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INFRASTRUCTURE FINANCING
Current Status and Future Options

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Infrastructure Financing : Current Status and Future Options

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FOREWORD

For several years now it has been realised that unless India begins to invest heavily in its sagging infrastructure, it will find it difficult to attain high rates of economic growth. In order to mobilise such investments, the focus of policy in recent years has shifted to the private sector. However, success in attracting from this sector even a fraction of the funds required has been uninspiring. This has been mainly due to a lack of proper understanding of the manner in which long-term financial flows occur. At the heart of the problem lies the fact that there is, as yet, no effective way of mitigating the risks involved in financing infrastructure, particularly fixed infrastructure. This is due to a variety of economic, social and political factors. The internal dynamics of bond markets, on the one hand, and their interplay with infrastructure industries, on the other, have become important in this context.

This paper by T.C.A. Srinivasa-Raghavan discusses the various conceptual problems of attracting long-term finance into infrastructure sector. It argues that, since the degree of market failure in the case of infrastructure activities is very high, the provision of finances for developing fixed infrastructure should largely remain the responsibility of the state. It further argues that it is essential to distinguish between fixed and moveable infrastructure assets, and recommends that while the former should be developed by the state, the latter be left to the private sector operating under a well-designed facilitating regime. Once the financial markets deepen and adequate instruments to hedge the risks involved are developed, ground can be prepared for a greater role for private investment in fixed infrastructure as well. Taking into account the experience of the last decade, the paper prescribes a set of pragmatic measures for financial sector reform, not the least of which is a less prominent role for the government and its instrumentalities.

K. L. Thapar
Director

1

OVERVIEW

It is now well-recognised that, unless India adds substantially to its supply of infrastructure, it will find it hard to graduate to a higher economic growth trajectory. In other words, the traditional constraints of savings, food and foreign exchange have now been replaced by a new one, the infrastructure constraint. So even though at present we have the domestic savings rate at around 27 per cent of gross domestic product (GDP), a buffer stock of food of 24 million tonnes and foreign exchange reserves exceeding $33 billion, infrastructure shortages have begun to act as a binding constraint.

In spite of this realisation, however, there has not been a substantial increase in flow of funds in the infrastructure sector during the last nine years. The main reason for this is that infrastructure projects require large and lumpy investments having payback periods that usually exceed ten years. Where financing is concerned, an official committee estimated in 1996 that India would have to invest over $40 billion between 1997 and 2001 and over $100 billion between 1997 and 2005. Three years have already passed since 1997 but not even one-twentieth of the projected sum has been invested. The key question, therefore, remains what it was at the start of this decade : where is the money to come from? If it has to come from private domestic and foreign savings, how to facilitate its inflow into infrastructure.

Traditionally, after independence, it was the state that invested in infrastructure, especially fixed infrastructure. Until the fiscal crisis of 1991, public investment in fixed infrastructure accounted for an overwhelming 98 per cent of the total. In moveable infrastructure,

such as trucks, buses and shipping, however, it was private investment that dominated. Airlines were an exception because of the decision to nationalise them in 1953. Had that decision not been taken, the same pattern would have been found in the case of aviation also. This pattern of investment is not surprising because in relation to what is required for investment in fixed infrastructure such as roads, ports, rail lines, etc., the financial requirements of moveable assets are comparatively small. As such, only the state was in a position to mobilise large investable funds. Certainly, the private sector, on its own admission, was not equipped to do so.

Since the 1980s, however, thanks to a mix of factors which we shall discuss later, the ability of the state to undertake the necessary order of investments has been greatly abridged. It is clear from the emerging trends in public finances, where the government's consumption expenditure leaves little for new investment – interest on past debt, subsidies and wage bills now account for nearly 70 per cent of the annual revenue – it has become difficult for the state to sustain high levels of infrastructure investment.

With the state being unable to undertake the new round of investments, attention naturally turned to private finance. This hope was further bolstered by the experience of China and East Asia which, between them have seen as much as $700 billion of private capital inflows since 1986, over half of which has been into infrastructure. But an overwhelming proportion of private investment in infrastructure in this region, as much as 90 per cent has been in the form of debt, mostly in the form of loans from the banks.

Since 1991, India, too, has been actively canvassing private investment in infrastructure. But these efforts have not met with much success for a variety of well-publicised reasons, focusing mainly on policy deficiencies. As a matter of fact, there has been no sustained policy. Even within whatever policies were formulated there have been serious defects. Their main consequence has been,

in one way or the other, not to reduce the risks which are inherent in infrastructure investment in developing countries. These risks arise largely from an underdeveloped system of contract enforcement. Since efficient contract enforcement is the bedrock on which markets function, potential investors have sought to mitigate these risks by seeking alternative methods, such as counter-guarantees, escrow accounts, special purpose vehicles, etc. But nothing of significance has resulted because these methods cannot compensate for macroeconomic instability and political risk except, perhaps, at an unacceptable cost to the country. Indeed, some countries have discovered this to their cost.

This paper has been written in this overall context of the depleted ability of the state to invest in infrastructure and the problems in attracting private non-debt finance into this sector. It re-examines the issues and the options available to India and concludes that excessive reliance on private capital may well be misplaced, at least at the present stage of development of its financial markets and its macroeconomic imperatives. It argues further that because of market failure, as a result of which the forces of supply and demand do not lead to either socially or economically optimal outcomes, in the foreseeable future at least private finance in fixed infrastructure will play only a limited role. Therefore, it recommends that the state should resume its efforts in financing the bulk of investment in fixed infrastructure. This is because, as has been explained above, there is as yet no effective way of mitigating the risks in financing fixed infrastructure. Only the state is in a position to discount these risks by taking into consideration non-financial returns associated with the positive externalities that accrue to the economy as a whole from investment in infrastructure.

A word about the economic concept of market failure here seems appropriate. It is said to occur when market forces, (that is, the broad interplay of supply and demand) do not automatically lead to the results desired by the society. For instance, in spite of high existing returns for incumbents and high potential commercial

returns for new entrants in an industry, the desired level of private investment in such an industry may not take place. This frequently happens in infrastructure industries in India. Alternatively, even if such investment does take place, it may result in outcomes which yield sub-optimal social and economic returns. Fast-track power projects are a case in point. Market failure takes place for a variety of reasons but underlying all these are two common causes. One is the failure of prices in the given market to transmit the right signals so that distortions cause the wrong outcomes; and the other is the presence of unmitigated risk about which the market can hardly do anything. Politically-induced risk is a good example of this.

Usually, it is possible to correct market failures by appropriate policy regimes but, in the case of infrastructure, this may prove difficult because of an Indian peculiarity, namely, the manner in which community assets are customarily viewed in this country. There is a strong tradition here of not just viewing these as being available freely to all, but also of financing them via taxation or, what amounts to the same thing, through community effort. Combined with the compulsions of a popular, pluralist democracy, which tends to minimise inflationary impact on voters, this traditional view has led to infrastructure being viewed as public goods in India. That is, the mere fact that a person is unable to pay for an infrastructure service is not enough to prevent him from consuming it. It is for this reason that power is given away free to farmers in some states and subsidised to the tune of 90 per cent in some others. Likewise, no tolls are chargeable for roads (which are often used for purposes other than transport) and urban telephony is expected to subsidise rural telephony to an unacceptable level of 75 per cent. These instances can be multiplied as one looks at sectors like transport, irrigation, etc.

Of course, cross-subsidisation between product lines is not an Indian peculiarity. All large firms with multiple products indulge in varying degrees of intra-firm cross-subsidisation. But, in India, this aspect has been carried to absurd extremes because of the

presence of enormous public sector monopolies in infrastructure which, even though practising standard intra-firm cross-subsidisation of products – passenger fares with freight as in the case of the railways – have been unable to peg the differential to acceptable levels. In practical terms, this has tended to raise the cost of capital in the long run as investors allow for the possibility of revenue generation on only a portion, and not the whole, of the output. The public sector solution has been rampant cost-plus pricing. But private investors have also have to allow for unforeseen political risk, such as a sudden reversal in policy ignoring the principle of promissory estoppel which says that if one party has fulfilled its part of the contract, the other party must also adhere to its part of the contract. The Enron case in Maharashtra was an instance of this and no wonder foreign power firms, after that episode, immediately raised their price chargeable per unit of electricity.

It is possible, however, that in the short term the state will not be able to generate the order of resources required. So, dependence on private finance cannot be altogether avoided. There is, therefore, a need to develop private debt finance for infrastructure and to address the deficiencies in the Indian bond market by creating a truly long-term market for bonds which, at present, does not exist (The longest maturity paper in India is for ten years). Until such a market develops, the scope for private finance in infrastructure will remain severely constrained.

Anticipating the coming boom in the need for private finance, the financial services industry is growing rapidly. The government is allowing private Indian and foreign companies to enter this sector. Several Indian companies have tied up with foreign companies to provide financial services and more are looking for major tie-ups in mutual funds, merchant banking, leasing, factoring, consumer financing and commercial banking. India has, however, to organise its domestic and foreign capital urgently.

The internal dynamics of bond markets on the one hand and their interplay with infrastructure industries on the other have become important in this context. Typically, most infrastructure projects tend to be long-term projects with returns being projected over a period between 10 to 20 years. This requires financing over a long term, which is defined as anything over three years. Usually, infrastructure requires financing over 10 to 15 years. However, investors who buy long-term bonds in the first offering like to ensure that they would be able to exit from these bonds if the need arises. Others, meanwhile, should be able to enter the market if they wish to do so. This means that there must be trade in such bonds, that is, there must be buyers and sellers. In other words, there must be a market for such long-term bonds. Such a market does not exist in India at present and needs to be developed with the help of institutional investors, financial institutions and banks. The setting up of the Infrastructure Finance Development Corporation of India is a step in the right direction. But in the absence of truly long dated bonds and the deficiencies in the policy framework, it has not been able to achieve much. However, recent changes announced by the Reserve Bank of India allow banks to enter the market.

A related issue in this context is the tax treatment, especially of investment in transport. Although, of late, the government has decided to award tax concessions to investors in fixed transport infrastructure, it has refused to allow a similar facility to investors in moveable infrastructure. The distinction is not a self-evident one since the issue of whether or not a tax concession is warranted must also take into account the magnitude of the investment required in a moveable asset. It might be counterproductive, for instance, to treat a truck which costs about Rs. 20 lakhs and a railway wagon which costs over Rs. 30 lakhs, on par. Here, some flexibility is called for. The same reasoning is applicable to shipping as well. The Central Board of Direct Taxes should take a more flexible view, perhaps using the unit cost of acquisition as a criterion.

A related policy issue for consideration is that, given the magnitude of investments required in fixed infrastructure, whether

the government should not play the leading role by entering into joint ventures and promoting more ventures like the Infrastructure Finance Development Corporation and by relaxing the mandated investment norms for provident funds and insurance companies. This aspect needs further research and investigation.

Simultaneously, the government needs to undertake steps which would lead to significant reductions in risk perceptions among potential investors. This requires a stable macroeconomic environment in which all key variables, such as the fiscal deficit, the revenue deficit, inflation, the current account deficit, etc., are kept within manageable limits. It also requires a serious effort by the government at expenditure switching from consumption to investment. This is because up to three quarters of government expenditure is currently going for consumption in the form of payments towards past debts, subsidies, defence and wages of employees. This is neither sustainable nor conducive for the development of a stable macroeconomic environment in which risks are predictable. The need for a stable macroeconomic environment is especially urgent as India has begun to globalise its financial markets which means that its macroeconomics is under much greater scrutiny by international financiers.

The government also needs to review its policy of treating infrastructure services as public goods, inasmuch as it tends not to exclude those who cannot pay for these services. This also brings into sharp focus the problem of excessive cross-subsidisation between products, on the one hand, and groups of consumers, on the other, leading to perverse outcomes in the market. However, it may not be possible to rectify the situation as long as pricing decisions are taken by the government. It is necessary, therefore, to set up independent and autonomous tariff regulatory authorities whose recommendations will be binding on all market players. Without this, long-term private equity finance may not be forthcoming in the desired measure. The problem of cross-subsidisation needs to be tackled by fixing the maximum differentials as has recently been done by the Railways.

Keeping in mind the likely delays in the development of the above long-term options and the need to address the shortages immediately, there is also an imperative in the interim to develop the leasing market. Leasing can provide the required cushion during the period when a long-term market for infrastructure finance is being developed. Leasing is a neglected and unexplored option and, in keeping with international trends, needs to be developed more fully. The need for this is especially urgent in view of the continuing constraints of the capital market. Leasing being a wholly tax-driven business, India needs to modify its tax laws suitably and develop a better regime of contract enforcement which, at present, relies excessively on informal mechanisms.

The lessons to be drawn from the experience of the last nine years is that, in spite of a host of sweeteners, nothing much has happened by way of private investment in infrastructure. There have been exceptions, of course, like Enron in the area of power and a few kilometers of toll roads and some privatisation of minor ports. But, in the context of what is needed, these investments have been episodic rather than a continuous process which is what they ought to be.

The focus of policy, therefore, over the next decade, should be to facilitate this two-pronged approach to investment in infrastructure. Once the financial markets deepen and means to hedge risks are developed, the balance can be shifted towards a greater role for private investment in fixed infrastructure.

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The Role of Long-term Finance

A major requirement of financing an infrastructure project is the availability of sufficiently long-term debt arising out of industry practice of "matching maturities", which means, that long-term assets should be funded through long-term debt and short-term assets through short-term debt. This proposition arises out of the various capital market imperfections, such as taxes, agency costs, and asymmetry of information, all of which can lead to conflict of interests between shareholders and creditors. The overall idea of matching maturities and debt, therefore, is to reduce the scope for divergence in interests. Longer maturities have the important effect of reducing the risk that cash flows may fall short of required amounts to service debt obligations when such payments become due. In long-gestation projects, importance of this can hardly be overstated. In the particular case of project financing, where loans have to be paid from a project's cash flows, and where creditors have no or limited recourse to the assets of the sponsoring company, loan maturity plays an important role in ensuring project financiability.

Most private infrastructure projects in developing countries are financed with a sizeable amount of foreign capital. A typical financing mix consists of 20-40 per cent equity provided by the promoters and the rest raised in the form of debt in a combination of syndicated commercial bank loans, bond issues, bridge and backup facilities and multilateral and export credit agency loans and guarantees. Within the debt category, bank loans, principally in the form of floating rate loans priced for a particular benchmark, such as the US treasuries or LIBOR, account for the bulk of debt financing. Thus, in 1998, about 80 per cent of total cross-border

infrastructure finance was in the form of bank loans and 20 per cent in the form of bonds and equity capital.

The underdeveloped state of local bond markets in emerging market economies – and India is no exception – has been an important motivating factor behind the recourse to international financial markets for infrastructure finance. Compared to the size of local equity markets, debt markets are much smaller, less liquid, and have a narrower investment base. The bulk of trade and transactions centre on government papers and corporate issues tend to be of short maturity, usually five to seven years. Historically, the development of local bond markets and infrastructure have reinforced each other – for instance, in the US, the need to finance railroads and canals in the 19th century helped create the US debt market. With the entry of foreign institutional investors and liberalisation of domestic interest rates, debt markets in most Asian and Latin American countries have witnessed considerable growth in recent years. The 1997 estimates put the total size of Asian local markets at about $ 450 billion compared to $ 7000 billion in the US and $ 400 billion in the UK.

By its very nature, the creation of infrastructure requires lumpy investments and, therefore, long-term finance. The world over, several sources are used to build infrastructure, such as allocations from the government budget, the creation of an earmarked fund through levies of specific user taxes, the raising of resources from multilateral and commercial banks and, finally, private sector participation.

In India, we have so far primarily used the first source and, although multilateral sources like the World Bank have been tapped in certain cases, no separate user-taxes or levies have been imposed for developing infrastructure. In recent times, however, policy-makers have realised that, given the size of the funds needed, multiple and, in fact, all feasible sources of funds will need to be tapped for meeting the huge requirements of the infrastructure

industries. It is in this context that private sector participation in financing infrastructure development has assumed importance.

But involving the private sector is not very easy, as even a cursory examination of the key issues in private financing shows. For example, the fundamental issue of risks is yet to be addressed satisfactorily in India. Such risks can arise from various factors, important among them being demand projections which can be widely off the mark, the contract structure which is too simple, and legal and financial covenants which are hard to enforce. But even after these issues are tackled to market satisfaction, the fact remains that central to the private financing of infrastructure is the availability of non-recourse finance which, in turn, is contingent on the following pre-conditions : (i) a predictable revenue stream; (ii) a special purpose company to insulate the project; and (iii) a clear allocation of risk. In addition, in developing countries, there are other key issues which include : (i) revenue risk; (ii) the maturity of the debt; (iii) foreign exchange mitigation; and (iv) the availability of equity.

In developed financial markets, non-recourse debt, which used to be available for 10-15 year terms, is now available for 25-28 years; the period is even longer in the bond market. In contrast, in developing markets, like that of India, debt tenors are typically 5-10 years. This is the single major problem of attracting infrastructure finance in India. During the last decade, little headway has been made towards solving it, largely because of inadequate financial sector liberalisation and persistent macroeconomic uncertainties.

This is cause for concern because it suggests that the policy-establishment has still not become fully conversant with the critical importance of a long-term money market. This seems to be the case even though the recent research has established that firms grow faster and are more productive when more long-term finance is available to them. There is overwhelming evidence that firms in developing countries tend to suffer from a shortage of long-term credit. This shortage affects their investment, productivity, and

growth. It is also important to note that, using both cross-country empirical analysis and country case studies, researchers have found that developing country firms use significantly less long-term debt than their industrial country counterparts and, as such, their needs are not wholly unsurmountable. They have found the difference in debt composition of industrial and developing countries in terms of firm characteristics, macro factors, and, most important, government subsidies, the country's level of financial development, and legal and institutional factors. The conclusion is clear : more long-term finance is generally associated with higher productivity.

In India, however, we have tended to ignore the findings of this research, although it was in view of this that the term finance institutions like the Industrial Development Bank of India (IDBI), Industrial Credit and Investment Corporation of India (ICICI) and the Industrial Finance Corporation of India (IFCI) had been set up in the 1960s. Their objective was to provide much-needed long-term finance to the private sector. Indeed, this was partly the reason why Life Insurance Corporation (LIC) was nationalised in 1955. But it is interesting to note that, after 1967, LIC refused to take major exposures in infrastructure projects. The reason was the anticipation of persistent macroeconomic instability. Its fears, as the record since 1970 shows, have not been exaggerated.

Research has also proved beyond doubt that, in the long run, government subsidies do not produce the same effects as the simple and straightforward market-obtained long-term finance, as subsidies tend to encourage promoters to take higher-than-acceptable risks. In fact, in some cases, subsidies have been found to be associated with reduced productivity and growth. This has certainly been true of several public sector firms in India. Of late, it has been found to be true of some private sector firms as well.

Cross-country analysis of firm-level data also indicates that when there is an active stock market and creditors and debtors are better able to enter into long-term contracts, firms seem to be able

to grow faster than they do by relying only on internal resources and short-term credit. Another important finding is that while government subsidies around the world have increased firms' long-term indebtedness, there is no evidence connecting these subsidies with the firms' ability to grow faster. Indeed, in some cases, subsidies have been associated with lower productivity.

But these studies do not resolve the problem of risk in developing countries and the issue of government spending on risk reduction needs to be examined in an overall context. It could, in certain circumstances, improve welfare in developing economies, either by alleviating the risk of market failure – which is fairly common – or by reducing uncertainty in otherwise distorted markets, which is again very common.

It is also a fact that, as governments grow richer, the share of their GDP devoted to public spending rises. Thus, public spending in the United States which was 7.5 per cent of GDP in 1913, is 33 per cent at present. Significantly, although industrial countries spend twice as much as developing countries, the proportion of government spending on goods and services is the same in both groups of countries. The difference is almost entirely due to transfer payments, which are about 22 per cent of GDP in the industrial world. In India, if subsidies are excluded, they amount to less than 3 per cent of GDP. The point to note here is that most of these transfer payments – pensions, health insurance, unemployment insurance, guaranteed loans – are aimed at mitigating risk in the private sector. Clearly, there is a lesson to be drawn from this : that there is a case for incorporating risk reduction into government spending, if doing so meets standard welfare economics criteria.

Any study of long-term finance for infrastructure in India needs to keep these factors in view, especially since, traditionally, such finance has been provided mainly by publicly-owned term lending financial institutions whose perception of risk has been minimised by the implicit guarantees by the state. There has been almost no

private sector finance, except in the case of moveable assets, e.g. trucks, ships, aircrafts, etc. Where fixed infrastructure is concerned, the financing has been entirely from public sources. It is this structure of financing which the government now wishes to alter by inviting private financing of infrastructure.

The first steps towards this were taken by amendments to the tax regime for long-term finance in the belief that without clear tax benefits such long-term finance would not be forthcoming in adequate measure. Under Section 10 (23) G of Income Tax Act, it was stipulated that gross interest will be exempt from taxes. This, for a very brief period of time, increased the amount of infrastructure finance directly provided through the bond market. However, the success was short-lived and since then the market has reverted to an environment in which the bulk of infrastructure finance (95 per cent) is provided through loans by banks and financial institutions. Loans provided by the commercial banks tend to be for a 14 year final maturity, often with 4 or 5 years' grace, invariably on a floating rate basis.

It is also worth noting that although commercial banks have been allowed to lend for infrastructure since 1992, they have to date done so only when accompanied by a financial institution. Foreign banks have not become players in the rupee lending market as, partly due to the government restriction placed on their ability to open branches, they do not have access to competitive rupee funding. This is part of the lacklustre financial sector reform mentioned earlier.

But not all lending is floating rate lending. Fixed rate funding is indeed available from the financial institutions. But given their wariness, if not their strange systems of audit, it is always accompanied by some sort of interest reset mechanism. This, in effect, makes it a floating rate loan and, therefore, not of much use in the context of long-term finance. Like the financial institutions,

LIC and GIC also participate in bank syndicates. UTI also used to do so but now participates only through bond investment. After the US 64 shock of 1998, even that is likely to cease.

The Indian market suffers from another infirmity. There is an excessive fragmentation of borrowers and investors from the point of view of regulation. This has led to high transaction costs and it represents a major challenge to cost- effectiveness. Removing one or two of the more constraining regulations is not going to serve the purpose and, as a matter of fact, piecemeal deregulation is often counter-productive for the free movement of capital. This has been seen to happen in several cases. The extraordinarily complex framework of government intervention has also tended to deter the participation of overseas investors who are usually unable to appreciate the logic of most Indian regulations.

There is also fragmentation within the tax system. This compounds the transaction barriers facing the would-be participants in the financial markets. It is worth noting in this context that the government-sponsored financial intermediaries, which currently benefit from the budget allocation system, see the solution to the paucity of finance available for infrastructure in greater government participation and more regulation. They advocate the issue of long-dated domestic bonds; the provision of lines of credit to finance inventory for market-makers; the specific allocation of contractual savings institutions to infrastructure investment; greater tax exemption for lenders or for equity investors in infrastructure projects. It will take a long time for this mindset to change.

There is strong evidence to suggest that the recent growth in the debt markets has been due to the increased investment activity of banks. This is not surprising as it presents an interesting parallel to the development of the European fixed income markets during the 1970s and 1980s, whereby savings bank involvement in the wholesale markets preceded the widespread establishment of investment funds.

Sources of Long-term Finance

At present, long-term finance in India is available through (i) government borrowing; (ii) provident funds; and (iii) insurance companies and Unit Trust of India.

Government Borrowing

The government sells bonds and bills through a group of primary dealers, all of whom are controlled by government-owned financial entities (Securities Trading Corporation, DFHI, GSTC, State Bank of India (SBI) Gilts, I-Sec, Punjab National Bank). In addition, the RBI has appointed a group of satellite dealers who have a role similar to that of primary dealers, but are not expected to always bid for government security auctions. Any Indian domiciled entity can bid for bonds or bills sold at periodic auctions conducted by the RBI. The schedule of auctions and amounts to be sold is not pre-announced, nor are the amounts to be sold irrevocably fixed prior to auction. Bills are sold both through a Dutch Auction process (whereby all participants purchase securities at the same yield) and on a French Auction basis (under which successful bidders are awarded securities at the price at which they bid).

Bonds are also underwritten by the group of primary dealers and a group of satellite dealers. The amount which is underwritten is revised from time to time by the RBI. At present, 60 per cent of the bond auctions are underwritten. The underwriters work for an underwriting commission which is itself determined through a Dutch Auction process. A commission level is set at which the full amount that the RBI wishes to be underwritten is covered. The RBI also retains the right to sell less bonds than the amount announced. The RBI also maintains its right to arbitrarily determine rates at which securities are sold as being necessary due to the thin nature of the Indian securities market. But the practice whereby securities are awarded to underwriters at a price determined by the RBI taking up securities is used only as a last resort.

At present, the RBI announces the cut-off rate, the weighted average of accepted bids and the amount of bids received. It does not publish the tail (the yield margin between the highest and the lowest accepted yield). The RBI seldom actively participates in the market i.e. it does not directly take up paper, but its ability to frequently determine the amounts taken up by underwriters and award paper at off-market prices on the occasions it chooses, has a great bearing on the behaviour of market participants. These practices tend to deter overseas investors, who perceive themselves to be at an information disadvantage. Unless these practices are modified, it is likely that the overseas investors will stay away from the Indian debt capital markets (public or private). This is very important but, has not been fully realised as yet by those advocating the long-term bond market route for financing infrastructure.

As far as Repo transactions are concerned, only banks and primary and satellite dealers are allowed to carry them out. All financial market participants are allowed to invest in these Repos (i.e. carry out "Reverse Repo" whereby they buy the securities from the dealer and sell them back at a future date). Non-financial market participants are not allowed to invest in Repo. Banks and primary dealers are allowed to both carry out Repos and invest in the Repos of other banks or primary dealers. At the time a Repo transaction is entered, both parties enter only the first part of the trade to the RBI settlement system, but mark the trade as being "Repo". The second leg of the Repo trade is entered only at maturity. But short-selling of a security is not permitted, while traders could in practice sell a security they do not own and then carry out a Reverse Repo to borrow this security from a bank or primary dealer. This practice would not technically be allowed by the RBI (It is interesting to note that the securities scam of the early 1990s had its roots in this practice).

Repo transactions are not permitted in anything other than central government securities. But it is fairly obvious that in order to promote the development of a liquid secondary market in fixed

income securities and the establishment of market determined interest rates, it is desirable that Repo and Reverse Repo should be allowed in the case of all market participants (although the right to trade with the RBI can be restricted as desired by the RBI). In course of time, perhaps, short sales of securities could also be allowed, but with a clear warning that actual delivery is carried out and that the short-seller obtains the securities to be delivered through Reverse Repo.

There is also a need to develop a reference rate, such as the London Interbank Offered Rate (LIBOR) for the Indian market. Such an index would facilitate the provision of longer dated floating rate instruments (essentially, at present, borrowings are indexed to the prime lending rate, which can be determined arbitrarily by the lending institution). Also, it is maintained that a well-founded short-term market will assist in the formation of a long-term credit market. The RBI has been working towards this end, but if the experience of the rest of the world is anything to go by, it will take a long time, perhaps as long as a decade, before a credible reference rate comes into existence. Towards the creation of a reference rate, the first step ought to be the removal of impediments to the natural development of a free market in short-term money. But, for this, there has to develop genuine competition among banks which replaces the current uniformity of the public sector ethos that pervades commercial banking in India.

It is, perhaps, demonstrative of the extremely limited scale of the market that debt issues are not sold through a sales force working out of a dealing room, but rather by corporate finance staff. There is no expectation on the part of the investment bank or the investor that the dealer will make any commitment to repurchase the securities from the investor at any future date.

Another issue is transparency in the bond markets which would benefit from a comprehensive on-line compendium of public and private issue terms and conditions as exist in developed markets.

In loosely regulated markets such as the Eurobond market, the role of stock exchange listing requirement is for the purpose of disclosure rather than trading. This should become a requirement for private placements in India as well. It is particularly important for infrastructure projects which are ill-suited for the weak disclosure and lack of transparency of the private placement markets due to their complexity and the tendency for the political interests to become involved.

Provident Funds

Another potential supplier of long-term funds are provident funds. They represent one of the key components of the contractual savings system in India. Provident funds cover 20 million subscribers but still reach only 6% of the age group between 20 and 59 years. This is partly because contribution to provident fund is only required in the case of companies with more than 20 employees. Policy reforms in this sector are essential and they need to include allowing provident funds to buy highly rated corporate debentures (including project finance entities), and to allow investment in equities and physical assets (e.g. real estate). As regards major government-sponsored provident funds, there are around 7,000 to 8,000 such funds of which only 1,000 are of a sufficient size to play a meaningful role in the new issue market (i.e. buy more than 25 lakh shares of an individual issue).

The two largest provident funds are (i) the EPF, which has been administered by the State Bank of India for the last 7 years (previously it was administered by the RBI) and encompasses all provident fund participants who do not belong to an individual corporate or PSU fund (it also includes funds whose management has been assumed because they have gone into default or failed to meet performance criteria); and (ii) the Coal Workers Provident Fund, which is administered by the Bank of India.

Government employees (including railway and postal workers) do not belong to contributory provident funds but

participate in an unfunded, pay-as-you-go pension scheme with defined benefits. State government employees participate in the so-called state provident funds, but these are actually also unfunded pension schemes. However, state undertakings, such as State Electricity Boards (SEBs) do have their own provident funds with investments.

Under the current system, provident funds are required to allocate new money to the following classes of assets:

- Minimum of 20 per cent to PSUs and PSEs (including State Banks)
- Minimum of 20 per cent in State or Central Government Guaranteed Issues
- Minimum of 40 per cent to Gilts and State debt sold by RBI
- The remaining 20 per cent can be allocated to any of the above.

Within these guidelines, the trustees also have influence on the investment operations of the provident funds they oversee (in the case of EPF, for example, the administrators are allowed to purchase only 'AAA'-rated securities; however, the administrators report that the greatest amount of interface they have with the trustees is in connection with their interest in seeing fees and expenses reduced). Provident funds were authorised to purchase central government bonds only in 1997. It is well-known that the trustees are extremely conservative in their approach to the provident funds focusing upon meeting the government-required yield.

All income generated from a given class of assets has to be returned to investments in that class. This is of particular importance as, till 1989, 85% of all investments were to be held in the (unfunded) Special Deposit Scheme administered for the government by the RBI. From 1989 to 1996, 20% of all new money was placed into

this deposit scheme. The government sets an arbitrary rate of return on these deposits (at present 12%, the same rate of return which the provident funds themselves must provide, thereby allowing nothing for operating expenses). On an ongoing basis, the provident funds must return the income earned on these "deposits" to the scheme.

If the operations of the EPF are representative, it would appear that the provident funds are to a large extent devoid of any active asset management (it is understood that the provident funds for state enterprises are even less effective). This is reflected in the concentration of EPF purchases in securities of 5 to 7 years. The EPF largely holds investments to maturity (creating a portfolio, excluding special deposits, with an average life presumably of 3 or 4 years). The rationale for this short maturity is that provident fund participants are generally required to withdraw their funds when they change employment and are also entitled to make withdrawals for certain uses (such as a daughter's marriage). The provident funds are prohibited from selling securities except to meet a cash shortfall (i.e. they cannot trade or take profits).

With the rate at which the number of contributing participants is increasing due to population growth, it is not clear whether this investment profile is optimal. This restriction on tenor, if common among provident funds, effectively precludes them from making any useful contribution to the mobilization of resources for infrastructure finance. It should also not be overlooked that the total preclusion of provident fund investment from corporate bonds is itself a material obstacle to infrastructure finance.

Insurance Companies and Unit Trust of India (UTI)

One of the largest providers of long-term funds is the Life Insurance Corporation (LIC). Being a government monopoly, it enjoys a position as the largest single investor in the Indian capital markets. The current size of the LIC investment portfolio is in the

region of Rs. one lakh crore (i.e. around $26 billion). LIC also participates directly in bank lending syndicates, although not as an arranger. It is quite unusual for a life company in that it does not hold any long-dated fixed income investments, although it has often expressed its willingness to buy such instruments should they be offered. Possibly, its monopolistic position has allowed a lax stance towards investment opportunities. This is also reflected in its lack of investment in infrastructure.

At present, LIC is required to commit 75% of its investments to socially desirable ends, although there are recommendations to reduce this to 50%. The "social" sector includes central and state government obligations, State Electricity Boards (although LIC has suffered a few defaults from this sector), State Water Boards, transport at the state level (ports, airports, roads), telecommunications and housing. Of the 75% directed lending, 2/3rd portion goes directly to the state and central government bonds (LIC typically buys more than 10% of every government bonds auction and provides bids for substantially more). LIC is not currently allowed to invest abroad.

About 10-12% of annual accretions go to infrastructure projects, including housing, primarily through loans. The 25% of accretions which are not dedicated to socially desirable investments are split between corporate bonds (including tier 3 capital issues by Indian banks), property development (as owner), and policyholder loans and equities (which make up about 6% of the portfolio). LIC can buy municipal bonds and holds Ahmedabad issue worth around Rs. 10 crore. According to internal guidelines, which can be overruled, LIC can buy up to 100% of a debt issue up to Rs. 50 crore and 20% of any additional amount over and above this figure. It typically buys debt issues to hold to maturity due to lack of secondary market liquidity (and absence of alternative investments). Its investment department has 60 offices and makes about 800 equity transactions a month (purchases and sales) and 100 other investments (excluding government bonds).

All the insurance policies issued by LIC are guaranteed by the government and the government receives 5% of the surplus generated from these operations. Only the surplus is subject to taxation (so, actually, the policies are tax exempt). LIC offers pension as well as life products, including annuities. It has indicated that it welcomes competition in the life insurance sector, given that this would require the Insurance Regulatory Committee to issue investment guidelines for the sector.

The General Insurance Corporation (GIC), which is also a government monopoly providing insurance products for non- life lines, is a holding company for the four government-owned general (property and casualty) insurance companies in India. It also acts as a reinsurance company for its subsidiaries, as well as is carrying on a vestigial aviation insurance business to meet regulatory requirements. The subsidiaries are National Insurance, headquartered in Calcutta and focusing on East India, United Insurance, based in Chennai and covering South India, New India Insurance based in Mumbai for West India and Oriental Insurance operating from Delhi and concentrating on North India. In addition to their own "home" markets, each of these companies offers national coverage. For this reason, it is frequently suggested that GIC should be split up into its component parts.

It may be noted that GIC makes an operating loss on its insurance business, but offsets this with a substantial profit from its investment activities. On a global basis, this is not so unusual, but is perhaps remarkable against the general investment performance of government undertakings in our country. GIC has an investment portfolio with a book value of Rs. 16,500 crore which produces an annual income of Rs. 1,750 crore. It invests Rs. 600 crore per annum in infrastructure (basically in power). The investment portfolio increases by around Rs. 2,500 crore a year. Till recently, GIC was required to put 70% of its investment into mandatory, socially desirable, investments. This requirement has now been reduced to 45% – 20% in central government securities, 10% in state

government securities and 15% in housing. The balance 55% goes to equities (Rs. 23,00 crore), loans, bonds and bank deposits (Rs. 1,500 crore). GIC also has a limited holding overseas against its foreign currency policy risk. Perhaps the most interesting aspect of this is that the equity portfolio actually has a market value of over Rs. 11,000 crore, so that rather than representing 55% of the portfolio, the 'market' segment actually represents close to 75% and even when nominally constrained at 30%, has already actually exceeded 50%.

In countries with active competition for general insurance business and stagnant populations, it would be difficult to imagine that an insurance company could dedicate such a large portion of its investment to uncertain and illiquid investments, such as equities and infrastructure loans, or to have such a large investment portfolio relative to annual premium income (more than three times). Amongst the financial institutions, GIC has stood out for the extent to which it has factored in the expectation that a growing population and economy, without competition, must inevitably lead to a secular growth in premium income. This, in turn, implies a natural liquidity in operation allowing for a less liquid, longer term investment portfolio with higher yields (in fact, it might be said that GIC has a portfolio typical of a life company and LIC that of a general insurer).

There is then the Unit Trust of India which with a corpus of around Rs. 50,000 crore is another major player in the capital market. It manages some 75 funds (including some funds for overseas investors) with total investments having a book value of around Rs. 60,000 crore (market value of Rs. 75,000 crore) made up entirely of tradable securities (UTI used to make loans but has desisted in the face of SEBI regulations). Its investment portfolio is split : 10% in government debt and money market instruments; 45% in other fixed income; and 45% in equities. UTI is the largest single investor in corporate debt, typically with a maturity at purchase of three to seven years and an average of 5 to 5½ years. UTI does buy 10-year debt, but only of 'AAA'-rated entities. The

maturity profile is determined by the finite life of a large number of funds. UTI no longer invests directly in loans. It would like to be able to offer pension products on the same tax-advantaged basis as the provident funds and LIC. While individuals may direct Rs. 70,000 per year to contractual savings under Section 88 (Rs. 10,000 solely for infrastructure investments), these contributions receive a tax credit of only 20%.

It is evident from the foregoing brief description of the money market and its practices that the market for infrastructure finance in India is an extremely limited one with too few providers of long-term finance. There is clearly a need to expand the sources of supply. In recognition of this, the government has recently allowed the larger banks to enter the long-term infrastructure finance business. However, this may not be a very sensible idea on account of the possibility of asset-liability mismatches as also an element of Soviet-type target-driven lending.

Discussions on the subject often tend to overlook – sometimes deliberately – a critical issue in the development of long-term finance. This is the issue of risk which, as long as the government stands guarantee, can indeed be given a subsidiary position in policy formulation. However, in recent times, not only has the government refused to stand guarantee – Cogentrix excepted - there have also been a spate of defaults by public sector firms which had borrowed, in the first place, on the implicit assumption of a government guarantee.

This system has now almost completely broken down with the result that not only has the risk in new ventures increased, even the old ones have become more risky. An investor has simply no way of foretelling the rate of return on investments even on fixed coupon bonds. Overall, therefore, for a host of well-known reasons, the risk in the Indian market is higher than it was five years ago. Little attention has been paid to this aspect and a separate study needs to be undertaken to assess the sources of risk and their impact on long-term investments.

The main policy issue, therefore, is how to mitigate risk in the interest of developing a long-term debt market in India designed specifically for financing long-gestation infrastructure projects. This is not an easy task and certainly not one which can be undertaken via the issue of top-to-bottom diktats.

In this context, it is worth bearing in mind that in the developed countries of the West, such a market took well over three quarters of a century to develop and mature and further that it was only in the 1970s that it assumed the present form. The reason is similar to the one that now obtains in developing countries in general and India in particular i.e. unstable macroeconomic variables that enhance risk perception.

India is, thus, still a long way off from developing a proper long-term debt market. This distance cannot be covered in less than about two decades for the reason that a necessary, though not a sufficient, condition for the coming into being of a proper long-term debt market is macroeconomic stability. Without such stability, long-term funds will not be forthcoming in the measure required from the private sector and, perhaps, not even from the public sector banks and financial institutions, which have hitherto been buying what passes for long-term debt in India.

The starting point of a drive for macroeconomic stability aimed specifically at generating long-term funds has to be a mitigation in risk perception caused by excessive volatility in public finances. This is critical to the success of the venture. The paradox in India, however, is that although its macroeconomic variables have been stable, the stability has failed to generate the confidence that is essential for the development of a long-term debt market. This has partly been due to the government not even attempting to develop such a market. It has also been due to inherent sociology of the infrastructure business in India.

This is not the place to describe in detail the sociological aspect. But a brief discussion is, nevertheless, necessary in order to

enhance the understanding of the issues involved, as it will put in perspective the difficulties in developing a long-term debt market in a short time. As pointed out earlier, even in the West, it took almost 75 years for such a market to develop and mature.

Central to the issue of financing infrastructure in India is the need to understand the way in which public goods are viewed here. This view needs to undergo fundamental change because in the traditional view of communitarian property – some of which we call infrastructure today – the creation and upkeep of common assets, that is, those assets which are for the use of the community as a whole, have to be financed through taxation, not through user-charges. A further complication has been added by the competitive populism inherent in pluralist democracies, i.e. many of the services provided by infrastructure businesses have taken on the characteristics of public goods, inasmuch as people cannot be prevented from consuming these goods and services merely because they are unable to pay for them. This is especially true of those goods and services whose increased consumption is critical to rural India's economic well-being.

The public provision of such goods, albeit at a relatively low quality, allows the low income people to consume the good for free. There is inherent in this a redistributive element which, while being desirable socially, may not always lead to best economic outcomes. At the same time, individuals with higher incomes prefer to consume a higher quality of this good produced in the private sector, which explains why there is an increasing demand for privatisation and competition from private firms. But, whatever the method adopted, the problem of financing the publicly provided good remains unsolved.

This has become abundantly clear in India where electricity is given away free or almost free, as is water given for irrigation. Rail travel is made so cheap that it is a close to being provided free. And bold would be the government that would propose tolls for all road

users. Tolls, where they exist today, are paid only by commercial vehicles and the situation does not seem to be changing. As the experience of the railways shows, the extent of free travel has increased from about 1 per cent two decades ago to about 20 per cent now. The government, however, does not seem to be too concerned about this development.

In these circumstances, which are unlikely to change, it would probably be unrealistic to expect a significant flow of private capital into infrastructure. The flow will not, of course, be zero. But it would be very surprising if it amounted to much in the absence of cast-iron risk guarantees. Such guarantees may not, however, be forthcoming (except in exceptional circumstances), as they are possibly the worst method of risk mitigation.

Issues in the Indian Context

In 1991, India launched an ambitious programme of economic reforms. These reforms were predicated on the need to reduce the state's direct role in the drive towards industrialisation by allowing greater participation to the private sector. Soon after the reforms were initiated, it became clear that in the case of infrastructure there would have to be a major overhaul of the entire policy regime. It was felt that without such an overhaul, private investment, whether Indian or foreign, would be hard to attract. The existing legal and institutional arrangements were designed with public monopolies in mind and, as such, could ill-serve the needs of private risk capital operating in a competitive environment. The task, therefore, was to create an entirely new system of incentives, risk-and-profit sharing.

It is in this context that certain aspects of long-term infrastructure funding which are relevant to the design and implementation of infrastructure financing in India become critically important. The same holds for the debt and equity funds which provide long-term capital to private entities.

The role of the private sector has also to be seen in the backdrop of the factual position that financing from the financial institutions is slow and halting. Infrastructure projects are typically long-gestation projects with the first pay-off usually beginning in the seventh year or so. Often, it takes as long as 12 years for a project to start turning profits. This enhances risk perception, as a result of which, in spite of government underwriting, long-term finance is slow to come forward. The most preferred method in India has been for the Reserve Bank of India to pressurise public sector commercial banks to buy the government's long-term paper (which at present is only of 10-year maturity).

In the absence of a properly developed long-term bond market in the country, capital markets cannot be relied upon to finance infrastructure projects. Meanwhile, commercial banks, which have funded so much of the infrastructure in East Asia and China, rightly take the view that their first duty is towards providing working capital for industry. This makes bank finance difficult to obtain for long-gestation projects. Infrastructure industries the world over face similar difficulties when they try to access traditional bank loans. Banks usually ask their potential clients for credit histories, adequate assets or collateral and a solid capital base which they cannot always provide. As such, it would be prudent to rule out a major role for bank funding of infrastructure in India. International debt and equity capital has also been slow to come forward owing to competing demands from other developing countries in Asia, Eastern Europe and Africa.

To add to these demand side problems, there is the newly emerged supply side problem arising out of the difficulties that international financiers have faced in East Asia, Russia and Latin America. The supply of cheap finance is drying up and, thanks to the worsening fiscal situation in India, the risk element in the country has also increased particularly when major rating agencies in the West have brought down India's rating. Overall, therefore, the prospects for the flow of long-term foreign capital into infrastructure

have receded except possibly at an unacceptable cost. That is, if India wishes to attract substantial amounts of foreign capital into its infrastructure, it will have to provide very high rates of return. It is necessary to see if these will be affordable in a dynamic context.

Another significant issue that has a direct bearing on the flow of foreign capital into infrastructure relates to the continued efforts by the government to achieve developmental and redistributional objectives via the infrastructure route. This sort of 'loading' is especially true of rural infrastructure in the context of which the following questions arise: first, can the government still redistribute income between different income groups through the public provision of private goods; and second, what kind of redistribution policies are credible?

Project analysis through the cost-benefit method is one of the most widely used techniques in the world for setting out decision rules for the selection of one project or a combination of projects in a manner that resource allocation is optimal and efficient. Developmental projects have been guided largely by the exigencies of such analyses. Infrastructure projects aimed at poverty reduction in rural areas will, of course, have some conveniently measurable direct and tangible benefits but, in the main, the benefits which accrue from such projects are, more often than not, indirect and intangible. They create a large number of forward and backward linkages whose benefits cannot be directly or indirectly measured and quantified. Governments have to be mindful of these but the risks and costs have to be borne by someone. Usually, the question is : who – shareholders, bondholders or taxpayers? This question is yet to be satisfactorily answered in India, but the general consensus, both amongst politicians and economists, seems to be that a certain amount of 'loading' is inevitable in the Indian context.

It was in this overall context that the *National Infrastructure Report – the Quiet Crisis* was released by the Asian Institute of Transport Development in 1998. One important conclusion of the

report is that the required annual investment in the infrastructure sectors is estimated to rise from the present $17 billion to $30 billion by 2001 and to $50 billion by 2005. To meet such large long-term financing requirements, an active bond market needs to be developed by involving pension and insurance funds. The report had also suggested the development of an appropriate institutional and legal framework for the private sector, and the setting up of an independent regulatory authority for each infrastructure sector. The government has already taken steps to implement some of its recommendations. Certain fiscal incentives that were available to the manufacturing sector have been extended to the infrastructure sector, and FIIs are now allowed to invest in government securities. Apart from these reforms, control of the fiscal deficit and opening up of the insurance sector are critically important steps for mobilising the resources required for infrastructure development.

3

INTERNATIONAL TRENDS

In developing countries, expenditure on infrastructure has been around $200 billion per year during the 1990s. Much of this has been financed by international capital flows (see table below for total international flows into developing countries).

Net Long-term Resource Flows to Developing Countries, 1990-98

(Billions of US dollars)

	1990	1991	1992	1993	1994	1995	1996	1997	1998*
Net long-term resource flows	100.8	123.1	152.3	220.2	223.6	254.9	308.1	338.1	275.0
Official flows	56.9	62.6	54.0	53.3	45.5	53.4	32.2	39.1	47.9
Private flows	43.9	60.5	98.3	167.0	178.1	20.5	275.9	299.0	227.1
From international capital markets	19.4	26.2	52.2	100.0	89.6	96.1	149.5	135.5	72.1
Private debt flows	15.7	18.6	38.1	49.0	54.4	60.0	100.3	5.3	58.0
Commercial Banks	3.2	4.8	16.3	3.3	13.9	32.4	43.7	60.1	25.1
Bonds	1.2	10.8	11.1	37.0	36.7	26.6	53.5	42.6	30.2
Others	11.4	3.0	10.7	8.6	3.7	1.0	3.0	2.6	2.7
Portfolio equity flows	3.7	7.6	14.1	51.0	35.2	36.1	49.2	30.2	14.1
Foreign direct investment	24.5	34.4	46.1	67.0	88.5	105.4	126.4	163.4	155.0

Note 1 : Net long-term resource flows are defined as net liability transactions of original maturity of greater than one year. Although the Republic of Korea is a high-income country, it is included in the developing country aggregate since it is a borrower from the World Bank.

Note 2 : Data on net long-term flows reflect liability transactions only (gross disbursements minus repayments). Capital outflows (such as net lending by developing country residents abroad), short-term flows, and net use of IMF

credit are not included. This results in a substantial difference between net long-term flows as shown in Global Development Finance and net external finance as shown in the balance of payments. Also, the data are available only on an annual basis, although data on certain components (for example, loan commitments and bond issues) are available at higher frequency. The quality of the most recent year estimates varies enormously by category" fairly accurate information is available from market sources on gross disbursements from bond markets and commercial banks; debt repayments are calculated from information on terms, although actual payments may vary; and data on portfolio equity flows are particularly difficult to estimate. While data on international equity issues are readily available, estimates of direct foreign purchases in developing country stock markets are based on report from exchanges that differ in accuracy and coverage.

Source : Global Development Finance, 1999.

Private investment has accounted for about 15 per cent of the total. Private sector participation has been through the privatisation of existing assets and through new investment –using mainly limited-recourse or non-recourse financing schemes, including build-operate-transfer (BOT) or build-operate-own (BOO) arrangements. These arrangements are financed mostly by the sponsors, buyers' credits, loans from export-import (EXIM) and commercial banks, and multilateral agencies. However, new methods of tapping financial markets are being developed, including the establishment of equity funds.

Local market finance has been limited in most developing countries and, as a result, significant funds are being sought from abroad in the form of direct and portfolio investments and bank loans. But in order to sustain private investment in infrastructure over time, development of local capital market will be necessary. To some extent, this is already taking place, but the growth has been slow compared to the requirement and, after the Asian crisis, it has fallen to almost zero. India has been an exception to the Asian contagion and its equity markets have remained unaffected. Nevertheless, its long-term bond market has not been growing at all.

The flow of international capital into infrastructure has to be seen in the context of a recent report by McKinsey that annual rates

of return on investments in industrial countries average 10 per cent for roads, 15 per cent for power, and 25 per cent for telecommunications. In contrast, returns on such investments in emerging markets are expected to average 30 per cent. Institutional investors, facing lower rates of return on investments in the mature power and telecommunications sectors of industrial countries, have been scouring emerging markets for higher returns.

To attract these institutional investors, a growing number of equity funds are providing them the opportunity to mitigate risk by investing in a portfolio of infrastructure entities in developing countries. Fund managers expect the infrastructure equity funds to yield more than 20 per cent annually from long-term capital gains. These funds will help to attract additional equity and debt capital flows to the developing countries and may also contribute to the development of local capital markets.

The growing number of equity funds channel equity, quasi-equity, and, in some cases, debt capital from institutional investors to power, telecommunications, and transport projects in Asia and Latin America. These funds allow investors, who otherwise might not invest in individual projects because of risks and costs associated with making efficiently sized investments in individual projects, to invest in diversified portfolios of infrastructure firms and projects. The funds also allow institutional investors to invest in the growth sectors of power and telecommunications in developing countries and to reap higher returns than those realised through comparable investments in industrial countries. In addition to providing capital, the funds mobilize debt for their portfolio investments from EXIM banks and multilateral and financial institutions.

However, for a variety of reasons, infrastructure finance does not seem to be a viable vehicle for attracting foreign capital to developing countries. First, exposure to currency risk is a critical feature of infrastructure project investment. Project revenues are often generated in local currencies, while servicing of foreign capital,

whether debt or equity, involves payment in foreign currency. Fluctuations in the exchange rate of the domestic currency, as well as capital controls limiting currency convertibility and transferability, pose a particularly difficult problem for foreign investors and financiers.

Second, infrastructure investments are typically upfront, with a high degree of asset-specificity and often risky revenue streams which stretch many years into the future. This leads investors to demand adequate contractual protection. Furthermore, once the investment is sunk, the incentive system and the reversal in the bargaining power of contracting parties leads to special contracting and risk-sharing problems, best exemplified by the dominant use of BOT and BOO arrangements in international infrastructure project finance transactions. A typical BOT structure is made up of a number of agreements set forth in the concession agreement concluded between the host government and the project company, formed often by a consortium of major international developers, contractors, equipment suppliers and engineering companies. The main objective of these agreements is to maintain the balance of power between the contracting parties.

Third, the scope for divesting equity holdings in infrastructure projects through Initial Public Offerings (IPOs) is limited in many developing countries. As a result, project promoters are locked in lumpy investments for several years.

Fourth, infrastructure investments are distinguished by the pattern according to which project risks are resolved over time. The combination of a high concentration of project risks in the early phase of the project lifecycle, i.e. the pre-completion phase, and relatively identifiable sources of risk once the project is completed, e.g. credit risk under off-take agreements in power projects or market risk in the case of telecommunication and toll road projects, attaches substantial value to early information. Thus, information about government's policies, strategies, and political stability, as well

as project parameters and benchmarks, such as tariff rates, prices, and cost of capital, acquire tremendous economic value. There is also a premium on name recognition and reputation in the field which explains why in the power sector, for example, large, well-known companies, such as Hopewell, Seimens, ABB and Enron dominate the market catered to by independent power producers.

Facing budgetary constraints and recognising their own inability to provide infrastructure services efficiently, governments in many developing countries have opened their infrastructure sectors to private investors. The stock of private foreign financing for infrastructure projects in developing countries grew from $0.1 billion in 1988 to $20.3 billion in 1996. In a large number of countries, the private sector is now involved in areas once considered the preserve of governments – such as power, gas, telecommunications, water, roads, railroads, ports, and airports.

To attract private investment in power generation, the governments of Pakistan and the Philippines have agreed to honour the obligations of their public utility companies to purchase power at a predetermined price regardless of demand. In Spain, when the highway network was being built in the 1960s and 1970s, the Spanish government guaranteed 75 per cent of the foreign loans and assumed full exchange rate risk – a measure that eventually cost the Spanish taxpayers $2.7 billion. In the recent El Cortijo-El Vino toll road project in Colombia, the Colombian government agreed to reimburse the concessionaire if traffic was less than 90 per cent of a specified level. It also guaranteed a minimum revenue when it awarded a BOT contract for a new runway at Bogotá's El Dorado airport.

The problem, however, is that such guarantees threaten to undermine the benefits of privatising infrastructure. If a government assumes the risk of project failure, private investors have little incentive to choose financially sound projects and to manage them efficiently. Guarantees may also impose excessive costs on the host

country's taxpayers or consumers. Since a government's guarantees are rarely reflected in its accounts or budgets, it may be willing to assume risks that should actually be borne by the private investors. In general, therefore, guarantees are not a sound way of attracting private investment in infrastructure.

In the final analysis, in the case of developing countries, reaping of full benefits of privatising infrastructure will depend on how risks are allocated. If governments assume risks that should be borne by the investors, they may reduce incentives for efficiency and incur significant liabilities. But, if they don't, the investment may not be forthcoming, as we have seen in India.

Nevertheless, it is possible to take steps to mitigate risk and improve the measurement and budgeting of guarantees. At worst, the issuance of guarantees could lead to a fiscal crisis by encouraging investors to take excessive risks. To encourage private investment in infrastructure without incurring liabilities that may jeopardize future budgets, governments should reduce project risks, while improving the way they measure and budget the guarantees that they have to provide. The problem, of course, is how.

It is not possible to work out a single formula because the method adopted has to vary from case to case. Overall, though, the most important ingredient is political commitment. It is in the absence of such commitment that governments are forced to guarantee projects because of shortcomings in actual or anticipated overall economic policies. Private investors are more willing to bear project risk without asking for guarantees in countries with strong and stable policies.

For example, stable macroeconomic policies reduce the likelihood of major changes in exchange and interest rates, thereby making it less necessary for governments to provide exchange rate guarantees or to discontinue currency convertibility or transferability. Similarly, the regular disclosure of timely and reliable

information on the state of the economy and government finances makes it easier for investors to forecast future revenues.

Foreign firms are less likely to insist on guarantees when investing in a country with a good regulatory framework, non-political regulatory agencies, and a strong and independent judiciary. Firms investing in the US, for example, do not seek government guarantees against opportunistic government behaviour because they are confident that the courts will protect them in the event of expropriation or unjust regulatory changes that could result in property losses. A firm that operates in a competitive environment or in one where tariff regulations are enforced by an independent regulatory agency is less likely to insist on guarantees regarding tariffs.

By the same token, by allowing recourse to international arbitration, countries can allay investors' fears of not being given justice by local courts that may not be independent. Developed countries have rarely to provide government guarantees for infrastructure projects. This is also the case with several developing countries that have introduced the necessary reforms. Thus, there is considerable private investment without government guarantees in Argentina's power industry, which has been restructured and privatised, as well as in Chile's telecommunications, power, and gas sectors. However, in many developing countries, private investment is unlikely to be forthcoming unless governments assume certain risks or provide subsidies.

This leads to the main question: when should governments agree to bear the risks of infrastructure projects and which risks should they assume? Are government guarantees preferable to budgetary subsidies? It may probably be fair to say that, other things being equal, risks should be allocated to agents who have the major influence or control over risky outcomes and who can bear the risks at the lowest cost (because they are the least risk averse, they can most easily insure or hedge against the risks, or can spread the risks among many people). Expropriation, currency inconvertibility and

non-transferability are directly under the government's control. So, it makes sense for the government to assume these risks. However, the assumption of regulatory risks – that is, the government promises not to change the laws and regulations affecting the investment project (or to compensate investors in the event that it does change them) – is more problematic. Although governments can control regulatory risks, it is sometimes desirable for them to change laws in ways that adversely affect investment projects. For example, it may be beneficial to increase taxes to fund needed public investment or to adopt regulations aimed at mitigating newly recognised environmental problems. Regulatory risks are probably best handled on a case-to-case basis, even though this could increase the risk of corruption.

In road, bridge, and tunnel projects, governments are often asked to bear the risks associated with construction costs and uncertainty about future demand for the services to be provided. The rationale for their doing so is, however, weak. The concessionaire usually has considerably more control over construction costs than the government. And, even though government policies can influence demand, assigning demand risk to the government reduces investors' incentives to screen projects carefully. But a government can reduce demand risk for certain kinds of infrastructure projects. Instead of auctioning off the right to operate the service for a fixed period of time, as is typical, it can allow the term of the operating concession to vary with demand.

The United Kingdom has used this method for operating bridges. An ingenious variant of this method is to award the concession to the bidder seeking the lowest present value of revenue, which can be calculated in advance using a discount rate specified by the government. Such a concession ends when the concessionaire's revenue reaches the specified present value. The concessionaire still bears some demand risk – if demand is too low, revenue may never reach the target value – but the risk is greatly reduced.

Because many infrastructure investments are funded by foreign currency-denominated loans made at floating interest rates, profits are highly sensitive to changes in exchange and interest rates. At first glance, it may appear that governments should assume the risks associated with these exposures because they have some control over exchange and interest rates, and, if they take on these risks, they will have an incentive to follow stable macroeconomic policies. There are a number of reasons, however, why investors should bear exchange and interest rate risks. Some of these are indicated below:

- Government guarantees may encourage investors to undertake large exposures to exchange and interest rate risks (as well as increase the tendency towards gold-plating of projects). Then, if a currency depreciates, they could blame the government for their losses instead of recognising the danger of excessive borrowing in foreign currencies.

- Exchange rate guarantees may have an adverse influence on government behaviour. For example, they might discourage a government from allowing a needed depreciation of the domestic currency following a terms of trade shock.

- Many governments – and the taxpayers who support them – may already be exposed to the risks associated with exchange and interest rate shocks. An adverse terms of trade shock, for example, might lead to both a currency depreciation and a decline in incomes, forcing the government to compensate investors just as its tax base is shrinking.

- In the absence of a government guarantee, the private sector might have more incentive to manage exchange rate risk. For example, in the case of Spain's road projects, investors could have hedged the risk for much less than the $2.7 billion the guarantee cost the Spanish taxpayers.

To take informed decisions about which risks it should assume, a government needs to consider how it can measure risks and incorporate them in its accounts and budgets; otherwise, the government may be courting financial disaster.

The simplest step that governments can take to improve the monitoring and management of risks is to compile and publish a list of their contingent liabilities and the maximum amounts they stand to lose. The New Zealand government presents this information in its statement of contingent liabilities published on the Internet. But it should be borne in mind that while helpful, the listing of guarantees and possible maximum losses does not indicate what losses a government should expect.

The following chapter, therefore, deals with alternative approaches to address the problem of financing infrastructure in India. It takes into account the above discussion which points out not only the technical problems of developing a long-term debt market in India but also the collective preference of the community, arising from tradition, that infrastructure assets are better financed by taxation rather than through economic user-charges. This has serious implications for the involvement of the private sector in infrastructure finance as also for the strategy to ensure such involvement.

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ALTERNATIVE APPROACHES

In our search for alternative approaches to address the problem of infrastructure financing, it would be helpful to briefly examine the East Asian financial crisis as it offers some important lessons. East Asia's financial crisis has been attributed in part to the weak performance and risky financial structures of Asian corporations. In the period before Asia's financial crisis, however, analysts were not suggesting that the financial structures of many East Asian corporations would be unable to withstand the combined shocks of increased interest rates, depreciated currencies, and large drops in domestic demand. But in actual practice, thanks to poor supervision and lax accounting standards, this is exactly what happened. The Koreans, for instance, did not take into account offshore private debt into account while compiling their short-term debt liabilities and were caught completely off-guard. It could be argued, of course, that as the Chinese have done, private offshore debt should not be converted into sovereign debt. But the success of that strategy depends on the level of foreign exchange reserves. If these are already low, countries may not run the risk of further jeopardising flows on the capital account. India falls into the latter category in spite of its currently comfortable reserves position.

Profitability – as measured by real return on assets (ROA) in local currency – was relatively low in Hong Kong, Japan, the Republic of Korea, and Singapore in the decade before the crisis. Corporations in Indonesia, Philippines, and Thailand averaged high returns – roughly double those in Germany and the United States for the same period. During 1994-96, measured performance declined somewhat in several East Asian countries, especially Japan and Korea. These differences in performance were not fully reflected

in sales growth, as investment rates were high and continued to drive output growth in all countries.

These facts suggest that the East Asian miracle was, indeed, based on a vibrant corporate sector. But the combination of high investment and relatively low profitability in some countries meant that much external financing was needed. Outside equity was used sparingly – partly because stock markets were depressed (Japan), or because insiders preferred to retain control – so borrowing was heavy in most East Asian countries and leverage increased in the years before 1996 in Korea, Malaysia and Thailand. Risk increased as short-term (foreign exchange) borrowing became increasingly important in the 1990s, especially in Malaysia, Taiwan (China), and Thailand. In other words, some of the vulnerabilities in corporate financial structures that were to become an important factor in East Asia's financial crisis already existed in the early 1990s, though they were not noted at that time.

Be that as it may, the chief lesson to be drawn from the East Asian experience is that unless the overall operations of the financial system meet the standards required of them, there will always be inherent risks which cannot be mitigated by accommodative government action. India, in spite of its safety record in these matters, is still far from devising and implementing systems of supervision and regulation which meet the standards required to build a thriving long-term debt market. That it will do so eventually is not in doubt. But not only the country does not have such a system at present, it will also take a long time to build and operate one successfully.

The corrective action indicated above has, however, to be taken urgently because, otherwise, it would be wrong to take large-scale private capital flows into long term debt instruments for granted. Indeed, such an assumption could lead to a slowing down of public investment without a compensating increase in private capital flows. This, in turn, could exacerbate the shortages

in the future as overall investment would tend to be below the required levels.

Keeping in view the above warning, it would be useful to realise that it is a mistake not to distinguish between the operations within each infrastructure business which require long-term finance and operations which don't. For example, in the case of railways, tracks require long-term finance, rolling stock doesn't; in the case of road transport, roads require long-term finance, trucks don't; and in the case of ports, harbours require long-term finance, ships don't. The same is the case with telecommunications and power where only transmission needs long-term finance.

This distinction is a crucial one because once it is made, the financing effort can be bifurcated between tax-or-cess driven funds and debt-cum-equity driven funds. The former would finance the fixed assets, while the latter would be used for the rest. Indeed, to the extent that most transport already follows this pattern, it is useful to study its financing practices and see what lessons emerge for the other businesses in the infrastructure industry.

The main lesson to be drawn from such a study is that there are certain activities from which the state cannot withdraw because markets simply don't work in their case. These activities pertain mainly to the investments which require long-term finance like the building of roads, ports, harbours, railway tracks, airports, telecommunication and power distribution networks. The distinction is not immediately obvious in the case of the last two sectors, but a little reflection would show that whereas transmission lines, whether for power or telecommunications, cannot be shifted without significant costs, generating stations and exchanges can be. Since the extent of market failure in these activities is very large and the market fails to deliver the best economic results, they have to remain the responsibility of the state. This has been the pattern the world over and there is no reason to think that India is an exception. If this distinction is accepted, it will become possible to devise a more practical policy regime for the infrastructure industries.

It is interesting to note a paradoxical outcome in this context, namely, that where the market for long-term finance for infrastructure in developing countries is concerned, the phenomenon known as "moral hazard" is not only inevitable but also preferable. Moral hazard is the phenomenon where, in the present context, the accountability of those taking the spending decisions would fall to almost zero, thus enabling them to execute even the most unviable or risky projects. This happens because the risks are such that only public funding is available over the long run and, by definition, public funding involves a high degree of moral hazard. The gauge conversion in the railways during the 1990s and the building of rural roads are the typical examples of this. The internal rates of return on these projects are so low that private finance would never countenance them. If they were to be executed, the financing would have to be public – as indeed it has all along been.

In fact, the revival of official capital flows, whether cross-border or within countries, has to be seen in this light. After a period of extraordinary growth during the 1990s, private capital flows, especially into infrastructure industries in the developing countries, has virtually dried up as a consequence of the financial crisis in East Asia, Russia and Brazil. The slack is slowly being taken up by the World Bank for cross-border flows and by governments for domestic flows. What this indicates is that, in the long run, in spite of the various problems such as moral hazard associated with public capital flows into long-gestation and socially-oriented developmental projects, such capital flows remain the only viable alternative. The critical policy issue is not whether or not but how to channelise such flows. It is in this context that the distinction made earlier between the investment in fixed assets and moveable assets becomes important.

Assuming that if the state provides the fixed assets, the market can be left to take care of the moveable ones, the obvious policy issue is of devising appropriate fiscal incentives to attract long-term debt funds. For instance, benefits under Section 36(1) (8) of the

Income Tax Act could be extended to banks categorising them among the 'eligible financial institutions'; definition of infrastructure facility in Section 80 (1A) (4A) could be expanded to cover all infrastructure sectors; and investment in the share capital of special purpose vehicles (SPVs) undertaking infrastructure projects could be made eligible for tax rebate.

In the context of infrastructure development, another option which has not been sufficiently explored is that of financial leasing. The importance of this option was discussed in a seminar organised by the Asian Institute of Transport Development. The main ideas for optimising the use of leasing for infrastructure development in the country thrown up at the seminar, were :

- To avert the financial crisis which overtook the southeast Asian countries recently, India should negotiate a portfolio of operating leases which are cancellable contracts and have a distinct advantage on a macro scale of operations.

- India could negotiate a standby credit for a substantial amount to meet any foreign exchange contingency by means of sale and leaseback commitments from international leasing companies against assets that are owned by major public sector units, such as Oil India, ONGC, etc.

- Indian leasing companies may buy assets and lease them to infrastructure projects. Thereafter, with the help of IFC and/or ADB the leasing company could securitise these assets and sell the related lease rental agreements in the category of sovereign debt at prime rates. Apart from financial institutions, the overseas Indian communities could also be motivated to buy these securitised assets at attractive rate of interest.

- As the government is not flush with funds, it will understandably be reluctant to monetise infrastructure

growth beyond certain acceptable levels. Large inflows of international capital cannot be expected because of the recent southeast Asian currency crisis. A possible way out is to arrange for IFC and/or ADB to provide guarantees that are dollar-denominated to support rupee borrowings in India by prominent leasing companies.

- With the opening up of the country's economy, India can experience a much better access to overseas markets through cross-border leases. The high tax incentives in some countries and the possibility of double or triple lease structures with equal benefits can be an ideal source of infrastructure funding.

5

CONCLUSIONS

1. It appears that India erred in pursuing a policy by which the state withdrew prematurely from infrastructure financing in the misplaced hope that the private sector would take up the slack, as the conditions for that to happen in a significant way do not yet exist in the country. This suggests that until such conditions are created, India will have to rely largely on state financing for the development of infrastructure. These conditions consist, mainly, of creating a stable macroeconomic environment and a market for long-dated securities and bonds.

2. The capacity of the state to sustain high levels of infrastructure development has been somewhat eroded due to enormous skews in expenditure patterns. The deceleration of public investment in infrastructure started as far back as 1985 and reached its nadir in the eighth five-year plan. The facile explanation that the slowing down of expenditure would be compensated by the efficiency of investments was self-defeating. However, this realisation did not come sooner and nearly a decade was lost.

3. The twin developments of growing infrastructure shortages and the parlous state of public finances have made it necessary to look for alternative sources of developing infrastructure. In keeping with the wisdom of the present era, the private sector has been chosen as the preferred instrument. However, due care has not been taken to ensure that the two pre-eminent conditions for private sector participation, in long gestation projects especially, are created.

4. One such condition is the near-total elimination of risk by the adoption of sound fiscal and monetary policies. The other relates to the need to charge economic user prices which, in turn, requires the government to dismantle its monopolies and reduce the rigours of administered prices. In some measure this process has already begun. It needs to be accelerated. The current practice of treating infrastructure services as virtual public goods needs to cease and the 'user-pays' principle needs to be brought back. The cooperation of political parties is essential for ensuring this.

5. There is also an urgent need for effecting a major switching of public expenditure. This will have the side-benefit of achieving significant reduction in risk perceptions among potential investors who look for a stable macroeconomic environment in all the key variables, such as the fiscal deficit, the revenue deficit, inflation, the current account deficit, etc.

6. The current situation where upto three quarters of total government expenditure is going for consumption in the form of payments for past debts, subsidies, defence and wages of employees, is not sustainable. Nor is it conducive to the development of a stable macroeconomic environment in which risks are predictable. Indeed, more than perhaps the elimination of risk through dubious methods, such as counter-guarantees, the government would be well advised to focus on making the financial risk more predictable. Such predictability is important for attracting large-scale private investment in infrastructure.

7. The deficiencies in the Indian bond market also need to be addressed. This requires sustained reform of the financial sector, which must proceed at a pace that is commensurate with the market needs. This aspect, especially, deserves greater focus and attention. In the long run the solution consists of involving a far greater number of participants in the bond market than at present.

8. In the short term a possible solution is the speedy development of a vibrant leasing market as leasing provides a viable intermediate option in the development of infrastructure. In spite of its several advantages, leasing has so far remained a neglected and unexplored option. However, in keeping with international trends, it needs to be developed on a much wider scale.

9. The creation of investor confidence lies at the heart of the matter of infrastructure financing. Such confidence cannot develop quickly if the country continue to pursue faulty policies. India's dilemma lies in having to reconcile the interests of the investors with those of the producers and the consumers. The task becomes even more daunting given the propensity of the markets to fail. This makes the devising of 'right' policies still more difficult.

10. Over the next decade, the focus of policy needs to be rapid and sustained reform of the financial markets, the tax regime that governs long term investment in infrastructure and the arrangements for contract enforcement. The recent liberalisation of the insurance sector and the expected liberalisation of the pensions market are steps in the right direction. But a great deal more remains to be done if India is to attract large-scale private financing of infrastructure.

11. The state governments have an important role to play in the development of infrastructure because in the final analysis, it is they who will have to implement the majority of infrastructure projects. For example, the responsibility for generation and distribution of power, development and maintenance of roads (except the national highways), development and maintenance of 140 minor ports already so notified, augmenting water supply, both urban and rural, and providing proper sewerage, etc. vests with the state governments. Therefore, unless they are significantly brought

into the picture, infrastructure development will remain slow, halting and patchy.

12. Presently, mechanisms for fostering coordination between various departments do not exist at the state level, and, where they do exist, they are not effective. This has emerged as a major bottleneck for decision-making, apart from the fact that, competence and knowhow are largely deficient. States are still caught up in the old mindset and this has tended to impede progress in most of the spheres.

13. The finances of the states have acquired an importance that has not yet been fully grasped, least of all by the states themselves who continue to run up huge revenue deficits. This aspect of macroeconomic instability and its impact on the development of a long-term market for infrastructure finance has not been studied, nor has its critical importance been driven home to the states who continue to follow the old gap-filling approach to infrastructure projects.

14. Another problem lies in the method employed by the RBI for conducting sales of state government bonds. Two or three times a year, the RBI conducts sales of such bonds on behalf of as many of the 25 states as wish to participate. The problem here is that the RBI sets one yield for all the states, regardless of their creditworthiness and the quality of their projects profile.

15. The procedures that govern state government bond issues also need to be revamped. At present, purchasers enter orders for the bonds to be sold by the more solicited states (e.g. Maharashtra, West Bengal, Gujarat, Tamil Nadu) but are often forced to pick up bonds issued by the less sought after states (e.g. Bihar, Orissa). This has had the effect of reducing the demand for state government debt as purchasers end up buying bonds which they do not wish to hold at the rates being offered.

The solution for ensuring that the bond issues of the less sought-after states succeed is to allow differential pricing of the bonds issued by different states.

16. The state governments also do not have the expertise to develop bankable projects. There is, for instance, the widespread belief that every infrastructure project would be equally attractive to the private sector irrespective of the likely returns. Besides, there is a lack of awareness of project risks and how these should be allocated and mitigated. This is amply demonstrated by the fact that many states invited bids for the construction of minor ports and roads without considering whether these projects were amenable to private investment and as a result found that there was no response.

17. The municipal infrastructure sector has received little attention and the assistance provided in this area appears to have been directed more towards the corporations rather than the municipalities. This issue needs to be resolved urgently. There are two specific aspects to the problem. One is political, the other is economic. The economic aspect comprises, essentially, of the limited sources of revenue available to municipalities and their consequent inability to provide services which are best provided at the municipal level.

18. There is an urgent need to restore the health of municipal finances. This, in turn, requires that municipalities be allowed to widen their source of funds through local taxes and proper user charges. If this is done on a sustained basis, it will become possible for them to raise long term funds through the bond market, as is the practice in several other countries.