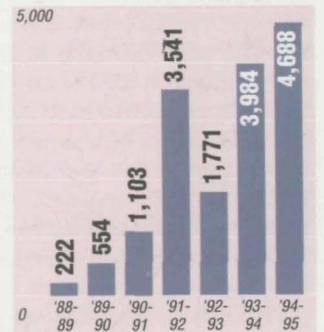


Source: CMIE-The Primary Capital Market-October 1995

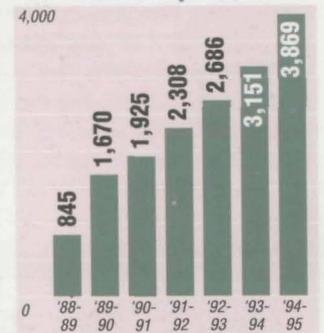
THE FINANCIAL SECTOR

(Rs. billion)

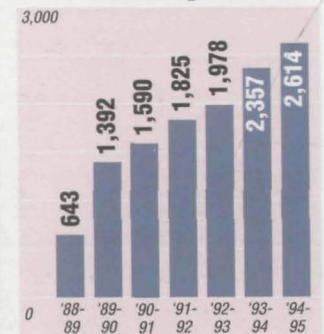
Stock Market Capitalisation



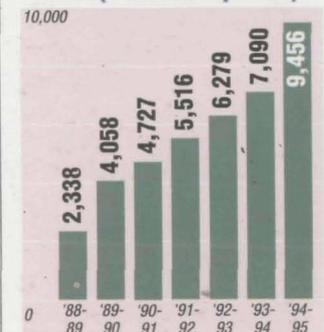
Bank Deposits



Outstanding Bonds



GDP (at current prices)

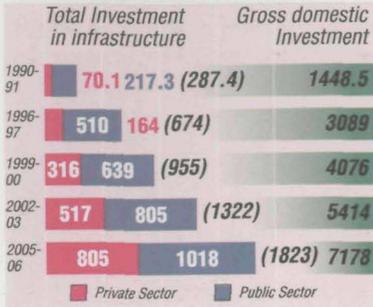


Source: The Indian Bond Market, June 1995

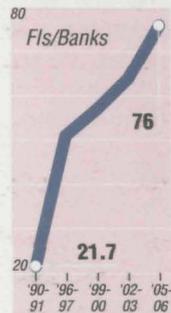
RESOURCES FOR INFRASTRUCTURE

(Rs.billion)

TOTAL INVESTMENT



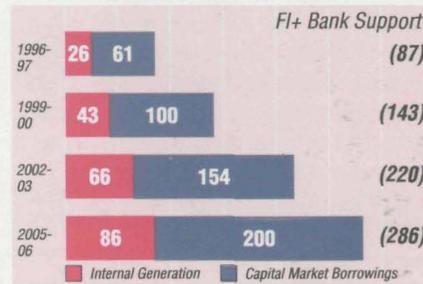
PUBLIC SECTOR FUNDING



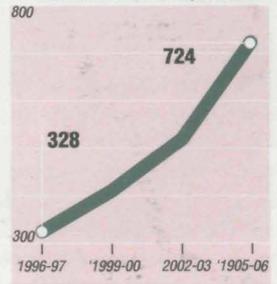
PRIVATE SECTOR FUNDING



FI AND BANK SUPPORT



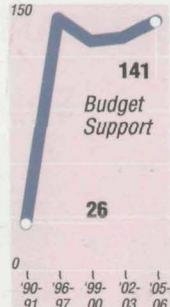
TOTAL CAPITAL MARKET RESOURCES REQUIRED



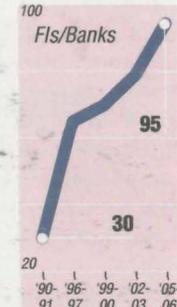
NON-INFRASTRUCTURE RESOURCE REQUIREMENTS

(Rs.billion)

TOTAL INVESTMENT



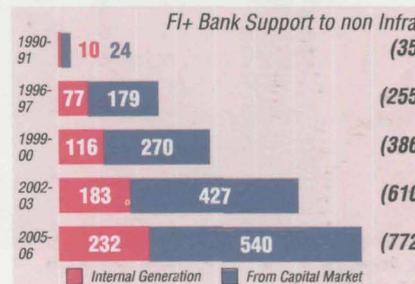
PUBLIC SECTOR FUNDING



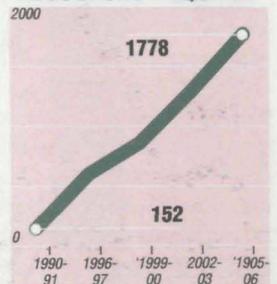
PRIVATE SECTOR FUNDING



FI AND BANK SUPPORT



TOTAL CAPITAL MARKET RESOURCES REQUIRED



trial capacities, and implement massive infrastructure investments, domestic savings per se would be inadequate for funding these investments and recourse to foreign savings would have to be taken to sustain domestic investment.

The possible fall in the share of contractual savings is of great significance for the infrastructure sector since it is these relatively long-term savings that would normally be the most important source of funds for debt instruments with longer term maturities. It is possible that if the reach of contractual savings instruments is widened to reach a far greater proportion of the people than at present, there could be a significant increase in the proportion of the savings going into these instruments. Unless an increase in savings rate, as was projected in Chapter II, occurs, it would not be possible to finance the capital formation requirements expected for rapid infrastructure and economic growth.

Domestic Institutional Sources of Funds: Hitherto, as the Government implemented and financed the bulk of infrastructure outlays, all the attendant project risks were also borne by the Government. Resource mobilisation—essentially domestic—was mainly through pre-emption of funds from banks and insurance companies backed by issue of dated securities. The resources thus raised were lent to the agencies implementing projects, either as equity contribution or as direct loans. For the banks and insurance companies, these investments formed part of the mandated investments in government securities. Foreign savings, mainly in the form of project-specific aid from bilateral/multilateral sources supplemented domestic resources. Thus, infrastructure financing was relatively simple and straightforward—but undoubtedly inefficient and lacking accountability.

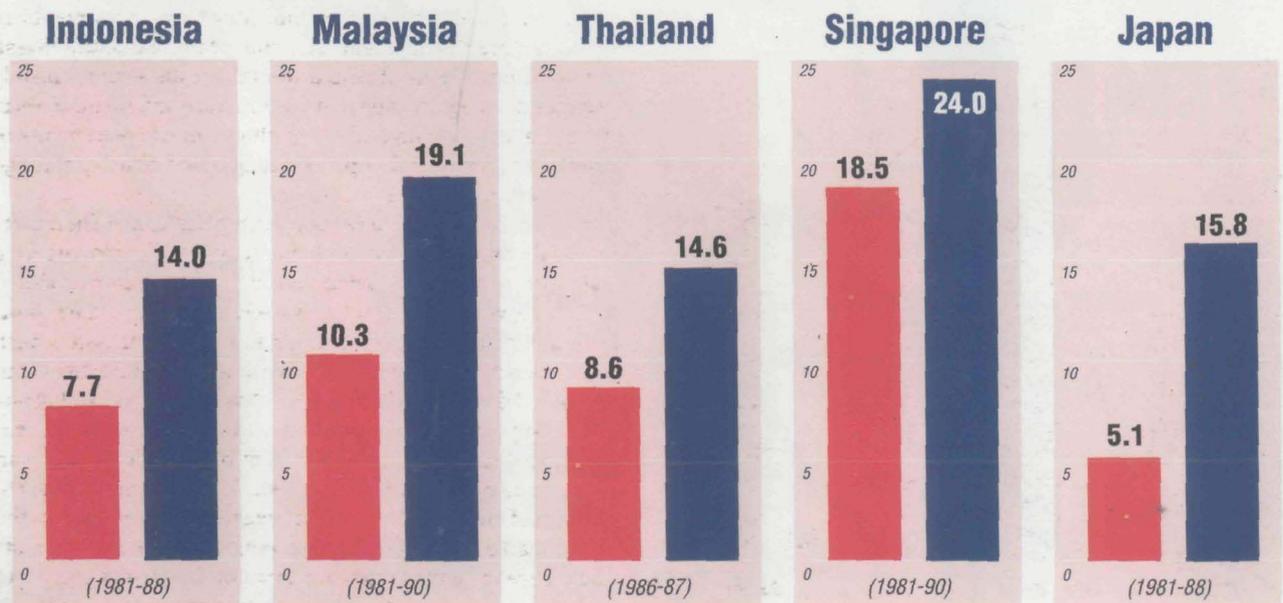
The pattern of financing witnessed in the past will undergo a change as the transition from 100 per cent State investment in infrastructure to increasing private/foreign participation occurs. While the reliance on domestic savings would continue as hitherto, these would need to be augmented by foreign savings—both in the form of equity as well as debt. The quantum of foreign savings would be governed by macro-economic considerations and other exogenous variables such as country rating, risk preferences of investors/lenders, extent of imported equipment in project costs, etc. However, in the ultimate analysis, commercial viability of the projects would determine the quantum and cost of funds which would become available—since capital servicing would be from project revenues and major part of the debt finance would be secured by the project assets or by adequate contingent support from project sponsors, i.e. non-recourse financing or at best limited recourse financing through suitable credit enhancements. Private investment and financing, while offering the benefit of additional funds, would also importantly encourage better risk sharing, accountability, monitoring and management in infrastructure provision. While in some sectors, the scope for private financing is enormous—e.g. power, telecom, civil aviation—in others such as ports, road development and urban infrastructure the opportunities are limited. The demand for funds would come from a wide spectrum of entities enjoying varying levels of creditworthiness. Principally the borrowers would include the Central and State Governments, development authorities, municipal corporations, private infrastructure corporations, existing corporate bodies in the public and private sectors.

The main advantage of the system of government funding of infrastructure development has been that the govern-

4

12

PUBLIC AND PRIVATE SAVINGS IN SOME ASIAN ECONOMIES



Source: World Bank: *The East Asian Miracle*

Item	1980-81	1990-91	1991-92	1992-93	1993-94(P)	1994-95(E)
A. Gross Domestic Savings	287.86 <i>21.2</i>	1,267.93 <i>23.7</i>	1,420.29 <i>23.1</i>	1,406.4 <i>20.0</i>	1,711.84 <i>21.4</i>	2,306.48 <i>24.4</i>
1. Households						
a) Savings	218.48	1,069.14	1,098.04	1089.4	1,391.46	1,786.96
b) Investment	132.38	605.38	478.2	539.91	530.15	733.94
(a) - (b)	86.1	463.76	619.84	549.47	861.31	1,053.02
2. Private Corporate Sector						
a) Savings	22.84	144.43	194.9	208.04	276.66	359.99
b) Investment	34.48	247.03	365.4	474.09	492.45	622.81
(a) - (b)	-11.64	-102.6	-170.5	-266.05	-215.79	-262.82
3. Public Sector						
a) Savings	46.54	54.36	127.35	108.93	43.72	159.86
b) Investment	117.67	521.5	565.04	623.56	687.49	832.45
(a) - (b)	-71.13	-467.14	-437.69	-514.63	-643.77	-672.59
B. Net foreign inflows	20.94 <i>1.5</i>	181.96 <i>3.4</i>	33.77 <i>0.5</i>	138.16 <i>2.0</i>	21.47 <i>0.2</i>	77.62 <i>0.8</i>
C. Gross Domestic Investment = (A+B)	308.8 <i>22.7</i>	1,449.89 <i>27.1</i>	1,454.06 <i>23.6</i>	1,544.5 <i>22.0</i>	1,710.09 <i>20.4</i>	2,189.2 <i>25.2</i>

Note : Figures in italics denote percentages of GDP at market prices during the year.

Source: CSO, National Accounts Statistics, 1995

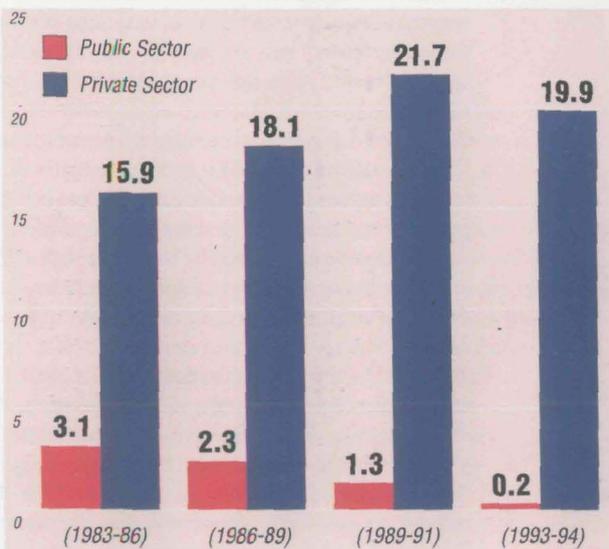
ment as the most creditworthy entity is able to raise funds at the lowest possible cost. This makes it possible to fund projects that might not be otherwise financially viable. However, empir-

ical evidence suggests that the benefit of lower funding costs has been frittered away by inefficient project implementation and lack of accountability in service provision, leading often to higher costs for the ultimate consumer. With the move away from public funding, infrastructure development would have to compete for resources with investments in other industrial, commercial and financial ventures. The challenge then would be to route the various sources of funds, either directly or indirectly via the capital market into long-term investments in infrastructure development. The bulk of infrastructure investments worldwide are financed from domestic savings, mainly using a mix of equity capital, project finance and financial securities (e.g. bonds, convertible securities, private placements of equity and debt, etc) that provide long-term financing through securitisation of future cash flows.

Data on household sector savings given earlier shows that financial savings of the household sector, which accounts for a major part of aggregate savings in the economy, gets distributed as deposits with commercial banks, towards life insurance, provident and pension funds, retention in the form of cash, investment in small savings with the Government, and investments in shares and debentures (including mutual fund units). In 1993-94 (the latest year for which such data is available), over 60 per cent of financial savings were in the form of bank deposits, insurance, provident and pension funds while 10 per cent was held in the form of currency. If resources have to be channelised via the capital market into infrastructure projects, deliberate attempts would have to be made to move a part of the savings going into bank deposits and small savings towards equity and bonds and channelise the insurance, provident/pension funds towards

(% of GDP)

India



Item	1980-81	1990-91	1991-92	1992-93	1993-94	1994-95(E)
Gross Savings of Households (A+B)	218.48	1069.14	1098.04	1089.38	1253.96	1786.96
(As per cent of GDS)	75.9	84.3	77.3	77.5	79.1	77.5
A. Physical Assets	132.38	605.38	478.2	539.91	442.7	733.94
B. Financial Assets	86.1	463.76	619.84	549.47	811.26	1053.02
of which						
(a) Currency	16.25	62.51	81.57	65.62	132.41	N. A
(b) Net Deposits	29.85	78.4	146.07	112.51	259.73	N. A
(c) Shares & Debentures	4.43	84.12	157.04	129.43	152.2	N. A
(d) Net Claims on Government.	5.76	73.6	44.57	33.44	35.16	N. A
(e) Insurance, Provident & Pension Funds	29.81	165.13	190.59	208.47	231.76	N. A

Source : CSO, National Account Statistics, 1995 for data up to 1993-94; CSO, Quick Estimates of National Income, 1994-95.

investments in long-term debt securities of infrastructure projects. Simultaneously, an effort will also have to be made to reduce the holding of currency from the current levels of around 10 per cent. A private estimate indicates that every percentage reduction in currency holding releases nearly Rs 10 billion for investment in other financial assets.

Equity Funding: The four principal sources of equity funding for infrastructure projects from the domestic capital market are: promoters, contractors who undertake construction, equipment/ machinery suppliers, and general Indian public. The last category comprises, inter alia, individuals, mutual funds, investment institutions, commercial banks, term-lending institutions, non-banking finance companies and other corporates. Other institutional investors such as pension and provident funds, charitable and endowment trusts are not permitted to invest in equities at present. Since most infrastructure projects affect a large number of people by way of land acquisition/displacement, a scheme could be worked out to offer on a preferential basis equity to such affected persons. In other cases, users of infrastructure facilities could be offered equity of relevant projects. For example, Road Transport Corporations could be also offered equity in highway projects while hotels/amusement parks/petrol pumps proposed to be established along highways could be offered equity in such projects. In greenfield projects, in the absence of a track record, the extent of equity financing will also be limited, at best to about 15-20 per cent of the project cost.

Equity investments in short-gestation infrastructure projects—although involving large capital outlays—would be attractive for investors in view of the expected steady returns and good growth potential. However, it is the long-gestation projects, with relatively higher inherent risks, which could face problems in attracting adequate equity capital from

the capital market. The lack of sufficient number of investors with a long-term horizon, and the restrictions on equity investments by the existing institutional investors with such a horizon could be a binding constraint on successful implementation of these projects. The question then arises as to how does one make equity investments in long-gestation projects attractive to both institutional and individual investors? Apart from the safety of investments, the more important issue would be making the yield on these investments comparable to those on other investments and at least reasonably more than the yield on debt instruments. A few solutions which could be considered are as follows.

■ Equity investment in long-gestation infrastructure projects could have tax reliefs like the erstwhile 80CC provision. High net-worth individuals and cash-rich corporates would then find investments in such projects attractive. The investments could have an adequately long lock-in stipulation to ensure that the

tax relief is not taken by investing funds for a short period. Investment under this scheme can have 100 per cent tax shelter in respect of equity investment in very long-gestation projects and staggered tax shield spread over three to five years for other projects.

■ Dividend payable on equity investments in infrastructure should be made cumulative for payment for the period until the project goes on-stream. The arrears of dividend could either be capitalised by the company or be charged in the revenue account of the company prior to payment of tax, like the facility for carry-forward of depreciation.

■ Infrastructure projects could have nominal ordinary equity capital and large measure of cumulative convertible preference shares (CCPS) with the proviso that at the end of a specified period (say 10th year), the CCPS will be compulsorily converted into equity shares on a pre-determined pricing formula.

Mobilising household sector savings into infrastructure

Insurance, pension and provident funds need to be channelised into long-term debt securities of infrastructure projects.

■ Equity for infrastructure projects could be provided at a nominal level of equity capital and balance by way of compulsorily and fully convertible debentures which would carry a reasonable coupon rate. To accommodate this structure, the debt-equity norm will have to reckon the compulsorily and fully convertible debentures as quasi-equity and such debentures could be subordinated both for principal and interest to all secured and unsecured creditors of the project. Conversion of the debentures could take place after the project achieves the breakeven level on a pre-determined pricing formula.

■ Dividends upto a reasonable level on the equity investment could be made tax-free to the individual shareholder which should make the real yield to the investor at a level substantially higher than debt instruments.

■ Establishment of infrastructure funds which would specifically invest in long-term infrastructure projects could be facilitated. The fund could repay investors by way of pensions/annuities, etc. Contributions to such funds could also have tax reliefs like the earlier 80CC benefit.

The above suggestions may result in a loss of revenue to the exchequer, but considering the impact on accelerated development of the capital market, the trade-off may well be worthwhile.

Debt Funding: The lack of a well-developed market for corporate debt could prove a formidable constraint to private investment in infrastructure development. In developed countries, infrastructure projects raise such financing from institutional investors (e.g. insurance companies, pension funds, endowments, etc), either through the bond markets, or through direct private placements. In India also, the contractual savings institutions (LIC, GIC, PFs, EPF) that have long-term liabilities would make natural investors in private infrastructure projects—provided the extent of pre-emption of funds by the Government is reduced. Making the insurance market as competitive as the mutual fund market would also provide significant new long-term investment funds. However, all this calls for substantial reform in the debt market which is spelt out subsequently. Apart from these institutions, other institutional investors such as charitable and religious trusts would also be a source of substantial funds. With the development of an active and liquid market for securitised corporate debt, mutual funds, commercial banks and financial institutions could also emerge as potentially large investors. Currently, individuals invest a substantial amount of funds in unsecured corporate fixed deposits (outstanding amounts estimated at Rs 150 billion, with annual additions/roll-overs placed at close to Rs 30 billion). With an active debt market, a large part of these funds could be channelised into infrastructure investments. If resources of the requisite maturities have to be successfully raised from the bond market, investors/lenders would need "credit comfort", the counterpart of which would be "credit

enhancements" for borrowers. The four pre-requisites for the development of an active and vibrant bond market which can fund government and private investments are :

- Development of institutional investors
- Adequate secondary market liquidity with efficient trading and settlement systems
- Development of rating abilities and financial intermediaries to provide credit risk insurance
- Development of securitisation facilities

As mentioned, while the debt market develops, it will be the AIFs which will have to bear the key responsibility for funding infrastructure projects. They would have to raise funds in the capital market for on lending to projects. It is these institutions which potentially have the ability to enhance the credit quality of infrastructure entities so that they can become bankable.

Project Finance

Role of Financial Institutions in Infrastructure Financing:

The nature of infrastructure projects and their inherent complexities differentiate them from traditional industrial projects with which the FIs have been familiar. Most of the new projects would involve implementation arrangements in the form of BOT/BOOT. In addition to traditional financial, technical and economic appraisal capabilities of project financing, infrastructure projects require deep understanding of the legal, regulatory and institutional arrangements under which the project promoters would operate. Most infrastructure projects would be non- or limited recourse financing. Such projects bear higher risk compared to traditional industrial lending where risk is covered by the balance sheet of the sponsor, with tangible assets as security.

Over the last four decades, financial institutions have developed a core competence in the evaluation of project risks. To leverage this competence, the FIs would need to adopt a number of strategies, such as taking loans onto their books and then syndicating them, or by lending to projects during the construction and start-up stages, and securitising the loans or selling down the bonds, once operations have begun and the project is investment grade. For successfully achieving these objectives, financial institutions would have to build up expertise in the following areas:

- Project management and contract negotiations
- Competitive bidding for private infrastructure projects, preparation of requests for proposals and bid evaluation
- Contractual arrangements, regulatory mechanisms and administration and monitoring of these agreements in the infrastructure sector
- Environmental and social assessment
- Issues related to evaluation of technologies and suitability to Indian conditions, market and demand estimates

Improving the yield on equity investments in infrastructure projects

Tax reliefs—100 per cent for very long-gestation projects, and staggered tax shields for others—will make these projects attractive.

- Innovative methods including structuring and marketing of long-term debt instruments
- Legal assistance, as most commercial projects involve complex documentation requirements, where the international experience may prove to be valuable
- Foreign exchange risk management

Financial Institutions: The AIFIs—IDBI, IFCI, ICICI, SCICI, UTI, LIC and GIC—constitute the major sources of rupee and forex funds, as well as non-fund-based facilities such as guarantees and underwriting for medium and large-sized projects. Assistance is sanctioned to a project on the basis of an appraisal, keeping in mind prudential exposure norms. The exposure norms that the AIFIs currently follow stipulate a maximum exposure of less than

- 25 per cent of the net worth (of an individual AIFI) to any

single project

- 50 per cent of net worth (of the AIFI) to any single group
- 15 per cent of total loan outstanding to any single industry

Besides their own norms, the AIFIs also follow guidelines issued by the Government or the RBI. For example, for private sector power projects, GoI has stipulated that the maximum funding per project in the aggregate by AIFIs should not exceed 40 per cent of the project cost. The AIFIs provide both rupee and forex loans.

The AIFIs sanction rupee loans that normally carry a tenor of construction plus upto eight years (including a moratorium of upto two years). Both fixed and floating-rate options are presently available. However, fixed-rate loans are more common, particularly for new projects. At present, new infrastructure projects are financed at interest rates ranging

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View of a Credit Rating Agency

As traditional financing markets for power projects—bank lending and private placements with highly specialised institutional investors—have contracted, project sponsors and developers are considering broader markets. These include institutional investors without a specialised focus on power project finance. Credit rating by focusing on distinctions among projects may lead to greater liquidity and efficiency in developing the pricing and the terms under which these projects can be financed.

In response to heightened interest in the credit quality of the projects by independent power producers (IPPs) in the US, Standard and Poor (S&P) have developed policies and criteria for rating IPPs' debt. The focus of project finance ratings is more on timeliness of payment than on ultimate payment after an event of default. S&P assesses seven individual rating factors and bases its overall rating determination on the interrelationship among these factors. The seven factors are:

- Power costs
- Fuel risk
- Structure
- Technology risk
- Purchaser's credit strength
- Projected financial results

Output Sales Contracts: The focus in contract analysis is on the number of conditions placed on the revenue stream. The terms, pricing and interrelationships of the contracts govern the cash flow. In general, the less conditional the contract, the more stable the cash flow is likely to be. Performance-based contracts with limited situations in which payments are not made may, in combination with other credit strengths, provide one basis for investment-grade ratings.

The pricing of power involves a fixed capacity payment as well as a variable energy component. The size of capacity payment depends on the incremental cost the buyer would incur to

produce the same amount of power (avoided cost). Generally, capacity payments are based on whether the plant is available to produce power (availability), not whether it is called on to produce power (dispatch). Thus, the capacity payment is a more dependable source of cash-flow. As long as certain performance criteria are met, the project's primary fixed-cash needs—most importantly debt service—should be adequately covered by this capacity payment. The conditions and method for determining payment of capacity will vary from contract to contract.

Energy pricing either follows the seller's energy cost or is based on the buyer's incremental cost of energy to produce the same amount of power (avoided energy cost). This energy stream should be structured to cover variable project costs, including operating and maintenance (O&M) expenses. The effect on cash flow of lower than expected dispatch levels should not be great. The energy rate should be linked to the project's fuel costs through an index mechanism.

An important contract condition is the regulatory out clause. As a result of this clause, the risk of the state regulatory commission's disallowance of energy or capacity expenses are borne by the seller. If the electricity sales contract has significant regulatory out clauses, the project debt would not reach investment grade unless the state commission has demonstrated a favourable policy towards cost recovery for purchased power.

Power Costs: The cost of power is likely to be an essential factor in the buyer's commitment to the project, and can be key to regulatory and political support. Low costs for purchasing utilities must be balanced by appropriate and continuing profitability for the sellers. Competitively priced power does a purchaser little good if it is achieved only at the expense of driving the seller out of business. The best indication of the attractiveness of costs for independent projects is usually the location of that purchased power in the resource stack of the purchasing utility. Some key characteristics of more economical power costs are:

between 17.5 and 18.5 per cent. Although consortium financing as a practice is no longer mandatory, large projects continue to be financed by a consortium of AIFIs.

Among the AIFIs, the four term-lending institutions—IDBI, ICICI, IFCI and SCICI—raise forex funds from various sources including the international capital market, multilateral institutions like the IBRD and ADB, bilateral credits, export credit agencies and the like for onlending to corporates in India. These forex loans are meant for financing import of capital goods, payment of technical knowhow fees, etc. Typically, forex loans to a single project have not exceeded Rs 3 billion in the past. However, given the capital intensity of infrastructure projects, such a limit would become irrelevant. The terms of the loan depend upon the source from which the AIFIs are onlending. Since the AIFIs have a number of foreign currency lines of credit available with them, they are able

to meet tenor requirements of upto five to eight years. The interest rate charged depends upon the source from which the loan is disbursed and is normally a mark-up on the rate payable by the AIFIs. The exchange risks on these loans are borne entirely by the borrower. Currently the mechanisms available for effectively hedging medium to long-term exchange rate risks are minimal in the absence of an efficient forex market. Short-term (upto six months) rolling forward-rate contracts are the most commonly used hedges.

Commercial Banks: Banks have traditionally funded the working capital requirements of medium and large industrial projects in India. However, with the onset of financial sector reforms, banks have expanded their role from mere providers of working capital finance to cover rupee term loans, guarantees and to a limited extent foreign exchange loans for large projects.

- Highly efficient project technology compared to both economical and potential alternatives.
- Site or other embedded investments at some level below current replacement.
- Fuel arrangements, including not only protection against market risk through contract prices for fuel and transportation, but some protection for purchases against sharp market price declines through reopeners.
- Power costs should not be dependent on potentially risky financing, fuel or operating strategies.
- Fuel supply arrangements free of political pressure to purchase fuel at above-market rates.
- Proximity to fuel supplies to minimise transportation costs.

Fuel Risk: Fuel arrangements should protect cash flow required for fixed-charge payments against erosion because of changes in fuel market conditions. Fuel risk is minimised when fuel and transportation contracts match delivered fuel costs with electricity and thermal sales prices. Contracts that pass fuel costs to purchasers provide protection, but not all projects can do this, since many purchasers from independent power projects seek at least some protection against fuel risk.

Structure: While the stability of the revenue stream is heavily dependent on facility performance, the structure provides the framework that defines the conditions placed on the cash flow available for debt service. Adequate capitalisation is important because solid ownership provides a strong incentive to keep the owners in non-recourse projects committed to project viability. To qualify for investment grade status, a project should have at least 15 per cent equity. Riskier projects call for higher equity. There should also be limitations on withdrawal of cash to prevent owners from lowering their equity stakes. Distributions should be limited until all reserve requirements have been fully funded. Cash should not be allowed to be diverted into other assets that could turn sour and threaten the project. Sale of assets or ownership interests should be precluded or subject to bondholder approval. Generally, projects should have reserves equal to at

least six months' debt service to reach investment grade credit strength. Most of this reserve should be funded upfront. The existence of an O&M reserve is considered desirable. Working capital facilities should be available to provide the necessary liquidity. The project should be covered by property damage insurance by a reliable carrier which covers replacement value of all operating equipment in case of catastrophic events.

Technology Risk: The project's capacity to produce power and other outputs at expected costs over the term of the outstanding debt is a significant source of risk. Technology risk is assessed in terms of construction risk and operating risk. Construction risk is the risk that the project will not reach acceptance as scheduled and budgeted. Generally, projects with simpler designs and technical requirements have lower risks. Construction capability and financial strength of project contractors is also a critical factor in establishing the level of risk. The assessment of operating risk focuses on the likelihood that project operating performance could fall below the expectations assumed in the financial projections. Key areas of operating risk assessment are thermal efficiency of units, long-term O&M expenses, unit availability, unit dispatch schedules and operator's experience and capabilities.

Purchaser's Credit Strength: Project credit strength is based on the relative certainty that cash flow will be available to cover fixed charges over the life of the project's debt. This is linked to the credit strength of the power purchaser. A useful measure of a purchaser's ability to meet contract obligations is its bond rating. Typically, project debt will be rated lower than purchaser's debt.

Projected Financial Results: The factor most important for credit strength is cash coverage of fixed charges. The ratio benchmark will vary, depending upon fuel type and technology. Average coverage ratios are about 1.5 times x for the first three years of operation, with the average over the life at about 1.7x.

Source: S&P'S Creditweek, January 1993.

As part of banking sector reform, RBI has relaxed many of the restrictions governing bank participation in project financing. Since October 1994, individual banks are permitted to give long-term loans upto Rs 2 billion to a single project without prior RBI approval, while the aggregate limit for bank lending in the form of long-term loans to a single project has been raised to Rs 5 billion. This relaxation should result in banks emerging as an important source of long-term funds for medium-sized infrastructure projects.

Some Common Conditionalities of AIFIs and Banks: The conditionalities specified by the AIFIs and banks while financing large industrial projects can be broadly classified into General Conditionalities (GCs) and Special Conditionalities (SCs). The GCs are identical amongst the AIFIs and banks and are applicable to all loans, while SCs would be specific to the project being financed and depend on the assessed risk, loan amount and terms involved in the project.

- **Debt-Equity Ratio:** From the point of view of debt-servicing capacity and overall risk capping, the AIFIs normally stipulate a maximum debt-equity ratio of 1.5:1. For infrastructure projects this ratio not yet been fixed.
- **Minimum Debt-Service Coverage Ratio (DSCR):** Linked to the debt-equity ratio, the average DSCR for the project, calculated for the tenure of the loans on the base case profitability

Changing the role of financial institutions in infrastructure finance

FIs can lend during the construction and start-up stages, securitise the loans, and sell down the bonds, once operations have begun.

projections has to be a minimum of between 1.5 and 2.

■ **Asset Coverage:** As security towards loans advanced for the project, the minimum fixed assets coverage ratio is stipulated at 1.3.

■ **Promoter's Contribution:** To ensure commitment of the project sponsors to a project, the AIFIs normally stipulate a minimum promoters' contribution ranging between 15 to 22.5 per cent of the project cost—to be brought in upfront as part of the equity capital of the project.

■ **Overrun Financing:** The AIFIs normally require the project sponsors to give unlimited completion support to the project. In the event of any overrun in project costs, the sponsors are expected to fund it with their own equity or unsecured loan funds. However, in practice, where overruns occur, the AIFIs adopt a pragmatic approach and generally participate in overrun financing on broadly the same terms as the initial financing.

■ **Non-disposal of Shares:** In addition to the above stated stipulations, AIFIs require project

sponsors to give an undertaking not to dispose of all or a minimum amount of their shareholding during the currency of the AIFI loans, without the prior approval of the AIFIs.

The Importance of Contractual Savings: Current Provisions and Future Potential

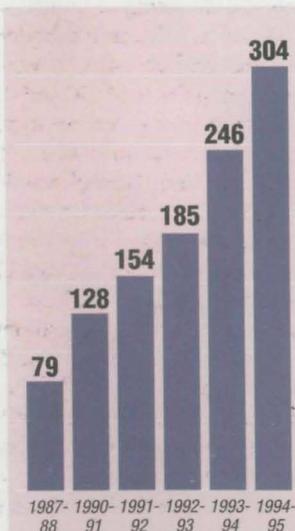
LIC and GIC are the two wholly government-owned insurance companies which mobilise long-term contractual savings in the

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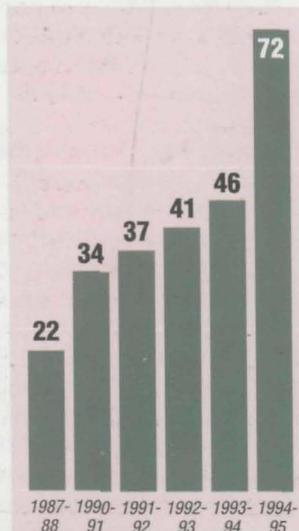
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LIC's OUTSTANDING INVESTMENTS

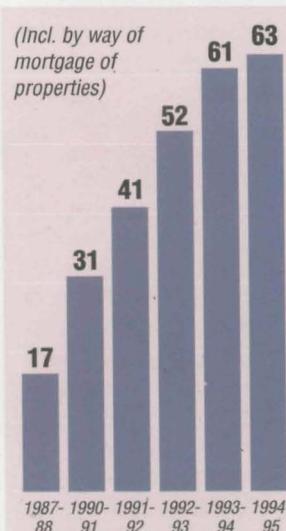
Government & other approved securities



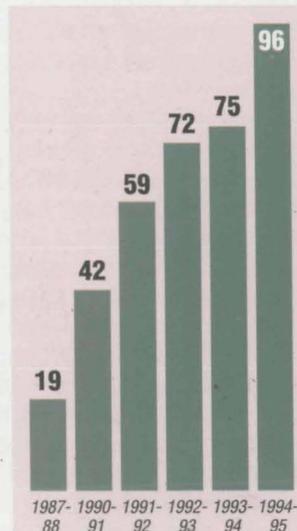
Infrastructure facilities



Loans for housing development

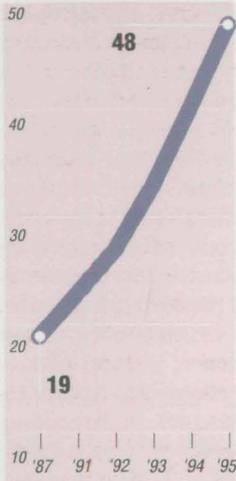


Assistance to corporate sector

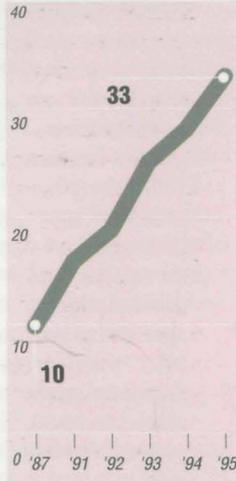


Source: IDBI, Report on Development Banking, Various issues

Government and other approved securities, special deposits with Government of India



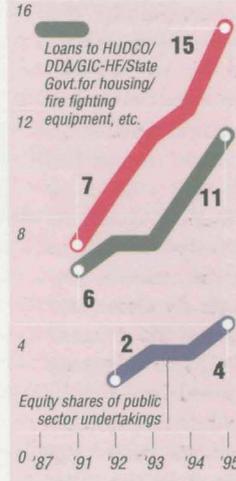
Shares and Debentures of, deposits with and term loans to companies



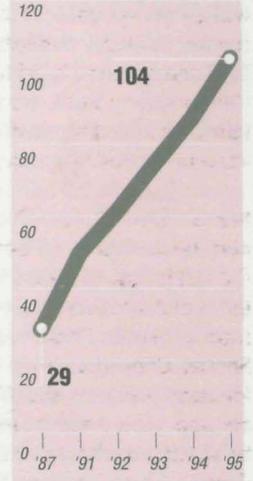
Loans on banks on participation certificates/bill re-discounting scheme



Others



Total



Source: IDBI, Report on Development Banking, Various issues

country. While LIC provides life insurance cover to households, GIC and its four subsidiaries operate a number of insurance schemes to cater to the diverse and emerging needs of various segments of society. As contractual savings institutions, LIC and GIC have been the principal conduits for channelising long-term domestic resources—directly and indirectly—into infrastructure development.

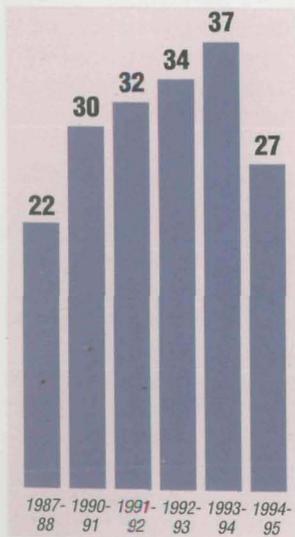
According to its investment policy, LIC has to invest not less than 75 per cent of the accretion to its Controlled Fund in Central and State Government securities including government-guaranteed marketable securities and socially-oriented sectors. LIC provides loans for various purposes like housing, water supply, rural electrification etc to benefit individuals and groups. It also provides term loans to and underwrites or directly subscribes to shares and debentures of the corporate sector. Besides, it extends resource support to other term-lending institutions by way of term loans and subscriptions to their shares and debentures.

The investment policies for GIC and its subsidiaries have evolved within the ambit of Section (27) of the Insurance Act, 1938 and on guidelines issued by the Government from time to time. Like LIC, GIC also participates in financing of industrial projects along with the AIFIs by way of term loans and underwriting or direct subscription to shares and debentures. With the Government relaxing the investment policies of GIC and its subsidiaries from April 1, 1995, they can now invest up to 55 per cent of the annual accretion of their funds in market-oriented schemes (as against 30 per cent earlier). The balance 45 per cent is to be invested in socially-oriented sectors comprising 20 per cent in Central Government securities, 10 per cent in State Government and other guaranteed securities and 15 per cent in housing loans to various states, and HUDCO etc.

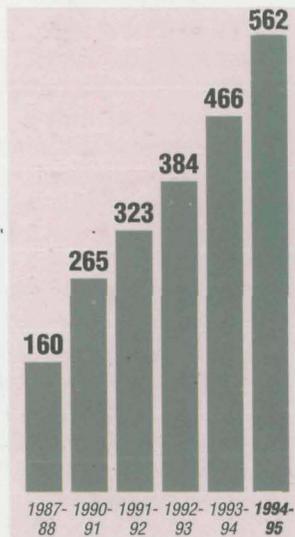
Nationalised in 1956, LIC has built up a fund of the order of about Rs 625 billion by March 31, 1995. LIC's total outstanding investments on that date stood at about Rs 560 billion. While investments in government and other approved securities amounted to Rs 304 billion, direct support for infrastructure facilities amounted to Rs 72 billion. Assuming that the funds from LIC's investments in government securities were deployed in infrastructure industries, LIC's direct and indirect support to infrastructure development would account for over

(Rs. billion)

Others



Total



60 per cent of its total investments. Chart 4.14 presents information on LIC's outstanding investments during the last five years. The total premium written in India, which represents LIC's annual mobilisation of funds, amounted to Rs 109 billion in 1994-95. The valuation surplus and, consequently, the bonus to policy holders, have been steadily increasing over the years.

The general insurance business has grown in spread and volume after nationalisation in 1973. GIC's net premium income has grown from Rs 2.2 billion in 1973 to Rs 35 billion in 1994-95. Correspondingly, investments have increased from Rs 3.6 billion in 1973 to Rs 104 billion in 1994-95. Investments in government and other approved securities and special deposits with the Central Government continue to constitute the largest segment (over 45 per cent) of GIC's outstanding investments, while term loans to, and investments (shares/ debentures/ deposits) in public and private corporate units account for the other major chunk (Chart 4.15). GIC has also invested in equity shares of public sector undertakings and provided loans to

Improving the returns on insurance funds

The insurance sector must be made far more competitive, by splitting GIC up into smaller entities, and allowing private players in.

intermediaries (HUDCO, DDA etc) engaged in infrastructure development.

Apart from the insurance companies, contractual savings are also mobilised by various pension funds and the government-owned post office network, in the form of contributions by individuals towards provident/pension fund schemes. The estimated total corpus of these funds at the end of March 1995 was placed at Rs 700 billion, with annual accretions in the form of principal and interest estimated at Rs 75 billion. Until April 1993, investment of these funds were governed by rigid guidelines, which mandated investment of 90 per cent of the accretion in the Special Deposit Scheme (SDS) with the RBI (at a coupon rate of 12 per cent), while the balance had to be invested in PSU bonds. In April 1993, with deregulation of interest rates on debt instruments, the investment pattern was altered to 70:30. In May 1995, the investment pattern was further modified, which permitted considerable flexibility in the investment

of funds. The new guidelines now allow investment of up to 30 per cent in PSU bonds, 25 per cent in Central Government secu-

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The German Pfandbriefes

THE German Pfandbriefes arose out of the need for agricultural credit about 200 years ago. Private mortgage banks (MBs) were first established in Germany in 1862 for financing of residential housing in urban areas. The mortgage banking business survived the two world wars and the hyper-inflation with the aid of currency reform of 1948. The MBs were instrumental in the development of the German capital market and in financing the reconstruction of the country's destroyed cities.

With the satiation of the housing market, and growth of public budget deficits, the MBs began to finance the State through municipal lending. Of the total bank credit of 520 billion DM in 1992 to the Federal Government, the provinces and the municipalities, the MBs accounted for 185 billion DM which works out to 36 per cent.

Germany has 22 private MBs, of which 19 are not permitted to transact any other business. The MBs account for 9 per cent of the total business volume of all German banks. The majority shareholding of the MBs is with the major German banks. However, mortgage finance in Germany for home financing is also available from savings banks, commercial banks and cooperative banks.

The Pfandbriefes are quite different from the US-style mortgage-backed issues. In case of German bonds, unlike their counterpart in the US, the issuing banks are also liable. Even in the case of lending by the MBs to the Federal Government, the

provinces or the municipalities, where in the absence of asset backing, guarantees are relied upon by the MBs, their liability is still intact. This imparts an exceptionally high level of security to the German mortgage bonds. The mortgage bonds in Germany, though not officially rated, offer the same triple A security as the Treasury bonds called Bunds.

The MBs operate on the basis of the Mortgage Banks Act of 1900, which is designed to do the following:

- Create the legal framework for an efficient capital market
- Provide an adequate supply of long-term finance at attractive rates of interest for housing construction and urban development
- Protect savers and borrowers.

Although MBs operate as special-purpose financial institutions, in the interest of flexibility, they are permitted to acquire up to three times the amount of their liable funds from funding sources other than mortgage and municipal bonds. This means that they accept deposits, take loans or issue uncovered bearer bonds. These funds may be used to supply the lender with funds in excess of the 60 per cent limit on the value of the property mortgaged.

Mortgage and municipal bonds are fixed-interest, covered debt instruments which are issued as either bearer or registered mortgage bonds. All issues of mortgage and municipal bonds by law required to be authorised by the Ministry of Finance. The bearer securities are legally transferable like goods and are traded on the stock exchanges. Registered securities are issued in

rities, 15 per cent in State Government securities and the balance 30 per cent in the SDS.

As may be seen from this brief review of contractual savings in India, a very large volume of household savings are mobilised by LIC and the various pension and provident funds. However, a very substantial portion of these savings are allocated within rigid guidelines that govern these institutions. Although there has been some movement in recent years, an excessive proportion of these contractual savings are pre-empted by the public sector. Given the requirement of the public sector for funds, only marginal changes in allocation guidelines can be made. But this will not be enough if the capital market is to develop in the manner that has been indicated. There must be competition between the suppliers of funds for the market to operate. Thus monolithic life insurance and pension and provident funds arrangements cannot continue. Opening of these sectors is therefore recommended on an urgent basis.

Insurance and Provident Fund Reforms

Within the framework of mandated investments, LIC and GIC have invested their funds with the combined objectives of liquidity, maximisation of yield and safety. However, even in the post-reform period since August 1991, when interest rates on

favour of the beneficiary and are not tradeable.

The German real estate law provides the foundation for concluding mortgage loan transactions efficiently and without risks. The MBs provide loans secured by domestic real estate which provides a permanent return. MBs advance loans either to refinance commercial property or to fund public authorities. Mortgage loans serving as cover for bonds outstanding may not exceed 60 per cent of the value of the property in question, the value being determined according to guidelines set down in writing by the bank's managing boards. The Mortgage Banks Act requires that all mortgage bonds must be secured by loans with at least identical yields and maturities. The once-standard maturities for mortgage loans of between 25 and 30 years have now been replaced by periods of between five and 10 years.

The mortgage bonds continue to be an instrument for long-term finance needs of the borrowers. The role of the MBs is to act as an intermediary between demand for long-term borrowing and the supply of long-term credit. The mobilisation of credit by the MBs is aided by the institutional mechanism which ensures that the Pfandbriefes have the highest security. However, international interest in Pfandbriefes has until recently remained limited owing to the perceived poorer liquidity of these bonds as compared to the Treasury bonds. To enhance overseas interest in the mortgage bonds, overseas investors have been given tax exemption. In addition, the German MBs have now been allowed to lend in the EU and EEA.

Source: Verband Deutscher Hypothekenbanken "The German Mortgage Banks: Their Financing System and Market System"

capital market debt instruments were deregulated and subsequently when interest rates on government securities were freed, the returns on their mandated investments are distinctly lower than those on their non-mandated investments.

Because of the growth of more attractive investment instruments over the recent years, the appeal of life insurance as a savings medium has declined. This is partly due to the low overall return on LIC's life fund and partly because the tax concessions that were at one time applicable only to long-term contractual savings are now available for short and medium-term savings also. It is therefore necessary to improve the return on the life fund.

Structural Reform: The present monopolistic structure in the insurance sector is ill-suited in an environment that stresses improved customer service, greater choice of products and price-competitiveness. Like in other segments of the financial sector, the private sector should be allowed to enter the insurance business. The nationalised insurance companies and the various pension funds must be subject to greater degree of competition in their operations. To begin with, as recommended by the Malhotra Committee on Insurance Sector Reforms, GIC and its four subsidiaries can be split up into smaller entities to increase competition. Concurrently, privately-owned insurance companies, including foreign companies, could be allowed to enter the business.

This will have a number of important consequences:

- With the introduction of competition, many new insurance products will start to become available. The vast expansion of business that is now taking place requires many new kinds of insurance products that are simply not available at present.
- Individuals and households also have access to a very limited set of insurance products and, moreover, there is little marketing of even existing products. Consequently, the opening up of the sector can be expected to lead to a significant increase in the volume of savings being invested in insurance.
- The introduction of new insurance companies, both in life insurance and in general insurance, will lead to better functioning of the capital market, and the debt market in particular.

As regards provident funds, as a first step, the Employees Provident Fund (EPF) (with a corpus in excess of Rs 350 billion), which is currently managed by the State Bank of India (SBI) could be split up and managed by professional asset management companies on a competitive basis. Such a measure would usher in greater competition in the provident fund business and provide incentives to these institutions to invest and trade in debt instruments more actively. Further, in order to motivate fund managers, a performance-based incentive structure may be introduced as is the case in developed insurance markets. Taken together, these measures could lead to accelerated development of the debt market and provide an impetus to the introduction of innovative life/general insurance products and thereby lead to an overall increase in household savings.

Regulation: An independent regulatory body would be essential to oversee the privatisation of the insurance industry and subsequent regulation of the industry in a competitive scenario, as recommended by the Malhotra Committee.

Prudential Norms: Current guidelines on deployment of funds by insurance companies, provident and pension funds are not flexible enough from the point of view of efficient fund management and yield maximisation. The guidelines specify a minimum level of investment in different categories of low interest-bearing government securities, which amounts to a pre-emption of investible resources. Consequently, the guidelines have compartmentalised the debt market by putting restrictions on the proportion of investments in different categories of debt instruments. The guidelines have directed the flow of funds into sectors, instead of controlling the interest rate and credit risks to which these institutions are exposed. While there has been some liberalisation in the investment pattern of GIC and its subsidiaries and for provident funds, it may be more appropriate to modify the guidelines so as to eliminate/minimise this form of "directed credit" and increase the responsibility of the investment managers. Market and credit risk restrictions may need to be enforced as insurance companies, pension and provident funds have extremely long maturity liabilities. It is also recommended that the guidelines be modified so as to provide greater operational flexibility to fund managers. The existing issuer-based guidelines could be replaced with guidelines based on prudential norms, which permit investment in securities with minimum specified credit ratings. Prudential guidelines, as in the case of mutual funds, specifying maximum limits, will have to be devised for this purpose.

Using provident funds to accelerate debt market development

The EPF could be split up and managed by professionals on a competitive basis, with a performance-based incentive structure.

Pension Funds

Pension funds have registered remarkable growth in developed countries, but have not developed sufficiently in India partly because of the availability of other long-term savings instru-

ments. An important reason for this is that lump-sum benefits in the form of gratuity and provident fund either on death or on retirement looked like a better alternative till recently. In the US, it is estimated that there are 22,000 corporate, public and retirement pension funds managing a total corpus which equals the total value of equity shares trading in the market. In 1992, pension funds accounted for 36 per cent of total financial assets in the US economy, while bank assets were only marginally higher at 42 per cent.

A sizeable portion of the population, namely the self-employed, including professionals, traders, agriculturists and the vast labour force in the unorganised sector, have no recourse to a pension scheme. Hence there exists a massive potential market for pension schemes. It is necessary to encourage pension schemes to serve the needs of this large segment of the population. Given the rising incomes of this class of income earners, the growth of pension funds has the potential to

boost domestic savings by providing self-employed individuals an additional avenue of savings. With suitable fiscal incentives for contributions to pension funds, it could also aid in reducing the incidence of savings getting diverted to the parallel economy and also help transform the financial market.

An important reason for the popularity of pension plans in developed countries is that insurance companies are able to make full use of available investment opportunities and thus maintain their competitive edge vis-à-vis other savings instruments. Further, unit-linked pension plans marketed in these countries are able to provide particularly good yields during the accumulations period. An equally important factor is that the governments concerned appreciate the value of the pension system to social stability and encourage pension contributions and funds by way of substantial tax relief.

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CURRENT ACCOUNT DEFICIT AND ITS FUNDING

(RS. BILLION)

Item	1991-92	1992-93	1993-94	1993-94	1994-95
Trade Deficit	-169.33	-64.95	-141.01	-40.31	-123.9
Plus Invisibles	-4.35	42.58	13.37	30.43	58.53
Current Account Deficit	-173.68	-22.37	-127.64	-9.88	-65.37
funded by					
Capital Flows	150.75	120.82	153.27	288.07	214.71
a) External Assistance	39.65	73.94	57.5	53.33	39.25
b) Commercial Borrowings	40.35	38.07	-10.94	35.76	13.53
c) NRI Deposits (net)	27.56	10.08	60.97	29.49	26.59
d) Foreign Investment	1.22	3.75	17.87	128.93	153.7
e) IMF Loans	21.78	20.77	33.63	5.99	-35.88
f) Others	20.19	-25.79	-5.76	34.57	17.52
Additions to Reserves	-22.93	98.45	25.63	278.19	149.34

Source: RBI: Annual Report 1994/95

It is recommended that private pension funds be encouraged so that individuals have access to such funds on a widespread basis. They would naturally have to be regulated on a prudential basis.

Foreign Sources of Funds

The reliance on net capital inflows from abroad has traditionally been low on account of "adequate" domestic savings for funding investment (Table 4.16). The share of net capital inflows in gross domestic product was consistently below 1 per cent during the 1970s—in fact, it was negative for three consecutive years between 1975-76 and 1977-78. However, consequent upon a substantial step up in investment—both in the public and private sectors—during the Sixth and Seventh Plan periods and measures of import liberalisation, the ratio of net capital inflows to GDP progressively increased to above 2 per cent by 1985-86 and peaked at 3.1 per cent in 1988-89. Reflecting the spillover effects of the high and rising budget deficits towards the end of the decade, net capital flows from abroad—both in absolute terms as well as in relation to GDP—remained high during 1989-90 and 1990-91, before declining sharply in 1991-92, on account of import compression. Since then, there has been a mixed trend in the inflows of foreign savings—a manifestation of the easing of import constraints as well as changes in the policies governing foreign investment.

■ **Equity:** Foreign equity would be typically available from four principal sources: collaborators as project promoters, contractors and equipment suppliers, large infrastructure funds which have raised money from institutional investors and which aim to take substantial equity interest in infrastructure projects without playing an active role in project promotion or management, and international public equity markets—which have been tapped by a few telecommunication companies.

■ **Debt Funding:** Offshore debt funding could be in the form of loans from multilateral agencies such as the World Bank, ADB, IFC(W), etc. deferred credits from export credit agencies, and commercial borrowing in international capital markets.

■ **Multilateral Agencies:** In the past, the World Bank (IBRD) has been a major source of long-term concessional funded and non-funded assistance for projects in the public sector (particularly in the infrastructure sector). But, with the newly emerging policy of encouraging privatisation in developing countries, in India, it has directly financed certain private sector power generation companies, such as the Tata Electric Companies (TEC), with the support of a sovereign guarantee. The World Bank applies project evaluation criteria such as economical and efficient cost, infrastructure and economic benefits for the country, and satisfactory environmental criteria. World Bank loans can be for 30-40 per cent of the project cost but this is mainly applicable for public sector units with a maximum term of 20 years (five-year grace + 15-year repayment). The World Bank

also provides non-funded assistance through its guarantee programme for private sector projects. Partial Risk Guarantee (PRG) covers the political and country risks, thereby attracting more commercial debt. However, as currently formulated, the PRG requires Central Government counter-guarantees. As these counter-guarantees get reflected in the country's external debt position, the scope of availability of such guarantees is limited to a few initial projects for attracting foreign investors in a particular sector. Partial Credit Guarantee covers all events of non-payment for a designated part of the financing, typically in the later years of project operation.

■ **International Finance Corporation (IFC):** IFC takes direct project exposure without any government guarantees, subject to the project meeting the IFC's "economic viability" norms and promoters having a satisfactory track record. IFC provides debt funding to infrastructure projects through the direct IFC A Loan to the tune of US\$30-50 million and the IFC B Loan syndicated and sub-participated by commercial banks that provide the funding but take comfort from the IFC's "political umbrella". The typical amount that could be raised under the IFC B Loan would be to the tune of US\$100 million. The usual term of the loan is between seven and 10 years and can be extended to 15 years. The acceptable debt-equity ratio is about 2.33:1. IFC's exposure is limited to 25 per cent of the project cost (includes both equity and loans) in a greenfield project and upto 35 per cent in an established company which requires funds for expansion.

Like the World Bank, Asian Development Bank (ADB) takes direct exposure in projects upto \$50m or 25 per cent of the project cost, whichever is less. The usual term of loan is 10-15 years including a grace period of three to four years. Besides direct loans, ADB has a special scheme for financing, the Complementary Financing Scheme (CFS). Under the CFS, the Bank is the lender of record for commercial loans, which means the

default on loans from commercial banks is a default to the Bank. The exposure norms of the Bank are exclusive of the CFS scheme. The bank insists on a-BOT project company to have more than 50 per cent private sector ownership (including ADB's equity share). Unlike the World Bank, ADB is permitted to take equity stakes.

■ **Deferred Credits from Export Credit Agencies (ECAs):** ECAs usually provide credits through either loans to foreign buyers or loans to intermediaries who in turn fund foreign buyers. Finance is provided for upto 85 per cent of eligible equipment imported from the ECA's country. However, ECAs are averse to project risk and usually require institutional guarantees to cover the commercial risk of the project. The scope of ECA credit is limited to the value of imported equipment, and thus cannot be tapped where equipment is proposed to be procured indigenously. ECA-backed financing offers a large pool of resources that infrastructure projects could fruitfully tap. The main benefit of ECA-backed financing is the minimisation of

Since counter-guarantees get reflected in a country's external debt position, they are available only to a few initial projects in a sector.

political and country risks from the perspective of foreign lenders, which in turn ensures finer pricing and longer tenors. One major area of concern with respect to ECA-backed loans for the envisaged investments is that the current guidelines for ECBs stipulate an average life of seven years for loans exceeding US\$15 million. These tenors will not be covered by ECA insurance from most countries.

Infrastructure Funds: Two types of infrastructure funds have emerged in developed and newly industrialising countries where private infrastructure projects are being implemented. The government-sponsored infrastructure funds have emerged as transitional mechanisms to provide long-term finances until capital markets are better developed. Private funds, on the other hand, serve the commercially useful function of diversifying investor risk. As transitional mechanisms, these funds serve to:

- Allow leverage of government resources or official development assistance by attracting co-financing from private sources
- Create credit histories for borrowers perceived as risky, who, over time, can then access capital markets directly

State-sponsored infrastructure funds are transitional mechanisms to provide long-term finance until capital markets are better developed.

■ Provide intermediate vehicles for institutional investors in developed countries for finding profitable infrastructure investment opportunities in the developing world

A number of such funds have emerged in the international capital scene. Some are general purpose funds such as the Asian Infrastructure Fund and the AIG Asian Infrastructure Fund. There are other funds devoted to specific sectors such as power and telecom. These funds have often been backed by the multilateral agencies as a means of developing the market for raising capital for infrastructure investments. The main investors in these funds are institutional investors such as pension and insurance funds in different countries. These funds are usually closed and limited-period funds. Their aim is to select good infrastructure projects

with expected returns in the region of 20-25 per cent on their equity investments. They expect to provide risk financing at the beginning of projects, and then to divest through the listing of companies once the projects go onstream and income streams are relatively assured. They expect to gain their

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5 Tamil Nadu Urban Development Fund

TAMIL Nadu Urban Development Fund (TNUDF) is a specialised financial intermediary being set up by the State Government of Tamil Nadu (GTN) and select financial institutions with active support from the World Bank for funding urban infrastructure projects in the state. The principal objective of the proposed intermediary is to finance urban infrastructure projects to be undertaken by municipalities, joint ventures and private investors with a view to supporting urban and economic development in a sustainable manner.

Government of Tamil Nadu has been implementing, since 1988, the Tamil Nadu Urban Development Project (TNUDP) financed by the International Development Agency (IDA) and the World Bank. One of the components of this project is the Municipal Urban Development Fund (MUDF). The World Bank's current lending strategy to the urban sector emphasises promotion of private sector investment in infrastructure. The Bank is keen to restructure the existing financial assets through a self-standing financial intermediary which would supervise the management and enhancement of the Fund. Hence GTN proposes to convert the existing MUDF (Rs 1,550 million) into a Trust Fund to be called Tamil Urban Development Fund—TNUDF. While TNUDF would continue to fund municipal projects, it would also open its lending to urban infrastructure projects sponsored by private investors. TNUDF would initially depend upon GTN's funds transferred from the existing MUDF, but its ultimate goal would be to mobilise funds from the capital market (in the form

of bonds) using the high credit standing of its sponsors.

TNUDF will be managed by an Asset Management Company (AMC). The AMC will have 49 per cent holding by GTN and balance 51 per cent will be held by the participating institutions. The AMC's tasks include project identification, development, appraisal, loan processing and recovery. The AMC will also have to manage the Grant Fund (GF) and Technical Assistance Fund, the ownership of which will be with GTN.

Rationale for TNUDF: The World Bank-funded MUDF project was reaching its terminal date with an unutilised balance of about US\$50 million in addition to its existing portfolio. The Bank felt that this money and the experience gained could be used to restructure and set up the said financial intermediary, to be run on commercial lines. In the opinion of the World Bank, this could be a pilot demonstration project which could form the basis for commercialisation of urban infrastructure projects and municipal finance in future. In view of the fact that TNUDF would need to operate on commercial lines, both the GTN and the World Bank agreed that majority holding (i.e. 51 per cent) in the proposed AMC should be with the private sector. Hence it was felt that private sector financial institutions would need to participate in the scheme.

Management: The AMC will have its own separate organisational set up and will not be a part of any of the participating institu-

returns from the appreciation in the value of stocks after listing. The expertise of these asset management companies is claimed to be project selection and monitoring so that they can make the gains that they expect.

So far, almost all these funds have been equity funds. It is expected that similar debt funds will also come into existence soon.

At present, there is no special channel for such funds to invest in infrastructure projects in India, except for going through the Foreign Investment Promotion Board like any other foreign investments.

It would be very desirable to place investments from such funds on a preferred footing. They could be treated in a manner similar to the investments made in the capital market by FIIs at present. FIIs have to register with SEBI, consequent to which they are permitted to invest in listed companies. A similar channel could be opened for recognised infrastructure funds. They could be registered with SEBI, based on transparent guidelines related to their recognition. They could then be allowed to invest in approved infrastructure projects—in listed or unlisted companies, including infrastructure SPVs. The

tions. The key executives including Managing Director will be selected in consultation with the financial institutions. The sponsoring financial institutions would provide support in project appraisals depending upon the expertise available with the individual institution.

Projects to be funded: TNUDF would finance commercially viable urban infrastructure projects to be taken up by creditworthy private investors, joint ventures (of private investors with municipalities) and municipalities. TNUDF would also provide financial assistance to non-revenue generating public service projects sponsored by creditworthy municipalities, against their revenue streams secured through mechanisms such as escrow accounts. In addition to conventional municipal projects financed by MUDF so far, TNUDF would gradually finance infrastructure projects promoted by private investors.

Grant Fund: While TNUDF would focus on commercially viable projects, it is felt that lending to non-remunerative infrastructure projects should not be abandoned. Hence a separate Grant (or Concessional) Fund would be established and would be managed by the AMC. The initial Corpus of the Grant Fund is expected to be about 10 per cent of the loans provided to municipalities (about the same proportion of the loan-and-grant mix of the existing MUDF). The spread between GTN's IDA borrowing rate from Government of India and lending to TF, as also future dividend on GTN's contribution to the TNUDF would be possible sources of the Grant Fund, in addition to GTN's direct contribution from the general budget

Foreign funds should be allowed to register with SEBI, and invest in approved projects—in listed or unlisted companies, including SPVs.

"approved" infrastructure projects could be

- Those approved by the Central Board of Direct Taxes (CBDT) for granting of fiscal benefits as infrastructure projects under section 80-1A

- Those telecommunication companies which have received a licence from DoT

- Those power projects which have been approved by the Central or State Governments

The level of foreign investments allowed under this window could remain subject to the overall guidelines covering each sector. This procedure would obviate the need for obtaining FIPB approvals on a case-by-case basis for such portfolio investments. Guidelines as indicated above would automatically ensure that eligible receiving projects have already been approved by the relevant authorities. This measure would help in channelling available foreign

resources in infrastructure investments.

External Commercial Borrowing (ECBs): ECBs are borrowing in the form of syndicated loans, Euro-convertibles, etc from offshore sources. ECBs by domestic companies add to the country's external debt and have an impact on the country's rating. Ministry of Finance (MoF) approval is required for accessing offshore funds. MoF has a limit on the total amount of ECB approvals it grants. Given the fact that India has only recently regained a sovereign investment grade rating, most Indian companies would find it difficult to access international capital markets directly for the purpose of financing a green-field infrastructure project. Well-structured projects with international sponsors have better prospects of being successful in international markets.

Under Rule 144 A and Regulation S of the Securities and Exchange Commission (SEC) of USA, non-US companies can raise capital in the US without having to register the securities with the SEC or reformatting their financial statements to reflect the US accounting principles. A non-US company can offer its securities to Qualified Institutional Buyers (QIBs) in the US, subject to compliance with the stipulations of SEC. QIBs are institutions in the US that invest on a discretionary basis in eligible securities. The 144A market has considerable depth and potential for infrastructure project financing. The conceivable potential of the market could reach US\$100-150 million per project for a period of about 15 years. Investors willing to take project risk could also be found so that institutional guarantees are not required. However, the 144A market has in the past shown a strong preference for US companies or those familiar to the US. The market is also highly volatile. Government of India could also be concerned about the cost of debt which would be as high as 350 basis points above the US Treasuries.

The syndication of loans is a cheaper form of raising finance than the bond market as the syndicate has a better capacity to analyse the credit risk. Hence the spread is lower than a corresponding Euro-bond where the investors are not that well-versed in credit analysis and therefore expect a high-

er spread. The amount that can be raised from the syndication of loans can be as high as US\$1 billion.

International experience suggests that over the long term, global capital markets will provide the best source of financing for infrastructure development. Direct financing from foreign capital markets offers the potential for longer-term, fixed-rate financing with less onerous covenants, and the pool of available capital for such financing is far larger than any other potential source. In order to access this market initially, however, it will be important for India to attract foreign investors with favourable terms, for as the flow of foreign investment increases, investors' demands will gradually diminish.

Discussions with international investment bankers indicate that the process of granting approvals by the MoF and RBI for all aspects of the financing may need streamlining. While as a matter of general macro-economic policy, it is certainly appropriate and prudent to monitor the foreign and domestic currency obligations at a certain level of detail, the degree to which approvals have been required to date does not foster the financing process. For example, arbitrary ceilings put on the "spread" over US Treasury yields for foreign currency financing or the shortening of maturities as specified in the guidelines on ECBs may make it unnecessarily difficult to finance projects. The lack of a good sovereign "benchmark" issue complicates the matter, but perhaps that can be solved separately.

The discussions further indicate that if limitations are to be put on financing costs/spreads, they should not be arbitrary, but based on credible market intelligence from the relevant financial institutions. The idea of a range would be more palatable to investors than a fixed ceiling. In addition, the timing of these approvals can be an issue. While it is advantageous to have approvals in place earlier rather than later, the fact that the MoF acts several months before the proposed pricing date can result in delays in closing if market conditions change prior to pricing. An expedient and flexible review mechanism may be needed.

The establishment of a "benchmark" issue will be important for the development of India's access to the capital markets. Much as investors use the US Treasury as a benchmark to determine valuation of other issues, foreign investors would prefer a sovereign security which could serve as the benchmark for valuation of Indian paper. If Indian corporates and financial institutions are to tap the global capital markets periodically for mobilising resources, it may be in India's best interest to consider a sovereign offering which will serve as the bellwether for future issuance.

The Expert Group recommends strongly that Government should issue sovereign bonds in the key capital markets of the world to establish the much required benchmark.

The imposition of a 20 per cent withholding tax on foreign domiciled debt investors can work against the policy objective of restraining foreign currency borrowing. This new regulation can have the effect of decreasing the available investor market for any given issue, as the potential administrative burden of withholding tax credits between countries

can discourage most passive investors, which make up the bulk of the available financing sources. Keeping foreign currency borrowing under control can best be done on a policy level (i.e. by restricting certain issuers) and not by limiting the success of issues that all parties want to see succeed.

Forex Market

Infrastructure projects, barring a few exceptions, would have large foreign exchange expenditures in the form of equipment/consumable imports, interest on ECBs, dividend payments etc with little or no income correspondingly in foreign exchange. Hence they would be exposed to a large unhedged foreign exchange risk. At present, exchange control regulations permit hedging of forex risks via the forwards market only if there is a definite underlying transaction. A precondition for purchasing a forward is that delivery of foreign exchange has to be given or taken under the existing exchange control regulations. Consequently, the forward market is not very liquid. There is therefore a need for an appropriate risk transfer mechanism. Non-deliverable forwards would entirely change the situation, while keeping the net exchange position of the country unchanged. Futures as an instrument is an alternative means for risk transfer and is more easily amenable to regulation. The introduction of these instruments in the forex market would call for appropriate changes in exchange control regulations by the RBI.

Debt Market Reforms: Need to Develop Market Infrastructure

Synergistic links can be developed between private infrastructure projects and domestic financial intermediation through capital markets. Infrastructure developers and private (especially contractual) savers share a long-term horizon. Bringing compatible savers and investors together is the task of capital markets. At the same time, the financing of infrastructure projects improves appraisal capabilities and expands risk-diversification possibilities for local commercial banks, equity and bond markets, and institutional investors such as insurance companies and pension funds.

Successful implementation of the envisaged investment would call for reform in all segments of the financial system. The major areas, where comprehensive policy and procedural changes would be necessary would largely be in the institutional segment of contractual savings—insurance, pension and provident funds—and the debt market. The policies relating to the equity and forex markets, external commercial borrowing and fiscal concessions to infrastructure projects would also need to be reviewed. Essential for bond market development are:

Long Term Confidence: As long as bonds are a long-term fixed-income contract, it is essential that both investors and issuers are rea-

The process of granting approvals by the Ministry of Finance and the RBI for external commercial borrowings needs to be streamlined.

sonably confident about the stability of economic conditions in the long term. Two key elements here are political stability and macro-economic stability. A serious impediment to bond market development arises if anxiety about either of these is translated into expectations of high inflation. When inflation has been high for some time, it is generally true that expectations about future inflation are rather uncertain and tend to be high. Volatility in inflationary expectations and market exchange rates translate into high risk premia in the bond market, stunting its growth. Risk-averse long-term investors also need to feel secure regarding the enforcement of a sound legal framework in areas such as contracts, collateral, corporate governance, bankruptcy etc.

Bonds being long-term fixed-income contracts, both investors and issuers need to be reasonably confident of economic stability.

Unregulated Interest Rates: Ceilings on interest rates tend to kill bond markets because they do not allow for enough spread to reflect risk and term structure. When government borrowing is high to finance large budgetary deficits, authorities tend to introduce administrative ceilings on interest rates (to reduce the cost of government borrowing), and mandatory investment guidelines on financial institutions (to facilitate larger volumes of issuance of government paper at low rates, thereby crowding out private issuers). At a minimum, such regulations discourage the development of an actively traded bond market; if carried further, they stunt the issuance of bonds by private borrowers; and if highly repressive, they retard the growth of financial savings and hence the development of bond markets. In the absence of market-determined interest rates, the market also suffers from a lack of benchmark indicators.

Institutional Investors: Unlike bank deposits, bond markets cannot thrive exclusively on an investor base comprising individuals. This is because individuals' time horizon is often relatively short and the costs of marketing bonds to a large number of small investors is prohibitive. The volume and liquidity of bond markets depend crucially on the participation of institutions that invest large pools of savings and constitute an abiding source of demand for long-term bonds. These institutions can fall into several classes; first, contractual savings institutions such as pension or provident funds that have long-term payment obligations and need to preserve the real value of their funds without incurring excessive risk; second, insurance companies that are a form of financial savings for individuals and need to deploy their funds profitably to offer attractive terms for insurers; and third, mutual funds that are explicitly set up as vehicles for pooling investors' funds in search of greater efficiency in investment execution and are marketed to individual investors on the basis of their investment performance.

Creating an institutional investor base is a key role for public policy. Among the instruments of policy in this area are:

- Mandating the funding of pension/provident funds rather than rely on pay-as-you-go schemes, provided this makes sense in the broader context of social insurance policy

- Providing favourable tax treatment for individual investment in insurance and pension contributions
- Designing prudential regulations on the asset allocation of such funds in a flexible manner so as not to preclude investment in corporate instruments
- Providing the regulatory framework for setting up mutual funds with adequate investor protection
- In some settings, commercial banks can be active institutional players in the bond market. If they are, their market activities need to be regulated to protect depositors' interests.

Qualified Issuers: Bonds may be issued by governments, municipal authorities, public enterprises or private corporations. In all cases, it is important that the credit quality of the issuer is clear and well-established. For

Government, there is generally no problem with credit quality in local currency issues, as they have the power to levy taxes and would accord high priority to the servicing of their debt. The credit quality of municipal authorities and public enterprises depends very much on the degree of their autonomy from government interference and the availability of independent revenue streams adequate to sustain debt service. At a minimum, it is vital that there is adequate disclosure of their financial condition based on sound accounting principles and independent auditing. Bond issues by governments can be useful in establishing market benchmarks but excessive borrowing by public authorities can crowd out private issuers of bonds. Specific actions may be required in the first instance to enhance the credit quality of potential issuers.

Well Regulated and Functioning Debt Market Institutions: A bond market cannot thrive without the necessary infrastructure for trading swiftly and securely. These institutional arrangements should typically be provided by private market participants but might, in the initial stages, need some official encouragement and support. Key elements of such infrastructure are:

- **Payment system:** Settlement of securities trades requires the support of a payments system that assures delivery versus payment or, at the least, short lags in executing payment orders with certainty.
- **Settlement/transfer/custody:** Institutions that will assure safe custody of securities, speedy transfer of ownership with minimum transaction costs, and reliable servicing of investors and issuers of securities.
- **Trading platforms:** A formal or informal arrangement whereby traders can buy and sell securities within a well-regulated and competitive market framework. Such an exchange could be automated, open-outcry or over-the-counter. Key requirements are assurances of the integrity and financial soundness of the participants and the speed of settlement of completed trades; trading counterparts should be well-capitalised and active.

■ **Market regulation:** The legal and regulatory framework for the assurance and trading of securities with suitable investor protection, based as far as possible on the principle of full disclosure of financial information by issuers rather than resorting to merit regulation. At the same time, regulators must avoid unduly raising transaction costs to the issuers, allowing maximum freedom to the issuers to select the type and terms of the instrument, timing of issue and extent of underwriting.

■ **Price information system:** Arrangements to inform all market participants (brokers, dealers, investors and issuers) of the main features of completed trades in the market as rapidly and completely as possible; information on bids/offers in real time would improve market efficiency.

■ **Liquidity assurance:** Brokers/dealers should have access to liquidity at market rates in sufficient volume to enable them to discharge their market functions effectively. Beyond ensuring that there are no administrative restrictions on bank lending to brokers/dealers, this generally does not require any special action by the authorities except when there is a systemic market disruption that requires exceptional confidence building measures.

■ **Credit rating agencies:** The pricing of risk is at the heart of a bond market and, hence, there needs to be a system for assessing risk that is broadly acceptable to all market participants. Typically, this is provided by independent credit rating agencies that rely on objective and probing analysis to assess the credit risk of particular bond issuers and set standards for credit appraisal, marking bonds of different issuers more comparable. Such credit ratings are made available publicly and guide the pricing of a primary issue as well as the spreads in secondary trading. To ensure sustained objectivity, it is helpful to have more than one credit rating agency. At least three credible rating agencies already exist in India.

■ **Training and education:** Even if an active equity market already exists, it is likely that market participants in a fledgling bond market are not familiar with key concepts that are peculiar to bonds (e.g. yield to maturity, duration) relating to calculation of yields and construction of indices. A public or private agency will need to take on the task of educating the public and training market professionals in these concepts. The task is more demanding if the intention is to establish a market in derivative instruments or repurchases.

Liquid Money Market: An active money market can be very helpful in the development of a bond market by providing liquidity to market participants and establishing a yield benchmark at the short end that helps in pricing issues.

Pricing of bonds in both the primary and secondary markets is greatly facilitated by the existence of suitable benchmark issues. Variable rate bonds require a market-determined short-term interest rate. This is best established in a money market through the trading of treasury bills. Failing that, a bank deposit rate can be used, but that is a poor substitute.

At the heart of any bond market must lie a system for assessing risk that is broadly acceptable to all market participants.

In general, benchmark securities must have a stable and predictable credit (not necessarily risk-free although that is the most desirable) and be actively traded so that market quotes are available at all times within a small bid/ask spread. Markets in benchmark securities should have enough depth to sustain hedging operations by brokers/dealers in both bonds and equity markets. To facilitate the issuance of bonds of varying maturities, it is helpful to have benchmark securities traded at a wide spectrum of maturities.

Taxes: The growth of a bond market can be stunted by the prevalence of discriminatory taxes such as stamp duties or transaction taxes that make trading costly. Non-discriminatory tax treatment (e.g. in the taxation of dividends, interest and capital gains and the levy of withholding taxes) that levels the playing field between bonds and other forms of financial investments is an area for public policy.

The existence of a stockmarket helps the development of bond markets in two ways. First, unless there are corporations that have raised equity finance, there is little scope for increasing leverage with the issue of bonds. Second, market activity in stocks can help sustain improved market infrastructure and attract the participation of adequately capitalised brokers/dealers in both stock and bond markets.

Some of these essential elements that are required for the development of the debt market already exist in the country but it is obvious from the foregoing that a great deal still needs to be done. As mentioned earlier, in addition to the various measures mentioned above, there is likely to be a need for developing credit enhancement techniques which make the instruments of both infrastructure projects entities and of final intermediaries marketable. The following sections provide pointers to the specific areas where policy measures are needed for developing the debt market.

Policy Measures for Debt Market Development

The debt market has remained undeveloped due to an illiquid secondary market in debt instruments. As a sizeable part of household savings continues to be attracted to fixed-income financial instruments, development of a debt market, both at the wholesale and retail level, would be necessary for supporting investments in infrastructure projects. Deepening and widening of the market in debt instruments through financial innovations are expected to go a long way in stepping up the overall domestic savings rate. This would, of course also crucially hinge on the speed with which the policy framework is made conducive.

The reforms in the debt market can be broadly classified under market-related reforms and regulatory changes. While the market-related reforms would go towards expanding the size and scope of the market, the regulatory changes would facilitate the smooth functioning of the market.

Debt Market Infrastructure Related Reforms

Developing Market Makers and Primary Dealers: The Reserve Bank of India has recently completed the process of selecting Primary Dealers (PDs) for government securities. Earlier, it had outlined the framework within which these PDs will conduct their primary and secondary market operations. However, a number of active players—particularly private NBFCs—in the debt market have expressed apprehensions about profitably operating as a PD. Some of the reservations that have been expressly mentioned are as follows:

■ The scheme does not provide PDs exclusive access to the primary auctions of RBI while putting an underwriting obligation on them. This could put some commercial constraints on the PDs' operations. For instance, large corporations, banks and mutual funds, the typical clients of a PD, can also bid separately and individually without any underwriting commitment. Therefore a PD will have no particular advantage when a security issue gets fully subscribed.

■ The move to provide dealership only for one year in the first instance would also inhibit operations.

■ While limited funding is being provided through repos, without the permission to go short at least to a limited extent, PDs will find it difficult to manage their day-end positions.

■ Lack of an auction timetable and its size handicaps the strategy of a PD. Moreover, it is not clear whether the underwriting commitment can be offset against the success ratio of the PD in the auctions.

■ The guidelines suggest that it is mandatory for PDs to make markets in government securities and maintain a sizeable inventory of securities. However, it is not clear whether the PD has a choice of deciding in which security and maturity it will make a market. In the absence of such a choice, the resource requirements for maintaining inventories of securities could be excessively large and adversely impinge on the net worth of the PD. Moreover, the guidelines do not adequately address the issue of whether the PD has any control over the bid-offer quotes, the spread and the counterparty it wants to deal with.

As the scheme stands, banks and financial institutions cannot directly become PDs although they are eminently suited to take up this role. Banks in particular are the major investors in government securities and Treasury bills. Given their strong branch office network across the country and their close dealings with major investors, as also potential investors in bonds and other debt instruments, banks can emerge as active PDs, provided they are permitted to take up this activity by RBI. The secondary market in debt instruments is still in its infancy in India and it would be quite some time before the proposed non-bank PDs could become active. It would, therefore, be desirable to permit banks and institutions to set up PD counters as part

of their overall banking and lending activities.

In order to facilitate broadbased holding of debt instruments—especially at a retail level—it is necessary to encourage setting up of PDs of different sizes with all of them conducting operations in relation to their relative net worth. Akin to the classification of merchant bankers by SEBI, PDs could be categorised by size of their net worth. The category of PDs announced by RBI may be classified Category I PDs. There should be a facility for recognising PDs in Category II with net worth in the range of Rs 250-500 million, Category III in the range of Rs 50-250 million and so on. Such a classification would be necessary if it is recognised that the medium and small-sized banks could play an important role for dealing in and distributing retail the entire range of debt instruments, including government securities and Treasury bills.

If RBI decides to extend credit facilities only to the large PDs with a minimum net worth of Rs 500 million, it should at least issue clear-cut and supportive guidelines to banks for extending credit facilities to the other medium-sized and small PDs. Adoption of such a policy would encourage emergence of a large number of dealers who would meaningfully and materially activate the debt market.

Benchmark Rate: For the issuance of variable rate bonds, it is necessary to evolve a benchmark rate on the pattern of London inter-bank offered rate (LIBOR). Such a benchmark rate reflects the state of the debt market and acts as the anchor rate around which other yield rates fluctuate. For creating a meaningful inter-bank rate in India on the lines of the LIBOR or the US Fed Funds rate it is essential to remove barriers in the free flow of funds among banks. As per RBI regulations, funds borrowed by one bank from another bank are subject to the same CRR and SLR regulations as deposits mobilised by banks. Consequently, the cost of funds borrowed in the inter-bank market becomes significantly higher than the rate at which they are actually borrowed in the market. In line with the recommendations of the Sodhani Committee, the CRR and SLR stipulation in respect of inter-bank borrowing should be abolished for encouraging emergence of a meaningful rate on the pattern of LIBOR. Apart

from dispensing with CRR and SLR on inter-bank deposits, RBI could consider changing the basis of calculating CRR as a proportion of the lagged average of the Net Demand and Time Liabilities (NDTL). This could considerably enlarge the scope for differing perceptions among the main money market participants and thus go some way towards a healthier development of the money market.

RBI could also consider reactivating the Bank Rate and using it as a general refinance rate within the banking system. In the course of time, the Bank Rate could be used to send interest rate signals into the market and would also lend stability to the inter-bank money market rate.

The benchmark or the anchor rate would help in strengthening the market for debt instruments carrying floating rates. The interest rates applicable to bonds of any

Deepening and widening of the market in debt instruments would hinge on the speed with which the policy framework is made conducive.

borrowing entity would be the benchmark rate plus a differential that reflects the risk premium on such bonds. This process would be aided to a considerable extent by the emergence of PDs on the pattern announced by RBI recently.

Development of a Yield Curve: Yield curves essentially depict the term structure of interest rates i.e., the configurations of yields to maturity on securities, which are identical except in their terms to maturity. A yield curve can be established by using either the yields on government securities or interest rates on the term inter-bank market or a combination thereof. Although far reaching changes have been made in the Indian money market since 1989, this important market making "tool" has been conspicuous by its absence.

Notwithstanding the changes that have been introduced, the Indian money market continues to be characterised by segmentation and weak interlinkage between money, capital markets and the foreign exchange spot and forward markets. Moreover, the absence of a term inter-bank market has inhibited RBI from using the market to transmit signals relating to its interest rate policy. Structural inadequacies in both markets, i.e., the market for government securities and the inter-bank money market have inhibited the emergence of a meaningful yield curve in the nascent Indian debt market.

The result is what is observed to be basically a flat yield curve. Consequently, it is found that even medium and long-term instruments are not found to be marketable without providing for returns that are similar to the short-term returns available in the market. This is of crucial significance for the infrastructure sector where maturity has to be stretched. It may be expected that in well-functioning debt markets, during times of high inflation, the yield curve would tend to be inverted and the converse during times of low inflation. This phenomenon imparts greater stability to the costs of funds raised from long-term instruments. It must, however, be understood that such yield curves and hence well-functioning bond markets can seldom develop in the presence of high and/or variable inflation.

At present, data on the yields based on trading of government securities are published by the NSE, while those based on the SGL are published by RBI. Yield curves/indices are also constructed by the Economic and Political Weekly (EPW), and ICICI Securities and Finance Company Ltd (I-Sec) and others. However, given the peculiarities of the Indian financial system, these efforts are beset with several limitations. A cursory glance at the secondary market in government debt reveals that trading is concentrated in a few securities only. This essentially reflects a herd mentality, an excessive concern for liquidity and a marked reluctance for risk-taking. In spite of considerable yield differences between government securities and other money market instruments, the aversion of most banks towards profit maximisation has been reflected in earnings opportunities foregone on account of the lack of technical expertise on

Evolving a benchmark inter-bank rate on the pattern of LIBOR

The CRR and SLR stipulations should be abolished, and the RBI should revive the Bank Rate as a general refinance rate within banks.

the part of Indian money managers.

In the primary auctions of government paper, the main subscribers are essentially the banks which ensure that agents with divergent expectations are absent in this market. In developed financial systems like the US, the set of subscribers has been widened to include, among others, pension funds which normally have a surfeit of long-term funds and can therefore act as book-builders. Although the primary dealership system has been introduced, without a wider set of participants, its impact on the development of a yield curve will, at best, be limited.

Furthermore, on the secondary market, most of the transactions are confined to arrangements on the telephone where personal rapport dominates competitive market considerations and where treasury managers prefer to transact with known parties rather than with the unseen buyers/sellers through the NSE. This practice has prevented the emergence of a technically deep and wide government bonds market. All these considerations, not surprisingly, imply that the secondary market does not reflect a "true" yield on the securities.

A fallout of the narrow participation in the government securities market has been the emergence of a "syndicate" approach among banks in bidding the primary auction prices to very low levels and on many occasions striving artificially to jack up the cut-off yields to higher levels. This has often left RBI with the Hobson's choice of either accepting a high yield or letting the issue devolve upon itself. In the second half of 1995-96, RBI had to subscribe to large portions of notified amounts in 91-day Treasury bill auctions and government securities auctions, rather than allowing the yield rates to rise. This obviously has prevented the primary yield from getting aligned with market expectations.

Moreover, the yields calculated by the NSE and RBI for the same secondary market price of similar government bonds are different due to the "voucher" element (the tax on accrued coupon) embodied in the stock. While NSE's estimated yield is net of voucher, RBI's yield is cum-voucher. Instead of deliberating on the question of proper accounting of the "voucher", it suffices to point out that such diverse practices create confusion regarding the status of what is the "true" yield on government bonds.

Clearing House: The settlement of trades on the debt market is still effected directly between participants. There are multiple agencies involved in effecting the settlement of these trades. One of the major gaps today in the debt market is the absence of a clearing house as in the case of the US which has the FEDWIRE system that co-ordinates and effects settlement among different settling agencies on behalf of the debt market participants. While there would continue to be different agencies keeping the records of holders in the different securities, there is a need for a single clearing agency that will co-ordinate with the different securities settlers, as also the

funds settlers to monitor that all trades are settled, and ensure "delivery versus payment", quite similar to the model followed by countries like the USA.

Funding for Intermediaries: While most of the investors in the debt market are better capitalised, the brokers in this market have so far been only providers of intermediation services and not traders in their own right. It is important that the intermediaries should not only be deal makers but also become significant traders in their own right. This will require that norms be evolved for funding of the activities of these intermediaries from banks as in the case of providers of any other financial service including working capital limits.

It is envisaged that intermediaries will now play an important role in the Government securities market as PDS involved in placing out the primary issues by Government. They would not be able to play this role effectively unless they have a sufficient fund base to take up portions of an issue on their own account and place it out over a period of time. This holding and placing capacity can come only if adequate channels of funding are made available to them.

Widening and Deepening the Market: Hitherto, the primary investors in the debt market were the commercial banks, financial institutions, insurance companies, mutual funds (chiefly UTI), and pension and provident funds. In the post-reform period (more particularly after 1993), trusts, corporates (primarily large NBFCs) and FIIs have entered the market in a small way. One of the main reasons for the illiquidity in the debt market is the lack of a large investor base that can sustain trading interest in the market over a long period of time. Most of the participants typically "buy to hold", as there is considerable apprehension about the lack of availability of reinvestment opportunities. In addition, the current period—particularly after 1993-94—has seen major changes in coupon rates on securities, so that any sale would entail booking of capital losses as investments have historically not been valued on a "marked-to-market" basis by most of the participants. All these factors have diluted the incentive to secondary market trading in debt instruments.

A recently-done quick analysis of the trade in the wholesale debt market segment of the NSE shows that Indian banks have accounted for only about one-fourth the total trade while foreign banks that continue to be a very small part of the Indian banking system accounted for nearly two-fifths of the total. A sizeable portion of trade was accounted for by the Indian corporate sector which, of late, has been giving considerable attention to the treasury functions as a profit centre.

In the past, nationalised banks and the insurance companies—the largest holders of government debt instruments—have not paid sufficient importance to the treasury management function. The domestic commercial banks which account for nearly 97 per cent of the entire banking system of the country, hold nearly two-fifths of their

assets in the form of debt instruments. Other major holders of debt are the large investment institutions: UTI, LIC, GIC and its subsidiaries, and provident funds.

To widen and deepen the market for debt instruments, it would be necessary to bring in new investors such as the FIIs who will not only be effective fund-based participants, but will also bring with them the knowledge and experience of development of the debt markets in other countries. FIIs tend to be aggressive traders in debt securities who attempt to maximise returns by switching their portfolio in accordance with their assessment of changing yields and maturity profiles. One of the major constraints faced by FIIs in this area is the restriction on the amount of debt instruments they can invest in at any point of time as a proportion of their total portfolio. The ratio as stipulated is a maximum of 30 per cent. This tends to be exceedingly restrictive because FIIs might like to invest significant amounts in debt securities at a point of time, and in any case it is difficult to meet this proportion at each point of time rather than as an average across a period. The objective of containing any excessive growth in external indebtedness, arising out of the holding of rupee-denominated debt by foreign investors, including FIIs, could be achieved if Government upfront fixes the limit on the domestic debt that foreign investors can hold and do away with the present 70:30 rule. Moreover, some FIIs find it attractive to float pure debt funds which by definition do not contain any equity element and would therefore be ruled out from the beginning under the current guidelines.

While widening the investor base through some of the above measures is one aspect, the other equally important aspect relates to making debt securities of a single issuer "fungible". This would be particularly relevant for infrastructure projects where the gestation period is relatively longer, and the need to source modest to large volume of funds from the market periodically is greater. Such a measure would impart extra depth and liquidity in the market and provide larger volumes of a single security for trading among investors. A small beginning has already been made in this direction in 1995, when issues of gilts were made fungible. In order to enhance liquidity further, repo transactions can be re-introduced for all listed debt securities with adequate/suitable safeguards. At a later date, when depositories become operational and electronic clearing and settlement is possible, "securities lending" can be introduced with suitable legislative changes.

The Indian market is characterised by weak interlinkages between money, capital markets and the foreign exchange spot and forward markets.

Money Market Mutual Funds: RBI has come out with guidelines for launching money market mutual funds (MMMF). While these guidelines have since been substantially modified, no such funds have been launched as yet as the norms are still considered to be operationally too restrictive. MMMFs must have the flexibility to structure the pattern of investments of their fund in accordance with their objectives. Moreover, no restrictions need be placed on the kinds of instruments in which MMMFs can invest. Experience in the

US indicates that banks can play an important role in the development of the mutual fund industry. In India too, several banks have set up mutual fund companies but most of them have opted in favour of equity-dominated growth funds rather than debt-oriented income funds. One sure way of broad-basing the debt market would be to encourage banks and institutions to set up MMMFs and debt-oriented mutual funds. In the US, the income funds which invest heavily in debt instruments have in a way provided a link between the wholesale and retail debt market by attracting household investments.

Retail Distribution Networks for Debt Instruments: In the initial stages of development of the debt market, infrastructure should not only comprise resourceful market-makers and underwriters but also distributors who can create liquidity so that a vibrant secondary market in debt instruments develops. The distribution network of brokers and sub-brokers at the moment does not exist for debt instruments the same way as it exists for equities. The brokers and sub-brokers supporting equity instruments are not equally keen to build investor psychology in favour of debt instruments as it is going to be a time-consuming and expensive process.

At present, the retail spread of even equity instruments is said to be concentrated in a limited number of large cities. Among other reasons, this is because of the difficulties related to the antiquated trading system that still characterised the working of the Indian stock exchanges along with the governing rules and regulations. It may be expected that, once the depository system is established and screen-based electronic trading becomes widespread, it would then be feasible to extend the reach of the capital market to many more of the country's cities and towns. A large majority of households in the lower and middle income levels generally prefer safe debt instruments giving assured returns rather than investing in risky equity instruments. The relative popularity of postal saving instruments indicates the propensity of households to save in safe savings instruments which provide reasonable and assured returns. We therefore propose that steps be taken to encourage spread of credible broking companies which can have a presence in the widespread network of towns and cities in the country. According to the 1991 census, there were more than 300 cities with population over 100,000. With the high growth that is taking place in the number of middle income households, such a spread of safe and credible broking compa-

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China's Development Bank

As part of its banking reforms, China has been setting up specialised banks which will work as commercial entities. State Development Bank (SDB), modelled on the Development Bank of Japan, was set up in March, 1994 to finance infrastructure projects.

The Ministry of Finance provided the SDB with the initial capital of \$1 billion and intends to provide another \$5 billion by 1998. On the basis of international capital requirements of 8 per cent, the SDB is all set to becoming a giant in Chinese finance with a loan book that may run to about \$71 billion by the year 2000. In the very first year of its operation, the SDB lent \$9.3 billion to 427 separate projects. Its role in Chinese development finance is expected to become increasingly important as subsidised funds from international agencies such as IDA, the World Bank's soft loan arm, become more scarce.

Beyond its capital, the SDB receives no funds from the Government and does not borrow from the Central Bank. This is to make the SDB responsible for its own lending decisions. The SDB works on what proportion of its cost a project can repay and lends no more than that. The remainder of the funds required by the project are supposed to be provided by the Government through a grant.

There are three kinds of projects: projects which have a high social value but no economic returns and must be fully financed by the Government; projects with a commercial return which can finance themselves in the market, and projects which fall between the first two. It is the projects in the third category which the SDB is targeted to finance. The SDB concentrates on power, telecommunications and transport. Amongst the major

projects which are receiving SDB funding are the \$17.5 billion Three Gorges dam which involves the creation of a 500 km long reservoir on the Yangtze river, the Beijing-Kowloon railway and the \$3.5 billion Daya Bay nuclear power project in Southern China.

SDB has acquired high international rating and a yen-denominated bond issue is on the cards. SDB recently raised a \$50 million seven-year syndicated credit led by IBJ and Korea Development Bank with an interest rate just 3/4 percentage points higher than money market rates. However, most of the funds of the SDB are expected to come from the domestic market through bonds of three to five-year maturity. The subscription to the bonds would come mainly from the commercial banks which can use their holdings to satisfy their reserve ratios. SDB is pushing the maturity to eight years which better matches the life of its assets. Eventually, the source of funding for the SDB will be domestic and international bonds. The borrowing in a mixture of domestic and foreign currencies will provide funds for projects which earn no foreign exchange themselves reducing the currency risk that they run.

While making loans, SDB takes account of national developmental policy, but it has already made a point of rejecting loan proposals which it regards as unsound. It has withstood pressures to finance prestige projects. The SDB would also not assume responsibility for the bad loans of the specialised banks. In 1994, the SDB wrote off only Rmb100 million, a tiny proportion of its total loan portfolio.

Source: Financial Times June 24, 1994 and May 12, 1995.

nies is likely to lead to very significant increases in the resources obtained through household savings. It is recommended that SEBI may look into both the promotional and regulatory measures required to promote the formation of such large and widespread networks of broking companies.

If this is done, it would also become possible for households to subscribe to the benchmark issues of sovereign Treasury bonds etc. Progressively, as households become accustomed to investing in such debt instruments, they would then be likely to also start subscribing to other corporate debt instruments.

Until it becomes possible to develop an extensive network of brokers and sub-brokers and market-makers, it would be appropriate to use the network of commercial banks, and perhaps the postal banking system, which can combine the roles of distributors and resourceful market-makers. Given their wide branch network, banks have access to both retail and wholesale investors in debt in semi-urban as well as rural areas. If the banks are allowed and encouraged to take up the market-making role, they will be able to create considerable interest in debt instruments. Retail as well as wholesale investors in India trust the banking system—both commercial and postal. In the interim, before an effective network of underwriters, brokers and sub-brokers is created, it would be necessary to exploit the strength of the Indian banking system for creating an active debt market.

Regulatory Changes

Single Regulatory Authority : The debt market is at present subjected to regulation of multiple regulatory authorities—RBI, SEBI, the Ministry of Finance, and the Department of Company Affairs, Government of India. For more effective regulation and development of the debt market, it would be desirable that there is a single regulatory authority, preferably SEBI, for the debt market.

Uniform Valuation Norms for All Classes of Investors : Until recently, there were no uniform accounting guidelines for valuation of investments by banks and the investment institutions. With RBI now stipulating clear-cut guidelines regarding "marked-to market" valuation of investments by banks, the situation has been partially rectified. To spur trading in debt instruments, it would be necessary to have uniform valuation norms on a marked-to-market basis for all the major classes of investors—banks, investment institutions, mutual funds, NBFCs etc. Frequent periodic revaluation of debt assets in response to changes in market prices will minimise the extent of capital losses to be booked on investments. It will also facilitate the decision making process relating to switching of portfolios in response to changing yields and maturity patterns. This will help in building trading volumes, thereby enhancing liquidity in the market.

Treatment of Tax Deduction at Source (TDS) : TDS acts as an inhibiting influence on the tradability of instruments, espe-

cially where it requires fine adjustments to price between different categories of holders. For example, Government securities require to be quoted on a "gross" basis for entities that are non-taxable and "net" basis for entities that are taxable. This requires that each time a deal is struck, each party has to clarify the basis of the quote. It thus becomes impossible to have a uniform price-quoting mechanism for instruments. Similarly, no trading can be done on behalf of clients with different tax status for whom the SGL account is maintained by the constituent foreign banks, as split TDS certificates depending on the tax status of each of these clients cannot be issued under the current framework. Hence, foreign banks are quite reluctant to maintain constituent accounts for investors, thus discriminating against them in regard to their investments in government securities.

It is desirable that RBI does not insist on differential rates of TDS and accepts the market practice which is in favour of a single TDS rate for all debt instruments. In order to introduce uniformity in the system of price quotation, it is desirable that market participants should adopt a practice of quoting all prices on gross basis inclusive of TDS. On corporate instruments too, such a mechanism of standard TDS rate across all categories of holders is very necessary.

At present, issuers of debt instruments have to ascertain the applicable TDS rate of all holders on interest payment dates. If tax authorities stipulate a single TDS rate for all types of debt instruments, issuers will be spared the need for ascertaining the tax status of different holders on the interest payment dates. This will also simplify the collection and payment mechanism for the issuer as the amount payable is easily ascertained and can be paid, instead of dealing with holder-wise status, whether the requisite forms have been filed by the holder, etc. Therefore, a single TDS rate for all categories of holders of securities is imperative to reduce transaction and administrative costs.

Another anomaly which currently exists relates to taxation of incomes on investments by FIIs. At present, FIIs suffer a withholding tax of 20 per cent on their interest and dividend income. However there is no such tax (on approval by the Government on a case-by-case basis) on ECBs by Indian entities abroad. It is a bit incongruous that when an investor takes a rupee risk he pays withholding tax, while he does not pay any such tax when he is isolated from any currency risk.

Tax Status of Debt Instruments: Currently, both taxable and tax-free bonds are being issued. Only public sector entities are given approval to issue tax-free bonds. Tax-free bonds are allowed to be issued to keep costs of capital low for the infrastructure entities. Sometimes it is argued that tax-free bonds distort the interest rate structure in the financial system. It should, however, be noted that tax-free bonds are issued even in the highly developed US financial market. The municipal bond market in the US is a market of tax-free bonds. So long as appropriate interest differential between

For brokers to become traders in debt instruments, they need to access bank funds as in the case of providers of any other financial service.

taxable and tax-free bonds are maintained, there is no harm in issuing tax-free bonds.

Tax-free bonds are preferred by entities that are subject to tax. Such bonds are not attractive to such investors as provident and pension funds as their incomes are not subject to tax. Hence it would be appropriate to allow infrastructure entities to issue both taxable and tax-free bonds to suit preferences of different classes of investors.

There appears no clear-cut reason why private sector infrastructure companies are not permitted to issue tax-free bonds. If certain categories of infrastructure entities are not allowed to issue tax-free bonds, they should be permitted to issue bonds with a single tax rate—to be deducted at source. Currently, interest income is taxed at different rates as applicable to its holders. If a corporate entity issues taxable bonds with a coupon of 16 per cent per annum, it could be allowed to deduct tax at a standard rate of say 30 per cent (a weighted-average tax rate), so that the holders get a post-tax return of 11 per cent per annum. Such bonds would ensure that the Government gets 30 per cent of the interest payable from the bond-issuing entity and income in the hands of bond holders is tax-free. Such an issuance procedure would significantly simplify trading in such instruments.

Lastly, there appears to be considerable confusion in the minds of some issuers regarding the tax treatment of income on some debt instruments, e.g. deep-discount bonds, zero-coupon bonds, etc. In the absence of practices such as "Advance Tax Ruling", issuers have to face considerable delay in finalis-

ing the nature of the instrument to be issued and terms thereof. A clear tax ruling in this regard could help develop a market in government securities, similar to that of STRIPS as in the US.

Inhibitive Stamp Duty : Government securities, PSU bonds, commercial paper and institutional bonds are exempt from stamp duty at the time of issue as well as at the time of transfer. Similarly, all bonds that are transferable by way of endorsement and delivery are also exempt from stamp duty. However, all transactions in units and corporate debentures attract stamp duty at the time of issue as well as transfer. More importantly, any secondary market trading in these instruments attracts stamp duty when a contract note evidencing the transaction is issued. This is ad valorem without any limit on all instruments except government securities, making the incidence quite exorbitant. This motivates participants to look for methods of avoiding such duty incidence including avoiding putting deals through the NSE which alone at the moment has a separate formal debt trading floor.

Since stamp duty rates on debt instruments vary across different states, there is an attempt to book transactions in a state where the stamp duty is lower. It would be to the advantage of all states across the country to have a uniform rate of stamp duty so that problems of stamp duty evasion could be tackled effectively and all states would stand to benefit. Secondly, it is desirable that stamp duty rates are kept reasonably low if trades in debt securities are not to get discouraged.

Stamp duty on issue of derivative instruments should be

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Regulation of LICs in the US

DURING the 1970s and early 1980s, inflation and high interest rates forced life insurance corporations (LICs) to change investment strategy and the types of insurance products they offer. To stem outflows and attract additional funds, LICs developed new insurance products, such as universal and variable life policies, which differed from traditional whole-life policies in that the size of the death benefit and/or the annual premium could change to reflect investment performance over the policy's duration. Another product was the guaranteed investment contract (GIC), which promised a fixed return for a specified period. The changes in insurance strategy and products required adjustments in the financial structure of the LICs.

As of the end of 1991, LICs in the US held over \$1.5 trillion in assets. The composition of these assets has been changing over time, reflecting greater securitisation and corporate bond holdings. Between 1970 and 1991, the share of government securities rose from 5.3 per cent to 17.4 per cent. The share of corporate securities rose from 42.7 per cent to 50.8 per cent. On the other hand, direct mortgage loans declined over the period from 36 per cent to 17 per cent. While securitisation has meant greater liquidity for the LICs, it has also exposed them to pre-payment risk in the case of mortgage-backed securities and credit risk in case of non-investment grade corporate bonds.

The liability side of the picture reveals the growing importance of pension and annuity business relative to traditional life insurance. Policy reserves for life insurance in force fell from 56 per cent of total assets in 1970 to 24 per cent in 1991. Over the same period, reserves to cover annuity payments rose from 23.5 per cent to 58 per cent.

The regulation of LICs is necessary as, in the absence of regulation, LICs would have an incentive to increase risk taking after writing an insurance policy. There is also a possibility of a contagion effect in case of LIC failure with policyholders at other LICs losing confidence in their own LIC and surrendering their policies.

To protect policyholders and to manage insolvencies, all 50 states (including the District of Columbia) have set up guarantee funds. Prior to 1970, only New York had a guarantee system to cover LIC obligations. In 1970, the National Association of Insurance Commissioners (NAIC) adopted a "model" guarantee system for individual state legislatures' consideration. Within one year, nine states adopted legislation based on the NAIC model. The guarantee systems are designed to satisfy policyholders' and annuitants' benefit claims if an insolvent company does not have enough assets after liquidation. Ex-post assessments on the surviving LICs that operate in the individual states finance these guarantee funds. The size of an individual LIC's assessment is

abolished as the duty is already paid at the initial stage. Such a relaxation is necessary for encouraging securitisation of debt. Term-lending institutions like IDBI, ICICI, IFCI, SCICI, etc and housing finance companies like HDFC are keen to augment their resource base by issuing securitised debt instruments based on the underlying loans given by them in the first stage. Since stamp duty is already paid at the time of creation of mortgage (either by way of English mortgage or equitable mortgage), no stamp duty should be made applicable on the securitised debt instruments as it would amount to payment of stamp duty twice on the underlying loans.

As and when it becomes possible to have change in ownership of financial instruments through the depository mechanism, the stamp duty applicable on transfer should be abolished. Stamp duty should be made applicable at the stage of their initial issue and when contract notes evidencing sale are issued by brokers. Such a step is desirable as the currently high rates of stamp duty inhibit development of an active debt market (see Appendix A 6.7 to Chapter VI for a detailed note on stamp duties).

Securitisation of Loans : The legal framework for securitisation of loans needs to be simplified, so as to make it cheaper

based on the proportion of the total premium income it generates. In 39 states, the assessment can be offset against the company's state taxes, thereby shifting the cost of failure directly onto state taxpayers. In other states, LICs are allowed to impose a premium surcharge to cover the assessment cost.

For most states, coverage under guarantee funds is \$300,000 in death benefits, \$100,000 in cash or withdrawal value for life insurance, \$100,000 in present value of annuity benefits, and \$100,000 in health benefits. Some states cover all insurance policies written by an insolvent firm located in the state. Other states cover only residents. Some states cover unallocated annuities such as GICs upto a certain amount—usually \$5 million.

The way in which states finance guarantee funds raises several policy concerns. One, the LIC does not have to make any ex ante payments in order to receive the guarantee. Two, the assessments are based on the ex-post cost of the failure and have no relationship to current or future LIC risk exposure. Three, companies in states with premium tax offsets have little incentive to monitor each other because they will recoup over 80 per cent of the assessment through lower taxes. Four, insurance guarantee funds can weaken policyholders' market discipline. Without the guarantee, policyholders would have an incentive to buy insurance products from safe LICs.

Source: Elijah Brewer III and Thomas Mondschen, "Life Insurance Company Risk Exposure: Market Evidence and Policy Implications", Contemporary Policy Insurance, October 1993.

It would be to the advantage of all states to have a uniform stamp duty so that problems of duty evasion can be tackled effectively.

and easier. Typically, securitisation follows an SPV structure, wherein a highly leveraged company or a trust is the investor in the loans or receivables. The SPV would then issue securities to fund this investment. Corporate structures would fall under RBI's NBFC guidelines which stipulate liquidity ratios, risk exposures, debt ceilings and a variety of other restrictions. This makes it practically impossible for NBFCs to be used as an SPV. RBI (the regulator of NBFCs) could examine creation of a new class of NBFCs—SPVs—which would be subject to different guidelines. One-off exemptions from the NBFC guidelines to SPVs set up for specified purposes could also be considered. The alternative structure of a trust is similar to the existing one for mutual funds, wherein there is an Asset Management Company, a Trust Company and a Trust. However, the

tax laws do not provide for tax exemption of income for such trusts, as is available for notified mutual funds under Section 10(23) of the Income tax Act.

Discontinue DRR : Currently, corporates are expected to create a debenture redemption reserve (DRR) from the current profits whenever they issue debentures with a maturity exceeding 18 months. Usually, debt is raised for creating fixed assets and companies have to provide for depreciation against such fixed assets. Invariably, depreciation provisions are adequate to provide eventual redemption of debt. In long-gestation infrastructure projects, the creation of a DRR over and above the usual depreciation provisions would put avoidable financial stress on companies with regard to their dividend payment policies. It is, therefore, recommended that if equity and debt investments have to be attracted to infrastructure projects, current provisions relating to DRR would need to be discontinued.

Payment of Brokerage to Intermediaries: In the past, since the debt market was essentially a telephone market, most participants have been used to paying a single price inclusive of brokerage. This is not a healthy practice as the investor would never know the actual price at which the trade has been concluded. Most of the participants, especially banks, are unwilling to compensate the brokers through brokerage or for any of the incidental expenses of the transaction like stamp duty paid by brokers on the contract notes. With the result, brokerage whenever paid is generally very low and many brokers are not able to recover even the cost of the transactions. This inhibits brokers from expanding and obtaining a larger business or clientele. While the maximum brokerage payable is specified by NSE, it would help to standardise brokerage if RBI prescribes the minimum level payable. This would help in reducing unhealthy competition among brokers through undercutting especially when there is so much reluctance on the part of investors to absorb any costs. As in the case of foreign exchange markets, RBI should persuade banks to pay appropriate rates of brokerage so that they do not adopt the unhealthy practice of compensating brokers through non-transparent ways.

Fiscal Concessions

■ Fiscal incentives for primary investments:

It may be necessary to provide fiscal incentives for investment in the infrastructure sector's debt. It would be worthwhile for the Government to formulate guidelines and appoint an agency to choose the instruments or projects eligible for fiscal benefits. Stability and transparency in regulations, especially in the area of fiscal benefits, in the form of advance rulings on eligibility of instruments for fiscal benefits would reduce the risk for the investor. To induce retail interest in infrastructure securities, income from such securities could be exempt under Section 80L, or the ambit of Section 88 could be widened to include these securities for the purposes of tax relief (see Chapter VI for specific recommendation).

■ **Leveraged, joint and securitised leasing:** As leasing is intricately linked to capital formation, it has high potential in infrastructure finance. Financial leasing is a useful channel for acquisition of equipment, while simultaneously containing project costs. The loss of depreciation benefits could be offset by tax-deductible lease rental payments, which could be suitably structured to maximise tax breaks in the initial years of operations. The tax holidays provided in the budgets (1994-95 and 1995-96) for infrastructure projects in the initial years would usually not be of much use, given the high depreciation outgo in the initial years. Leasing would greatly ease the situation by giving/ transferring the fiscal benefit to tax-paying entities. Joint and leveraged leasing structures are used internationally to co-finance the asset. However, the Income Tax Act does not permit sharing of depreciation where assets are owned jointly. Hence suitable changes would need to be effected in the provisions of the Act to provide for sharing of depreciation charges, especially in the case of joint/ leveraged leasing for infrastructure projects.

Institutional Innovations For Activating Debt Markets

Need for Institutional Innovations: International experience suggests that the traditional approach to financing—term loans from FIs and banks and equity offerings in the domestic capital markets—are inadequate to match the risk-returns profile and payback periods of infrastructure projects. Since the gestation periods of most of these projects range anywhere between six to 10 years, the FIs and banks, which generally extend loans for five to seven years may find it difficult to provide loans for such long periods. FIs and banks are constrained by the time profile of their own liabilities. They simply cannot prudently lend large volumes of debt. Internationally also, commercial bank loans are typically seven to 12 years—a majority being towards the shorter end—whereas infrastructure projects require financing of over 10 years maturity, if tariffs to service the debt are not to be excessive. It is also unlikely that the international capital markets would be able to provide sub-

There is a need for multilateral agencies to provide credit enhancements to extend the maturity of the funding raised for projects.

stantial amounts of funds for maturities greater than seven years. Hence there would be a need for multilateral agencies like the World Bank and the ADB to provide credit enhancements to extend the maturity of the funding raised for infrastructure projects. Institutional sources such as pension funds and life insurance companies perhaps provide the best maturity match for infrastructure financing. Since fixed-income, long-maturity securities do not have a major upside potential (except for capital gains through trading), institutional investors are much more anxious to seek protection against downside risks than equity investors. Securities and projects deemed investment grade by the rating agencies will typically get funds at lower costs and longer maturities. Even for private placements of non-investment grade securities (private placements are possible for both invest-

ment and non-investment grade paper), investors seek tight risk mitigation and rigorous credit analysis.

Even after the various reforms proposed for developing a debt market are put in place, there may be difficulty in actually issuing long-term debt instruments since few borrowing agencies at present have high enough credit quality to go to the market. Even the all-India financial institutions are currently finding it tough to raise long-term funds in the capital market. Welcome innovations have been seen in the last year in terms of the issuance of deep-discount bonds, flexi-bonds and the like which have been issued by all the AIFIs in the face of the credit crunch that manifested itself in 1995-96. However, in raising these funds, these institutions have had to offer basically similar interest rates for different term maturities that have been provided in these instruments. Long-term real interest rates of over 10 per cent will not be suitable for infrastructure investment. It is therefore likely that innovative institutional interventions would be required to help in kickstarting the debt market, particularly for medium and long-term bonds.

The basic issue is the credit enhancement of borrowing entities. This can be done through the provision of institutional innovations such as

- Upgradation of appraisal institutions
- Bond insurance
- Provision of guarantees
- Credit rating of infrastructure projects and companies
- Funding of pre-feasibility and feasibility studies
- Securitisation of assets

India is lucky to already have a reasonably well-developed framework of financial institutions. The liberalisation of the financial sector and the capital markets that has taken place in the last few years has also seen the entry of newer institutions such as the ILFS and SCICI. It is however likely that even these established institutions may need additional enhancement of their credit quality in order to borrow long in both domestic and international markets. It is also found that in most countries, some special arrangements have been made to make possible the issuance of different kinds of bonds

meant mainly for raising resources from the capital market at the lowest possible cost and with the longest possibility debt maturities. For example, in the US, much of urban infrastructure is financed through the sale of municipal bonds which have been given tax-free status by the federal government. A complex market structure exists to make these bonds marketable. The availability of credible credit ratings, financial guarantees, bond insurance and the like help in this respect. Similarly, the development of the widespread housing mortgage system in the US was helped to develop through government intervention through the creation of government-sponsored agencies such as Fannie Mae. In Germany, much of infrastructure is financed through the sale of mortgaged bonds called Pfandbriefs which are backed up either by state guarantees or mortgages that can be conveyed. In Japan, infrastructure financing has come from the widespread postal savings system. The funds so obtained are then allocated to different infrastructure financing institutions such as the Japan Development Bank, the Long Term Credit Bank, and others. This section provides suggestions for possible institutional innovations that can be initiated in India to activate the debt market for financing infrastructure.

New Patterns of Financing: The limitations inherent in FI and bank lending to infrastructure projects, coupled with the absence of a well-developed capital market—specially corporate debt—make it imperative to have innovative alternate arrangements/mechanisms for infrastructure financing. Moreover, since domestic savings would be inadequate to fund the desired levels of investment—in infrastructure and other sectors taken together—external funding would be a vital ingredient in the entire funding mix. However, the costs and conditionalities associated with external funding calls for development of innovative domestic equity and debt instruments on a continuous basis, whereby short and medium-term domestic funds can be transformed into long-term infrastructure investments.

The experience of IFC(W) in some of the newly industrialising countries, where it has participated in funding infrastructure projects suggests "... the strongest impact of private investment in infrastructure occurs when project financing is taken to the local market either in the form of an equity listing or a domestic bond issue". It further adds that "financing private infrastructure, access to international capital markets and the development of domestic capital markets often occur in parallel." This has been corroborated by experiences in Argentina, Chile, Malaysia and Philippines. In India, the four pre-conditions for developing local financing capabilities already exist:

- Encouraging companies already engaged in infrastructure services to issue equity locally. A number of private power generating and distributing companies (e.g. Tata Electric Companies, BSES, CESC, Ahmedabad Electricity Company etc) are already listed and

actively traded on the stock exchanges.

- Having private placement of equity or debt with large institutional investors such as insurance companies. Power generating companies, both in the public and private sector, have issued bonds/ debentures on private placement basis to the investment institutions. These institutions also hold equity shares of the private sector power companies as part of their active investment portfolio.

- Providing debt financing through local commercial and development banks. The AIFIs have lent over Rs 200 billion to power generating companies directly. In addition, some SEBs have in recent years sought lease finance for asset acquisition from the AIFIs.

- Local issuance of bonds for debt finance. Debentures/ bonds have been issued by the private and public sector power generating companies on a retail as well as private placement basis.

Since 1994, a few state-level enterprises and other specialised infrastructure service companies (e.g. SSNL, KBJNL, KRC, RIICO, IPICOL etc.) have made initial forays into the debt market with innovative debt instruments.

Among other structured financing options that can match the debt-servicing obligations with revenue generating streams of projects are "zero-coupon" bonds which can be issued for financing the construction phase of the project. Another variant could be the "deep-discount" bonds that can be issued in the start-up phase for financing long payback period projects or projects where initial revenue streams are small, but which rise appreciably with time. If structured with premature exit options for both, investors and issuers, they give scope for managing the debt profile of the project, based on its revenue-generating streams. Since retail investors in India are risk-averse and infrastructure projects carry a very high level of risk in the construction and pre-operative stage, an innovation that could be actively considered in the Indian context is the provision of debt finance by banks and FIs during the construction period. This could be refinanced with longer-term securitised debt once the project is completed. This would imply that the liability structure of FIs/ banks would not constrain them from financing the project. The swap into bonds or other securities after project completion would enable the FIs/ banks to recycle funds into a larger number of viable projects. Thus, banks and FIs would bring to bear their risk assessment capabilities during the riskier pre-operative phase, with securitisation made easier in the post-completion phase. However, securitisation as a mechanism of financing would require a fair amount of reform in the legal framework. Using such an innovation to lower the risk profile of projects to ultimate savers could enable financial intermediaries such as banks/FIs to roll over funds more easily for infrastructure projects. Critical to this process is the assumption that investors in the domestic capital market would be willing to invest in long-maturity investment-grade debt. Further, as the domes-

Institutional innovations for developing the debt instruments market

A municipal bond system must be developed to support market borrowings. The revenue bond structure can be used initially.

tic debt market has not yet sufficiently developed to offer funds of relatively longer maturities of upto 15-20 years—required for infrastructure funding—it would be necessary to put in place mechanisms that facilitate elongation of maturities with minimal liquidity and interest rate risks for the projects.

Municipal Bonds: The term "municipal bonds" is a generic one and refers to securities issued by the state, county and city governments as well as a variety of special assessment districts and public revenue authorities. They finance, construct and deliver a variety of public projects and services, including power distribution, water supply, waste water management, housing, solid waste management etc. The ultimate potential for this system is evident from the well developed tax-exempt municipal bond system in the USA where it finances a large proportion of the capital investments in infrastructure (See Box 4.8).

In a municipal bond system, there are essentially two types of bonds, which are distinguished on the basis of "how the repayment is secured". General Obligation Bonds (GOBs) are issued by an elected local authority, backed by its "full faith and credit" with all its taxing powers, subject to a limit on the total issuance of such bonds. Thus, all legally permitted taxing and general revenues of the local authorities can be used for debt servicing. In addition, the issue of GOBs requires a thor-

In India, some recent innovations in the power sector have made use of structured debt obligations which are akin to revenue bonds.

ough assessment of the debt-carrying capacity of the local authority based on factors such as annual debt-service ratio, tax collection efficiency, quality of the authority's financial management and the current and projected health of the jurisdiction's economic and tax base. Proceeds from these bonds are used largely for projects with lower returns like health, education, recreation, streets, public buildings and general governance.

Revenue Bonds (RBs), on the other hand, essentially rely on specified sources of revenue from facilities or services that are financed from the bond proceeds. RBs are thus largely secured by a pledge of the net revenues of the system and the "money and assets credited to special funds" like the water or sewer fund. They generally carry strong covenants regarding rate setting to meet debt-service coverage requirements. A

variety of special revenue streams and covenants for rates and debt-service reserves are a part of the RB indenture. Generally, subsequent RBs by the same authority are issued at parity with the earlier outstanding issues. They are treated as non-guaranteed debt and, therefore, not included in the statutory limits on local borrowing.

The main underlying basis of a revenue bond is that only a specific identified stream of revenues, and not the full faith and credit of the issuer, is used as security. For this to be acceptable, the specific source of payment needs to be very clearly

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Size and Structure of the US Municipal Bond System

THE US municipal bond market has provided access to debt financing for state and local government entities for over a century and a half. The size of the market is large even relative to corporate securities. The following observations highlight this:

- During the 15-year period from 1970, the dollar volume of municipal debt issued was about double the issuance of corporate debt during the same period (Lamb and Rappaport, 1987, p.3).
- The combined volume of new issues of long-term municipal securities was to the tune of \$456 billion during the years 1993 and 1994.
- The total outstanding volume of debt is estimated at \$988 billion with over 1.5 million different securities (McGoldrick, 1995 and Fabozzi et al, 1995).
- Out of an estimated 83,000 local government or municipal entities, over 50,000 have issued municipal securities. In addition, several thousand public revenue authorities are also

issuers of municipal bonds.

- The annual growth of municipal debt from 1980 to 1994 has been at a rate of 7.5 per cent per annum (Wong, 1995).
- As of 1994, there were over 770 registered dealers and over 262 financial advisors engaged in the municipal bond system (Wong, 1995).
- Another important aspect of the US municipal bond system relates to the tax exemption available for interest income from municipal bonds. USA is the only country in the world with a large tax-exempt municipal bond system. However, it is not often recognised that tax exemption for municipal bonds in the US was derived from judicial decisions based on the notion of "intergovernmental tax immunity".

More recent judgements have overruled this interpretation, and therefore, constitutional protection is not available for tax exemption any more. In recent years, there has been considerable debate on whether to continue with the tax exemptions.

identified, its legality clearly ascertained and its reliability and adequacy rigorously assessed. The type of revenues which are actually used in this regard vary considerably across different sectors and agencies. For example, for water and sewerage, while it is generally the user charges which are used, these can also be further supported by other streams like tax increments resulting from property improvements, capacity allocation charges and service surcharges on user charges for water or sewerage. The important aspects here relate to both the legal power of the user to charge or receive these revenues on a continuing basis and, especially for user charges, the reliability of market trends assumed in projecting future revenues. An additional critical consideration is to ensure that the pledged revenue streams do not legally have other priority claims. In the US, municipal authorities are covered under bankruptcy laws. However, under an RB arrangement, the special revenues pledged to bondholders cannot be reached by the general creditors of a municipality in the event that the issuing municipality should file for bankruptcy.

In India, some recent innovations in the power sector have made use of structured debt obligations (SDOs) which are akin to revenue bonds. These instruments have essentially relied on proven and reliable revenue streams from a select set of customers of the SEBs, with the ultimate recourse to a State Government guarantee.

Quality of RB credit may be enhanced through a variety of measures. Some of these are internal to the project or the issuer. However, it is also common to purchase insurance for this purpose. About 40 per cent of the new issue volume in the US is insured. Such insurance essentially provides for timely debt-service payments in case the borrower is unable to meet commitments. The premium for such bond insurance generally ranges from 0.10 to 1.0 per cent of total principal and interest. In addition, other state-level supports are also often available for revenue bonds of local authorities (See Box 4.9).

For urban infrastructure in India, it would be preferable to advocate the use of an RB structure, which relies on specified sources of revenues from facilities and services that are financed out of the bond proceeds. The focus on RBs is suggested for several reasons. First, the use of RBs would help to raise local awareness regarding service delivery and help enhance its efficiency, since the success of these bonds depends on the potential revenue streams that, in turn, are dependent on the quality and coverage of service provision. Secondly, it must be remembered that, in India, even the State Governments have not been given widespread powers to raise general obligation debt. Thirdly, as municipal bodies generally have a poor market image in the financial community, more explicitly demonstrable project or service revenue streams will be more acceptable to potential investors.

Institutional Arrangements for Market Borrowing: To develop possibilities for borrowing by the urban infrastructure sector, it is essential that appropriate arrangements are

explored within the constraints posed by the poor market image of this sector. The actual bonds may be issued by a variety of borrowers, including municipal authorities and service agencies, private operators or financial intermediaries who provide finance to municipal infrastructure. Within this larger perspective, three alternatives for market borrowing can be considered.

Direct Access Route is accessing the market directly by the actual service delivery agency, which may be a municipal authority or enterprise, other statutory functional authorities, or an independent project/service company set up in the private or joint sector. A recent European experience was that of the city of Prague, which raised resources through a US\$250 million bond issue on the international market. The advantage of this route is that the impact of market rigour in improving service efficiency will be the most direct.

Financial intermediaries can also access the market directly and use these proceeds to either purchase the bonds of local agencies or provide loans to local borrowers. This route has been extensively used in Europe where municipal banks have generally obtained their resources from contractual savings institutions and other long-term resources borrowed from the market. Even in USA, where direct access by local authorities is the dominant route for market access, many state-level arrangements like the state bond banks and revolving funds provide intermediation to smaller (and weaker) municipalities which otherwise find it difficult to tap the capital market directly.

A bond bank is essentially a state-sponsored intermediary which borrows from the capital market, often with some state credit-enhancement support and then onlends to participating local governments by purchasing their bonds. These may be blind pools so that specific projects have not been identified, in which case the rating of the bond will depend on the strength of the Bond Bank itself. Alternatively, several issues may be identified and the bond issued for these. By pooling debt in this manner, significant savings can be made through investor coverage. In all states which have bond banks, local authorities are also free to tap the market directly. Many of the larger authorities in fact can usually do as well, or better, with

their own bond issues. State Revolving Funds (SRFs) are similar to bond banks, except that they are often at least partially capitalised by specific allocations by the State Governments or through federal capital grants. They either provide direct loans to local authorities or refinance their debt. They also provide guarantee to local bond issues, purchase insurance for these, provide interest rate buy-downs (funding the difference between the market rates on bonds and the "affordable rates") or fund a debt-service reserve to enhance the quality of their credit. Many of the SRFs also use the capital grants to leverage further borrowing from the market to considerably augment the total SRF funds. An additional measure used by many SRFs is to provide loans at blended interest rates by using capitalisation grants and the income from the debt-service fund for this purpose. In many US states, regional asso-

As municipal bodies have a poor market image, demonstrable revenue streams will be more acceptable to potential investors.

ciations, state municipal leagues and other groups have created pooled loan programmes in order to lower the costs of issuing bonds and enhance market access for themselves.

A third alternative is collaboration among several local or other service delivery authorities, who create regional pools with a Special Purpose Vehicle (SPV) to raise resources through debt and equity. This may be effective in reducing costs of issuance and for using structured arrangements that may be difficult to develop with a small single borrower entity. In the US, such pools are common, especially among smaller authorities. Larger issues generate stronger investor interest that leads to lower interest costs for smaller borrowers. The bonds are issued either as blind pools, with actual borrowers identified later or for a specific set of local projects or bond issues. Most of these pools have commercial credit enhancement such as bond insurance.

Development of Municipal Bond Market in India: India needs to explore the possibilities of developing a municipal

bond system for supporting market borrowing to meet state and urban infrastructure investment requirements. The development of this system will contribute to development of the debt market by supplying a large number of securities at commercial, market-determined rates. More importantly, however, development of a municipal bond system will help to bring in market-based discipline for state and local borrowing for infrastructure investments. Although development of a municipal bond market in India seems beset with hurdles, it does appear to be the desirable long-term objective for urban infrastructure financing in India. It would only be possible with considerable support of the Central and State Governments in the form of enabling legislation and development of an effective institutional framework.

At present, municipal bonds can be issued by both the state and municipal governments to meet their capital investment needs. In addition, special state or metro-level utility companies or boards like the water supply and sewerage boards, state transport corporations and SEBs may also issue

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Credit Enhancement Structure for Revenue Bonds

QUANTITY of credit in a revenue bond can be enhanced in a variety of ways, some of which are internal to the specific bond structure, as well as others which rely on external measures. The potential measures which are internal to the bond structure include the following:

Debt Service Reserve Fund: A debt service reserve fund is created to provide a cushion against delayed debt-service payments. It generally has sufficient funds to cover annual debt service charges. It may be capitalised from the bond proceeds, from previous reserves of the issuing authority or by using special grants for this purpose. It essentially helps to ensure timely payments and does not necessarily ensure against total default. Its replenishment, in case of delayed payments, needs to be clearly established. A commonly used mechanism for local authority debt is a state aid (grants or transfers) intercept whereby in case of delays, the state transfers are diverted to the debt service reserve fund. More preferable alternative sources for such guarantees involve the participation of the local corporate sector; arrangements to divert revenues from select local tax payers; and, committing some of the land resources of the agency.

Overcollateralisation: This helps cover to some extent the delays or delinquencies in the collection of user charges. Generally, a debt service coverage ratio of 1.1 to 1.25 is required.

Flow of Funds Structure: The bond resolution must clearly set

forth the order of priority in which the revenues generated by the service authority will be allocated to various purposes.

Additional Bonds Test: Another important covenant relates to an additional bonds test which "prohibits an issuer from issuing parity bonds with the same revenue streams unless certain coverage requirements with respect to outstanding and new debt are met."

Other Related Covenants: Additional covenants may cover aspects such as the requirement to operate and maintain the facility and to provide casualty insurance, a list of permitted investments for pledged funds, the retention and allocation of surpluses after meeting the specified flow of funds, etc.

Double Barreled Bonds: While the main security of revenue bonds is through user charges, tax revenues may be used as a back-up security arrangement in case of delays. Other credit enhancements which are external to the bond security structure may include,

- Bond insurance or financial guarantees from private insurance companies.
- Letter of Credit (LOC) from banks
- Special credit enhancement arrangements supported by the State Governments
- Intercept of state-to-local transfers of taxes or other grants/obligation or pledge by State Governments to replenish debt service reserve fund

municipal bonds. Issuance of bonds by public hospitals or universities for other social sectors like education and health may be possible, though this will require considerable changes in their tariff and fee structure. A number of states also have financial intermediaries for financing municipal or industrial infrastructure which may also access the market through municipal bonds.

It is also likely that such borrowing may be used by these agencies to support private participation in infrastructure provision and delivery through concessions, franchises or management contracts. It is possible, as has been done in some of the recent structured debt obligations, to set up an SPV in the joint sector to mobilise debt through the municipal bond route. This may have double advantages as, on the one hand, the borrowing is "off the books" for the governmental authority and, therefore, does not affect its debt ratios. On the other hand, the SPV may be able to use the strength of the other equity holder to mobilise debt more easily and at lower costs from the market. This route will be more appropriate in situations where the joint-sector SPV is likely to have a better creditworthiness and market image than the governmental entity itself. Such an SPV may also be used as a vehicle for financing specific projects where the creditworthiness of local entities may not be adequate for direct access, even though the specific project or service may provide adequate opportunities for commercial structuring. In such an arrangement, the strength of the sponsors, the legal status of the SPV and the financial assessment of the project or service become important concerns for potential market access.

Legal Issues for Borrowing Authority of Issuers:

The existing legislative provisions which govern the possibilities of market borrowing will vary for different issuers. For example, Article 293 of the Indian Constitution governs the borrowing of the State Governments and provides for the state legislature to borrow within the territory of India upon the security of the Consolidated Fund of the state based on the limits set by the state legislature. However, GoI consent is required for state borrowing in case of any outstanding loan from the GoI or with GoI guarantee. Such a consent may be granted as per conditions which are considered fit by the GoI. Given the extent of outstanding debt of all the State Governments with the GoI, it is obvious that each and every State Government will need permission from the GoI for market borrowing within a municipal bond framework.

For the local authorities, all borrowing is governed by municipal legislation in different states. In most of these, the current provisions permit market borrowing but only with permission from the State Government. At the state level, permissions for local borrowing generally rely on some assessment of the agency capacity to service the total outstanding debt. In fact, however, there has not been any real unguaranteed market borrowing by local authorities within a municipal bond

framework so far, though this is possible within the provisions of existing legislation. The borrowing by other statutory authorities will be governed by their respective statutes. On the whole, however, it appears that the current provisions in the Constitution, other municipal legislation and special statutes for functional authorities will not inhibit market borrowing for these issuers within a municipal bond framework. However, as a municipal bond market develops, it may become necessary to explore the need for bankruptcy legislation for local authorities. Similarly, other changes in listing of municipal bonds and other requirements for their active trading will need to be explored. For example, until very recently, the State Finance Corporations could not list their securities on the stock exchanges. However, a recent amendment in the Securities Contract Regulation Act includes statutory authorities in the definition of companies which are permitted to list their securities, and thus makes it possible for them to do this.

Most of the municipalities require approval of the State Government for open market borrowing. Certain states like Maharashtra and Gujarat have legislation which has explicit provisions for open market borrowing. Other states must make similar provisions. Also, the Local Authorities Act, 1914 needs to be amended to foster growth of the municipal bond market. Municipal bodies need to be given powers to set the levels for user charges for the services provided. A practical pricing approach aimed at cost recovery is a must for the financial health of these bodies.

Conventional government accounting may be unable to satisfy potential investors regarding the local body's financial status.

Market Image and Capacity of Potential Issuers:

Another major problem in developing the municipal bond system may relate to the poor market image of the potential issuers. This is mainly due to the primary deficits on revenue accounts and low debt-service coverage ratios for most State and local governments and other service authorities. While a good market image of the agency is absolutely

essential for a GOB structure, it will still be possible to develop RB structures if at least some of the budget components are in surplus. For example, analysis of finances of Brihan Mumbai Municipal Corporation suggests that most of the different budget heads show primary deficits, whereas the water and drainage budget, known as Budget "G", generates significant surpluses. In case of most authorities, however, even the water sector is constrained by other factors. For example, the low level of prices charged for these services, which recover less than 50 per cent of operation costs, has given this sector a "social service" image. This is further compounded by inefficiencies in cost recovery and service delivery due to low consumer orientation. It is clear that at some stage, tariff revisions will become important in relation to market-based borrowing arrangements.

A second important constraint relates to the probable inability of conventional government accounting and financial management systems to satisfy potential investors regarding the true picture of the local authority's financial status and separation of revenue streams. It must, however, be pointed out

that accounting and financial management systems vary considerably across cities. For example, Madras Municipal Corporation has adopted commercial accounting for its entire operations. Mumbai has commercial accounting for its "G" budget for the water and drainage components. Ahmedabad Municipal Corporation also plans to move over to an accrual-based system with on-line computerisation from 1996. Many other cities throughout the country have also separated out their water and sewerage budgets. In Maharashtra, this is now mandatory for all the municipal corporations as per the state-level amendments to the 74th Constitution Amendment Act. Such separation of revenue streams will help to develop structured arrangements within a municipal bond framework. Thus, it is likely that over time this constraint may be addressed through the on-going reforms at the local level. Possibility of market access through a good credit rating may in fact provide the necessary incentive in this regard for many authorities.

So far, most of State Government borrowing has been with GoI guarantees and is worked out as a part of the Plan process in consultation with Planning Commission. These issues are not rated and the states with better fiscal performance do not benefit from their better market image. This has not enabled the State Governments to build up independent credit rating and credit histories for real market borrowing. Similarly, most of the local authority borrowing has been with State Government guarantees, largely within the Plan allocation process. A third constraint thus arises out of the fact that most authorities at present simply do not have the necessary credit histories upon which their creditworthiness can be established with a positive market image. This suggests the need for appropriate credit enhancement measures which will enable these agencies to improve their creditworthiness over time. As a general principle, however, the terms and conditions of such credit enhancement should be such that in the long run, it would be possible for these agencies to borrow directly by purchasing other enhancement or insurance from the market.

Lack of market borrowing has also meant that there has not been any pressure on these agencies to develop financially viable projects, and for ensuring efficiency in project management and service delivery. Considerable efforts will be required to enhance this area, most potentially through public-private partnerships. While this may be through BOT type of arrangements, alternatives such as being adopted by CIDCO in Maharashtra of using the private sector in project management through innovative management contracts, will also need to be pursued.

It is clear from the above that while these constraints are serious, they are not insurmountable. More importantly, it is the possibility of direct access to the market through a municipal bond system which can provide the much-needed incentive and motivation for these authorities to introduce necessary financial and service reforms. In the past, most policies and programmes have placed an undue emphasis on "technical

**Securitisation,
which enables
intermediaries
to overcome
asset-liability
mismatches, has
not developed
in India.**

assistance" as a panacea, without paying adequate attention to developing systems which provide incentives for local authorities to look beyond their dependency on state allocations or other subsidised resources. This necessitates that the framework within which the municipal bond route is developed for market borrowing is conducive to introduction of necessary reforms at the state and local levels.

Securitisation of Assets: Securitisation can be defined as a sale of an asset by its original investor, where the asset can be any illiquid financial asset, such as mortgage loans, auto loans, lease or trade or credit card receivables etc. Asset-backed securities are issued by the lender on the basis of the pools of assets in the form of debt, certificates of beneficial ownership and other instruments. The securities can be "with" or "without recourse".

Interest and principal payments on the loans, lease rentals and receivables in the underlying pools of assets are transmitted to the investor. If the asset-backed securities are without recourse, the loss in the event of default in payment is passed on to the investors on a pro-rata basis. As a financing mechanism, securitisation enables financial intermediaries to overcome asset-liability mismatches. While borrowers can get access to funds with "elongated" maturities, lenders are able to convert assets into cash to meet repayment obligations.

In India however, asset securitisation has not emerged as a viable technique of financing. There have been some securitisation deals (initiated by ICICI, HDFC and Citibank in 1990) but they have been mainly in areas such as bills receivables and to a small extent in housing loans. In value terms, the aggregate has been below Rs 15 billion (US\$0.5 billion). By contrast, in USA, where securitisation originated in the 1970s, the overall size of collateralised mortgage obligations has grown to over US\$900 billion, accounting for roughly more than 40 per cent of mortgages. The volume of even non-mortgage asset-backed securities exceeds \$45 billion. Also, a new market in securitised Exim Bank loans is gradually expanding, with outstanding securities being around US\$4 billion. In the UK, the volume of securitisation is around US\$30 billion.

Constraints to Securitisation: In India, securitisation seems beset with hurdles, notwithstanding the manifold inherent benefits. For the originator, securitisation provides an additional source of funds, reduces funding costs, besides resulting in economy in the use of capital, and greater recycling of funds which leads to higher turnover and profitability. It also improves capital adequacy by removing from the balance sheet loan assets or by substituting them with lesser risk-weighted assets. For the investor, it increases the diversity of investment avenues. For a country, securitisation can serve as a catalyst for faster economic growth.

Some of the factors that have had a strong negative effect on the growth of securitisation in India are listed below:

■ **Stamp Duty:** Securitisation, in pure form, involves assignment or transfer by the originator to the SPV of the mortgage

debt together with interest in the relative mortgage. Under Section 54 of the Transfer of Property Act, 1882, read with Section 3(26) of the General Clauses Act, mortgage debt also constitutes immovable property and hence its transfer can be effected only by means of an instrument "in writing". Such an instrument of transfer needs to be compulsorily registered on payment of requisite fees with the concerned Registrar/Sub-Registrar of Assurances under Section 17(1)(b) of the Registration Act, 1908, and it attracts stamp duty on ad valorem basis as a "conveyance" under the stamp law of the state in which the instrument is executed. Stamp duty on such an instrument is as high as 13 to 17 per cent in some states. In Maharashtra, stamp duty was reduced by the State Government in 1994 from Rs 15 to Re 0.50 per Rs 500 or part thereof of the loan securitised; but this reduction applies to transfer of only movable property and affords no relief in securitisation of mortgage debt.

In addition, if the security is issued by the SPV as a "bond" or "usance promissory note" it would attract heavy stamp duty. On the other hand, if the security is issued as a "receipt", stamp duty would be nominal but its negotiability and hence further trading could be difficult. Instruments issued in the form of a "bond" or "receipt" would attract further stamp duty whenever it changes hands (promissory note being exempted).

To circumvent these impediments, the legal format adopted in securitisation deals structured so far has been the execution by the originator of an "agreement to assign" to the SPV the pool of receivables (instalments towards payment of interest and principal) along with a power of attorney favouring the SPV, declaration of the trust constituting SPV as a trustee and issue by the SPV of PTCs (Pass Through Certificates) in the form of "receipt" to investors. In this structure, real interest of the originator in the assets securitised is bifurcated into "legal" interest and "beneficial" interest, which is legally permissible, with beneficial interest being transferred to PTC holders. Since legal interest in the assets is not transferred, no stamp duty would be payable.

However, for securitisation to really take off, the various participants should have straight and easy access to the "legal highway", without their being forced to take recourse to by-lanes, alleys and escape routes (see appendix A 6.7 to Chapter VI for a detailed note on stamp duty).

■ **Taxation:** Tax laws are also formidable stumbling blocks. In terms of Section 60 of the Income Tax Act, 1961, transfer of income without formal transfer of the assets from which the income has arisen would be taxed as income of the transferor (originator) who would have already paid tax on the income from investors at the stage of securitisation of the very same receivables. This would result in double taxation of the originator.

In securitisation, the originator normally constitutes itself as a trustee for the investors, receiving on their behalf payments due in respect of securitised assets. Therefore, under Sections 160 to 162, the originator may

be regarded as a "representative assessee" and the income received by him may be assessed for tax in his hands. Section 164 provides that such income would be taxable at the maximum marginal rate if the beneficiaries are multiple in number and their shares are indeterminate. Of course, Section 194(A)(3) exempts interest payable to banks and financial institutions from deduction of tax at source but whether this exemption will be available after securitisation is uncertain. In sum, incidence of heavy registration charges, stamp duties and income tax would render securitisation unviable and unattractive.

■ **Accounting:** The accounting treatment for securitised assets in the originator's (lender's) books is another grey area. Off-balance sheet treatment of such assets (their removal from the originator's balance sheet) is one of the major attractions of securitisation. Without this, securitisation would lose its real benefit. If securitisation involves outright sale/ transfer of assets where "without-recourse" securities are issued by the originator, the relative assets could perhaps straightaway go off the balance sheet, with a suitable explanatory note if deemed necessary. For other variants of securitisation where only beneficial (not legal) interest in the asset may be transferred, where securities issued may be with "part recourse" to the originator, appropriate accounting norms would need to be clearly evolved.

While the extant rigid legal framework and extortionist stamp and tax laws have scuttled any meaningful securitisation moves so far, the biggest dampener has been the absence of a secondary debt market in which such instruments can be freely traded.

Securitisation as a vehicle of financing, provides perhaps the most promising and viable funding option for infrastructure projects in the coming decade, provided some of the legal and fiscal irritants are removed.

Credit Enhancements: Given the complexity of risks inherent in infrastructure projects, lenders and investors may often perceive the project cash flows and the collateral as insufficient inducement to take up the financing risks. In such a situation, "credit enhancement" mechanisms may be needed to improve the overall credit quality of the project and hence to gain the confidence of lenders/investors.

In simple terms, credit enhancement mechanisms enable the issuers of debt to secure a higher credit quality assessment than would have been possible on a "stand-alone" basis. Credit enhancement benefits the issuer in terms of possibly lower interest costs and easier marketability due to the high safety of the instrument. Credit enhancements, thus, essentially provide a risk-mitigating mechanism to investors and lenders.

Some of the factors which would have a bearing on the credit quality of infrastructure investments in India are :

- Transparency and consistency in private sponsor selection process
- Legal and institutional arrangements
- Pricing of infrastructure services in the economy

The extant rigid legal framework and extortionist stamp and tax laws have scuttled any meaningful moves towards asset securitisation.

- Track record of private sponsor participation in infrastructure development
- Strength of the Indian rupee vis-à-vis foreign currencies
- Internal and external political and economic environment

From the lender's perspective, all these factors imply uncertainty of project cash flows, inadequate arrangements for recourse in the event of a default and high transaction costs resulting in a less-than-desired level of credit quality of infrastructure projects.

Some of the measures that can be deployed to enhance the credit quality of infrastructure investments, within the existing legal framework, are given below:

- **Credit Rating:** The availability of a credible credit rating provides crucial information on the credit quality of the borrower to potential borrowers. The credit rating process itself enhances the credit of the debt issuer.
- **Financial Guarantee:** Financial guarantee is a contract applied to a structured debt instrument, guaranteeing timely payment of interest and principal to the investor. The financial guarantee company lends its rating (usually AAA) to the instrument in return for a fee. The issuer benefits in terms of a lower

interest cost and easier marketability of the instrument.

- **Bond Insurance:** The availability of bond insurance, like any other insurance, pools risks, and provides credit enhancement for issuers.
- **Bank Letter of Credit:** A bank may provide a letter of credit to be drawn upon when needed to cover shortfalls in revenues.
- **Cash Reserve Account:** One of the methods of credit enhancement is setting aside cash to protect investors in a debt instrument. A cash collateral account may be established at the outset of a transaction, often funded by a bank loan. The cash in these accounts may be used to cover the shortfalls in payments from the receivables.
- **Sponsor/Issuer Limited Recourse:** The issuer may provide recourse for defaulted receivables (user charges) by pledging additional cash flows and assets, upto a specified level of underlying losses. This is called Limited Recourse Financing.
- **Subordination/Overcollateralisation:** A pool of assets can be divided into senior and subordinated interests. In an event of default, the senior securities typically have first claim on assets in the pool as well as cash flows. This protects against expected losses and deterioration in performance of the assets and is known as overcollateralisation. The subordinated

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Connie Lee

Connie Lee is a specialised credit enhancement company in the USA which guarantees bonds issued by colleges, universities and teaching hospitals for facilities and infrastructure. The company provides bond investors with an unconditional and irrevocable guarantee that principal and interest will be paid when due. As a prerequisite to its triple-A rating, Standard and Poor's affirms that Connie Lee's underlying credit criteria, management expertise, financial performance and reserves meet the agency's very highest standards. Connie Lee's principal investors now include the US Department of Education, Sallie Mae, Pennsylvania Public Schools Employees' Retirement System, Metropolitan Life Insurance Company, Rockefeller & Co-administered trusts, the Common Fund and Stanford University. The direct federal financial contribution is limited to seed capital, a modest 15 per cent of total equity investment. Connie Lee issues guarantees on the strength of its own financial reserves rather than the full faith and credit of the Federal Government.

Although classified as a government-sponsored enterprise (GSE), Connie Lee is a private corporation, that works closely with its constituents to structure financial packages and overcome obstacles needed for campus improvements. It is the first and only GSE to receive a triple-A rating exclusive of government support. Connie Lee was authorised by Congress under Title VII of the Higher Education Act in 1986 to help address what experts determined was a US\$100 billion deficit in new and renovated higher education facilities—buildings, laboratories, roads, parking facilities, heating and cooling systems and communications equipment. Because

only about one in 10 academic institutions had standalone access to low-cost capital through the public debt markets, policy makers concluded that lower investment grade issuers needed credit enhancement to help long-term, low-cost municipal bonds address these challenges. Connie Lee is managed within customary rating agency and state regulatory requirements for credit risk, solvency, capital and reserves. It is subject to continuing and effective review by major rating agencies and state insurance regulators. Connie Lee is required to be operated as prudently as any private bond insurance company, with valid credit assessments and risk-adjusted premium levels: "We get involved with issuers very early in the process. We do in-depth credit analysis, generally go on site to review the proposed project and to meet with the issuers, the management, the board and we are involved in negotiating terms and covenants. Connie Lee is very selective in the transactions it accepts for insurance and a significant percentage of potential transactions are declined".

Unlike a federal agency, Connie Lee acts as a catalyst for the creativity of hundreds of individual issuers, state authorities, bankers and financial advisors. This eliminates the need for a large federal bureaucracy and assures that financial solutions are tailored to the local situation. As a result, private capital flows to facilitate investments which would otherwise go unfunded and lower interest costs and extended repayment periods make more projects economically feasible. Connie Lee's credit evaluation and enhancement programmes work efficiently at a 50:1 ratio, that is, US\$100 million of capital has resulted in credit enhancements of US\$5 billion, with a staff strength of only 50 employees!

investors, on the other hand, absorb the first losses in exchange for a higher return.

The principal credit enhancement measures used so far in India have been :

■ **Government Guarantees:** The counter-guarantees extended by the Central Government for the fast-track power projects and similarly the State Government guarantees for ensuring fulfilment of debt-servicing obligations is an example of credit enhancement. Though these guarantees increase the comfort levels of the lenders in the initial phases, extensive use of these measures can lead to a strain on government finances and ultimately have an impact on the overall sovereign rating.

■ **Special Reserve Accounts :** The most prevalent form of such accounts, as in the case of Independent Power Producers and the SEBs is the Escrow Account. In this arrangement, the inflows from the concerned project are pooled into a separate bank account, managed by the trustees, and all debt-servicing obligations are fulfilled before releasing them for further utilisation. In most cases, Escrow Accounts of SEBs are backed by a State Government Guarantee, as an additional credit enhancement. The limiting feature of such a mechanism is that it can be utilised only for on-stream projects. Further, this arrangement reduces the debt-bearing capacity of the issuing entity, as all superior-quality receivables have been pledged for debt servicing.

Whereas these as well as other financial market instruments for credit enhancement of debt issuers exist, there still remain some doubts whether these will be adequate for raising financing for infrastructure projects at this stage of financial market development in India, particularly in view of the infancy of the debt market.

The power of credit enhancement can be seen from an innovative agency of relatively recent origin in the United States: the College Construction Loan Insurance Association, popularly known as Connie Lee. Connie Lee is a specialised credit enhancement company which guarantees bonds issued by colleges, universities and teaching hospitals for recent resources for the purpose of constructing new facilities and infrastructure (see Box 4.10).

Thus there is some reason to consider the creation of a specialised lending intermediary which can help to kickstart the Indian debt market for infrastructure financing.

Specialised Financial Intermediary

Why is an infrastructure financial intermediary needed, and what could be its functions?

- Many infrastructure projects being large, start-up costs and risks may be too big for individual firms.
- There are hardly any private sector infrastructure firms in India, and the public sector infrastructure entities are absent from the capital market, with the result that there is no track record of these firms for the market to go by. Hence, the role of

Creating a specialised financial intermediary

A new financial institution which has a higher credit quality than existing bodies should be set up to jumpstart the debt market.

the financial intermediaries in project appraisal and credit enhancement, in addition to that of credit rating agencies, assumes added importance.

■ With the commercialisation of infrastructure being a new activity overall, there is also the lack of a track record for policies and even of guarantees.

■ Absence of market benchmarks makes pricing and underwriting too risky.

■ There is an uneven and uncertain flow of lumpy projects.

With all these problems, even established national-level financial institutions could find it difficult to raise the volume of debt required for infrastructure at acceptable costs and with appropriate debt maturities.

Experience suggests the need for institutional innovation which helps in jumpstarting debt market development, essentially by enhancing the credit quality of debt issuers. What would such an institution do?

- It could act as a passive anchor investor in funds or intermediaries, adding further credibility to these institutions.
- It could be a neutral provider of liquidity or foreign exchange, through asset securitisation, and other means.
- It could act as a promoter or sponsor of bond issuers.
- It could act as a guarantor for instruments issued by credible financial intermediaries as well as large project entities themselves.
- It could subscribe to equity and debt instruments issued by both financial intermediaries and project entities.

In brief, if it is feasible to establish a financial institution which has higher credit quality than existing institutions, its objective could be essentially to enhance the credit quality of other lower quality institutions in order to jumpstart the debt market for infrastructure-related finance. Its objective would be to promote competition in the debt market, not to supplement existing institutions.

Given the complexities inherent in infrastructure projects and the relatively high risks perceived in them, it is improbable that debt funding can be done entirely through market borrowing. In such a situation, a specialised financial institution—an infrastructure development bank—could perhaps play a major role in providing the initial loan capital. It must be borne in mind that multilateral institutions such as the World Bank and the ADB that were conceived in this context, have played a significant role in funding commercial as well as complex socially-oriented infrastructure projects. In some developed countries, such specialised financial institutions have been established to provide long-term loan finance. As part of the banking reform programme in China, a State Development Bank (SDB) has been established to finance infrastructure projects. The SDB lent around \$9 billion to over 400 projects in 1994. In India, the Government has in the past successfully established institutions (e.g. Exim Bank, National Housing Bank, Power Finance Corporation, Tourism Finance Corporation

of India, SCICI etc) for financing specialised activities. But considering the well-diversified structure of term-lending financial institutions in the country, the need for a separate institution for infrastructure funding is a debatable issue for several reasons.

Firstly, the funding of infrastructure projects through the mechanism of a specialised institution is directly linked to its capability to raise long-term resources from the capital market—domestic and foreign. In the domestic market, such an institution will have to compete to raise funds from the existing pool of domestic savings tapped by all other institutions, banks, finance companies and the corporate sector, which would essentially become a "zero-sum" game. Moreover, given the Government's commitment to phase out government-guaranteed bonds, access to this route of funding would also become minimal. Further, with the SLR itself being progressively reduced for banks, and insurance companies and provident and pension funds being granted increasing freedom to invest larger proportion of their resources in non-mandated investments, the specialised institution would perforce have to raise funds at market-determined rates in the domestic market. The lack of a track record could impinge on its ability to raise funds in the international markets.

Secondly, the other equally relevant and important issue is the risks such an institution would face in its lending operations. Considering the important prudential norms from the viewpoint of risk exposure, it may not be appropriate to have an institution that is exclusively engaged in funding only infrastructure projects. Such an institution will be constrained in its ability to raise the necessary volume of resources from the market, or will have to pay relatively higher coupon rates on such resources.

Thus, from a pure funding angle, there is no strong case for establishing an institution exclusively for infrastructure funding. The role of the existing development financial institutions can be widened if the creditworthiness of the proposed infrastructure projects can be enhanced with appropriate policy measures. A specialised institution is justified only if the value of business warrants it and if the concomitant technical and managerial capabilities are available. A more practical alternative would be to develop and improve existing commercial and development channels.

Hence, there is the need to create an intermediary which can inspire enough confidence among capital market investors to induce them to lend long-term funds at the lowest possible market rates. The credibility of such an intermediary would need to be established from the outset, and this would be possible only if it is promoted and supported by the Central Government, the RBI, the multilateral financial institutions, possibly some major international investment banks, and national financial institutions, with some participation of State Governments as well.

IFDC's role in directly financing infrastructure projects

IFDC should directly finance selected projects that require funds in addition to that available from traditional sources.

Functions of the Specialised Financial Intermediary: Infrastructure Finance Development Corporation (IFDC)

The proposed Infrastructure Finance Development Corporation would essentially promote the development of infrastructure in India. In principle, once it succeeds in developing the infrastructure finance market and financial intermediaries, its role should start declining. There should a clause in its constitution to provide for this eventuality.

Objectives of the IFDC: The Corporation would seek to promote infrastructure investment by evaluating and offering several forms of financial assistance and technical advice to project-lending financial intermediaries and priority infrastructure projects. Its

key objective would be to enhance the credit quality of debt issuers so that their instruments can be issued at lower cost and extended debt maturities. These functions can be accomplished through various means. The Corporation would have two main divisions or subsidiaries:

Infrastructure Finance Division
Infrastructure Insurance Division

The Infrastructure Finance Division could offer the following products:

- **Financial Guarantees:** It could guarantee bonds issued by credible financial institutions and project companies, or loans taken by project companies, for a fee. This would enhance the credit rating of these agencies.
- **Subscription to Equity and Bond Issues:** It could subscribe to equity and bond issues of financial institutions and project companies to add to their liquidity and enhance market confidence in these issues. This activity would be particularly directed towards providing credibility to longer-term instruments.
- **Asset Securitisation:** It could subscribe to securitisation of existing assets of financial intermediaries in order to enhance their liquidity. It could also securitise loans of project companies in order to lengthen the maturity of the in-debt portfolio. This function would essentially be to promote the asset securitisation market.
- **Direct Finance of Projects:** It could directly finance highly selected projects of national importance requiring financing in addition to that available from traditional sources. This activity would have to well-defined so that it is not in competition with other financial intermediaries.
- **Other Liquidity Products:** Instead of having to establish set-aside funds to satisfy the demands of lenders that they have liquidity in certain circumstances, project companies could purchase committed lines of credit, guarantees or insurance from the intermediary that would ensure such liquidity.
- **Rollover Bridge Financing:** The Intermediary could provide bridge financing to project companies while they seek to refi-

nance previously contracted debt. Such financing would be available to project companies only if their credit standing has remained unimpaired. This would be most helpful in the case of temporary unavailability of funds due to severe macro-economic problems. The definition of unavailability could be based on unavailability due to administrative credit limits, on absence of finance with maturities in excess of a certain time period or on interest rates exceeding certain threshold. The existence of such bridge financing may help accelerate the development of lending instruments with balloon payments, thus alleviating cash flow concerns.

■ **Combinations:** Here the value of the intermediary would depend on effective packaging of funding and guarantees into simple high-quality products that help break the gridlock in infrastructure finance and attract prudent institutional investors. The simplest version of such a combination product would be a long-term loan to take out construction finance. It is anticipated that in providing funding products to a project company, the intermediary would limit itself to take-out finance, and then only to a portion of such finance required by a project company. This would enable other financial institutions to benefit directly from increased activity produced by the intermediary's operations and would effectively ensure that responsibility for credit risk assessment is shared with such institutions.

■ **Unavailable Products:** The intermediary would not offer products that cover certain types of risks, such as completion or performance guarantees and bonds. Refinance of existing projects will generally not be possible.

The Infrastructure Insurance Division would in the first instance provide risk and bond insurance itself, and then promote the development of bond insurance companies in the country. Once these companies come into being, it could provide re-insurance services to them which would enhance the ability of these companies to cover more infrastructure projects.

The specific products offered by the Infrastructure Insurance Division would include:

■ **Bond Insurance:** Bond insurance of securities issued by financial intermediaries and project companies would serve to enhance the credit quality of bonds and thus help create a critical mass of paper with an investment grade rating, which would render it eligible for investment by potential pension, provident and insurance funds, and such other institutional investors. As the Indian capital market becomes more open, the availability of such bond insurance would also enhance the ability of FIIs to invest in infrastructure-related bonds and other debt instruments in India. This service would obviously be provided on a commercial basis on payment of appropriate premia. The theory is that the cost of these premia would be less than the credit enhancement gained.

■ **Policy Risk (including Convertibility Risk) Insurance and Guarantees:** The intermediary could provide project companies with policy risk insurance and could guaran-

tee bonds issued or loans taken by project companies with respect to policy risks, such as breach of contract, changes in tariff/ policies, availability of foreign exchange and the like, once again, on a commercial basis.

Structure of the Proposed IFDC: If the proposed IFDC is to be formed, the structure of financing, management control and mode of functioning have to be very carefully designed. First, in order to have higher credibility and credit quality than the existing all-India financial institutions, this institution would clearly require exceptional backing from the Government of India. Second, since the institution is also designed to have a presence in international capital markets for sourcing its funds, it should also have the backing of the multilateral financial institutions. Third, since it is designed to have a commercial outlook, and presence in international capital market, it would benefit from the substantive participation of international investment banks. Fourth, because its functions are mainly to provide institutional backing for the enhancement of credit quality of other financial intermediaries and infrastructure project companies, it must be a lean organisation which has a minimum presence in direct infrastructure project-lending operations. If these requirements are met in designing the structure of this institution, it would be feasible to establish the IFDC relatively rapidly so that it could start operating as soon as the other debt market reforms are put in place.

Considerable innovation would be required in establishing the IFDC since no exact parallel exists anywhere in the world. However, lessons can be drawn from a number of institutions that do exist internationally and in different countries and broadly perform similar functions in different ways.

First, at the international level, the structuring of the multilateral financial institutions such as the World Bank and ADB provides some pointers for structuring of this institution. One issue that must be resolved upfront is the IFDC's capital requirements, as it would be responsible for a diversified

portfolio of guarantees/ insurance. For a diversified portfolio of infrastructure projects, the outstanding contingent liabilities would be very large and consequently, the equity requirement would be substantial. In order to provide substantial risk cover to lenders, the equity base of this institution may need to be very high so that its gearing ratio is low. To overcome the problem of a large equity base such a leveraging would generate, one possible solution would be to model the intermediary on the lines of the World Bank, which uses the notion of "callable" capital.

At the time of incorporation, member countries of the World Bank were asked to contribute only 20 per cent of their actual share in the equity base while the balance 80 per cent would forever remain as "callable" capital—to be invoked only when there is a threat of default by the Bank to its lenders. With subsequent capital increases, the paid-up proportion has been reduced to 7 per cent

IFDC's role in enhancing credit rating

IFDC should guarantee bonds issued by financial institutions and project companies for a fee to raise their credit rating.

in 1994. Thus an actual debt-equity ratio of 5:1 (currently 13.5:1) has been effectively translated into a maximum debt-equity ratio of 1:1, backed by the collective sovereign guarantee of all member governments. The success of this concept can be gauged from the fact that an actual commitment of a mere US\$10.7 billion in shareholder funds has over the years enabled the World Bank to raise and commit over US\$250 billion in loans to member countries. It may be pointed out that even with such sovereign support, it was only in 1959, a decade after its founding, that the World Bank secured a Triple A rating in global capital markets. Thus, as a financial intermediary, the World Bank has effectively used its higher credit ratings to raise resources for supporting otherwise less creditworthy projects and for providing the highest possible bond insurance to investors directly investing in such projects.

Thus, government support for the IFDC can be in the form of a equity contribution along with the concept of callable capital or financial guarantee.

Second, there are other examples of government-promoted institutions such as Fannie Mae in the US which has provided credit enhancement to the whole housing mortgage finance system. Such institutions have helped to increase the liquidity of mortgage-issuing institutions through the provision of government guarantees. Similarly, the Pfandbriefs system in Germany, which finances housing mortgages as well as municipal infrastructure-related activities, has been possible because of a regulatory structure which lends extraordinary credibility to this instrument. Third, there is also the example of debt market infrastructure systems like bond insurance in the US. Fourth, in recent times, the establishment of infrastructure equity funds by private promoters like Peregrine and the AIG Insurance Company has been helped by the backing given to such funds through equity contributions as well as debt by the multilateral financial institutions, in particular, the ADB and IFC(W). Fifth, East Asian countries, especially China, have sought to establish infrastructure investment banks with equity and management participation by international investment banks.

From these examples, it is clear that considerable institutional innovation has taken place in the past and is taking place now in different countries in order to find different ways of tapping resources for infrastructure investment from the capital market. The key is an innovative partnership between the government and financial institutions domestically, along with substantive backing from both multilateral financial institutions and private international investment banks.

Financial Structure: The proposed institution could be owned jointly through equity contributions by the Central Government (26 per cent) and the RBI (24 per cent), combination of the ADB and IFC(W) (25 per cent), and international investment banks (25 per cent). In order to exercise maximum leverage, a system of callable capital could be inserted into this

Giving IFDC high leveraging power

IFDC should be owned jointly by the Government, the RBI and multilateral agencies with 'callable capital' from some of the owners.

structure for at least some of the participants. The GoI, the RBI and the multilateral institutions could contribute a third of their equity share in cash and the balance could remain as callable capital. With such a structure, the maximum gearing ratio can be restricted to, say, 1:2, so that leverage of between 1:6 to 1:8 may be obtained. With this kind of financial structure, the proposed institution can have extremely high credibility in both domestic and international capital markets.

Financial Size of the IFDC: The financial size of this institution must be large if it has to make a significant impact on the development of infrastructure financing in the country. If the structure indicated is adopted, minimum leverage of about 1:6 would be obtained from the cash contributions in equity. Furthermore, with the kind of functions that have been proposed for enhancing the credit quality of other institutions, the financial support provided by the IFDC

should result in further leverage of about 1:4 in the raising of resources. This is predicated on the assumption that if the IFDC provides backing to an institution to the extent of 20 per cent of the required resources in the form of its various products, leverage of 1:4 would then result. Consequently, the total leverage resulting from the cash equity contributions to this institution would be about 1:25 or thereabouts.

It is therefore proposed that the authorised equity capital (including callable capital) of the IFDC should be about Rs 200 billion. If 50 per cent of this equity capital is contributed by the GoI, the RBI (and LIC) on a 1:2 callable capital basis, they would have to provide about a third of their share in cash, which amounts to Rs 33 billion, the rest Rs 67 billion being callable. If this is contributed over a period of five years, the annual contribution would amount to about Rs 6.7 billion, with the GoI being responsible for about half. Similarly, the 25 per cent share of the multilateral institutions would amount to Rs 50 billion, with about Rs 16.7 billion (about US\$500 million) in cash. Thus the annual cash contribution to equity would amount to about US\$100 million for the multilateral institutions. Assuming that the commercial investment banks cannot subscribe to the notion of callable capital, their total contribution would amount to Rs 50 billion, their annual contribution for five years being Rs 10 billion (US\$300 million).

With such a structure, it is expected that from the total cash contribution of only Rs 33 billion from the GoI and the RBI, total amount of funds leveraged could amount to about Rs 800 billion (200x4). This would then form a very substantial contribution in developing the debt market.

Management of the IFDC: The institution would need to be incorporated as a commercial entity. The image and reality of credible commercial orientation would get enhanced by the management control structure which should reflect the equity composition of the institution. The management and staffing can be internationalised to begin with, and even contracted out

to an international investment bank again to enhance market credibility and then progressively Indianised as it receives appropriate credit ratings internationally.

The institution would need to have a lean staff and contract out most of its work to competent specialised financial institutions. Key required skills would be credit analysis for structured finance projects in a variety of infrastructure sectors, policy risk assessment skills and knowledge of capital markets and relevant products. The intermediary manager would make credit decisions on the basis of policies set by the board. The Board itself would not normally be involved in credit decisions to prevent conflicts of interest and maintain confidentiality among shareholders competing for the same project.

Need for a Competitive Credit Rating for IFDC: The key objective of the IFDC would be to activate the Indian debt market in conjunction with the capital market reforms proposed. It is also designed to improve the access of Indian financial institutions and infrastructure entities to foreign capital markets, particularly for floating medium and longer-term bond issues.

The IFDC's ability to offer competitive financial services will hinge on its capacity to obtain a favourable rating based on the credit standing of its shareholders, combined with prudent management practices. Secondly, it would need to induce a form of disintermediation from the institutional banking system, which operates with relatively high funding spreads. Most other disintermediation currently takes the form of borrowing in foreign markets, where spreads are more competitive. A well-structured, and competently managed intermediary should be able to raise capital at or close to prime rates in the domestic capital market, so as to provide financing at a reasonable cost to project companies. A high credit rating would also enable institutional investors, such as pension funds and insurance companies, to invest in securities issued by the intermediary. Obtaining a high rating in global markets would depend on the extent of credit enhancement the intermediary's securities receive from institutions such as the World Bank, IFC(W) and the ADB, the extent to which the intermediary is leveraged and on the quality of the its portfolio. Making available the benefit of lower funding costs and elongated maturities to infrastructure projects may be justified if it helps to break the gridlock currently hampering private infrastructure development, and if its special standing will not permanently distort financial markets.

It is felt that, with the kind of structure proposed, providing for the backing of the Government of India, multilateral financial institutions, and of international investment banks, the IFDC should succeed in obtaining a credit rating which would be just below India's sovereign rating. Furthermore, the extension of long-term credit lines from the multilateral institutions, particularly the World Bank would help in establishing a credible position in the market. It could then issue medium and long-term bonds both in the domestic and international capital markets on

the kind of governing ratio suggested. Institutional investors like pension and insurance funds, both domestic and international, would also be able to invest in the securities of the IFDC with the kind of credit comfort proposed. They would form a major target for the raising of funds for the IFDC. If the IFDC succeeds in raising such resources, it would then be able to act as a market maker by subscribing to debt instruments of similar maturities issued by its clients: Indian financial intermediaries and project entities. Such an operation would help to jumpstart the medium and long-term debt market within the country as intended.

Conclusion: The IFDC would be a new kind of institution, with perhaps no parallel anywhere in the world, although the functions proposed are carried out by many agencies in different countries. It has been noted that different countries have adopted different innovative methods for channelling market resources into infrastructure investments. India will have to innovate institutional forms for its own requirements.

Whereas the Expert Group is proposing the founding of an institution such as the IFDC, it is very conscious that there could be other ways of achieving the same purpose. What is important is that the functions proposed need to be performed with the purpose of activating the debt market. The Expert Group had considerable discussion on the desirability of founding such an institution: some members felt that once the capital market reforms proposed are implemented, there will be no need for such an institution and that endogenous institutional responses to the market will emerge. Consequently, while proposing the model of IFDC spelt out here, we suggest that this proposal be tested and fleshed out by convening a panel of international capital market experts with representation from the multilateral financial institutions, international investment banks, and other institutions such as Fannie Mae, German mortgage banks, and the like.

Recommendations

Fiscal Incentives: To attract equity capital in the construction and pre-operative phases, equity investment in long-gestation infrastructure projects could have tax relief like the erstwhile 80CC provision.

Dividend payable on equity investments in infrastructure should be made cumulative for payment for the period until the project goes on-stream.

Infrastructure projects could have nominal ordinary equity capital and large measure of cumulative convertible preference shares (CCPS) with the proviso that at the end of a specified period (say 10th year), the CCPS will be compulsorily converted into equity shares through a pre-determined pricing formula.

The debt-equity norms for funding infrastructure will have to regard the compulsorily and fully convertible debentures as quasi-equity and such debentures could be subordinated both for principal and interest to all secured

With the kind of structure proposed, IFDC should be able to obtain a credit rating which would be just below India's sovereign rating.

and unsecured creditors of the project.

Dividends could be made tax-free to the individual shareholder upto a reasonable level on the equity investment.

The tax holidays provided in the budgets (1994-95 and 1995-96) for infrastructure projects in the initial years would usually not be of much use, given the high depreciation outgo in the initial years. Leasing could greatly ease the situation by giving/ transferring the fiscal benefit to tax-paying entities. Joint and leveraged leasing structures are used internationally to co-finance the asset. However, the Income Tax Act does not permit sharing of depreciation where assets are owned jointly. Suitable changes would need to be effected in the provisions of the Act to provide for sharing of depreciation charges, especially in the case of joint/leveraged leasing for infrastructure projects.

Insurance, Provident and Pension Funds: As recommended by the Malhotra Committee on Insurance Sector Reforms, GIC and its four subsidiaries can be split up into smaller entities to increase competition in the insurance business. The reform programme for the insurance sector should be accelerated with a sense of urgency. Privately-owned insurance companies, both domestic and foreign, should be allowed and encouraged to enter as soon as possible: this is essential for developing the debt market for infrastructure requirements.

The Employees Provident Fund (EPF) (with a corpus in excess of Rs 350 billion), which is currently managed by the SBI could be split up and managed by professional asset management companies on a competitive basis. Such a measure would usher in greater competition in the provident fund business and provide incentives to these institutions to invest and trade in debt instruments more actively. Further, in order to motivate fund managers, a performance-based incentive structure may be introduced as is the case in developed insurance markets.

Arrangements should be made, under a suitable regulatory framework, to allow the establishment of new private (and public) provident and pension funds. These would provide added avenues for safe contractual savings for even those outside the organised sector.

Current guidelines on deployment of funds by insurance companies, provident and pension funds are not flexible enough from the point of view of efficient fund management and yield maximisation. The existing issuer-based guidelines could be replaced with guidelines based on prudential norms, which permit investment in securities with minimum specified credit ratings. Prudential guidelines, as in the case of mutual funds, specifying maximum limits will have to be devised for this purpose. The existing guidelines have directed the flow of funds into sectors, instead of controlling the interest rate and credit risks to which these institutions are exposed. It may be appropriate to modify the guidelines so as to eliminate/minimise this form of "directed credit" and increase the responsibility of the investment managers. Market and credit risk

Making equity investment in infrastructure more attractive

Dividends from infrastructure companies should be made tax free to the individual shareholder upto a reasonable investment level.

restrictions may need to be enforced as insurance companies, pension and provident funds have extremely long maturity liabilities. It is also recommended that the guidelines be modified so as to provide greater operational flexibility to fund managers.

Suitable fiscal incentives need to be provided for contributions to pension funds. Such a measure would channelise a large pool of savings into long-term assets. It would also help to reduce the incidence of savings getting diverted to the parallel economy and help transform the financial market.

Forex Markets and External Commercial Borrowing: The process of granting approvals by the MoF and RBI for all aspects of external commercial financing may need streamlining. Arbitrary ceilings put on the "spread" over US Treasury yields for foreign currency debt financing or the shortening of maturities as specified in the guidelines on ECBs make it difficult for foreign investors to finance projects.

If Indian corporates and financial institutions are to tap the global capital markets periodically, it may be in India's best interest to consider a sovereign offering which will serve as the bellwether for future issuance. The establishment of a "benchmark" issue will be important for the development of India's access to the capital markets. Much as investors use the US Treasury as a benchmark to determine valuation of other issues, foreign investors would prefer a sovereign security which could serve as the benchmark for valuation of Indian paper.

The imposition of a 20 per cent withholding tax on foreign domiciled debt investors can work against the policy objective of restraining foreign currency borrowing. This new regulation can have the effect of decreasing the available investor market for any given issue, as the potential administrative burden of withholding tax credits between countries etc can discourage most passive investors, who make up the bulk of the available financing sources. Another anomaly which currently exists relates to the withholding tax of 20 per cent on interest and dividend incomes on investments by FIIs. There is no such tax (on approval by the Government on a case-by-case basis) on External Commercial Borrowing by Indian entities abroad. It is a bit incongruous that when an investor takes a rupee risk he pays withholding tax, while he does not pay any such tax when he is isolated from any currency risk.

Appropriate changes in exchange control regulations by the RBI are called for if risk-hedging mechanisms such as forwards and futures have to emerge in the foreign exchange market.

Foreign Infrastructure Funds: At present, there is no special channel for such funds to invest in infrastructure projects in India, except for going through the Foreign Investment Promotion Board (FIPB) like any other foreign investment. It would be very desirable to place investments from such funds on a preferred footing. They could be treated in a manner similar to the investments made in the capital market by FIIs at

present. FIIs have to register with SEBI, consequent to which they are permitted to invest in listed companies. A similar channel could be opened for recognised infrastructure funds. They could be registered with SEBI based on transparent guidelines related to their recognition. They could then be allowed to invest in eligible infrastructure projects—in listed or unlisted companies, including infrastructure special purpose vehicles (SPVs). The eligible infrastructure projects could be

- Those approved by the Central Board of Direct Taxes (CBDT) for granting of fiscal benefits as infrastructure projects under section 80-1A.

- Those telecommunication companies which have received a licence from the Department of telecommunications.

- Those power projects which have been approved by the Central or State Governments.

The level of foreign investments allowed under this window could remain subject to the overall guidelines covering each sector. This procedure would obviate the need for obtaining FIPB approvals on a case-by-case basis for such portfolio investments. Guidelines as indicated above would automatically ensure that eligible receiving projects have already been approved by the relevant authorities. This measure would help in channelling available foreign resources into infrastructure investment.

Debt Market Reforms: It would be desirable to permit banks and institutions to set up Primary Dealer counters as part of their overall banking and lending activities. This would facilitate broadbased holding of debt instruments—especially at a retail level. Such a measure would be necessary if it is recognised that the medium and small-sized banks could play an important role for dealing in and distributing retail the entire range of debt instruments, including Government securities and Treasury bills.

It is necessary to evolve a benchmark rate on the pattern of London inter-bank offered rate (LIBOR). For creating a meaningful inter-bank rate in India on the lines of the LIBOR or the US Fed Funds rate it is essential to remove barriers in the free flow of funds among banks. In line with the recommendations of the Sodhani Committee, the CRR and SLR stipulation in respect of inter-bank borrowing should be abolished for encouraging emergence a meaningful rate on the pattern of LIBOR.

Apart from dispensing with CRR and SLR on inter-bank deposits, RBI could consider changing the basis of calculating CRR as a proportion of the lagged average of the Net Demand and Time Liabilities (NDTL). This could considerably enlarge the scope for differing perceptions among the main money market participants and thus go some way towards a healthier development of the money market.

The RBI could also consider reactivating the Bank Rate and using it as a general refinancing rate within the banking system. The Bank Rate could be used to send interest rate

signals into the market and would also lend stability to the inter-bank money market rate.

There is a need for a single clearing agency that will co-ordinate with the different securities settlers, as also the funds settlers to monitor that all trades are settled, and ensure "delivery versus payment".

If debt market intermediaries have to become significant traders in their own right, they would need to be provided access to institutional finance. For this purpose it will be necessary to evolve norms for funding the activities of these intermediaries, including working capital limits, as in the case of providers of any other financial service.

Widening and Deepening the Debt Market: To widen and deepen the market for debt instruments, it would also be necessary to bring in, apart from new insurance companies and pension/provident funds, other investors such as the FIIs who will not only be effective fund-based participants, but will also bring with them the knowledge and experience of development of the debt markets in other countries. The objective of containing any excessive growth in external indebtedness, arising out of the holding of rupee-denominated debt by foreign investors, including FIIs, could be achieved if Government upfront fixes the limit on the domestic debt that foreign investors can hold and do away with the present 70:30 rule.

The other equally important aspect relates to making debt securities of a single issuer "fungible". This would be particularly relevant for infrastructure projects where the gestation period is relatively longer, and the need to source modest-to-large volume of funds from the market periodically is greater. Such a measure would impart greater depth and liquidity in the market and provide larger volumes of a single security for trading among investors.

In order to enhance liquidity further, "repo" transactions can be re-introduced for all listed debt securities with adequate/suitable safeguards. At a later date, when depositories become operational and electronic clearing and settlement is possible, "securities lending" can be introduced with suitable legislative changes.

Money market mutual funds (MMMFs) must have the flexibility to structure the pattern of investments of their fund in accordance with their objectives. Moreover, no restrictions need be placed on the kinds of instruments in which MMMFs can invest. One sure way of broadbasing the debt market would be to encourage banks and institutions to set up MMMFs and debt oriented mutual funds.

The distribution network of brokers and sub-brokers, at the moment does not exist for debt instruments the same way as it exists for equities. Until it becomes possible to develop an extensive network of brokers and sub-brokers and market makers, it would be appropriate to use the network of commercial banks, and perhaps the postal banking system, which can combine the roles of distributors as also resourceful market makers.

Developing a distribution network for debt instruments

The network of commercial banks, and perhaps the postal banking system, can be distributors as well as market makers for debt.

Regulatory Reforms: For more effective regulation and development of debt market, it would be desirable that there is a single regulatory authority for the debt market, preferably SEBI.

To spur trading in debt instruments, it would be necessary to have uniform valuation norms on a marked-to-market basis for all the major classes of investors: banks, investment institutions, mutual funds, NBFCs etc. Frequent periodic revaluation of debt assets in response to changes in market prices will minimise the extent of capital losses to be booked on investments. It will also facilitate the decision making process relating to switching of portfolios in response to changing yields and maturity patterns.

TDS acts as an inhibiting influence on the traceability of instruments, especially where it requires fine adjustments to price between different categories of holders. Differing TDS rates make it impossible to have a uniform price-quoting mechanism for instruments. It is desirable that the RBI does not insist on differential rates of TDS and accepts the market practice which is in favour of a single TDS rate for all debt instruments. In order to introduce uniformity in the system of price quotation, it is desirable that market participants should adopt a practice of quoting all prices on gross basis inclusive of TDS. On corporate debt instruments too, such a mechanism of a standard TDS rate across all categories of holders is very necessary.

There appears no clear-cut reason why private sector infrastructure companies are not permitted to issue tax-free bonds. If certain categories of infrastructure entities are not allowed to issue tax-free bonds, they should be permitted to issue bonds with a single tax rate to be deducted at source. Such an issuance procedure would significantly simplify trading in such instruments.

In the absence of practices such as Advance Tax Ruling, issuers have to face considerable delay in finalising the nature of the debt instrument to be issued and also the terms thereof e.g. confusion among issuers regarding the tax treatment of income on instruments such as deep-discount bonds, zero-coupon bonds etc. A clear tax ruling in this regard could help develop a market for debt securities, similar to that of STRIPS as in the US.

Stamp duty on primary issues of debt securities need to be made uniform across all states. Stamp duty on secondary market transactions acts as a significant barrier to trading on the secondary market and should be eliminated.

The legal framework for securitisation of loans needs to be simplified, so as to make it cheaper and easier.

In long-gestation infrastructure projects, the creation of a Debenture Redemption Reserve (DRR) over and above the usual depreciation provisions would put avoidable financial stress on companies in regard to their dividend payment policies. If equity and debt investments have to be attracted to infrastructure projects, the current provisions relating to DRR would need to be discontinued.

If unhealthy competition among brokers of undercutting prices has to be curbed, RBI must prescribe the minimum

level of brokerage payable by banks to brokers. NSE already specifies the maximum amount of brokerage payable. As in the case of foreign exchange markets, RBI should persuade banks to pay appropriate rates of brokerage so that banks do not adopt the unhealthy practice of compensating brokers through non-transparent ways.

Institutional Innovations for Developing the Debt Market:

India needs to explore the possibilities of developing a municipal bond system for supporting market borrowing to meet state and urban infrastructure investment requirements. It is essential that appropriate arrangements are explored within the constraints posed by the poor market image of service providers in this sector. Although development of a municipal bond market in India seems beset with hurdles, it does appear to be the desirable long-term objective for urban infrastructure financing in India. Initially, it would be preferable to use the revenue bond (RB) structure, which relies on specified sources of revenues from facilities and services that are financed out of the bond proceeds. The use of RBs would help to raise local awareness regarding service delivery and enhance its efficiency, since the success of these bonds depends on the potential revenue streams that, in turn, are dependent on the quality and coverage of service provision. Revenue bonds generally carry strong covenants regarding rate setting to meet debt service coverage requirements. As a municipal bond market develops, it may become necessary to explore the need for bankruptcy legislation for local authorities. Similarly, other changes in listing of municipal bonds and for their active trading will need to be explored. Most of the municipalities require approval of the State Government for open market borrowing. Certain states like Maharashtra and Gujarat have legislation which has explicit provisions for open market borrowing. Other states must make similar provisions. Also, the Local Authorities Act, 1914 needs to be amended to foster growth of the municipal bond market. Municipal bodies need to be given

powers to set the levels for user charges for the services provided. Development of a municipal bond system in India will help to address the need for enhancing access to the capital market for infrastructure investment while simultaneously introducing market-based discipline in such borrowing. This will help to provide the necessary incentives and motivation for various governmental entities to introduce the long-needed reforms in service provision and delivery. Secondly, it must be remembered that, in India, even the State Governments have not been given widespread powers to raise general obligation debt. Thirdly, as municipal bodies generally have a poor market image in the financial community, more explicitly demonstrable project or service revenue streams will be more acceptable to potential investors.

Specialised Financial Intermediary: Since the capital market—more particularly the market for corporate debt—has not yet devel-

Using money market mutual funds to develop the debt market

No restrictions must be placed on the kinds of instruments in which MMMFs, which need to be kept flexible, can invest.

oped, many of the infrastructure projects may not be able to mobilise the required volume of draft resources of the requisite long maturities directly. Hence an intermediary would need to be created which can inspire enough confidence among capital market investors to induce them to lend long-term funds at the lowest possible market rates.

It is proposed that an Infrastructure Finance Development Corporation (IFDC) be set up to promote infrastructure investment by evaluating and offering several forms of financial assistance and technical advice to project lending financial intermediaries and priority infrastructure projects. Its products would include financial products like

- Financial guarantees for bonds issued by financial intermediaries and project entities.
- Subscription to equity and bond issues of financial intermediaries and project entities in order to add market confidence in these issues.
- Asset securitisation
- Rollover bridge Financing
- Direct finance for projects (on an exceptional basis)

The IFDC would also offer insurance products such as

- Bond insurance
- Policy risk insurance and guarantees

Its functions would essentially be for credit enhancement of instruments issued by lower credit quality institutions; to encourage competition in the capital market and in infrastructure lending; to kickstart the debt market through issuance of its own higher credit quality instruments.

For the IFDC to have higher credit quality than the all-India financial institutions, it must have the backing of the Government of India, the RBI, multilateral financial institutions and international investment banks. It is proposed that the IFDC be formed through equity contributions of roughly equal proportion (about 25 per cent each). Of this equity, only one-third would be in cash the rest would be "callable".

A management structure for IFDC

The management of IFDC, which must be incorporated as a commercial entity, should be contracted out on a global basis.

In order to boost its credit rating, its gearing ratio would be kept below 1:2, that is, it would be allowed to borrow only upto double its equity (including callable capital). This would provide leverage of about 1:6 for the equity contributions in cash. If the IFDC provides its backing to its clients of upto 20 per cent of their resource requirements through equity or bond subscriptions, a leverage of about 1:4 would result. Consequently, the total leverage resulting from the cash equity contributions to the IFDC would be 1:25 or thereabouts. This kind of leverage would provide a good jumpstart to the debt market.

It is proposed that the authorised equity capital (including callable capital) of the IFDC should be about Rs 200 billion. On this basis, the contribution of the Government of India and the RBI would be Rs 100 billion, or Rs 33 billion in cash. This could be contributed over five years, the annual contribution being only Rs 6-7 bil-

lion. Similarly, the foreign contribution would be only US\$200 million a year over five years, these contributions being split between the multilateral financial institutions and international investment banks.

The IFDC would be incorporated as a commercial entity. The management and staffing should be contracted out on an international basis.

With such a structure, the IFDC should be able to access both domestic and international debt markets for tradition and long-term debt, and hence succeed in jumpstarting the Indian debt market.

Since the IFDC would be a new kind of institution, with perhaps no parallel in the world, it is proposed that this proposal be fleshed out by convening a host of capital market experts with representation from multilateral financial institutions, international investment banks and credit enhancing institutions such as Fannie Mae, bond insurance companies and the like.



The Necessary Regulatory Frameworks

DISCUSSIONS with institutions, legal experts and professionals who have been involved in the setting up of projects in the private sector, has led to an overwhelming consensus that substantial changes in the present legal structure are essential, both in the letter and spirit of law, to allow for a freer play of market forces and which in turn would lead to unbundling of infrastructure services so that commercially viable projects could be set up to provide these services on commercial terms. The suggestions made in this Report, which reflect the broad consensus of market participants, do not seek to specify the clause-by-clause amendments needed in each of the acts, rules and regulations governing different infrastructure sectors; rather, these are more in the nature of pointers to the directions in which these changes should take place.

Having said that, it also needs to be recognised that infrastructure projects are only a subset of overall economic and investment activity. Therefore, the general institutional framework and the myriad of rules and regulations at the Central and state levels within which economic agents are functioning also affect infrastructure projects through channels, which, given their all-pervading nature, are almost impossible to pinpoint. While it may be possible to address in specific instances, the lacunae in the overall legal and institutional framework where these create obvious problems for a particular infrastructure sector, it is essential that a concentrated effort be also concurrently made to revamp the overarching legal framework and institutions. While it would be unrealistic to expect and achieve a "total

solution" involving a complete overhaul overnight, needless to say sooner or later we would have to move in that direction. From a practical point of view, given the democratic nature of our political fabric, an approach of "fast gradualism", if adopted, is likely to have a better chance of success.

The Need for Regulation

There is urgent need to supplement government investment in infrastructure by private capital flows, both domestic and foreign, to finance infrastructure projects. Simultaneously, there is also a need to improve the performance in infrastructure, to avoid wasteful inefficiencies, improve maintenance and increase consumer satisfaction. To make this possible, commercial principles would have to be applied to infrastructure operations, and competition encouraged between private sector providers. These adjustments would call for major paradigm shifts, policy changes, fundamental institutional changes which would include changes in the legal framework. In short, there has to be a fundamental change in the way the "business" of infrastructure is conducted.

As a first step, there is now a need to distinguish and separate the activities of ownership, financing, operating and maintenance. Separation of these activities also calls for a separation in, and allocation of risks. It is however important in this context to appreciate that while welcoming private capital flows, there may not be any need for completely disbanding the role of public sector. Today, the challenge of

meeting the large and rising demand can be met by moving toward a sector structure that is plural and competitive; with a mix of service providers - public and private - using different technologies and providing services catering to varying consumer needs.

Indeed, the more appropriate model would be one in which there is cooperation between the public and private sectors, where both join in a partnership along with community users of the infrastructure services. In the model which has hitherto been adopted, ownership and operation were both with the public sector: government's roles as owner, regulator and operator were not clearly separated. In the present context, where there is a need for public-private partnership, there could be situations under which public ownership and public operation could function side by side with public ownership and private

operation as well as private ownership and private operation. For all three situations to coexist, an appropriate regulatory framework would be needed, essentially to ensure that there is a level playing field for all players, the projects are implemented and operated on commercial terms, and there is a basic regulatory mechanism to protect public interest with competitive discipline and a credible enforcement mechanism.

Advances in economic theory allow for the creation of regulatory structures for infrastructure sectors which ensure competition in the face of concentrating forces, so that consumers may obtain the benefits of competitive provision of infrastructure services. Technological advances also allow service providers to charge users for services whose consumption was previously considered to be non-excludable. For example, city-centre road use, an essential infrastructure service usually considered to be non-excludable, is now being priced in cities such as Singapore.

Increase in the number of players with the involvement of the private sector, increases the complexities of project structuring and negotiations, as also costs. Risks multiply with the uncertainties posed by a maze of rules, procedures and approving agencies. All of these compound the high risks normally associated with projects which have long gestation and long and uncertain payback periods. Clearly, attempts must be made to enunciate the risks of the participants, and allocate the risks between them, reduce transaction costs and risks by removing procedural delays and the number of approvals required which introduce additional uncertainties in the project. In other words, "sensible" regulation with prudential norms is needed, which must also ensure that pay-offs are generated or at least competitive conditions are provided for the generation of pay-offs to make the projects sustainable.

Goals of Regulation

At the most basic level, there emerge two competing views of regulation, offering different interpretations of the public interest to be served. In one, the degree and quality of regulation are determined by who will receive the benefits or burdens of regu-

The appropriate model is one in which the public and private sectors join in partnership along with users of infrastructure services.

lation, what form the regulation will take, and the effects of regulation on allocation of resources. In this view, as a rule, regulation is acquired by the industry regulated and - and this is the key - is designed and operated primarily for its benefit, even though the regulation might have been initially thrust on the industry in the face of its opposition. It is then possible to argue that consumers benefit if the markets are allowed to operate freely and most productively. Within this perspective, the cost of a new rule or regulation should be considered in terms of its impact on the market's ability to allocate capital efficiently.

The alternate view—and the one more commonly held—is that regulation is instituted primarily for the protection and benefit of the public at large or some large subclass of the public, that is, public interest is the only *raison d'être* of the regulation. Ergo, the cost

of regulation for the regulated is not as relevant as the effectiveness of action to protect the interests of the public who are the recipients of the benefits derived from the projects and the regulated entities and of the investors in the projects. In the final analysis, this makes markets more efficient.

In developing economies, where markets remained protected for long and are now being opened up to competitive forces, a marriage of both the points of view would best serve the purpose. Regulation must not only have public and consumer interest as its centre point, development of markets must also be one of its inner springs. It is the latter objective that encourages competition, and removes both technical and economic constraints on unbundling. It also helps mitigate situations where legacy of institutions could limit the possibilities of unbundling. Attempting to force activities that are closely interdependent into distinct boxes can impose high transaction costs as coordination achieved within a single firm becomes more difficult and less effective when handled between firms. For example, having separate, vertically-linked monopolies, each charging a mark-up over costs, may result in higher charges than with a single, vertically-integrated firm.

A regulatory framework with the twin objectives of regulation and market development would also serve to increase the range of market alternatives by creating conditions especially for leases and concessions and make firms compete not for individual consumers but for the right to supply the entire market. When competition comes to the fore, it becomes necessary for the regulator to ensure that competition remains fair.

The Role of Competition: Competition's cost-reducing impulse has to be combined with residual controls to ensure quality of service and maintenance of operating discipline. In this context, it becomes relevant that the ubiquitous instrument of regulation also seek to maintain "reasonable and just" prices in order to protect consumers.

Competition helps ensure that the private sector passes savings on to users and reduces popular suspicions about potential monopoly abuse. In general, a private firm might be

presumed to be more tempted than a public agency to exploit any market power that it might possess. As long as a market is competitive, private firms cannot price much above their long-run marginal costs: they may be able to do so in the short run if demand temporarily outstrips supply, but only for as long as it takes to build additional capacity. If the market is not competitive, however, a firm may be able to sustain prices in excess of marginal costs, if politically permitted to do so.

However, competition is often difficult to secure in the case of infrastructure services, where economies of scale, immobility of assets, and siting problems tend to create elements of monopoly in the projects. Many countries that allow private toll roads usually require that a free alternative be available. But such an alternative could well threaten the viability of the toll road itself. Thus regulation of such sectors is essential.

Striking a Balance: In the absence of competition, it is typically difficult for regulatory agencies to arrive at a satisfactory regulated price regime. If, under the pressure of consumers, the price is set too low, it is bound to lead to poor quality of service or to threaten the financial viability of the utility. On the other hand, the regulatory agency could be "captured" by the firms they regulate and thereby set prices well above costs. In either case, difficulties would arise questioning the existence of the privatised entity leading to possible nationalisation.

Striking a balance between protecting the public and providing investors an opportunity to earn an adequate rate of return is not easy, even where regulators understand the need to do so. Among the most attractive options is the (RPI - X) regulation pioneered by the British in the 1980s and applied to its privatised airports, and California's one-time contractual approach in setting a target rate of return in its toll road franchise agreements. Even these comparatively simple regulatory schemes, however, require some sophistication to implement well. Thus, the usual choice in the case of natural monopolies is among imperfect markets, imperfect regulations, or imperfect public enterprises.

Regulation is also an additional means of reducing adverse environmental consequences. It is important too for securing infrastructure service delivery that meets public safety requirements. Environmental regulation begins by specifying abatement standards based on technical options. Experiments have been made by using additional regulatory instruments to introduce more flexibility, efficiency and cost-effectiveness into pollution control measures.

In a developing economy like ours, besides protecting consumers' interests, and facilitating competition through unbundling of services, regulation must serve a social objective of ensuring equity in the distribution of services between urban and rural areas and between more developed and remote areas. Thus, even with a free play of market forces, complete disbanding of the role of the public sector will neither be pos-

sible nor desirable. It is in serving this objective that regulation must help in creating an institutional and organisational framework which will ensure that the public-private partnership could function efficiently.

A regulatory framework, to function effectively, must be simple and supple and derive its strength from clarity of principles and provisions. Very often, regulations have failed to be effective when the framework has become cumbersome.

Financing of infrastructure projects from private capital requires a mechanism for allocation and reduction of risks, reduction of transaction costs and reduction of uncertainties to bless the returns with a higher level of certainty. Additionally, it also calls for a well-regulated capital market, with an array of instruments, and a choice of operating structures, which can not only allow the markets to be accessed with relative ease but also be used with the same ease for exiting from an investment. Capital market regulation thus forms an important component of the regulatory framework for infrastructure projects.

Clarity in the roles of government, financing institutions, private sector partners and consumers also helps in relieving the system of great expectations and rationalising the hopes of each of the above entities from the other. Projects are likely to function efficiently and succeed when they are based on realistic expectations. And only then would the system be capable of maximising public welfare.

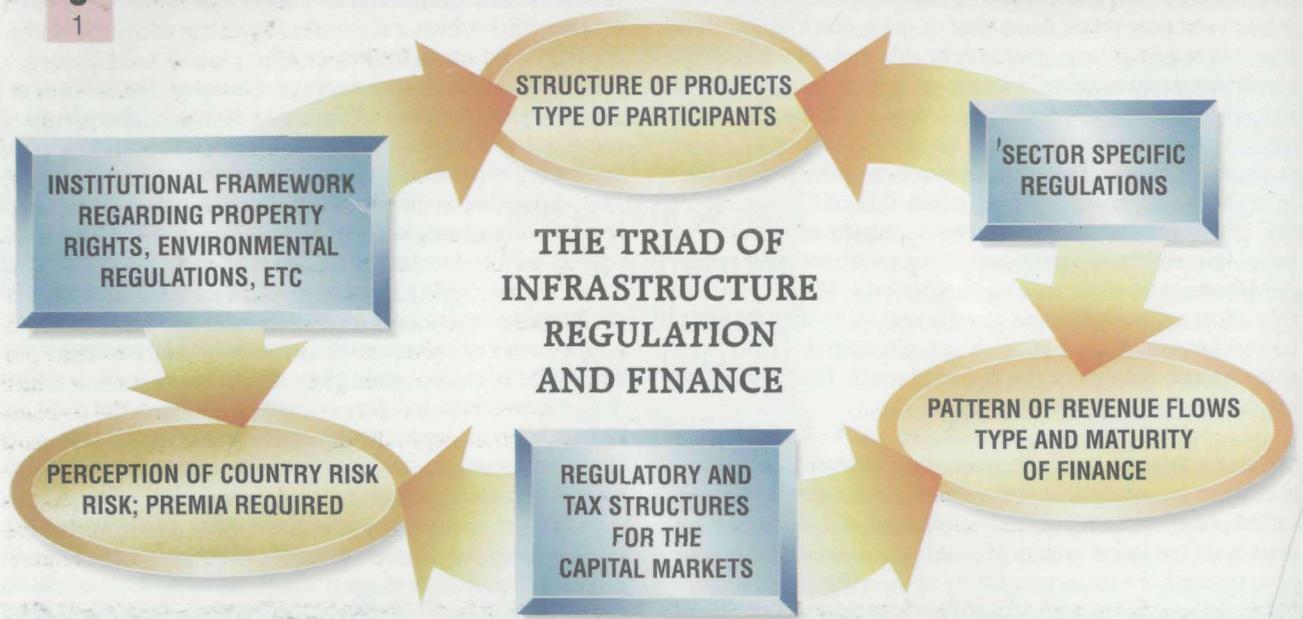
The Existing Legal Framework

Deficiencies in the Current System: The fundamental assumption that has been made in the myriad enactments which have hitherto been governing various infrastructure sectors is that these services can and should only be provided by the State. Private ownership was not envisaged. The issues of competition, cost and efficiency were irrelevant in such a situation.

This had two effects. One, given the monopoly of public sector providers, there was no distinction between the provider of the service and its regulator; and two, it made allocation of risk and its equation with return not only difficult but unnecessary. It is now recognised that the scope for competitive supply of infrastructure services exists in almost all areas, in some more than others. Even in activities where competitive markets may not be provided, it is possible to provide contestable markets. Also, the competitive components of a sector can be unbundled from those that involve natural monopoly, thereby introducing a significant element of competition in a sector, which, viewed as a whole, would appear to have succumbed to concentrating forces.

The issue of allocation of risks amongst service providers, financiers and users, and its relationship with returns, which becomes redundant in public monopolies with welfare characteristics, turns out to be crucial when the source of capital shifts from public to private hands. The legal framework for setting up projects becomes as important as one for

**Besides making
sure of competition
and protecting
consumers,
regulation must
also ensure equity
in distribution of
services.**



financing projects, because together, they determine the efficiency of risk allocation and in turn the availability and choice of financial instruments and mode of financing. The manner in which the projects are financed, the cost, sources and maturity of such finance, the type and number of potential providers of infrastructure services that are attracted, the terms on which they are prepared to enter and the structure of projects that are implemented are all closely linked to each other. The extent to which such linkages are efficiently addressed in the existing legal framework could be assessed from the relationships between various sets of regulations which currently exist.

The present interactions between the regulatory and legal framework and the sources of finance (whether from domestic or foreign investors, institutional investors or retail, categories of institutional investors etc), types of instruments (whether equity or debt or some variant thereof, whether securitised, whether carrying any implicit or explicit guarantee) and cost of finance (including, for example, country risk premia), the categories of participants (private sector, public sector, joint venture or cooperative) in any infrastructure sector is a triad (Figure 5.1) of three independent sets of regulations which entwine and pervade the different ways in which projects are structured, undertaken and financed. Sector-specific laws, rules and regulations constitute the first leg of the triad. A set of "ancillary" regulations which affect the overall economy, but which are also relevant for setting up of and financing of infrastructure projects in any sector is also part of the first leg of the triad. Regulations that determine the institutional framework and market structure of the financial markets constitute the second leg of the triad. The legal framework that relates to, for example, property rights and their enforcement, speed and timeliness of dispute resolution, laws relating to land use, environmental protection etc, which enter into the cost/benefit calculus of every economic agent, whether in the infrastructure sector or not constitutes the third leg of the triad.

For power, telecommunications and roads and bridges sectors, the sector-specific regulations are as follows:

AREA REGULATIONS

Power

Electricity (Supply) Act, 1890
 Indian Electricity Act, 1910
 Explosives Act, 1884 with Rules
 Petroleum Act with Rules
 Factories Act, 1948
 and various state amendments.

Telecommunications

The Indian Telegraph Act, 1885
 The Indian Wireless Telegraphy Act, 1993
 The Telegraph Wires Unlawful Possession Act, 1950
 and various state amendments.

Roads and Bridges

National Highways Act, 1956
 Tolls Act, 1851
 Amendment to the Highways Act, 1995
 and various state amendments

The second set of the triad becomes relevant at the time of raising resources from the market or structuring new instruments for financing projects. The Foreign Exchange Regulation Act, 1973, The SEBI Act 1992, The Companies Act, 1956, The Securities (Contracts) Regulations Act, 1956 and the Income Tax Act are examples of such regulations.

Examples of the third set of regulations which are not sector-specific but ancillary to the development of the project are Acts related to land, environment, etc.

AREA REGULATIONS

Land

State, municipal and town planning regulations

Area development authorities legislation
Development boards legislation
Land Acquisition Act, 1894
Urban Land Ceiling Act, 1986

Environment

Forest Act, 1927
Forest (Conservation) Act, 1980
Environment (Protection) Act and rules and notifications issued thereunder
Air and Water (Prevention and Control of Pollution) Act (Air Act), 1981

Others

Arbitration Act
Contracts Act, 1860
Transfer of Property Act

In addition, the institutional framework with respect to the procedures followed for grant of permissions, the multiplicity of agencies from whom permission is required, the protection of property rights and resolution of disputes arising therefrom, the enforceability of contracts, laws and procedures

related to the labour market, procedures followed in the collection of taxes, tariffs and fees etc. which impact all economic agents, also constitute the third leg of the triad.

Legal Framework and Efficient Allocation of Risk: Sector-specific regulations combine with the regulatory structures in the capital markets and the tax regime to determine the pattern or term structure of the income stream that may be expected from a project or from providing an infrastructure service as well as the manner in which the project is financed. The legal framework regarding property rights; consistency, effectiveness and speed of the dispute resolution mechanism; certainty about environmental regulations and liabilities; and level of confidence in the long-term evolution in all these areas contribute to the risk perception of investors in infrastructure projects. This risk perception gives rise to risk premium which investors will demand, and, in combination with the regulatory and tax efficiency of the capital markets, determine the cost of capital, over which any given project will have to provide returns to private investors. Finally, the structure of projects (for example, whether they are BOO or BOT or some other format) and the type of participants (private sector, joint venture,

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The Power Sector: Regulations and Inefficiencies

Legal provisions to support and regulate the electricity sector were put in place through the Indian Electricity Act (1910). Shortly after independence, a second act—the Electricity (Supply) Act, 1948—was formulated, paving the way for establishing Electricity Boards in the states of the Union. The State Electricity Boards have played the pivotal role in the rapid expansion of the country's electricity network.

Production was reserved for the public sector in the Industrial Policy Resolution of 1956. Since then, almost all new investment (barring those by existing licensees) in power generation, transmission and distribution has been made in the public sector.

Existing Licensee Scheme: A very detailed scheme for decentralised electricity distribution already exists. Much of the Indian Electricity Act (1910) is devoted to the rights and obligations of licensees, the manner of award of licenses and the stipulated terms thereof, circumstances of possible revocation before expiry of term etc. A good part of the Electricity (Supply) Act (1948) is devoted to the rights of SEBs vis-a-vis licensees and the obligations of the former towards the latter. The Sixth Schedule to the E(S) Act is devoted wholly to the financial regulation of licensees (excluding local authorities who operate licenses) and the pricing of electricity to consumers.

In the very early phase of the economic reforms, in 1991, the licensee scheme was liberalised by raising the regulated rate of return by three percentage points and also extending the license terms (from 20 years to 30). Further, changes in

the listing of permitted expenses were made to facilitate financing of expansion projects.

However, the scheme existing in the statute suffers from some serious limitations, principally the following :

- Excessive discretionary powers of the state
- Regulatory role assigned to SEB, which is inconsistent with current requirements
- Lack of incentives to ensure quality of supply
- Lack of any competitive element in pricing

Since the scheme was designed nearly 50 years ago, it is not surprising if it is deficient with regard to promoting competition and attracting large volumes of investment, including from overseas.

The existing scheme allocates several regulatory functions to the SEB, including operational regulation, monitoring of performance standards and intervention in pricing. SEB would, at the same time, be the monopoly provider of transmission. This combination of monopoly and regulation is inconsistent with present needs. A competitive element in distributors' pricing is brought in by segregating the bulk supply, transmission and distribution components of the price, and subjecting each to a combination of competition and regulation. The need to protect consumer interests and promote efficiencies calls for a recasting of the existing pricing formula along competitive lines. This is difficult to achieve within the existing framework. Besides, the limitations of the statute are further reinforced by serious practical obstacles.

Setting up an Infrastructure Project

To set up an infrastructure project, typically, the investor needs to go through the following long list of steps:

- Incorporation of a company under the Companies Act, 1956
- Approval under Foreign Exchange Regulation Act, 1973
- Company enters into an MoU or bids for a BOT project, with appropriate clauses for protection of designs, knowhow, responsibilities, commitments
- Negotiating contract for the project
- Process of acquisition of land, closing the EPC/ EPCM deal
- Environmental clearances
- Other state-level clearances
- Discussions for tying up of financing arrangement
- Risk allocation and risk sharing for financing entities
- Search for possibilities of counter-guarantees.

The major risks at various stages are:

- Project completion risk
- Operational risk
- Environmental risk
- Foreign exchange risk
- Force majeure risks

And the investor has to complete the following documentation:

- Charter of the company
- Project agreement
- Lease deed for land
- EPC/EPCM agreement
- O&M contract
- Loan agreement
- Retention/Escrow agreement
- Shareholder's agreement
- Insurance policies
- Licensing agreement

foreign, cooperative) emerge from the interactions between sector-specific regulations and the overall institutional framework. To enhance the efficiency of capital allocation, the provider of capital must have a clear perception of risks entailing the setting up of projects, the clearances required for setting up infrastructure projects, clarity in the nature of approvals required and time period, certainty about the income streams and a definitive kind of framework within which the provider of capital has to operate. The present legal framework, with a multiplicity of laws at the Central and state levels and approving authorities, introduces delays and uncertainties at every stage of the project and does little to reduce project risks. Its simplification and substitution by a set of simple, clear, unambiguous regulations administered by a single regulator for each sector, appears necessary.

Sector-Specific Regulation

The deficiencies in the existing regulatory framework become apparent from an analysis of the inefficiencies and limitations in the regulations governing the power sector, and in the existing licensee scheme (See Box 5.1). The examination brings out a set of issues which are common to regulations governing other sectors also. These could be broadly summarised as:

- Each sector is governed by multiple legislation, both central and state.
- The legislations are very old, often enacted in the past century or during the early years of the present century; for example the Electricity (Supply) Act of 1890, the Indian Electricity Act of 1910, the Toll Act of 1851.
- The legislations were based on the premise that infrastructure projects would be set up by the state. Understandably, the concept of privatisation or a public-private partnership could not have been envisaged at the time of enacting the legislations

and hence are not provided for at all. For example, the Indian Electricity Act, 1910 clearly specified that the State Government will license and supply electricity upon payment of fees. The National Highway Act declared the Government had the sole responsibility of constructing, developing and maintenance of highways.

- The objects and reasons for many of these legislations are not relevant for privatisation.

The legislations did not lay down a framework for setting up of projects on commercial terms and naturally made no reference to possible financial returns. This was all right so long as the projects were set up by the state.

- Commonly-understood project formats such as BOT, BOLT, BOO were not covered in these legislations.
- The legislations did not contain any provision by which a private owner or operator could determine and collect revenue by way of fees, tolls or other charges or rentals on a continuous basis during the operational period of the project.
- A multiplicity of regulations resulted in a multiplicity of regulatory agencies from which permissions or approvals needed to be sought for setting up any infrastructure project. This entailed delays, enhanced the regulatory risk which had to be built into the project cost and accounted for in the returns.
- Finally, there was no common legislation which could guide the setting up and development of infrastructure by laying down the manner in which such projects ought to be set up or implemented, financial and other parameters which need to be taken into account in project evaluation and the procedures which must be followed. The difficulties being encountered in the implementation of some of the ongoing infrastructure projects stem to a large extent from the absence of an overarching legislation and underpin the need for its enactment.

Box 5.2 shows the common steps required to set up a infrastructure project. It should help to highlight the complex process of approvals required and the multiplicity of laws involved.

The Need for Overarching Legislation: One method of addressing the difficulties posed and risks created by existing legislation concerning the different infrastructure sectors, the multiplicity of agencies and regulations that need to be dealt with and the complexity of the present process that has to be undergone by a potential private provider of infrastructure services, that has been successfully used in other emerging economies in their effort to rapidly attract investment in the infrastructure sectors is to enact overarching or facilitating legislation for project formats such as BOO, BOT etc. Such legislation would specify the exact format of the project, the role of the private sector provider, the procedure and criteria for bidding and tenders. The enactment of such legislation would help attract private participation as it would clearly delineate the inter se obligations of participants in the project, establish transparency and certainty about procedures and applicable rules. This legislation would be in the nature of facilitating legislation, and would change, wherever necessary, the provisions of other laws which conflict with, or pose hindrance to the easy and smooth participation by private sector providers in infrastructure projects. This type of overarching "BOT Law" has been successfully used in the Philippines, which, prior to the enactment of the law, was faced with a similar situation - of needing to rapidly attract private investment in infrastructure. The bill recently introduced by the Government to facilitate the dematerialisation of securities in depositories is a recent example of such legislation. The depositories legislation, in addition to laying down the manner and procedure for setting up depositories, and outlining the interfaces between issuers, investors and market participants with depositories, made changes in other Acts, such as the Companies Act, the Stamp Act and the Bankers Book Evidence Act.

Infrastructure Experiences in Other Countries: Much of the experience with statutory regulation for infrastructure derives from North America, where the private (though often monopoly) provision of infrastructure services has been the norm. For example, before it was broken up, AT&T, a private sector company was the monopoly provider of local and long-distance telephone services. Further, most of these providers of infrastructure services have relied primarily on finance from the financial markets. Indeed, the United States has an extremely well-developed bond market - bonds are issued by utilities, municipal authorities and water authorities. In the United States there is considerable reliance on federal and state commissions which have developed a significant capacity for autonomous regulation. This process, though fairly open, is marked by adversarial relationships and litigation among the various constituents including the consumers. In contrast, Europe and Japan have

relied on public monopolies, combined with regulatory instruments such as price controls, technical standards and entry licensing. The implementation of these regulations has been vested on related ministries or interministerial committees rather than specific regulatory agencies. Since 1986, the United Kingdom under consecutive Conservative governments moved toward privatisation and independent regulation of the telecommunications, gas, electricity and water sectors, and sectoral regulatory bodies have been set up as discussed later in the Report. More recently, efforts have begun in the United Kingdom to unbundle and privatise the railways. The United Kingdom has also been foremost in implementing price controls based on the principle of RPI-X, which avoids some of the pitfalls of rate of return regulation.

Developing countries in Asia and Latin America were also providing infrastructure services primarily through the public sector and in several cases these activities were financed out of budgetary resources. In these countries also, as economic growth has accelerated and infrastructure bottlenecks have been faced, there has been a shift towards the commercialisation of infrastructure projects, with private participation and financing on commercial terms. These countries have also had to deal with existing regulatory provisions which only envisaged public or monopoly provision of infrastructure services.

The existing regulations do not allow the definition of the scope and extent of a project so that it could be placed in a readily understood format.

Need for Clarity in Norms: In the setting up and development of infrastructure projects, there is a need to define the scope and extent of the project in a manner that the project could be placed in a readily understood format. This implies that there should be certain project parameters readily available to define projects, which would help not only to develop the project proposal but also to seek expression of interest in financing them. This is not possible in the existing regulatory framework. Difficulties therefore arise in determining the format in which the projects

could be set up, in structuring of project proposals by private investors, evaluation of proposals, judging the validity of offers made for project implementation, and in norms and procedures for tendering. For example, it is important to outline clearly defined roles, rights, duties, obligations and responsibilities of various constituents in setting up, financing and operation of infrastructure projects. This will enable evaluation of competitive offers on a standardised basis and will also be useful for entrepreneurs to set up and operate projects with a greater degree of certainty.

Clearly, any road map of reform in the infrastructure sector must include regulatory changes that embrace the principle of managing infrastructure like a business and not a bureaucracy and providing for infrastructure needs as a service which easily responds to customer demand. It must provide for competition to give customers choices for meeting their demands and put pressure on suppliers to be efficient and accountable to users through processes of competitive bidding. It should give users and stakeholders voice and

responsibility, allow for public-private partnerships in financing. It should be possible to provide for all this in the legislation and it is expedient that this be done for the sake of transparency, for avoiding potential conflict situations and undue politicising of any project.

Changes In The Legal Framework: Possibilities And Issues

Dispute Resolution: One of the issues that any regulatory framework has to deal with to ensure speedy implementation of infrastructure projects, is to set up a dispute resolution mechanism. Disputes may arise at various stages of project implementation and operation because the project participants are many, and essentially they enter into contractual obligations with one another. Entering into any contract would be easier, provided enforcement of contractual obligations could be assured and disputes could be settled through arbitration. There are several possibilities for instituting such a mechanism. First is to take recourse to the Arbitration Act, as in the Enron case. The Ministry of Law has already initiated steps to ensure that resolution of disputes in international contracts

can be settled in India. Second is to provide the regulatory agency with the powers of a tribunal and third is to constitute an Appellate Tribunal as has been done in the case of SEBI.

It has been noted that very often disputes have arisen, at least in the case of some Indian infrastructure projects, due to the absence of a standard contractual document which sets out all the terms of the contract and a standard document for competitive bidding. Standardisation of these documents could help reduce the possibilities of disputes.

Emergent Possibilities: Having argued the case for regulatory reform in the previous discussions, the emergent possibilities appear to be:

- To repeal archaic and multiple legislation for different sectors and replace it by single legislation for each sector.
- To have separate legislations at Central and state levels if necessary for each sector and avoiding overlap.
- To amend legislations suitably as has been done in the case of National Highways Act Amendment, 1995.
- To frame new legislation to cover specific issues relating to setting up or structuring projects, including steps to be taken to set up any infrastructure project, the manner in which man-

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Some Developed World Regulatory Agencies

Several regulatory agencies for various infrastructure sectors in the developed world are examined below:

Office of Telecommunication (OFTEL): In the United Kingdom, OFTEL is the regulatory agency for telecommunications industry. Set up in 1994, it is a statutory body independent of ministerial control and headed by the Director General of Telecommunications. Under the Telecommunications Act, OFTEL ensures that the licensees comply with the conditions stipulated in their licenses, make certain that companies adhere to the Fair Trading Act, collect and disseminate information to users, consider complaints and inquiries. The regulatory body is financed by transfer of funds from Her Majesty's Treasury. These funds in turn were generated by the regulatory body out of the license fees.

The Office of Gas Supply (OFGAS): OFGAS is a statutory body set up on the lines of OFTEL, to protect the interest of consumers in terms of price provisional to the terms of supply, continuity of supply and quality of service.

The Office of Electricity Regulation (OFFER): OFFER is a statutory body set up by an Act of the British Parliament with the objective of promoting competition and effectiveness of customer choice, setting standards for services and codes of practice, ensuring continuing access and use of electricity, distribution system and protection of the customer's interest with respect to price, continuity of supply and quality of services.

Federal Communications Commission (FCC): The FCC is

an independent US Government agency responsible to the Congress and set up by an Act. Its objective is to regulate interstate and international communications by radio, television, satellite and cable. It provides construction permits, approves and disapproves assignments, reviews technical operations, licenses, reviews prices and so on.

The Federal Highway Administration (FHA): This regulatory agency was set up over 100 years ago. Initially under the Department of Agriculture, and during the 1930s and 1940s, with the Department of Commerce, it was finally placed under the purview of the Department of Transportation in the 1970s. Tolls are set by the market and the FHA does not interfere with the pricing mechanism. No licenses are required to operate in the road section. The FHA feels that its role is to facilitate and not to regulate.

Canadian Radio Television and Telecommunications Commission (CRTC): Set up under the Broadcasting Act of 1968, the CRTC was initially meant to regulate only the broadcasting sector. In 1976, the Act was expanded to include telecom. CRTC is an independent quasi-judicial agency responsible to Parliament and reporting to it through the Minister for Heritage. The Heritage Ministry has been given the general responsibility for communications in Canada. However, telecom policy decisions are under the purview of the Canadian Ministry of Industry.

The National Energy Board (NEB) of Canada: Established

agement contracts, service contract and performance agreements are entered into with service providers etc. and also covering relationships between the various agencies involved in the process. This regulation would apply equally to the full menu of options for ownership and provision, namely:

- Public ownership by enterprise or department or parastatal agency;

- Public ownership with operation contracted to a private party through leased contracts for full operation and maintenance of publicly owned infrastructure facilities;

- Private ownership and operation under a regulatory framework which structures the financial flows, tariffs and returns - both through new entry by private firms into infrastructure markets and through partial or complete divestiture of public ownership; and

- Grant the primary responsibility for regulating a sector to an independent regulatory authority, with clear roles and functions.

The regulatory changes must embrace the idea of managing infrastructure as a business that provides services in response to demand.

as a statutory, quasi-judicial body under the National Energy Board Act 1959, the NEB is responsible for the regulation of the energy sector. The Board has the power to issue and review permits, licenses and certificates to operate, inquire into accidents resulting from pipelines or an international power line, cancel licenses, hear and pass judgments on complaints and reports, initiate inquiries and hold public hearings, etc. The Board is duly authorised to resolve inter-party conflicts and make decisions based on the record. The Board, while setting tariffs, ensures that they are just and reasonable and there is no "unjust discrimination". Pricing is usually based on the "cost of service" methodology, taking into account operation and maintenance expenses, return on equity, debt service, income tax and other taxes.

The National Transportation Agency (NTA) of Canada: The NTA assumed responsibility for the economic regulation of transportation under federal jurisdiction on January 1, 1988. Established under the provisions of the National Transportation Act, 1987, the Agency is an independent body that reports to Parliament through the Minister of Transport. It is a quasi-judicial administrative tribunal having the powers, rights and privileges of a superior court in Canada with respect to matters under its jurisdiction. The objective is to provide a safe, economic, efficient and adequate network of viable and effective services to serve the transportation needs of shippers and travelers, including disabled persons. Apart from the National Transportation Act, the Agency's responsibilities are outlined in several pieces of regulation such as the Railway Act, the Western Grain Transportation Act, the Shipping Conferences Exemption Act 1987, the Pilotage Act, the Maritime Freight Rates Act, the Atlantic Region Freight Assistance Act, the Coasting Trade Act and the St. Lawrence Seaway Authority.

But irrespective of whether the primary responsibility for regulating a particular sector lies with a separate authority or with the Central or local government, it becomes necessary to decide:

- Which components of the sector are to be segregated (for example, the ownership and operation of the network of railway tracks could be separated from the ownership of rolling stock and provision of train services);

- The criteria by which entry is to be allowed to the competitive components of the sector as well as the period for which such entry is to be allowed (in the above example, who can provide train services);

- The rules for interaction between the competitive components and the natural monopoly components of the sector (rules for allocation and pricing of track use to different train

operators, and for pricing of access to the track network);

- The standards of services that are to be provided;

- The business principles and rules to be followed by the network provider or monopoly component of the sector, which in some cases may require the regulatory agency to decide on an appropriate ownership structure for the network components of the service.

Price Regulation: The prices at which services are provided to consumers would need to be regulated. The regulatory agency would also have to prescribe to what extent and how frequently prices may be raised, and to what extent cross-subsidy and price discrimination are to be permitted. It must be emphasised that any form of pricing formula or price regulation must be imposed only when there is overwhelming evidence that competitive forces have not taken root because, for example, of the presence of a dominant public sector or a recently privatised provider. In all other situations, any form of price control is to be avoided. Even in cases where price controls prevail, it must be made mandatory for the regulatory body to take steps in the direction of increasing competition, concomitant with the need to protect the customers, when government can no longer use its power of ownership to influence behaviour of utilities.

There has been remarkable unanimity between the various formal mechanisms for the regulation of infrastructure prices in the United Kingdom and Australia, and even within the public sector itself in the case of the French Railways. Each of them has opted for the 'inflation minus efficiency term' form of price cap. The obvious contrast is the US tradition of rate of return regulation.

Nature of Regulatory Agencies: While deciding on the above, the regulatory agency must take steps to meet the following (often conflicting) objectives:

- The provision of services to final consumers is made as competitive as possible. This is to be achieved while ensuring that where prices are fixed by the regulator through a pricing formula, pricing levels and revisions of pricing levels are com-

mensurate with a rate of return that will attract entry. (This need not imply a "rate of return" pricing rule). There is need to balance the tension that may be created between the interests of consumers and the interests of business which requires a return on investment.

■ There is certainty that the "rules of the game", once set, would not be changed too frequently and without notice, so that service providers may be afforded reasonable planning horizons.

■ Provide consumers protection from natural monopolies where it is inefficient or impracticable to create competition. For the power sector, for example, the first objective would have a direct impact on distribution and indirect impact on transmission, both being natural monopolies.

The experience in different countries with the establishment of independent regulators for a range of infrastructure services has highlighted some of the administrative problems involved. It is clear that a high level of technical and administrative competence is required and the establishment of agencies with substantial and potentially intrusive powers of regulation requires a very steep learning curve during the early years. The established regulators in countries such as the US, UK, Australia and others have accumulated a wealth of practical experience which should be utilised in setting up our own agencies. In reviewing the experience in India itself, the role of the Bureau of Industrial Costs and Prices is noteworthy. Established as an advisory body to recommend prices in sectors where they had been controlled, it has functioned creditably as a technical body which has largely been above controversy in its functioning. This is despite the fact that it has dealt with sectors as diverse as coal, cement, aluminium, steel, and drugs and pharmaceuticals. The technical nature of its staff has to be emphasised. Until recently, as its role has diminished with large-scale abolition of price controls, the appointment of chairmen with considerable technical ability and outstanding reputation of probity and credibility had also helped in making this organisation generally beyond reproach.

The style of regulation varies in each country to suit its institutional and legal traditions. In countries such as the UK and Australia, the tradition is one of close contact between the regulatory agencies and the executive. This imparts greater flexibility and possibility of learning by doing as experience accumulates. On the other hand, the US has more of a tradition of reliance on transparent legal procedures which are generally subject to judicial process. Given the nature of the Indian administrative, judicial and political processes, our experience is more akin to the British practice which has traditionally given great discretionary powers to the executive, within the context of the broad provisions of legislation.

Whereas there is much to be said for pragmatism, flexibility, learning by doing, and the like, in the functioning of regulatory agencies, the emerging scenario in India suggests that it would now be better to opt for statutory regulatory agencies which operate on a transparent legal basis and whose decisions are subject to judicial process. However, since different sectors have different characteristics and, moreover, are subject to different constitutional provisions in relation to Central/state-level responsibilities, it would be advisable to conduct in-depth studies in each sector.

Financial Regulation

Reforms in the Financial Markets: The second leg of the triad (Figure 5.1) of infrastructure development and finance comprises the regulatory framework in relation to the financial and securities markets. This is one area where considerable progress has been made since the beginning of the present process of economic reform. Some of the measures that have been taken in the banking sector are outlined in Box 5.4.

Box 5.5 outlines the state of development and regulation of the securities market till 1990-91. Since 1992, SEBI has had the

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Banking Sector Reforms: 1991-1995

- Further interest rate deregulation on deposits as well as loans
- SBI and nationalised banks allowed to access securities markets for capital
- Private sector banks allowed
- Prudential norms for income recognition, classification of assets and provisioning of bad debts introduced
- Capital adequacy norms prescribed
- A Board of Financial Supervision set up to make supervision more effective

legislative mandate to ensure the regulation and development of the Indian securities markets. Box 5.6 gives details of securities markets reforms and development since 1992. The regulatory structure for the securities markets is now more or less in place. The primary market has grown in terms of number of issues made and funds raised. The secondary market has also grown in terms of securities listed and market capitalisation. The institutional segment of the market has grown substantially with the introduction of private sector domestic mutual funds and the entry of FIIs. Issuers in sectors such as power, railways, telecommunications and water supply have accessed the markets. Several infrastructure firms have raised funds as part of Government policy of PSU divestment. In other markets, both developed and emerging, utilities in the oil, power and telecom sectors tend to be some of the largest capitalised companies and some of the largest issuers of securities. With the entry of private sector firms in infrastructure, and with further PSU divestment, infrastructure sectors are expected to become similarly important in Indian securities markets also.

Several structural issues, however, remain to be addressed, so that the financial markets are able to provide the large quantum of finance that is expected to be required by the infrastructure sectors. One major issue is the state of development of markets in debt securities. This is dealt with in more detail in Chapter IV. Other developments that would facilitate issuers in infrastructure sectors, where financing

needs are more specialised and longer-term, include securitisation of loans, so that they may be transferred off the balance sheets of lenders, freeing their capital for further lending. The current tax and legal framework does not easily allow for such securitisation. The non-availability of special purpose tax-transparent vehicles in the form of limited partnerships is also a bottleneck in structuring of infrastructure financing deals and attracting foreign participation in such projects. The issue of exit mechanism and capital gains tax also become important for the setting up of offshore funds for channelising private capital flows for projects.

The two main channels for directing foreign portfolio investment into the sector is the FII route, through which FIIs registered with SEBI may invest in listed securities of companies, and through investment by overseas investors in Global Depository Receipts and Foreign Currency Convertible Bonds issued by infrastructure firms. FDI in infrastructure is through existing Government policy on direct investment, where approvals are granted through the FIPB and the RBI.

As has been already seen, the sources, type and maturity of finance available to the infrastructure sector is closely related to sector-specific regulations and the overall institutional framework in the economy. Financial and securities markets in India have proved to be highly adaptable and flexible as has been seen by the rapid changes that have taken place in the quality of intermediation and in the systems and procedures that are being put in place by securities market participants. It is, therefore, reasonable to expect they would continue to remain so in the future. As infrastructure sectors look to financial markets for resources, it is important to ensure that the market perceive an infrastructure service provider to be run on truly commercial lines. It is also necessary to ensure that information about the service provider is disclosed to the financial markets through standardised financial statements which are comparable to those issued by other issuers/borrowers. For example, the DoT is likely to find it much easier to raise funds from financial markets if it had a corporate structure with standard financial statements, as MTNL already has. All of the above are in the nature of prerequisites for attracting finance on commercial terms from financial markets. These may also be ensured by putting in place appropriate sector-specific regulations.

Inter-relationship between Financing and Regulation: The sources, methods, maturity, cost and even the very availability of finance on market terms for an infrastructure project that is to be run on commercial lines, depends to a large extent on the perceptions of financial intermediaries and investors about the regulatory framework relating to the project. In addition, the *state of development and regulatory structure of the financial intermediation sector* also contribute to the financing possibilities. Indeed, financing options increase with the maturity of capital markets (Figure 5.2). Where capital markets are not well-developed, and financial intermediation weak, separate financing institutions are needed. Once financial intermediaries are well-developed, they, together with credit rating institutions and public regulatory bodies, open up other options for financing, and make possible the use of long-term savings of contractual institutions and a variety of financial instruments.

Securities Markets till 1991-92

- Fragmented regulation; multiplicity of administration
- Primary markets were not in the mainstream of the financial system
- Poor disclosures in prospectus. Prospectus, balance sheet not made available to investors
- Investors faced problems of refund delays, transfer delays, etc
- Stock exchanges regulated through Securities Contracts (Regulations) Act. No inspection of stock exchanges undertaken
- Stock Exchanges run as "brokers' clubs", management dominated by brokers
- Merchant bankers and other intermediaries unregulated
- No concept of capital adequacy
- Mutual funds virtually unregulated with potential for conflicts of interest in structure
- Poor disclosures by mutual funds, NAV not published; no valuation norms
- Private sector mutual funds not permitted
- Takeovers regulated only through Listing Agreement between the stock exchange and the company
- No prohibition of insider trading and fraudulent and unfair trade practices

The issue of finance also assumes importance because of the non-excludable and non-contestable nature of infrastructure projects. The reliance on the public sector for the provision of infrastructure services has meant that most of the financing has come from the public purse, whether from the Central or State Governments. The need for budgetary support for infrastructure services has been further strengthened by the not uncommon practice of providing these services at an overall subsidy to the users (that is, even above cross-subsidisation). Budgetary sources come under further pressure because the cost on which the subsidy provided is in several cases inflated by the inefficiencies that creep in on account of the provision of infrastructure services on a non-competitive basis.

It must be recognised that the regulatory changes aimed at bringing about commercialisation will need to involve price reform. Indeed, it would be the very function of the regulatory agency concerned with a particular sector to ensure that in the limited cases where temporary price controls are imposed, pricing formulas allow for a reasonable rate of return so that privately-financed operators are attracted. This issue has already been discussed in earlier sections of this Report.

Given the vast investments required, it is not enough to put in place regulatory mechanisms for attracting funds from the financial markets. Efforts must also be made to ensure that financial markets are mature enough to be able to meet the needs of these sectors.

Summary

The Expert Group's recommendations broadly fall into four categories: regulatory agencies, standardisation for bids and contracts and amendment of the existing regulatory framework and financial regulation.

A Simple Regulatory Framework: Regulation must primarily be viewed as a mechanism which brings about risk allocation between the service providers and various other entities in the process, making it easy to access capital. When risk allocation becomes easier, it results in reducing the cost of capital. Hence it is necessary to have an articulate regulatory framework, which is radically different from the existing legal framework in terms of transparency, clarity of obligations, duties and responsibilities between the participants in the infrastructure projects. The new framework must reduce the layering of approvals or bring about a greater degree of certainty in obtaining them within a definite timeframe. Such a framework is very critical if private sector participation is to be encouraged.

There must be certainty that the 'rules of the game', once

Regulating commercialised infrastructure sectors

An autonomous regulatory body with statutory powers should be set up for each sector. The model for these agencies can be that of SEBI.

set, would not be changed frequently and without notice, so that providers of infrastructure services may be afforded reasonable planning horizons. However, these changes, to occur, will need a demonstrable political and bureaucratic will and this may not be easily achievable.

Simplification of the Existing Legal Structure: Each infrastructure sector is beset with numerous legislations to be complied with. This is not only time-consuming, but also, since the authorities are multiple, makes compliance difficult. In addition, it lends a significant degree of uncertainty to obtaining approvals and to compliance within a period of time. If a project sponsor has obtained a clearance under one set of laws, he is not sure whether clearances under another set of laws would be forthcoming within a period of time. It is therefore imperative to make a paradigm shift to a simple legal structure.

Existing sector-specific enactments need to be unified into a single statute. For example, various sector-specific regulations for telecommunications could be combined into a single Act. This modernisation will simplify the Act and make compliance easier. Certain sections of the existing acts which are anachro-

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Development of Securities Markets: 1992-96

- Capital Issues(Control) Act, 1947 repealed and the office of Controller of Capital Issues abolished; control over price and premium of shares removed. Companies are now free to raise funds from securities markets after clearance from SEBI.
- Through a notification issued under the Securities Contract (Regulation) Act, 1956, the power to regulate stock exchanges was delegated to SEBI. This includes recognition, rules, articles, voting rights, delivery contracts, stock exchange listing and nomination of public representatives.
- SEBI has notified regulations for primary and other secondary market intermediaries, bringing them within the regulatory framework.
- New reforms by SEBI in the primary market include improved disclosure standards, introduction of prudential norms and simplification of issue procedures. Companies required to disclose all material facts and specific risk factors associated with their projects while making public issues. Securities require SEBI acknowledgment card to be listed.
- Stock exchanges advised to amend the listing agreement to ensure that a listed company furnishes annual statement to the stock exchanges showing variations between financial projec-

tions and projected utilisation of funds made in the offer document and actuals. This will enable shareholders to make comparisons between performance and promises.

- SEBI has introduced a code of advertisement for public issues for ensuring fair and truthful disclosures.
- Disclosure norms further strengthened by introducing cash flow statements.
- New issue procedures introduced—such as book building for institutional investors—aimed at reducing costs of issue.
- SEBI has introduced regulations governing substantial acquisition of shares and takeovers and laid down the conditions under which disclosures and mandatory public offers are to be made to the shareholders.
- SEBI has reconstituted the governing boards of the stock exchange, introduced capital adequacy norms for brokers and made rules for making the client/broker relationship more transparent, in particular, segregating client and broker accounts.
- Private mutual funds permitted and several such funds have already been set up. All mutual funds allowed to apply for firm allotment in public issues, which should also reduce issue costs.
- Over the Counter Exchange of India (OTCEI) and the National

nistic would also have to be deleted and even some of the Acts repealed. But such unification may not be an easy task, and cannot be achieved within a short period of time. The process of private sector participation should not however be held up, pending completion of the work. Needless to say, a beginning must be made now even though completion may take some time.

A similar process has been attempted with securities market regulations. After the statutory empowerment of the Securities and Exchange Board of India (SEBI), the provisions of Securities Contracts (Regulations) Act, 1956, are now administered by SEBI. Besides, for certain sections of the Companies Act, 1956, which concern the securities market, SEBI is empowered to take action. The erstwhile Capital Issues Act has been repealed and SEBI has issued new guidelines for the issue of capital.

Establishment of an Autonomous Regulatory Body for Each Sector:

Stock Exchange of India with nationwide electronic trading set up.

- The Stock Exchange, Mumbai introduces screen-based trading; other stock exchanges draw up time-bound programmes to go on-line.

- The practice of making preferential allotment of shares at prices unrelated to the prevailing market prices was stopped and fresh guidelines issued by SEBI.

- Indian companies permitted to access international capital markets through Euro equity shares.

- SEBI strengthens surveillance mechanism and directs all stock exchanges to have separate surveillance departments. The effect already visible on the functioning of the Mumbai Stock Exchange.

- SEBI strengthens enforcement of its regulations. Begins the process of prosecuting companies for mis-statements, issues showcause notices to merchant bankers, ensures refunds of application money in several issues on account of mis-statements in the prospectus.

- FDI allowed in non-bank finance companies.

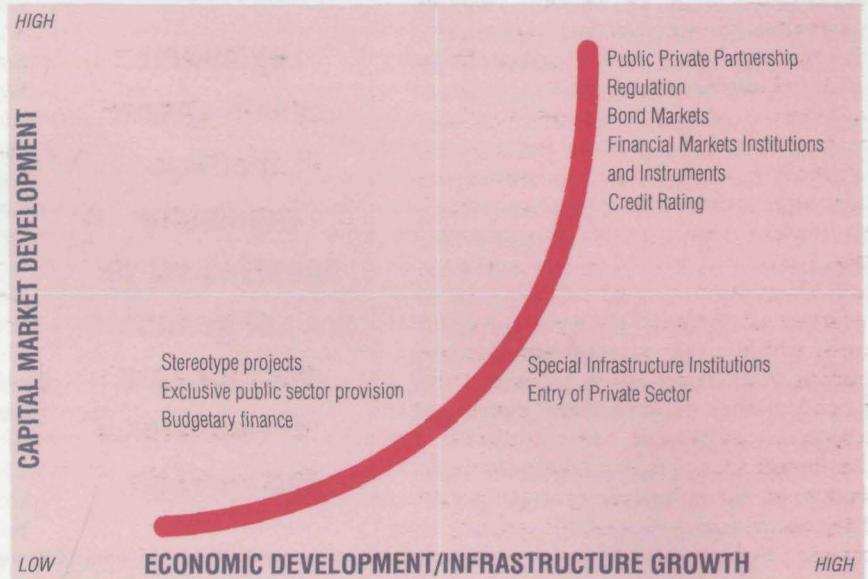
- FIIs allowed to access Indian capital markets on registration with SEBI.

- The Depositories Ordinance promulgated to facilitate the electronic book entry transfer of securities through depositories. The National Stock Exchange in the process of setting up a depository.

- Guidelines for offshore venture capital funds announced. SEBI in the process of framing regulations for venture capital funds.

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OPTIONS FOR FINANCING INFRASTRUCTURE PROJECTS WITH GROWING CAPITAL MARKETS



Unification of the legislations must be supplemented by the setting up of a statutory regulatory agency for each infrastructure sector. Without statutory powers, the effectiveness of this regulatory agency will be lost. This regulatory body could be set up at a Central level with branches in each state, for sectors such as telecommunication which is more under Central jurisdiction. Where a similar body already exists, its role and powers could be suitably modified. Where a sector is under state jurisdiction, the regulatory body should be set up only at the state levels. The appropriate model to be followed could be SEBI.

For example, for the power sector, the regulatory model will need to have both Central and state-level components. 'Planning' and 'entry' regulation will necessarily have to be at the Central level except for small projects which will operate strictly within the state grid. The For instance, in the power sector, the Central Electricity Authority (CEA) could play the role of central regulator, provided it is made autonomous, suitably empowered, and fully transparent in function. This is discussed in detail in the chapter on power in this Report.

The state-level regulatory function will be oriented towards ensuring standards of performance, consumer pricing, entry of licensees and their supervision, fair access to transmission, and overseeing contracts. These functions could be carried out by a newly established independent regulatory agency, or by the SEBs divested of its distribution functions.

Separation of Regulator and Operator: Legislation constituting and empowering the regulatory agencies should specifically ensure that they are not permitted to have a dual role of regulator and operator. Establishment of a separate regulatory agency would bring about this explicit separation of roles.

Currently, though such sectoral regulatory bodies exist, they are inefficient or dysfunctional because either they do not have statutory powers or have combined in themselves the roles of regulator and operator. This combination is incompatible with regulation of private sector participants in infrastructure. It reduces the effectiveness of the regulator and has serious undesirable effects on competition. A separation of the activities will also help the regulatory body take steps to meet the following - often conflicting - objectives: that the provision of services to final consumers is made as competitive as possible, while ensuring that where prices are fixed by the regulator through a pricing formula, pricing levels and revisions of pricing levels are commensurate with returns that will attract entry (*This need not imply a 'rate of return' pricing rule*).

Such an agency should also undertake the role of coordination with other agencies from which approvals or clearances may be required for that particular sector and for overseeing and ensuring the implementation, operation, maintenance and transfer of the project (if required) at the end of the agreed period and on agreed basis to the appropriate state/public body and maintenance by this body thereafter. The Central and State Acts under which such regulatory agencies would be constituted, should govern in their entirety, the rights and obligations of such agencies, or the concerned licensees/operators of the project.

The Regulatory Agency

Power sector legislation proposed in the state of Orissa to set up an independent regulator and restructure the industry, could be adopted as a model for other sectors. The model suggests the setting up of a state-level Electricity Regulatory Commission, corporatisation of the SEBs, with transmission responsibility being retained by a state-owned grid corporation, and provisions that would facilitate the transfer of state/SEB assets to new licensees and privatised entities.

The role of the regulatory body and the SEBs will obviously depend upon the policy decision regarding the proportion of private participation that will be allowed in generation vis-à-vis distribution. The role of the CEA and the constitution of Regional Power Tariff Boards will have to be re-evaluated. In any case, a multiplicity of agencies and layering of functions must be avoided.

The alternative would be to split up the SEBs after bifurcating statutory and commercial functions on the lines of the Orissa legislation, and corporatise the commercial functions.

Broadly, the regulatory agency will decide the following:

- Which components of the sector are to be segregated (for example, the ownership and operation of the network of railway tracks could be separated from the ownership of rolling stock and provision of train services).

The role of the regulatory authority

Legislation should ensure that the regulatory agencies set up are not permitted the dual role of regulator and operator.

- The criteria on which entry is to be permitted to competitive components of the sector as well as the period for which such entry is to be allowed (in the above example, who can provide train services).

- The rules for interaction between the competitive components and the natural monopoly components of the sector (rules for allocation and pricing of track use to different train operators, and for pricing of access to the track network).

- The standards of services to be provided.

- The prices at which services are provided to final consumers. The regulatory agency would also have to prescribe to what extent and how frequently prices may be raised, and to what extent cross-subsidy and price discrimination are to be permitted. It must be emphasised that any form of pricing formula or price regulation must be imposed only when there is overwhelming evidence that competitive forces have not taken root because, for example, of the presence of a

dominant public sector or recently privatised provider. In all other situations, any form of price control is to be avoided. Even in cases where price controls prevail, it must be made legislatively mandatory for the regulatory body to take steps in the direction of increasing competition.

- The business principles and rules to be followed by the provider of the network or monopoly component of the sector, which, in some cases, may require the agency to decide on an appropriate ownership structure for the network components of the service.

Operational Autonomy and Management: Careful choice of the regulatory menu would include problem identification, fact-finding, rule-making and enforcement. The regulator would require detailed knowledge and continuous monitoring of the activity concerned. Operational autonomy would need to be maintained in these sectoral specialised agencies, which should be manned by professionals in the field with a professional board representative of all interests and services of the particular sector and professionals in the financial fields. At the same time, it would be necessary to set up a mechanism for monitoring the agency as well.

Funding and Resources: The funding of the regulatory agency could be from the fees provided by the sponsor/ operator on an annual basis, license fees, recurring charges and royalty payable by the operators as a percentage of annual turnover. While levying fees, it must be kept in view that fees are not in the nature of taxes and must be in proportion to the service rendered. Government funding should be avoided to the extent possible.

Enforcement Powers: The regulatory authority in each sector must also be vested with punitive powers to be effective. It may not be desirable to make them judicial bodies. Rather, they should function on the lines of SEBI.

Development of Regulatory Skills: As regulatory authorities are progressively established, we recommend that:

- A task force be established in each sector (roads, telecom, power, industrial parks, etc) to review the experience of selected countries, both developed and developing, in order to recommend the appropriate structuring and staffing of the regulatory authorities in each sector, both at Central and state levels.
- A Training Fund be established, possibly in cooperation with multilateral and bilateral funding agencies, to finance in-depth training of the staff of each of the regulatory authorities.

Dispute Resolution: An important additional element of contractual effectiveness is the mechanism for resolving disputes. International arbitration procedures are common - for example, arbitration may be in a neutral country using internationally recognised rules such as those laid down by the International Chamber of Commerce.

Mechanisms to settle disputes quickly must be set up. If the regulatory body does not have judicial powers, this mechanism may have to be formed within the legal system. A tribunal could also be created for each sector on the same lines as the Appellate Tribunal for the Securities market.

Special Legislation for Project Formats

One of the deficiencies in the current legal framework is the absence of a clean Act of principles, procedures and rules to be followed in setting up and implementing an infrastructure project. This creates ambiguities even inter se projects in the same sector. In this context, it would be desirable to have an overarching legislation for project formats such as BOT, BOO etc governing projects across all sectors. This could be taken up on the lines of the BOT Law of the Philippines.

The object of the Philippines Act is to enable private sector resources to be used for infrastructure projects normally financed and undertaken by government. Besides financial incentives, the Act provides a climate of minimum government regulations and procedures and specific government undertakings in support of the private sector. It covers all aspects of infrastructure development from the stage of MOUs to the point of actual transfer of facilities to the government. The following provisions of the Act could be profitably used in India:

- Provision for a relevant format in terms of which a project could be implemented by defining the areas in which private sector participation would be allowed; the definition could be of inclusive nature.
- Provision to enable projects to be undertaken through contractual arrangements.
- Provisions defining the terms and conditions of contract and standardisation of bidding documents and contracts.
- Provision to determine the extent to which ownership structures for the projects, if at all, could be foreign or domestic private.

- Provision for competitive bidding.
- Provision for laying down the format for operating the projects: build-operate-transfer, build-own-operate, build-and-transfer, build-lease-transfer, build-transfer-operate. Specific formats corresponding to specific sectors for security or strategic reasons could be created for financial arrangements from domestic and external resources.
- Provision for the process of technology transfer in case operator is a foreign entity.
- Provision for grounds on which direct Government guarantee could be available at the state or Central level. If necessary, lay down the guidelines for Government agencies in various sectors which can contract with parties providing infrastructure services.
- Provision for laying down the eligibility criteria for infrastructure projects. The manner in which a project proponent could be treated as pre-qualified and authorised to enter into a contract. This will lay down the procedure for public bidding for projects and the manner in which the bids could be evaluated and contracts awarded.
- Provision for direct negotiation of contracts if required, the manner in which a project proponent could be repaid by authorising him to charge/ collect reasonable tolls, fees and rentals for the use of the project facility; lay down a formula for ensuring that such tolls, fees, rentals and charges are reasonable; provide for minimum output, standards and specifications; provide for a process of competitive bidding and economic parameters for bidding, basis of pre-qualification of contractors, feasibility study, and preliminary engineering design; provide for grounds on which a contract could be terminated; and provide for setting up regulatory boards or agencies for implementing these regulations in each sector.

An Infrastructure Coordination Committee: Most infrastructure services in emerging market countries are traditionally being provided by centrally managed monopolistic PSEs or Government departments. This has been true till recently in our case as well. Organisational conditions need to be created which would oblige suppliers of infrastructure services to be efficient and responsive to the user needs. However, creating these conditions may not be an easy task given the various vested interests that may be involved.

It might also be desirable to constitute an Infrastructure Investment Co-ordination Committee at the Central level on the same lines as the Foreign Investment Promotion Board which will clear projects on a national level based on broad principles. It may be easier for projects to obtain sanctions from other agencies once clearance has been received from the Committee. Before giving clearance on a particular project, the Committee may obtain the views of the regulatory agency concerned with that project.

The powers of the regulatory authorities

The regulatory authorities must be vested with punitive powers to be effective. But it may not be desirable to make them judicial bodies.

The Evolution of Private Power in Philippines

The Philippines' evolutionary approach to attracting private entrepreneurs in power generation is instructive. In July 1987, private power generation became a deliberate element of government policy and effectively signaled the end of the generating monopoly of the state-owned National Power Corporation. Philippine agencies associated with private power began to work in a more coordinated manner. There was greater participation from the Economic Development Authority (which has played a key role in initiating the private power programme) and more ranking of priorities through Investment Coordinating Committee.

The Philippines is also seeking to streamline the private power solicitation process. Under present arrangements, the effectiveness of project contracts depends on several conditions that must be met after the contracts are signed. Delays or failures to meet certain conditions can jeopardise a project. The National Power Corporation is seeking to establish modern contracts, pre-approved by concerned government agencies, to facilitate private participation. This arrangement is expected to enable investors to proceed immediately from signing the contract to finalising the financing plan.

Source : World Development Report 1994

Financial Regulation

The credibility of the regulatory regime for a capital market determines the bounds of available finance. As has been seen, the sources, methods, maturity, cost and even the very availability of finance on market terms for an infrastructure project that is to be run on commercial lines depends to a large extent on the perceptions of financial intermediaries and investors about the regulatory framework relating to the project. In addition, the state of development and regulatory structure of the financial intermediation sector contributes to the financing possibilities available to projects in the infrastructure sector. India has all the ingredients for such a credible regulatory structure with the setting up of SEBI. The availability of credit rating institutions, and efficient disclosure and enforcement frameworks instituted by SEBI have strengthened the regulatory regime.

The issue of finance for the infrastructure sectors assumes importance because of the non-excludable and non-contestable nature of infrastructure projects. Relying on the public sector for providing infrastructure services has meant that most of the financing for these services has come from the public purse, from the Central or from the State or Local Governments. The need for budgetary support for infrastructure services has been further strengthened by the not uncommon practice of providing these services at an overall subsidy to the users (that is, even above cross-subsidisation). Budgetary

sources come under further pressure because the cost on which the subsidy is provided is in several cases inflated by the inefficiencies that creep in on account of these services being provided on a non-competitive basis.

Given the vast investments required, it is not enough to put in place various regulatory mechanisms for attracting funds from the financial markets. Efforts must also be made to broaden and deepen the markets with a variety of market-making players and a range of instruments to meet the requirements of a broad investor base so that financial markets are able to meet the needs of these sectors.

Development of an Active Bond Market: The absence of such markets makes the Indian securities market incomplete. Illiquidity of government paper and absence of active trading in corporate bonds have been identified as the major problems of Indian bond markets. The principal policy changes relating to the setting up of a system of primary dealers for government securities and establishing depositories to facilitate trading and settlement have already been announced. The other issues which remain to be resolved are :

- Opening up the market to a larger number of participants : One of the principal reasons for illiquidity in the debt market is the narrow investor base. Investment guidelines for domestic investment institutions as also provident, pension and trust funds need to be relaxed to broaden the investor base for primary issuance.

- A single regulator for the bond market : The prevalent system of multiple regulators needs to be replaced with a single regulatory authority: SEBI.

- Adoption of uniform standards for valuation of investments by all classes of investors: Regulatory changes in accounting standards for valuation of investments by banks and all other classes of investors, would need to be effected such that ideally the entire portfolio would be "marked to market" on a periodic basis. This should be the goal though the exact timetable can be worked out.

- Abolition of stamp duty on secondary market transactions : The vexatious practice of levying a stamp duty by individual states at different rates on secondary market trades, specifically on corporate debentures and mutual fund units, needs to be ended for encouraging trading in these instruments. While admittedly such a measure would involve deeper issues of Centre-State finances, in the first phase, the problem could be mitigated to some extent by prescribing a uniform rate of duty by all the states. This would also effectively tackle widespread avoidance and evasion of stamp duty.

In order to promote the growth of securitisation of debt, stamp duty on derivative instruments should be abolished. Such a measure would also enable institutions such IDBI, ICICI, SCICI, HDFC and IFCI to augment their resources by issuing securitised debt instruments based on the underlying loans given to corporate units.

Foreign Infrastructure Funds: Foreign private capital has to be attracted in the same manner as foreign institutional investment or offshore venture capital funds. In fact a simpler way will be to amend the existing guidelines to allow all

registered FIIs to invest in infrastructure projects. This implies investment in unlisted securities, which FIIs are not allowed to do under the existing guidelines. It would be up to the FII to set up a separate fund for investment in infrastructure projects or take an exposure from one of its existing funds. The present investment restrictions in FII guidelines should be removed for investment in infrastructure projects. The investment will be in the form of equity. Since investment in infrastructure is a long-term investment, the possibilities of "hot money" flow will be remote. Alternatively, separate guidelines similar to FII guidelines without investment limits may be issued by the Government. The tax regime will be the same as for FII investment. Similar guidelines and tax regime should govern any offshore fund set up by a domestic asset management company registered with SEBI, or by a domestic institution.

Special Purpose Vehicles: Internationally, Special Purpose Vehicles (SPVs) have been used for funding infrastructure projects. To be successful in the Indian context, SPVs would need to have the following characteristics:

- It must be easy to vary the capital of the vehicle
- It must be easy to wind up a vehicle, i.e. to create a vehicle with a limited lifespan
- The vehicle must be tax-transparent, i.e. the income of the vehicle must be not be taxed in the hands of the vehicle, in addition to being taxed in the hands of its ultimate investors. Mutual funds are examples of such tax-transparent vehicles.

Limited partnerships are a commonly used legal structure internationally. Such an entity cannot be formed under Indian laws. In India, two possible legal structures are available: a company incorporated under the Companies Act; or a trust established under the Trust Act, each of which poses its special difficulties. In the case of a company, it is extremely difficult in terms of procedure to wind it up or vary its capital. In case a trust (e.g. in the case of mutual funds) is established, this problem does not exist. The difficulties of the trust structure are on account of the need for a public trustee to vote any shares in a company invested in by the trust, and the requirement of complying with onerous disclosure requirements under the Companies Act. In the case of companies, there are no such restrictions on voting rights.

So far, the only collective investment vehicles which enjoy tax transparency in India are mutual funds (venture capital funds, set up in accordance with SEBI regulations which are

Financing infrastructure projects

Special Purpose Vehicles must be set up, whose capital can be varied easily, and which are tax-transparent and easy to wind up.

expected soon, will also be tax-transparent). Requests are, therefore, being made to SEBI for using the mutual fund route to avail of a tax-transparent structure. As mutual funds are a social type of collective investment scheme, it may not be appropriate to use this route for SPVs purely so that such vehicles are able to use the tax advantages granted to mutual funds. Instead, the following is recommended:

- The enactment of special legislation, within the Companies Act or separately, which allows investment companies with the above characteristics - ease of winding up and variation of capital, without any restrictions on voting rights - to be incorporated as legal entities. These entities could be regulated by SEBI in the issuance of securities or participative interests by them, and in their investment activities. They would not carry on any business other than investment.
- The grant of tax transparency to such specially incorporated investment companies or vehicles.

The enactment of such broad legislation would also benefit other types of collective investment vehicles in addition to those set up specifically for the infrastructure sector, such as venture capital funds, which at present are constrained by the limitations of the trust and company structures as they presently exist.

In the meantime, the tax authorities should separately allow the use of the trust route, which may be more convenient for infrastructure funds and not tax the income derived by such funds under a similar dispensation as in section 10 23 (D) of the Income Tax Act. In other words, income from any infrastructure fund set up as a trust will not be taxable under the principle that the fund is only a pass-through SPV and the income is taxed in the hands of the investors in the fund. The fund could then issue units which could be subscribed to by the institutional investors. Being high-risk investments, these may not be subscribed to by the general public, at least to begin with. The broad regulatory framework should be on the lines proposed by SEBI for venture capital funds. At least 75 per cent of the funds may be invested in one or more infrastructure projects and the balance in any other instrument to meet the liquidity needs of the investor. Since the CBDT has already granted concessions of similar nature to domestic and offshore funds and venture capital funds, to extend these benefits to infrastructure funds in view of the importance of the sector should not be difficult. At some stage, listing of SPVs may also be considered with appropriate disclosure norms.



Fiscal Issues

THE MAGNITUDE of resources needed for the infrastructure sector is of such dimensions that the requisite investments would need to be funded eventually by raising resources from the domestic and international capital markets. In the initial stages, support from the financial institutions and commercial banks could be relied upon to a degree. However, there is clearly a finite limit to the extent of resources that could be accessed through the existing financial system.

In a liberalised economic regime, it is inevitable that all sectors would need to compete for capital. It is only those sectors that provide attractive rates of return and inspire investor confidence that would eventually be successful in this resource-raising exercise. In the ultimate analysis, projects in the infrastructure sector would need to compete for resources from the capital markets and be perceived by investors as being as attractive as conventional manufacturing projects. It is thus desirable that such projects be brought to the centre stage of capital market flows to attract investments from a wider pool of lenders, including financial institutions, the corporate sector and in the medium term, retail investors.

The Need for Government Support: In the early 1980s, the depth of the Indian capital markets was marginal as compared to the depth today. Government initiatives in providing fiscal benefits under Section 80CC of the Income Tax Act spawned a new culture, with the conversion, to an unprecedented degree, of real assets into financial assets. With that ini-

tial impetus provided by Government, the equity cult has continued, although fiscal benefits under Section 80CC were subsequently withdrawn. Similarly, initial encouragement is needed from the Government to induce a sectoral flow of savings to the infrastructure sector. Once the initial clutch of projects of this genre are established successfully on commercial principles, fiscal benefits may no longer be needed to the same degree.

Sector Definition: The infrastructure sector covers distinct components which could be defined generically to include :

- Power
- Telecom
- Surface transport including roads, bridges, expressways, highways, ports, etc
- Transportation systems including light rail and mass transit systems
- Water supply including effluent treatment, sewerage, etc
- Area development including industrial parks.
- Social infrastructure

A conscious policy has now been adopted by the Government to minimise any drain on the exchequer through subsidies. To that extent, and as a generic principle, it would be appropriate to implement infrastructure projects without the provision of any fiscal benefits, to the extent feasible.

Commercially Understood Sectors: Typically, power and telecom projects are well understood by promoters, financial insti-

tutions and investors in the capital markets. Significant efforts have been made by the Government to put in place a policy framework for these sectors. In addition, operating guidelines are also in place to implement projects in these sectors on an independent basis. Projects that are developed in a commercial format in the area of power and telecom are normally structured in a Build-Own-Operate (BOO) format, which does not provide for the transfer of the asset to the state. Corporate entities are encouraged to expand capacities and grow organically in these sectors. Thus, other than on an exception basis, these sectors may be excluded for the provision of fiscal incentives.

Other Sectors: There is today a need to encourage investments in projects in the area of surface transport, transportation systems, water supply and area development (including industrial parks). Such projects require the provision of fiscal incentives for two primary reasons:

- Projects of this genre are not well understood and are not amenable to being positioned in a manner that would attract incremental resources, including flows from the capital markets.
- The format under which such projects are developed include Build-Own-Operate-Transfer (BOOT), Build-Operate-Transfer (BOT), Build-Lease-Transfer (BLT) and other variations thereof. This implies:

- At the end of the franchise period (defined period) or on receipt of a targeted return (defined event), there is a physical transfer of the infrastructure created to the state.
- Government investment is minimal in these projects.

There is thus economic rationale to ensure that the projects are speedily implemented, and the duration of the franchise period minimised in order that resources can be raised on a commercial basis.

Fiscal Benefits: The provision of fiscal benefits could thus be restricted to projects that are defined on BOOT principles and other variations thereof that provide for a transfer of the asset at the end of a defined period or event. More specifically such fiscal benefits could be limited to surface transport, transportation systems, water supply, area development including industrial parks, and social infrastructure sectors. These sectors are defined hereinafter in this Report as 'Targeted Sectors'. The rationale for the provision of defined incentives is essentially to catalyse and hasten the pace of development in these sectors.

The Rationale For Benefits

Economic Rationale: Surface transport or transportation system projects taken up for implementation under BOOT schemes typically target a financial rate of return of upto 20 per cent per annum on total assets deployed. Initial efforts made at commercialisation of such projects indicate that an array of projects can be conceived in a commercial format where a rate of return of 15 to 20 per cent per annum could be targeted.

It can be demonstrated that the economic rate of return

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from each project is well in excess of the financial rate of return. More importantly :

- The detailed analytical framework is in place to adjudge the economic rates of return provided by infrastructure projects. These norms have been well developed by the World Bank and other multilateral agencies, and are routinely used in India to analyse projects, and to prioritise between competing projects.
- The higher economic rates of return stems from monetary as well as social factors, including reduction in pollution levels, savings in time, and the ancillary economic activities that such projects generate.
- The case for attracting FDI is significantly strengthened through the provision of an adequate level of infrastructure.

There is thus adequate economic rationale for encouraging the sponsorship of infrastructure projects and to facilitate investments in this sector.

The Externality Principle: The commercialisation of infrastructure projects is typically formulated on the basis of recovery of investments through a system of user charges. Such user charges bear a direct relation to the specific benefits that the facility provides to the user. For example, a toll road would provide the user savings in terms of time, fuel, vehicular maintenance, etc. The user would then compare the user charge to the benefits and savings realised. The level of user charges does not encompass the secondary and tertiary levels of economic benefits stemming from the implementation of the project and which flow to society at large. Typically, such benefits are a multiple of project cost. These externalities have arisen without government contributing to project expenditure.

To this extent, it can be argued that the provision of fiscal benefits is not a subsidy, but a contribution from government that is supported by benefits accruing from the externalities of the project. In the absence of such a contribution, the private investment flows may not take place at all. Thus such fiscal benefits have the effect of mobilising private resources much as equity stakes are instrumental in leveraging debt flows in the financing of projects.

Shift in Savings Pattern: The fundamental premise of commercialisation is a shift of the burden of funding from government to a structure where public savings are channelised to create infrastructure facilities. Significant growth in the Indian capital markets and the appetite of investors for financial assets received a fillip after specified fiscal incentives were provided by government for investments in the shares of newly promoted companies. Public savings were thus channelised towards the creation of productive capacities. A similar initiative is needed today from government to create a shift in savings towards investment in infrastructure.

Alternative Investment Options: Projects in the Targeted Sectors are today not readily amenable to attracting public savings. Typically, these projects have a long gestation period, and

are not readily understood by retail and other investors. Hence, there is a need to position such investments as an attractive option vis-a-vis other competing opportunities. An investor today needs an inducement to shift a part of his portfolio from conventional projects to projects in the Targeted Sectors. There is hence a need for Government of India to consider the provision of specific fiscal benefits to infrastructure projects that are deemed to be of public interest, in order to effect such a shift in the savings pattern.

Double Taxation: For projects that contemplate the transfer of assets to the State at the end of the franchise period, economic rationale argues for reduction of double taxation, in order to reduce the payback period of the project. Typically, projects in the Targeted Sectors have payback periods varying from 15 to 20 years. The incidence of taxation on the project SPV almost doubles the payback period. The project becomes very difficult to implement as matching resources of upto 30 years tenor are simply not available.

As the asset is to return to the State at the end of the franchise period, the SPV may be exempted from tax. Project sponsors would remain liable for taxation on their share of profits, interest and/or dividends.

Project Development Incentives : Incentives need to be defined in a manner that facilitates the creation of a framework for:

- Integration of development requirements of the specific infrastructure project with the resource potential of the capital markets.
- Assistance in the effective prioritisation and implementation of projects of socio-economic importance on a self-sustaining basis.
- Creation of new institutional structures that allow for the development of infrastructure assets effectively and with significant upgradation in technology.

The Need For Project Development And Identification

In projects of this genre, there is a need to define the scope and extent of the project in a manner that helps position the project in a readily understood format. It is therefore important to define projects adequately in terms of the various parameters to render all projects fully comprehensible. Such an effort could generically be defined as Project Development. In effect, project development would outline the various aspects of the project and its feasibility, but stop short of detailed design engineering. Thus it would make available to the constituents a sales document that defines the project in its entirety. Expressions of interest could then be sought at a discrete and defined level.

Given the absence of a framework for project development and implementation, it is currently difficult to adjudge the validity of offers made for project implementation. It is

In the absence of a framework for project development and implementation, it is currently difficult to adjudge the validity of project offers.

important, for example, to define a road project in terms of the total requirements, and to define projects in a tender beyond broad descriptions. This would enable the potential sponsors to understand the implication of these projects, and would provide greater cogency and transparency to the expressions of interest received against Requests For Proposals (RFP). Such an approach would achieve two objectives :

- It would be feasible to outline clearly defined roles, and the rights, duties, obligations and responsibilities of constituents under this framework.
- Importantly, it would enable government to achieve a better understanding of competitive offers on a standardised basis.

If the foregoing premise is accepted, it is necessary that project development be undertaken on an ab initio basis in order to resolve and define, at the minimum, the following parameters:

- Project concept
- Project cost
- Primary design parameters
- Means of financing
- Anticipated payback period
- Legal structure
- Financial viability
- Economic rate of return

Potential sponsors would only need to proceed with the detailed design engineering based on a quick re-validation of the project contours as defined under the project development approach. The key benefit of this approach would be in facilitating a greater transparency in the provision of the mandate as well as in the implementation and operation of the project by private sector consortia. More importantly, it would help potential sponsors understand clearly the extent of requirements, define upfront all issues relating to the project and the rights, duties and obligations of the franchiser and franchisee. Based on the foregoing, it would be possible to define the hierarchy of fiscal benefits that such projects would require, and facilitate a cogent evaluation of competitive bids.

Hierarchy Of Fiscal Benefits

Once a project is defined to an adequate degree, an array of fiscal benefits could be considered on a project-specific basis. This would imply that the provision of specific fiscal incentives would be defined in an efficient, focused and optimal manner prior to the award of the franchise. The array of benefits could be defined under four generic heads:

- Tax-free status for the project entity
- Benefits to the sponsor
- Benefits to the wholesale investor
- Benefits to the retail investor

Competitive Evaluation: A distinction could be made between competing bidders based on the nature and extent of benefits sought for implementing specific projects. In this manner, infructuous bids could be eliminated and

a more transparent comparison could be made between the competitors. The objective of this exercise would be to ensure that the project is implemented as expeditiously as possible with an optimal cost structure, given selection of an appropriate technology.

Two broad approaches could be considered by government in this regard:

- Based on the economic rates of return generated by the project, the Government could define in the tender documents the specific fiscal benefits that would be made available.
- Alternately, the tender could be awarded on the basis of the minimum level of fiscal and other benefits that are sought.

Tax Holiday for the Project Entity

Sub-section (4A) has already been inserted in Section 80-IA to provide for tax holiday to profits derived from infrastructure business. To qualify for tax holiday under this provision, the conditions required to be satisfied are :

- Enterprise carrying on infrastructure business is owned by a company registered in India or a consortium of companies registered in India.
- The enterprise has entered into an agreement for developing, maintenance and operating infrastructure facility.
- The infrastructure facility should be a new one.
- The agreement is with one of the following
 - Central Government
 - State Government
 - Local Authority (it would help greatly if 'local authority' is specified)
 - Any other statutory body
 - Or such other entity/body as may be notified by the Central Government
- The infrastructure facility shall be transferred to the government/authority within a period stipulated in the agreement.
- The enterprise starts operating and maintaining infrastructure facility on or after April 1, 1995.
- Infrastructure facility is defined by a new clause (ca) of sub-section (12) of Section 80-IA. It means the following (hereafter collectively referred to as 'the facility'):
 - Road
 - Highway
 - Bridge
 - Airport
 - Port
 - Rail system
 - Such other public facility of similar nature as may be notified by CBDT.

The following tax holidays are available:

- Full tax holiday for initial five assessment years; and
- 30 per cent (if a company) for the balance, i.e. five assessment years.

Such tax holiday could be availed of from the assessment year to be specified by

the assessed as his option, which would be regarded as initial assessment year. Such initial assessment year must fall in 12 assessment years starting from the previous year in which an enterprise commences operation or maintenance of the facility ("commencement year"). The tax holiday is available for 10 consecutive assessment years within the period of 12 assessment years beginning with the commencement year.

Benefits to the Sponsor

Section 36(1)(viii): This Section provides for tax breaks to approved financial corporations engaged in providing long-term finance for industrial or agricultural development in India, or an approved public company formed and registered in India with the main object of carrying on business of providing long-term finance for construction or purchase of residential house. The Section has been amended with effect from assessment year 1996-97 as follows in relation to its ambit as well as extent.

■ The deduction will now be available also to approved financial corporations providing long-term finance for development of infrastructure facilities in India; for this purpose, the expression 'infrastructure facility' shall have the meaning assigned to it in Section 80-IA.

■ The said deduction was hitherto allowed to the extent of 40 per cent of the entity's total income carried to a special reserve. The deduction was allowed on the 'total income' and not with reference to the income from the activities specified in Section 36(1)(viii). The Section is now amended in order to limit the deduction of 40 per cent only to the income derived from providing long-term finance for the activities specified in Section 36(1)(viii) and as computed under the head 'profit and gains of business or profession'. This takes outside the purview of deduction, income arising from other business activities or from sources other than business.

The benefit under this Section is currently restricted to financial institutions - such as IDBI and ICICI - that are engaged in providing long-term finance for industrial and agricultural development or development of infrastructure facilities in India.

But it is also important to involve the banking sector through their participation in infrastructure projects. The recent RBI announcement providing limits to the banking sector for investments in infrastructure projects is a welcome step in this direction. However, at the current juncture, benefits under Section 36(1)(viii) do not include the banking sector in the definition of eligible financial institutions.

Section 80-IA: The Expert Group recommends several changes to be made in this Section, which are crucial to the commercialisation of the country's infrastructure services.

■ **Definition of the Infrastructure Facility:** This Section gives a restricted meaning to the term 'infrastructure facility', being limited to transport, such as surface transport, air, waterways and rail. Infrastructure however, includes

Section 80-1A of the IT Act defines 'infrastructure facility' as limited to surface transport, air, water and rail. This must be changed.

other services such as land area development, establishment of township, water and sewerage systems, social welfare like education, and health care. It is therefore, recommended that the scope of the infrastructure facility should be expanded to include all the above sectors.

■ **New Infrastructure Facility:** The Section also specifies that the infrastructure facility should be "new". Accordingly, it may not include projects which involve remaking or expansion. Most infrastructure projects would involve acquisition of existing facility to meet the increased demands, e.g. a surface transport project could involve remaking the existing road and extending or converting two lanes into four lanes. Similarly, water and sewerage projects could involve taking over the existing distribution system or treatment facilities and building additional facilities to augment increased requirements. In most cases, it is necessary to capture revenues from existing facilities to make the expansion viable. Hence it is recommended that the scope of definition should be extended to include projects involving expansion or remaking existing facility.

■ **Ownership of Infrastructure Facility:** The Section requires the facility to be 'owned' by the enterprise. But in many infrastructure projects, it may not be feasible to own all the facilities. Some of the equipment may be procured under a leasing or other financing arrangement. It is therefore necessary to clarify that the scope of this Section extends to include cases where part of the facility is procured under a lease or any other financing arrangement.

■ **Ownership of Enterprise by Indian Companies:** The benefit is available only to an enterprise if it is owned by a company or consortium of companies incorporated in India. Given the nature of infrastructure projects, it would be necessary to have access to technological and financial participation from international sources. It is therefore necessary to extend the scope of benefit under this Section to all enterprises including those where majority of shareholding is held by foreign companies.

■ **Income from Ancillary Facilities:** In most infrastructure projects, it would be necessary to consider the grant of rights from Government to develop ancillary facilities such as land for building townships, development of rights and adjacent areas or rights to operate utilities like petrol pumps, restaurants, etc. The current meaning of Section 80-1A defines tax holiday on 'profits derived from infrastructure business'. Accordingly, there could be an argument from the revenue authorities that revenues or profits derived from such ancillary development are not eligible for tax holiday. However, if such a view is taken, the project would not be in a position to claim the tax holiday benefit on income purely derived from the user charges of infrastructure facilities because these revenues will not generate significant profits. To avoid any dispute in this matter, it is recommended that a clarification be provided in Section 80-1A stating that the entire project income inclusive of income from any ancillary development will qualify for tax holiday.

Section 35AC: The prerequisite for getting a project off the

Investment in the equity of Special Purpose Vehicles undertaking infrastructure projects should be eligible for tax rebates.

ground is availability of risk capital by way of subscription to equity and/or preference shares. Equity support is essential from the business community.

To provide an incentive for funds to flow into the infrastructure sector on lines similar to those provided for other areas of national importance such as scientific research, it is recommended that investment in the share capital of SPVs undertaking infrastructure projects be eligible for tax rebate.

This incentive could be provided through an amendment to Section 35AC of the Income Tax Act, 1961, or through a new section, say Section 35AD. Under Section 35AC, any expenditure by way of payments of any sum to public sector companies or a local authority or to any association or institution approved by national committee for carrying out any eligible project or scheme for promot-

ing social and economic welfare or uplift of the public is allowed as deduction. Expenditure directly incurred on such projects or schemes is also allowed as deduction.

It is recommended that similar deduction be provided in respect of expenditure on eligible infrastructure projects. Further, deduction should be provided in respect of expenditure incurred by companies on project development work. Projects eligible for benefits under Section 35AC could be defined as those where the financing is fully underwritten in a credible manner, or where the Central or State Government is a partner with a minimum equity stake of 10 per cent.

Section 10(15)(iv): Under Section 10(15)(iv)(c), interest payable by industrial undertakings on monies borrowed or debt incurred in a foreign country for purchase of raw material and plant and machinery to the extent to which such interest does not exceed the amount of interest calculated at the rate approved by the State Government is exempt. The benefit is similar, under Section 10(15)(iv)(f), for interest payable by industrial undertakings on monies borrowed in foreign currency from sources outside India under loan agreement approved by State Government.

Benefits to Wholesale and Retail Investors

Section 11(5)(ix): A number of trusts engaged in charitable and religious activities have investible surpluses. The investment modes are specified in the Income Tax Act. It would be appropriate if resources could also be accessed from these trusts by sponsors for financing infrastructure projects. This could be facilitated by an appropriate amendment being made to Section 11(5)(ix) of the Income Tax Act, 1961.

Section 88: Risk capital for infrastructure projects could also be accessed from retail investors. Currently, incentives are provided for investments made in specified savings schemes, which include subscriptions for schemes launched by mutual funds. It is recommended that an amendment be effected to Section 88 to

induce retail investors to invest in the equity of SPVs implementing infrastructure projects.

Section 80L: The provisions of Section 80L of the Income Tax Act are applicable to individuals, HUFs and AOPs. Interest and/or dividend earned on instruments issued by specified institutions as detailed in Section 80L are eligible for deduction from income upto specified levels. It is recommended that an amendment to Section 80L be effected to include income accruing from debt instruments issued by SPVs for financing eligible projects. This would render such projects to be on par with other areas and sectors of national importance.

Indirect Taxes

Indirect taxes can be classified into two categories: those on the initial project cost, and those levied during the operational phase. The first category of taxes results in increase in the initial cash outlays. These include:

- Import duty on construction inputs (central tax)
- Excise duty on construction inputs (central)
- Work contract taxes (state)
- Stamp duty on documents/agreements (state)
- Sales tax on construction inputs (state)

The taxes during operational phase increase the operating cost or reduce the operating cash flows. These include:

- Tax on interests (central)
- Tax on dividends (central)
- Income tax (central)
- Sales tax and excise duty on operational cost inputs

Of these, only the last named is classified as an indirect tax. Subjecting infrastructure projects to taxation influences:

- Return available to investors and their incentive to invest.
- Cost of infrastructure and price charged for services.

Regarding concessions on taxation on infrastructure projects, the issues considered by Government would be:

- Whether incentives are required to ensure project viabilities
- What format the tax concession should take to ensure that maximum incentives are offered for the revenue foregone.
- To what extent tax incentives can be used to achieve desirable pricing in infrastructure services.

Tax concession on the first category of indirect taxes, i.e. on project costs, would go to reduce the initial project cost and therefore the investment outlays required. This would have a positive effect on the project returns and could be used effectively to attract investments. These taxes also result in higher prices being charged for the services to make the project commercially viable.

States should eliminate stamp duties levied on issuance and trading of financial instruments related to funding infrastructure.

It can therefore be concluded that tax concessions that reduce the initial project cost would meet the twin objectives of incentive to invest and reduction in prices charged for services. Another argument for such reduction could be that at a macro level, the amount paid by various businesses for using infrastructural assets such as telecom, power, water, which ultimately becomes a tax deduction in arriving at the business' taxable profits would get reduced. In other words, taxes foregone on infrastructure can increase future tax revenues, by reducing cost of using the infrastructure facilities to business.

Such multiple layers of duties may, in some instances, not generate corresponding taxes from the project entity. For example, it may be difficult to formulate an excise duty set off under the MODVAT scheme in the case of infrastructure projects, where there is no corresponding excise levy on the services offered.

There is hence merit for considering selective reduction of such levies for projects structured on the transfer of asset principle.

State Levies

At the state level, there exists a wide disparity in the levels and layers of taxes that impact project cost. These include:

- State sales tax
- Works contract tax
- Stamp duties and levies on the issuance and subsequent trading of financial instruments issued by the project SPVs.

Stamp duties in relation to financial instruments are at varying levels in different states. Given the magnitude of resources required for projects of this genre, stamp duties on the issuance and subsequent trading of such financial instruments impact the cost to the issuer of such securities.

Responsibility of the State: Each state would need to formulate its policy to effectively compete for investments required for developing infrastructure within the state. Thus at the state level, levies could be rationalised for defined projects. Eligible projects could be defined as those where financing is fully underwritten in a credible manner, or where the state or state government is a partner with a minimum equity stake of say 10 per cent.

While state taxes are subject to the sovereign principles adopted by the state concerned, there is merit in the State Government recommending a policy framework that reduces the impact of cascading taxes on BOT projects or variations thereof.

It is recommended, in particular, that state governments should eliminate, or reduce to nominal proportions, stamp duties levied on issuance and trading of financial instruments related to financing of infrastructure. This is essential so that such instruments can be made fully tradable; private resources can then flow more easily to fund infrastructure projects.



ANNEX A6.1

Draft of Suggested Amendments

6.1 Amendment to Section 35AC or Through a New Section 35 AD

RATIONALE: India as a country needs to increase its infrastructure facilities at a rapid pace. To augment the available pool of resources with the Government, it would be necessary to seek involvement of private capital. The initiative in this regard would necessarily need to come from the business community, especially corporate bodies who have the requisite financial and managerial resources at their command.

Being an untried and new area, it would be necessary to provide incentives for capital to flow into this sector. It is recognised that the principal component for getting a project off the ground is risk capital subscribed to in the form of equity and/or preference shares. With the availability of equity support from project sponsors, it would be feasible to raise the necessary debt funding through a host of sources including household savings and institutions, both domestic and multilateral.

The objective of this Section is to provide an incentive for funds to flow into the infrastructure sector on lines similar to those provided for other areas of national importance like scientific research. **PROPOSED AMENDMENT:** The incentive is proposed to be provided by an amendment to Section 35AC or through the incorporation of a new Section 35AD in the Income Tax Act. The wording of this Section would be as under:

(i) Where an assessee has acquired shares issued by any Company or Institution or Association or Authority or Trust approved by the National Committee for carrying out any eligible project or scheme, the assessee shall, subject to the provisions of the Section, be allowed a deduction in the previous year of an amount equal to the cost of the shares acquired.

(ii) If any shares with reference to the cost of which a deduction is allowed as aforesaid are sold or otherwise transferred by the assessee to any person at any time within a period of three years from the date of their acquisition, an amount equal to the cost of the shares so sold or otherwise transferred shall be deemed to be the income of the assessee of the previous year in which the shares are so sold or transferred and shall be chargeable to tax accordingly.

(iii) Where an assessee incurs any expenditure by way of payment of any sum to a public sector company or a local authority or to an association or institution approved by the National Committee or incurs any expenditure on project development work for carrying out any eligible project or scheme for promoting social and economic welfare or the uplift of the public, the assessee shall, subject to the provision of this Section, be allowed a deduction of the amount of such expenditure incurred during the previous year.

Provided that a company may, for claiming the deduction under this sub-section, incur expenditure either by way of payment of any sum as aforesaid or directly on the eligible project or scheme.

(iv) The deduction under sub-section (iii) shall not be allowed unless the assessee furnishes along with his return of income a certificate:

(a) Where the payment is to a public sector company or a local authority or an association or institution referred to in sub-section (iii), from such public sector company or local authority or, as the case may be, association or institution;

(b) In any other case, from an accountant, as defined in the Explanation below sub-section (2) of Section 288.

In such form, manner and containing such particulars (including particulars relating to the progress in the work relating to the Eligible project or scheme during the previous year) as may be prescribed.

(v) Where a deduction under this Section is claimed and allowed for any assessment year in respect of any expenditure referred to in sub-section (iii), deduction shall not be allowed in respect of such expenditure under any other provision of this Act for the same or any other assessment year.

EXPLANATION: FOR THE PURPOSE OF THIS SECTION:

(a) "National Committee" means the Committee constituted by the Central Government, from amongst representatives of the Government and persons of eminence in public life, in accordance with the rules made under this Act.

(b) "Eligible project or scheme" means such project or scheme which is deemed to be in public interest for promoting economic activity and the social and economic welfare of, or the uplift of the public as the Central Government may, by notification in the Official Gazette, specify in this behalf on the recommendations of the National Committee.

6.2 Amendments to Section 36(1)(viii)

RATIONALE: Section 36(1)(viii) was amended by Finance Act, 1995 with effect from April 1, 1996 with a view to promote infrastructure development in the country. This Section provides tax concessions to approved financial corporations which provide long-term finance for infrastructure development facilities. Deduction is allowed of 40 per cent of profit derived from such business of providing long-term finance subject to conditions laid down in this Section. The Section also provided that in order to avail benefit under this Section the financial corporation is required to be approved by the Central Government.

Considering the large amount of resources required for financing infrastructure projects, it is inevitable that resources from banking channels would be utilised for funding the projects. It is therefore proposed to provide for deductions under this Section to the banking companies engaged in providing long-term finance for industrial or agricultural development or development of infrastructure facilities in India, without seeking any approval from the Central Government.

PROPOSED AMENDMENT: The incentive is proposed to be provided to the banking companies by an amendment to Section 36(1)(viii). The wording of this Section would be as under:

In respect of any special reserve created by a financial corporation or a banking company to which the Banking Regulation Act, 1949 (10 of 1949), applies, which is engaged in industrial or agricultural development or development of infrastructure facilities in India, or by a public company formed and registered in India with the main

object of carrying on business of providing long term finance for construction or purchases of houses in India for residential purposes an amount not exceeding forty per cent of the profits derived from such business of providing long term finance (computed under the head "Profits and gains of business or profession" before making any deduction under this Section) carried to such reserve account.

Provided that the corporation or, as the case may be, the company is for the time being approved by the Central Government for the purposes of this clause.

Provided further that where the aggregate of the amounts carried to such reserve account from time to time exceeds twice the amount of the paid-up share capital (excluding the amounts capitalised from reserves) of the corporation or, as the case may be, the company, no allowance under this clause shall be made in respect of such excess.

EXPLANATION: In this clause,

"financial corporation" shall include a public company and a Government company;

"public company" shall have the meaning assigned to it in Section 3 of the Companies Act, 1956 (1 of 1956);

"Government company" shall have the meaning assigned to it in Section 617 of the Companies Act, 1956 (1 of 1956);

"Infrastructure facility" shall have the meaning assigned to it in Section 80-IA

6.3 Amendments to Section 80-1A

Section 80-1A of the Income Tax Act allows for deduction in respect of profits and gains for industrial undertakings, etc, in certain cases specified in the Section for the purposes of corporation tax. In most cases, the deduction allowed is 25 per cent or 30 per cent. In case of industrial enterprises set up in backward areas, a 100 per cent deduction is allowed for a period of five years. An amendment may be made to sub-section 4 of this Section to include an 'infrastructure facility', provided by a company incorporated in India, whether owned by Indian persons or foreign, as an industrial undertaking for the purposes of the Section. A 100 per cent deduction may also be provided to such a company for a period of five years, through an amendment to sub-section 5 of the Section. For the purposes of this Section, 'infrastructure facility' would be defined to include roads, bridges, airports, ports, railways, area development, water supply, sanitation or other facility which the CBDT may specify through notification in the Gazette. The changes would be as below:

A sub-section may be added after Section (4) as:

(4A) This Section applies to any assessee carrying on the business of developing, maintaining and operating any infrastructure facility which fulfils all the following conditions, namely:

(i) The infrastructure facility is provided by a company registered in India or by a consortium of such companies;

(ii) The assessee has entered into an agreement with the Central Government or a State Government or a local authority or any other statutory body for developing, maintaining and operating such infrastructure facility subject to the condition that such infrastructure facility shall be transferred to the Central Government, State Government, local authority or such other statutory body, as the case may be, within the period stipulated in the agreement; and

(iii) The assessee starts operating and maintaining the infrastructure facility on or after the 1st day of April, 1995.

A clause may be added after clause (i) as below:

(ia) In the case of an assessee referred to in sub-section (4A), hundred per cent of the profits and gains derived from such business, directly or indirectly, for the initial five assessment years and thereafter, thirty per cent of such profits and gains. In such clause (c) of sub-section 12, the definition of 'initial assessment year' may be modified to include:

(2) In the case of an assessee, carrying on the business of developing and maintaining any infrastructure facility, means an assessment year specified by the assessee at his option to be the initial year, not falling beyond the twelfth assessment year starting from the previous year in which the assessee begins operating and maintaining the infrastructure facility

A sub-clause may be added after sub-clause of (c) sub-section 12 to read as:

(ca) "Infrastructure facility" means road, highway, bridge, airport, port, rail system, area development, water, sewerage system or any other public facility of a similar nature as may be notified by the Board in this behalf in the Official Gazette and will include expansion or remaking of existing facility.

6.4 Amendment to Section 80L

RATIONALE: Government of India has consistently provided fiscal incentives to enable the flow of retail savings to sectors of importance. Under the provisions of Section 80L of the Income Tax Act, which is applicable to individuals, Hindu Undivided Family and AOPs, interest and/or dividend earned on instruments issued by specified institutions as detailed in Section 80L are eligible for deduction from income upto specified levels.

Given the need to increment the pool of infrastructure assets, the mobilisation of individual savings into such projects is very critical and important. The backbone for the development of this sector shall be the availability of debt funds from the retail savings sector. The proposed amendment to Section 80L (as detailed subsequently) is principally to enable investors to claim tax benefits on income accruing from debt instruments issued for financing infrastructure facilities. The proposed amendment would enable eligible projects in the infrastructure sector to be on par with other areas and sectors of national importance.

PROPOSED AMENDMENT: It is proposed to insert a new sub-clause to Section 80 L as under:

Insertion as Sub-clause (xi) to Clause 1 of Section 80L

(xi) Interest on debentures or bonds issued by any Company or Institution or Association or Authority or Trust approved by the National Committee for carrying out any eligible project or scheme.

Provided that for the purpose of this Section:

(a) "National Committee" means the Committee constituted by the Central Government, from amongst representatives of the Government and persons of eminence in public life, in accordance with the rules made under this Act;

(b) "Eligible project or scheme" means such project or scheme which is deemed to be in public interest for promoting economic activity and the social and economic welfare of, or the uplift of the public life as the Central Government may, by notification in the Official Gazette specify in this behalf on the recommendation of the National Committee.

Insertion as the "Last Proviso":

Provided further that where any income by way of interest on debentures or bonds referred to in Clause (xi) remains unallowed after the deduction under the foregoing provisions of this Section, there shall be allowed in computing the total income of the assessee an additional deduction of an amount equal to so much of such income as has remained unallowed; so however that the amount of such additional deduction shall not exceed five thousand rupees.

6.5 Amendment to Section 88

RATIONALE: The availability of risk capital for part financing of infrastructure assets is of critical importance and necessary, given the need to mobilise large sums of funds to develop this key area of national importance. Risk capital would be available principally from project sponsors, and the retail investors. From a retail investor's perspective, the infrastructure sector is still perceived as an untried and untested area and the flow of resources would be possible only with the provision of specific fiscal incentives. The fiscal savings would act as an inducement to the investor to provide funds to this key sector in priority to other avenues of risk capital investment, namely the corporate sector.

Under Section 88 (which is applicable to individuals, HUFs, and AOPs), incentives are provided for investments made in specified savings schemes which include subscriptions for schemes launched by mutual funds. The proposed amendments to Section 88 are principally to enable the sector to be positioned on an even keel with other sectors which are of equal national importance.

PROPOSED AMENDMENT: It is proposed to insert a new sub-clause to Section 88 as under:

Insertion as Sub-Clause (xvi) to Clause 1

(xvi) Any subscription to shares issued by any Company or Institution or Association or Authority or Trust approved by the National Committee for carrying out any eligible project or scheme.

EXPLANATION: FOR THE PURPOSE OF THIS SECTION:

(a) "National Committee" means the Committee constituted by the Central Government, from amongst representatives of the Government and persons of eminence in public life, in accordance with the rules made under this Act:

(b) "Eligible project or scheme" means such project or scheme which is deemed to be in public interest for promoting economic activity and the social and economic welfare of, or the uplift of the public as the Central Government may, by notification in the official Gazette, specify in this behalf on the recommendations of the National Committee.

6.6 Amendment to Clause 11(5)(ix)

RATIONALE: For mobilising the required resources for infrastructure projects, it would be necessary to tap all possible avenues of funding. One major source is the property held for charitable or religious purposes. The Government allows full exemption from income tax for any income derived from any property held under trust wholly for charitable or religious purposes. The forms and modes of investing or depositing the money have also been specified in Section 11(5) of the Act. The modes of investment specified are principally areas from where the resources can be used in avenues of national importance.

PROPOSED AMENDMENT: It is proposed to amend Section 11

(5)(ix) as under:

".....of house in India for residential purposes, or by any Company or Institution or Association or Authority or Trust approved by the National Committee for carrying out any eligible project or scheme and which is approved....."

Explanation: For the purpose of this Section:

(i) "National Committee" means the Committee constituted by the Central Government, from amongst representatives of the Government and persons of eminence in public life, in accordance with the rules made under this Act:

(ii) "Eligible project or scheme" means such project or scheme which is deemed to be in public interest for promoting economic activity and the social and economic welfare of, or the uplift of the public as the Central Government may, by notification in the official Gazette, specify in this behalf on the recommendations of the National Committee.

6.7 Stamp Duty: The Case for Reform

The levy of Stamp Duty is a concurrent subject in India's overall fiscal framework. The Constitution provides for the levy of Stamp Duty on instruments mentioned in Entry 91 by the Central Government, the proceeds of which are to be collected and retained by the states. Under Entry 63 of the Constitution, the states are allowed to determine the rates of duty in respect of instruments other than those mentioned in Entry 91, and also decide on the type of instruments. Entry 44 of the Concurrent List covers the machinery provisions for Stamp Act, on which the Central Law will prevail over provisions of the State Act.

It is necessary to look at the provisions and actual operation of the Central and State Stamp Acts, together with the Indian Registration Act, in view of the fact that the levy of stamp duty is integrally connected with the registration process for all state instruments, and because the same hierarchy of administration in the state implements both the Acts. As noted by the Ghelliah Committee, a comprehensive view needs to be taken of all the recurring and non-recurring levies on property under the Income Tax Act, Wealth Tax Act, Gift Tax Act, Stamp Act, municipal provisions for property tax and transfer of property, recovery of unearned increment, etc. The Committee believes that reform in the Stamp Act has to be pursued along with related changes needed in other statutes such as the Income Tax Act, Companies Act etc, within the perspective of long-term economic reform and fiscal policy. Further, it is not feasible to consider the abolition of Stamp Duty, especially on major instruments in the State List, because of their revenue contribution, their significance in the overall scheme of state taxes as a buoyant revenue source, and the absence of alternative sources of revenue or central transfers to compensate the loss. Instead it would be more useful to concentrate on steps to rationalise the present legal provisions, procedures and schedule of rates.

FISCAL RATIONALE FOR STAMP DUTY: Stamp Duty and Registration Fees are an important source of revenue for the state governments. The revenues are estimated to exceed Rs 50 billion in 1995-96 from all states as projected by the Tenth Finance Commission. The growth in revenue has been remarkable since 1985-86 mainly because of the increased realisation of revenues from conveyances (which account for a major proportion of the non-judicial Stamp Duties), arising from legal powers with a number of state governments under the Stamp Act to enquire into undervaluation. The buoyancy has ranged from

0.85 to 1.53 and the growth rate from 12 to 23 per cent across states. Part of the revenue from Stamp Duty was passed on to local bodies, and forms a significant source of intergovernmental transfer to municipalities in a number of states. The levy of Stamp Duty has not been uniformly exploited by all the states, as revealed by the tax effort analysis, with some states showing greater ingenuity than others in revising rates or redefining the instruments such as the conveyance or capital market transactions. The rates of Stamp Duty for various instruments vary across the states.

The revenue from Stamp Duties is broken up into Judicial Stamp Duties (under Court Fees Act) and Non-Judicial Stamp Duties (under the Central and State Stamp Acts). The predominant share of revenue from Stamp Duty comes from Non-judicial Stamp Duties (NSD). The instrument-wise revenue realisation of NSD could not be obtained from the states except for Uttar Pradesh, Maharashtra and Gujarat. However, it was found that, generally, about 75 to 90 per cent of the NSD revenue is derived from Stamp Duty on conveyances. The high rates of Stamp Duty (and the procedures connected therewith) on conveyances and transfer of property, combined with the provisions of the Capital Gains Tax, Gift Tax, recovery of unearned increment etc, lead to a high monetary burden on the registering parties, and the consequent tendency to undervalue properties or evade registration.

The Indian Stamp Act lays down that the rates of Stamp Duty in respect of the following instruments are to be prescribed by the Central Government, but the proceeds from them are to be collected and retained by the states: (1) bills of exchange, (2) promissory notes, (3) bills of lading, (4) letters of credit, (5) policies of insurance, (6) receipts, (7) cheques, (8) transfer of shares, (9) debentures and (10) policies. These are instruments of importance in the financial sector and capital market. No duty has been levied since 1927 on these instruments despite requests by state governments to withdraw this exemption. The RBI represented before the Eighth Finance Commission that any decision to raise Stamp Duty on the above instruments should be taken only after considering its likely impact on the economy, the revenues likely to be derived in relation to the extra cost of administration and the operating costs of the affected entities. It is because of the importance of these instruments to the national economy that they were placed in the Central List in order to prevent their competitive exploitation by the states, to avoid the adverse effects of high rates on these instruments on the efficient allocation of resources and for the smooth conduct of inter-state and international trading. However, the state governments have been frequently representing for an upward revision of the rates on Central instruments, which have not been revised for a long time. In this context, it is also important to note that an additional complexity is created by the practice of state governments of imposing dissimilar rates of Stamp Duty on certain instruments, the subject matter of which is common with the Central instruments.

STRUCTURE OF DUTIES: Fixed duties are levied in respect of bills of lading (Rs 2 per document), letters of credit (Rs 2 per document), proxies (30 paise per document), and receipts (Rs 1 for every receipt of Rs 500 or more). Because of the specific nature of duties on these instruments, it is likely that the yield from Stamp Duties on them are far less buoyant and elastic. On the other hand, either ad valorem rates and/or a combination of ad valorem and specific rates are levied in respect of bills of exchange (with periods exceeding three months), issue of debentures, promissory notes, transfer of shares and insurance policies. Hence, the revenue potential of these

instruments is likely to be high.

However, in the case of debentures, there is an exemption clause under Article 27 to permit the establishment of a trust by the issuing companies, and the mortgage of the companies' property to the trust, after which the debentures can be issued without the levy of Stamp Duty. In effect, the Central rate is replaced by the states' rate of duty on the mortgage of property by a company to the Trust. It carries a rate of duty of 2 per cent ad valorem in Maharashtra with an upper limit of Rs 200,000. The states are representing against this exemption clause as it encourages flight of companies to states with lower rates of Stamp Duty on mortgage. The answer in our view is not to delete this clause, but to provide in the Schedule for uniform and low ad valorem rates on mortgage with a ceiling on total duty payable, as in Gujarat. Itemised revenue from Stamp Duty in respect of the various Central instruments is not available, except for remittances of Stamp Duty by the LIC and the GIC.

SHARES AND DEBENTURES: In addition to the duty under the Indian Stamp Act levied by the Central Government on capital market instruments, Stamp Duties are levied under the respective State Acts on a number of transactions related to instruments like the issue of shares, agreement relating to the purchase of shares and debentures, merger and consolidation of companies, mortgage of property by Debenture Trusts, note or memorandum of share brokers, share warrant, assignment of debt, instrument of partition of shares, etc. Finance secretaries of different states believe that there is a significant potential for adding to this list. However, no instrument-wise details of Stamp Duty collections are maintained in this regard, except for the combined figures of sale of stamps for instruments relating to capital market in Maharashtra and Gujarat.

While some estimates of the revenue from Stamp Duties in respect of debenture issues can be made on the basis of Central rates and the reported figures on primary capital issues by the RBI in the Report on Currency and Finance, the same is not possible with regard to the issue of shares because of the varying state rates and the differing definitions of the tax base in different states. For instance, Maharashtra levies ad valorem duty on share issue on the basis of the market value of the shares including the premium, while Delhi levies a flat charge on the single share certificate as provided in the Indian Stamp Act. This naturally encourages companies to undertake the issue of shares in states with low rate of duty. The transfer of debentures carries a rate of 50 paise for every Rs 100 or part thereof of the consideration amount of debenture in Maharashtra with a maximum payable duty of Rs 10,000.

On the basis of the figures on issues of equity shares and debentures, as reported in the Reserve Bank's Report on Currency and Finance, the estimated revenue has grown from Rs 34.5 million in 1980-81 to Rs 800 million in 1991-92 and formed in 1991-92, 4 per cent of the Non-Judicial Stamp Duties of the major States and Assam. Assuming that, on an average, the collection of Stamp Duties on Central instruments is not more than 10 per cent of total NSD revenue (although the percentage could be high in states with a developed financial sector), the perceived revenue loss from the abolition of duty on these instruments would be higher for the economically better-off, or commercially more vibrant states than the others.

SEBI, the stock exchanges, as well as market participants have often stressed on the important role of state laws and a simple structure of duties to ensure speedy, flexible and transparent stock market transactions. In a recent policy document on the future of the capital market in India, SEBI has said that fiscal support needs to be

extended, among other things, by an appropriate system of Stamp Duty for the emergence of an asset-backed securities and debt market in India. It has argued that this will also give a boost to the expansion of housing finance. It is felt that the states should not look upon the capital market instruments just as revenue sources, but as indices of economic growth. In the long run, any restraint on stock exchange operations, through transfer or origination tax procedures, would adversely affect the growth of the state economies and revenues. A short-term loss of revenue from Stamp Duty could be more than offset by the benefits of economic growth and expanded revenue base of not only Stamp Duty but also of other taxes. It may be pointed out that a number of newly evolving financial instruments like participation certificates or securitised debt and varieties of commercial paper, and bank instruments have not fully developed due to the high burden of Stamp Duty, or confusion about the method of charging at the time of origination or further trading. The initiative shown by Maharashtra in reducing the rate of Stamp Duty on assigned debt and its trading to nominal rates deserves to be followed by other states. At the same time, the transfer of beneficial interest from one investor to another in the proposed securitisation scheme will involve a transfer instrument liable for Stamp Duty at varying rates in different states (it is quite high in many states). It would be advantageous for the Central Government to give the transfer of beneficial interest in the securitisation scheme the character of transfer of shares through an explanation, and provide for a uniform low and ad valorem rate on the transfer instrument. It may also be pointed out that international financial centres with multinational investment of the type contemplated in Bombay and Hyderabad could develop only if financial transactions can be carried out at least cost and delay, and become scripless over a period of time.

MODE OF REFORM: The Committee advocates the need for a uniform structure of ad valorem rates in all the states for share issues, incorporation of companies and all capital market instruments. With regard to share transfers, the hardship and delay associated with purchase and affixing of stamps on individual documents could be avoided by permitting the payment of composite or consolidated duty and the use of franking machines as in Bombay, and by providing for the collection of Stamp Duty on share transfers through the proposed depository institution. If the depository institution provides custodial services similar to the Special Vehicle Trust in securitisation, then the transfer of shares would be on par with the securitisation process, and the duty can be levied in the same manner. It would be necessary for SEBI and Finance Ministry to work out immediately, with the help of state authorities, the payment of Stamp Duty to different states on different instruments so that the transition from Stamp Duty to quarterly service charges or composite fee is facilitated on a pro rata basis. It should be mentioned in this regard that the demand from the financial sector for the abolition of duty on share transfer and the assignment of debt in the long run is untenable and is bound to be resisted by states like Maharashtra which see these instruments as highly buoyant sources of revenue (Share transfer is in the Central List while the assignment of debt is in State List). Even in the UK, where the Government levies duty on share transfers, a Stamp Duty Reserve Tax on agreements in stockmarket instruments, tax on depository receipts and Unit Trust, the country hopes to abolish the duty only after the introduction of scripless trading. In the view of experts, the financial liberalisation process is seen as calling, in the transitional phase, for ad valorem and low rates of Stamp Duty on capital market instruments on a uniform basis across

the states, together with simplified and institution-based system of payment of duty in the place of the present cumbersome and antiquated system. The requirement of stamping, and its cancellation by the share transferee, for the legal validity of share transfer under Company Law etc has to be reviewed. The apparent loss of revenue from lowered rates can be made up through increased volume of transactions, service charges (to be shared with states), and increased revenues from taxation of incomes and capital gains. This has been the approach in developed countries, most of whom have been progressively abolishing all Stamp Duty on capital market instruments.

The point to be noted is that the reform of Stamp Duty involves amending both the Indian Stamp Act and states' Stamp Acts, and connected Central legislations like the Companies Act and Income Tax Act, and improving procedures of stamping and registration. It is also necessary for the Central Government to review the levy of service charges on brokers and operators in the capital market in order to keep the overall cost of financial operations within tolerable limits, and further review problems related to other Central Laws. As recommended by the Law Commission, uniform machinery provisions need to be enacted in the Indian Stamp Act to supersede the differing provisions in various States. The exemptions from duty could be greatly minimised and incorporated in the Act itself, with future provision for selective remission of duty in public interest. Ultimately, the objective should be to have a single Indian Stamp Act, with the states making changes only in their Schedule as part of the Finance Act.

COMPANIES AND THE STAMP ACT: Public and private companies face problems of high rates of Stamp Duty on their incorporation, issue of shares, merger and amalgamation, deeds of partnership, etc. For a company issuing Memorandum and Articles of Association, Stamp Duty in Maharashtra could be 10 times that in Gujarat or Delhi, and this induces distortionary relocation of companies. The share certificate carries a nominal rate of duty in Delhi while duty is charged on face value plus premium in Maharashtra. The deed of partnership is a popular form of incorporating industry or business. It attracts a fixed rate of Stamp Duty in some states, but carries a duty in Maharashtra of Rs 500 on capital employed upto Rs 50,000 and thereafter the rate is 1 per cent for every additional Rs 10,000 of capital employed upto Rs 100,000; if the capital employed exceeds Rs 100,000, the rate of duty is Rs 500 for every additional Rs 100,000 of capital employed. The rates in many other states are even higher than in Maharashtra. This not only deters the employment of capital, but the capital base is understated on paper by employing funds as advance rather than as equity.

The Goswami Committee on Sick Companies (1993) and FICCI have referred to the high rates of Stamp Duty in some states on properties transferred by sick companies as a part of mergers and amalgamations, even when the amalgamation is consequent to a High Court order or BIFR award. For instance, in Maharashtra, the rate of duty is as high as 3 per cent of the value of movable property and 10 per cent of the market value of immovable property. In this process, the rehabilitation of sick companies through the BIFR or by voluntary agreement is made less attractive. In this case, the apparent reduction of revenues from Stamp Duty with regard to the sick companies should be compared with the prospect of increased revenues for the amalgamated companies and the social benefit of absorption of redundant labour.

FINANCIAL INSTITUTIONS: For the financial institutions,

apart from the rate of Stamp Duty on securitised instruments and conveyances, the rate payable on equitable mortgage is critical. This is only 0.05 per cent in Maharashtra and Madhya Pradesh on the amount of consideration subject to a maximum of Rs 50,000. The temporary solution of registering the Debenture Trust and creating the mortgage in a nearby state does not help, since, at the time of enforcement of mortgage of properties situated in the state, the differential Stamp Duty rate has to be paid by an institution or individual who seeks to enforce default in payment. In this regard, it is necessary to reduce the rate of duty on the mortgages to low levels on an all-India basis.

SUGGESTED CHANGES: It thus appears that there is a case for reducing the rates of Stamp Duty on the above basis on transfer of shares, debentures and assigned debt in the interest of expanding capital market operations and for the healthy development of a secondary market in debt instruments. This will call for necessary amendments to the Companies Act based on the requirement of proper stamping for share and debenture transfers. The abolition of duty on bills of exchange and promissory notes needs to be reviewed, as the present limit of three months only encourages informal arrangements for extension of the period of the bills to escape duty. However, these amendments in respect of the Schedule in the Indian Stamp Act have to be accompanied by agreement of the State Governments to levy uniform, nominal and ad valorem rates on financial and capital instruments, and to adopt simplified systems of collection of duty. This will take care also of the problem of partially convertible debentures and 'double' pay-

ment of Stamp Duty at the stage of debenture issue and later at the stage of share conversion. The revenue loss can be made up by increased volume of transactions and resulting revenue growth from other related taxes. The Government may also review the desirability of continuing the policy of selective exemption from Stamp Duty only for the issue of bonds and debentures by PSUs - which goes against the concept of level playing field in the capital market. It is also proposed thus that the activities of registration and stamping be delinked as in the developed countries, and that the registration of documents be done only within the framework of the Indian Registration Act without being charged with the task of ensuring compliance with other laws of the land.

The suggestion in the immediate future as regards the instruments in the Indian Stamp Act is not so much for total remission as for levy of ad valorem and low rates of duty, uniformly across the states, and based on common definitions of the instruments and the value base. The disparities in the rates of duty across the states cause many distortions and problems. The more important requirements for speedy and trouble-free transactions in these instruments are: firstly, the levy of low rates on all related financial and capital instruments, resting on the same value base and definition; secondly, the replacement of the existing antiquated and cumbersome payment procedures by systems of franking, composite payment, institutionalised payments, computerised transfers; and, thirdly, nominal rate of State Duties for the next 10 years on emerging capital instruments and trading in debt instruments so as to enhance the liquidity in the market.

ESTIMATES OF STAMP DUTY FROM SHARES AND DEBENTURES

(RS MILLION)

	Equity and Preferences Shares	Debentures	Total	Stamp Duty Estimated			Non Judicial Stamp Duty (NSD)	Estimated Stamp Duties as Percentage of NSD
				Shares	Debentures	Total		
1980-81	1,960	3,289	5,249	9.8	24.7	34.5	3,403	1.01
1981-82	2,054	4,169	6,223	10.3	31.3	41.6	4,372	0.95
1982-83	2,548	5,313	7,861	12.7	39.8	52.5	5,006	1.05
1983-84	3,195	6,093	9,288	16.0	45.7	61.7	5,354	1.15
1984-85	7,795	9,196	16,991	39.0	69.0	108.0	5,861	1.84
1985-86	10,825	18,488	29,313	54.1	138.7	192.8	7,244	2.66
1986-87	15,990	26,140	42,130	80.0	196.1	276.1	8,522	3.24
1987-88	14,400	7,230	21,630	72.0	54.2	126.2	10,527	1.20
1988-89	14,470	34,450	48,920	74.4	258.4	332.8	11,446	2.91
1989-90	16,880	58,790	75,670	84.4	440.9	525.3	15,234	3.45
1990-91	25,522	35,703	61,225	127.6	267.8	395.4	16,258	2.43
1991-92	39,390	80,499	119,889	197.0	603.7	800.7	20,086	3.99
Growth Rates				32.0	32.5	32.7		

Source: RBI, Report on Currency and Finance (various issues)

Note: Stamp duty on Equity and Preference Shares as well as on Debentures was estimated by applying the stamp duty rates of Rs. 0.50 per Rs. 100 and Rs. 0.75 per Rs. 100 respectively. Data on shares and debentures related to consent/acknowledgement of proposals granted by the Controller of Capital Issues to non-government public and private limited companies

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