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Infrastructure Investment A Trillion Dollar Question

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Abstract

Infrastructure deficit severely constrains growth and development. 12th Five Year Plan has envisaged an investment target of U.S. 1 trillion dollar to overcome India's infrastructure deficit. This paper provides an analysis of existing sources of finance and cautions against excessive reliance on bank credit. India faces a substantial financing gap which needs to be bridged by domestic as well as foreign private sector investments. Predominant providers of infrastructure finance are public sector banks. Tapping new revenue streams and innovating with sources and structures for finance is vital.

The gigantic task of financing infrastructure investment during the 12th Plan would require a shift from the traditional mode of bank financing towards other modes. Investment policies and regulatory guidelines for insurance companies, pension funds, mutual funds, banks and other financial institutions need to be sufficiently flexible for these entities to choose an appropriate risk-return profile within fiduciary constraints. In facing the challenge of infrastructure financing, the problem is not of inadequacy of financial savings but lack of financial intermediation capable of mobilising and channelling domestic financial savings into infrastructure in a manner that does not create risks associated with the traditional bank financing mode.

I. CHARACTERISTICS OF INFRASTRUCTURE

Infrastructure inherently presents the potential for multiple market failures due, to its heavily front-loaded, sunk cost profile and its long-term nature. Its cost profile discourages investments both by incumbents (which fear that their assets could become stranded), and by new entrants. The long-term nature coupled with its monopolistic characteristic implies that demand and regulatory uncertainties are exacerbated, leading to a riskier perception of its cash flows by the investors.

Certain types of infrastructure, viz. electricity, gas, water, and sewage distribution networks by their very nature, are examples of a textbook natural monopoly marked by high sunk costs entry costs if left untouched by the government. The high asset specificity of infrastructure (including long gestation periods, high incremental capital output ratios, low returns and lumpiness of capital) saddles infrastructure with financing risks that

create serious disincentives to private investors.

Magnitude of Infrastructure Investment during the 12th Plan

The 12th Five Year Plan (FYP) has set up an ambitious infrastructure investment rate of 8.2 % of GDP compared to 7.2 % achieved during the 11th Plan. The historical spending pattern indicates that global investment on infrastructure (comprising roads, railways, airports, ports, telecom, power and water) has averaged 3.8 % of global GDP or equivalent to US \$ 2.6 trillion in 2013. Infrastructure investment as a proportion of GDP is highest for China at 8.5 % followed by Japan 5.0 %, India 4.7 %, European Union and the USA at 2.6 % during 1992-2011. The amount spent by China was of the order US \$ 503 billion per annum during 1992-2011.¹

¹ Richard Dobbs, Herbert Pohl, Diaan-Yi Lin, Jan Mischke, Nicklas Garemo, Jimmy Hexter, Stephen Matzinger, Robert Palter and Rushad Nanavatty, 'Infrastructure Productivity: How to save \$1 trillion a year', *McKinsey & Company*, 2013.

These simple cross-country comparisons do not account for differences in the current public capital stock, differences in demographics and population densities, and different transportation preferences across nations. India's infrastructure spending for the 12th FYP, is estimated by the Planning Commission to be of the order of *Rs. 55,747 Billion* (roughly around USD 1 trillion). This is effectively *more than double* the investments achieved over the 11th FYP [2007-12] in Infrastructure sector. The large investment requirements and the increasing role of the private sector both translate to several challenges in financing. Power (including renewable), by far, accounts for the largest share of projected investments amongst all the infrastructure sectors, accounting for one third of the total infrastructure investment during the current FYP.

Of the total infrastructure investment envisaged for at *Rs55,746 Billion* during the 12th Plan little more than half (52 %) is expected to be contributed by the public sector compared to 63 % during the 11th Plan. A significant shift in the approach has been higher contribution of private sector at 48 % of the total infrastructure investment during 12th FYP from 36 % of total infrastructure investment (*Rs24, 243 Billion*) during the 11th FYP. This significant shift away from public financing of infrastructure is in line with the Government's strategy to focus scarce public resources on social sectors of the economy. *As a proportion of GDP, public investment component is expected to decline from 4.6 % during the 11th Plan to 4.2 % in 12th Plan; concomitantly, the private investment component as a proportion of GDP is expected to rise from 2.6 % during the 11th Plan to 3.9 % in 12th Plan.*²

II. PATTERN OF INFRASTRUCTURE INVESTMENT

Of the total infrastructure investment envisaged at *Rs 55, 746 Billion* during the 12th Plan about 27 % has been earmarked for the electricity followed by 17 % for telecom, 16 % for roads and 9 % railways. Electricity and telecom are expected to get substantial share of 27 % and 33 % respectively of the total private infrastructure investment at *Rs 26,838 Billion* during the 12th Plan. Of the total public sector infrastructure investment at *Rs 28,908 Billion* during the 12th Plan the share of electricity, roads, irrigation and railways is targeted at 27%, 21%, 17 % and 14 % respectively.

Looking at the sectoral allocation of infrastructure investment as a proportion of GDP the highest at 2.9 % stands for energy sector (comprising electricity, renewable energy and oil & gas) followed by transport (railways, MRTS, ports, airports, roads & bridges and storage) at 2.8 %, 1.4 % for telecom, 0.8 % and 0.4 % for irrigation and water supply respectively.

The public private sector mix of investment varies across various infrastructure industries. For instance private sector is expected to contribute more than 80 % of total investment in the renewable energy, telecom, ports and airports. These are the infrastructure industries where user charges can pay for the investment. In case of roads, the contribution of the private sector is only one third of total investment for the sector (*Rs 9,145 Billion*) and the balance two third is to be made up by public sector contribution. In case of roads more than two thirds of the road network is rural or in the less developed and remote regions where low levels of development and industrial activity preclude

² Planning Commission, 'Chapter 2: Macroeconomics framework, 12th Five Year Plan

Document (2012-2017)', *Planning Commission, Government of India*, Volume I, Page 89, 2012.

high traffic volumes necessary for commercial viability of toll roads.

Table:1 Investment in Infrastructure:11 TH AND 12 TH PLAN (Billion at current prices)				
SECTORS	11 TH PLAN (2007-12)		12 TH PLAN (2012-17)	
	Rs Billion	As % GDP	Rs billion	As % GDP
A.Energy (1 to 3)	8802	2.6	19693	2.9
1.Electricity	7285	2.2	15017	2.2
a.Public	4182	1.2	7878	1.2
b.Private	3103	0.9	7138	1.0
2.Renewable energy	892	0.3	3186	0.5
a.Public	106	0.1	385	0.1
b.Private	786	0.2	2802	0.4
3.Oil & Gas Pipelines	625	0.2	1489	0.2
a.Public	392	0.1	776	0.1
b.Private	233	0.1	714	0.1
B.Transport & Storage(4to9)	7948	2.4	19018	2.8
4.Raiways	2012	0.6	5192	0.8
a.Public	1921	0.6	4192	0.6
b.Private	91	#	1000	0.2
5. MRTS	417	0.1	1242	0.2
a.Public	363	0.1	716	0.1
b.Private	54	#	526	0.1
6.Ports	445	0.1	1978	0.3
a.Public	824	#	262	#
b.Private	363	0.1	1715	0.3
7.Airports	363	0.1	877	0.1
a.Public	129	#	175	#
b.Private	234	0.1	702	0.1
8.Roads & Bridges	4531	1.3	9145	1.3
a.Public	3606	1.1	6105	0.9
b.Private	925	0.2	3040	0.4
9.Storage	179	0.1	584	0.1
a.Public	81	#	165	#
b.Private	98	0.1	420	0.1
10. Telecommunication	3850	1.1	9439	1.4
a.Public	864	0.3	721	0.1
b.Private	2986	0.9	8718	1.3
11. Irrigation	2435	0.7	5044	0.8
a.Public	2435	0.7	5044	0.8
b.Private				
12. Water Supply & sanitation	1208	0.4	2553	0.4
a.Public	1206	0.4	2490	0.4
b.Private	2	#	64	#
12. Grand Total (1 to 12)	24243	7.2	55747	8.2
a.Public	15368	4.6	28908	4.2
b.Private	8875	2.6	26838	3.9

Note: Totals/subtotals may not add up to the totals due to rounding off. Source: Planning Commission. 2012. Chapter 3: Financing the Plan, 12th Five Year Plan Document (2012-2017). Planning Commission, Government of India, Volume I, 2012.

III. FINANCING OF INFRASTRUCTURE

The total infrastructure investment during 12th Plan is placed at Rs 55,747 Billion consisting of public and private contribution of Rs 28,908 Billion and Rs 26,838 Billion respectively. The public sector component is mainly to be financed through budgetary support Rs 13,845 Billion, internal generation Rs 5,892 and Rs 9,171 Billion through borrowings.

Success in enhancing budgetary support for infrastructure would depend on the fiscal space available to both central and State governments after meeting contractual obligations like interest payments, wages and salaries and pensions. Besides, central government has to contend with rising defence and security related expenditures which are driven by the threat perceptions and geostrategic considerations, subsidies and massive expansion of programmes aimed at social entitlements. Higher levels of internal generation of resources largely depend on the extent of freedom and autonomy enjoyed by public undertakings involved in rendering infrastructure services to run their undertakings on commercial considerations.

Scope for borrowings would mainly depend on government's success in containing its fiscal deficit which would prevent borrowings by the government for financing revenue expenditure so that private sector investment is not crowded out. The contribution of the private sources of financing for private component is placed at Rs 26,838 Billion consisting of Rs 8,259 Billion from internal accruals (including equity) and Rs 18,585 Billion through borrowings. Financing of infrastructure in terms of non-debt and debt sources reveal almost 50 % contribution each from debt (Rs 27,756 Billion) and non-debt sources (Rs 27,990 Billion). However, likely availability of debt is placed at Rs 22,652 Billion as against a requirement of Rs 27,756

Billion during the 12th Plan leaving a shortfall of Rs 5,104 Billion i.e.0.7 % of GDP. Sources of debt availability reflects heavy reliance on bank financing of the order about 51 % of the total debt availability followed by contribution of non-bank finance companies at 27 %, external commercial borrowings 15 % and Pension/Insurance Funds 7 %.

IV. FINANCING OF A TRILLION DOLLAR INFRASTRUCTURE INVESTMENT

Adequacy of Savings: India has a fairly high savings rate at 30.8% GDP in 2011-12. In terms of institutional categories the savings as a proportion of GDP were 22.3 %, 7.2% and 1.3 % for the household, corporate and public sector respectively. A pertinent point to note is that of the total household savings of 22.3 % of GDP, a little more than one third (8% of GDP) are in financial assets of which more than half of financial savings in bank deposits, leaving only a small portion in contractual /long term savings.³ The main issue is not the available pool of savings but the composition of savings and financial intermediation to channel savings into infrastructure investment. Infrastructure is a capital intensive venture with large sunk costs and low operating costs.

Equity financing of infrastructure: Raising adequate equity finance tends to be the most challenging aspect of infrastructure project financing, as equity typically shoulders the greatest level of operational, financial and market risk. Equity can be provided by project sponsors (those who have an operational interest in the contract) or financial investors (those who have only an investment interest). In India, as in many other countries, the early phase of private financing of infrastructure has shown a predominance of sponsor equity.

³ MoF. 2013. Economic Survey, 2012-2013. Ministry of Finance. Government of India. New Delhi, p.15.

But the ability of sponsors to raise equity from the primary market remains limited due to a number of factors. **First**, infrastructure companies or project sponsors typically have much higher gearing than other corporates, which makes them unattractive in the securities market. **Second**, infra projects involve complexities in terms of contracts, legal structures, right of first charge on assets etc.

Consequently, investors, especially retail investors, find it difficult to understand the true risks involved - and are wary of investing in such issues. In the longer-term, equity finance from financial investors – including private equity funds such as venture capital funds and other institutional investors, such as dedicated infrastructure funds. This is particularly true in situations where the sponsor's equity is consumed at the early stages of projects, and not recycled quickly enough due to lack of refinancing options. The total capital collected through public and rights issue during 11th Plan was more than Rs 500 Billion with almost 98 % being garnered by the power sector. In contrast, the total capital raised by infrastructure companies was Rs. 111 Billion during the 10th Plan with almost 73% being accounted by the Power sector and the balance 27 % by the telecom sector.⁴

Debt Financing: The total debt requirement during the 12th FYP is estimated Rs 27,756 Billion (at \$500 billion), to be met through enhanced credit volume from external commercial borrowings (ECBs), pension and insurance funds, other debt funds, and scheduled commercial banks (SCBs). SCBs and financial intermediaries provide rupee and foreign currency term loans and buy corporate bonds and debentures from infrastructure companies. SCBs, which

typically should not provide long-term debt to infrastructure, have emerged as the major source of debt financing.

Net bank credit (incremental flow of credit, defined as the difference between outstanding gross deployments of bank credit between two consecutive fiscal years) ending March increased substantially during the 11th Plan period. The share of infrastructure in total gross credit deployment in industry increased from 20.5 % at the beginning of 11th Plan to 31.5% at the end of 11th Plan. Continued expansion of bank finance to meet the infrastructure investment may not be sustainable as it may lead to a growing concentration of risks on bank's balance sheets. These risks emanate from the maturity mismatch by financing long term infra projects from short term bank liabilities. Over the same period, total bank lending outstanding to infrastructure as a proportion of gross non-food credit deployment jumped from 8 % of total non-food gross food credit outstanding to 14.4 %. Within the infrastructure sector, power had a share of 54% in total credit flow to infrastructure followed by Roads & Ports 19 % and telecom 15.5% during the 11th Plan period.

The financial system was able to respond to the rapidly rising demand for credit by infrastructure companies largely because banks stepped up lending by unwinding their excess investments in government securities maintained as SLR. SLR investments as a share of deposit has fallen over the years as the credit-deposit ratio increased. Credit to infrastructure grew at a faster pace than total credit. Consequently, the share of infrastructure in gross non-food bank credit rose from 8% in March 2007 to more than 14% in March 2012 (see Table 3). As a result, it is estimated that banks were able to provide about half the debt finance needs of infrastructure investment.

⁴ SEBI. 2013. *Annual Report- 2012-13*. Security Exchange Board of India, Mumbai.

Table: 2 Capital raised through public & rights issues in Infrastructure (Rs Billion)						
Sector	2007-08	2008-09	2009-10	2010-11	2011-12	11 th Plan
Power	137(4)	10(2)	253 (6)	95(4)		494(16)
Telecom	10(2)	1(2)				11 (4)
Total	147(6)	11(4)	253 (6)	95(4)		505(20)

Figures within parenthesis indicate number of issues made; Source: SEBI. 2012. *Handbook of Statistics on Indian Securities Market*. Security Exchange Board of India. Table 6, Page20, Mumbai.

Table: 3-Deployment of Infrastructure (Rs Billion) end March							
	2007	2008	2009	2010	2011	2012	12 th Plan
Gross Non Food	18012 (3964)	22048 (4036)	26018 (3970)	30400 (4382)	36674 (6274)	42897 (6223)	(24885)
Industry of which	6973 (1469)	8583 (1610)	10544 (1961)	13115 (2571)	16208 (3093)	19660 (3452)	(12687)
Infrastructure of which	1430 (302)	2053 (623)	2700 (647)	3799 (1099)	5266 (1467)	6191 (925)	(4761)
Power	733 (132)	951 (218)	1244 (293)	1878 (634)	2692 (814)	3289 (597)	(2556)
Telecom	196 (11)	383 (187)	503 (120)	594 (91)	1004 (410)	936 (-68)	(740)
Roads& Ports	250 (53)	345 (95)	471 (126)	736 (265)	926 (190)	1144 (218)	(894)
Other Infrastructure	250 (105)	375 (125)	482 (107)	591 (109)	644 (53)	822 (178)	(572)

Figures within parenthesis indicate incremental flow of bank credit; Source: RBI. 2012. *Handbook of Statistics on Indian Economy: 2011-12*. The Reserve Bank of India, Table 49, New Delhi.

Tenor of Funds/Asset Liability Mismatch (ALM)

The capital intensive nature of infra projects requires raising debt for longer tenor (more than 15 years) which can be supported by life of the Project (around 25 years). However, there is wide disparity between the maturity profiles of assets and liabilities of banks exposing them to serious Asset Liability Maturity mismatch (ALM). Accordingly, the longest term of debt available from any bank or financial institution is for 15 years (door-to-door) which could create mismatch in cash flow of the Power project and may affect the debt servicing. Options like re-financing may be explored to make funds available for the power project for a long tenor. Though maturity profiles of funds from insurance sector and pension funds are more suited to long gestation power projects, only a small portion is deployed in infrastructure sector,

that is, around 7 % of the total life and non-life assets.

This rapid growth in bank credit to infrastructure has resulted in a greater concentration of risks in banks, due to ALM mismatch and reaching exposure ceilings. The banks have prudential exposure caps for infrastructure sector lending as a whole as well as for individual sectors. Going forward, credit growth will be mainly determined by retained earnings and increase in banks' capital. However, as most of the infrastructure lending is by public sector banks (PSBs), raising capital can only take place if the government dilutes its shareholding or infuses capital into the PSBs. While the tenor of loans from commercial banks has steadily grown and now averages around 15 years, SCBs lend at interest rates that are usually reset every 3 years or so. As projects do not have revenue streams linked

to interest rates, the floating nature of debt exposes these projects to significant interest rate risk.

Exposure Ceilings of banks for Individual/ Group Borrowers

As per the prudential norms stipulated by RBI, the credit exposure to single borrower and group shall not exceed 15% and 40% respectively of Bank's capital funds (Tier I & Tier II capital). As per revised norms, credit exposure to single borrowers has been raised to 20% of bank capital, provided the additional exposure is to infrastructure, and group exposure has also been raised to 50%, provided the incremental exposure is for infrastructure⁵ Banks may, in exceptional circumstances, with the approval of their Boards, consider enhancement of the exposure to a borrower up to a further 5% of capital funds subject to the borrower consenting to the banks making appropriate disclosures in their Annual Reports as per the guidelines on exposure norms, the banks may further fix internal limits for aggregate commitments to specific sectors / industries

In a move aimed to boost infrastructure financing, the Reserve Bank of India (RBI) has eased the norms for treating bank loans as secured finance even in the absence of collaterals. In its notification issued on March 18, 2013 pertaining to the prudential norms on advances to the infrastructure sector, it is mentioned that in case of PPP projects, the debts due to the lenders may be considered as secured to the extent assured by the project authority in terms of the Concession Agreement, if they meet certain conditions. The conditions include that the user charges, toll, or tariff payments are kept in an escrow account where senior lenders have priority over withdrawals by the concessionaire and

⁵ RBI. 2013. *Master Circular: Exposure Norms for Financial Institutions*. The Reserve Bank of India.

there is sufficient risk mitigation, such as pre-determined increase in user charges or increase in concession period, in case project revenues are lower than anticipated. Among other conditions, the lenders are required to have right of substitution in case of concessionaire default and also to trigger termination in case of default in debt service; and upon termination, the project authority has an obligation of compulsory buy-out and repayment of debt due in a pre-determined manner.

V. INSURANCE COMPANIES

Pension/insurance companies are well suited to fund infrastructure projects due to their long term liabilities, but, in India they still provide a minuscule source of funds for the infrastructure sector. This is due to a number of factors: **First**, both insurance penetration (ratio of premium to GDP in a year) and insurance density (ratio of premium to total population) has grown since the opening of the insurance sector to private sector. Insurance penetration surged from 2.7 % in 2001 to 5.10 % in 2010 and then slipped to 4.10 % in 2011. With the opening of the insurance sector to private participation, the insurance density went up from US \$ 11.5 in 2001 to US \$ 64.4 in 2010 and dropped to US \$ 59.0 in 2011 (Annual Report ,IRDA, 2012, p 18). However, both insurance penetrations is much lower compared to the figure of 9% of GDP in USA, 11% of GDP for France, 16 % of GDP South Africa. Similarly, insurance density in developed countries is much higher: UK US \$ 4535, USA \$ 3347, Brazil US \$ 398, South Africa US \$ 1037. **Second**, statutory preemptions by the government and other restrictions essentially limit investment in infrastructure. Some other restrictions include minimum credit rating agency and minimum dividend pay-out record of seven years for Equity. **Third**, public insurance firms are inherently risk averse. They invest more than

required in government securities. Public sector LIC invested 50% against the minimum prescribed requirement of 25 % and invests mostly in the paper of publicly listed infrastructure companies to meet the statutory requirements. **Fourth**, rapid growth of private insurance business has been driven by unit linked insurance policies. These constitute a rising proportion of total investment of life insurers. **Finally**, with the exception of LIC, insurance companies, pension/provident funds have not shown appetite for longer maturity paper. Although approved category of investment has been expanded the rating benchmark is prescribed is not less than AA whereas a typical non-recourse infrastructure project is rated BBB. Moreover, 75 % of all debt instruments in an insurance company's portfolio (excluding government and other approved securities) must have AAA rating.

As regards insurance companies, it is noteworthy that the investment guidelines of insurance companies specified by IRDA require them to invest not less than 15 per cent of their investments in infrastructure and social sectors. However, the guidelines also lay down a minimum rating of AA for investments in debt paper which would automatically exclude investment by insurance companies in debt paper of private infrastructure sponsors. The investment guidelines for insurance companies need to be modified to allow investment in instruments with a rating of less than AA. At present these investments are counted towards 'unapproved' investments. This, in conjunction with development of credit enhancement products should enable insurance companies to invest in infrastructure projects. The total investments of life insurance companies grew from Rs. 6,042 Billion in March 2007 to Rs. 15,813 Billion in March 2012 which is more than two-

and-half fold growth. As on end March 2012, about 7% of total investments of life insurance companies were deployed in housing and infrastructure sector.⁶

The total investments of non-life insurance companies grew from 504 Billion in March 2007 to 993 Billion in March 2012 which is about two fold increase. In end March 2012, about 15.3% of total investments of non-life insurance companies have been in housing and infrastructure sector.⁷ There is need for making suitable modifications in the regulatory framework governing insurance/pension companies/ NPS/ EPFO/ PEFIs so as to channelise long term funds available with them into infrastructure.

Key regulatory aspects which require revisit:

Regulations require pension and insurance funds to hold all government securities until maturity. This regulation restricts trading and hampers liquidity and depth to the secondary debt market. IRDA requires insurance companies to invest in debt paper with a minimum credit rating of AA, which automatically excludes investment by insurance companies in debt paper of most private infrastructure sponsors. Credit enhancement products can help in regulatory concerns as well as attracting long-term funds to the infrastructure sector. Insurance company investments into the SPVs of infrastructure projects, debentures of private limited companies and non-dividend track record companies in infrastructure should be included under "approved investments".

⁶ IRDA. 2012. *Annual Report-2011-12*, Insurance Regulatory and Development Authority, Government of India, Page 59, New Delhi.

⁷ IRDA. 2012. *Annual Report-2011-12*. Insurance Regulatory and Development Authority, Government of India, Page 59-60, New Delhi.

VI. PENSION FUND INDUSTRY IN INDIA

The Indian pension fund managed by EPFO was of the order \$79 billion at the end March 2012. The investment pattern suggests that the Indian pension fund market is highly underpenetrated, in that of an estimated workforce of 321 million; only 12% is covered by pension schemes. Total pension fund assets with EPF organisation were to the tune of 4.6 % of gross domestic product (GDP) compared to 50%–100% for most developed economies with negligible exposure to equities, compared to 40% in developed markets.

Pension and provident funds, both EPF and PPF, are also repositories of large amount of long-term finance. However, as a legacy of government regulations, pension funds remain a notionally funded scheme. For one, more than two third of the fund exists in the form of special deposits with the central government. Under the existing stipulations, these funds cannot be drawn out for deployment in other avenues. For another, a significant portion of the remaining funds are deployed in government securities, which, too, remain locked in for two reasons. **First**, once a government security is subscribed, regulations mandate that they be held till maturity. **Second**, investment guidelines also mandate that interest received from government securities be reinvested in those securities itself.

International Investments: Given the huge investment requirement in the infrastructure sector, which cannot be met only from domestic savings, there is therefore a strong need to facilitate flow of funds from the international market with flexible but prudent regulatory framework. Currently, the international debt funds could be channelised into the domestic market, either through (1) ECB borrowings or (2) foreign direct

investment and ;(3) FII inflows into domestic corporate debt.

External Commercial Borrowing (ECB): ECB can be accessed by a borrower under two routes, namely, (i) Automatic Route and (ii) Approval Route. ECB for investment in infrastructure sector up to US 500 million per borrower per year for Rupee or foreign currency expenditure without prior approval subject to all-in-cost ceilings to 300 bps above LIBOR for 3 to 5 year ECB maturity and to 500 bps for over 5 years. All-in-cost includes rate of interest, other fees and expenses in foreign currency except commitment fee, pre-payment fee, and fees payable in Indian Rupees. Moreover, the payment of withholding tax in Indian Rupees is excluded for calculating the all-in-cost. Borrowers can raise ECB from internationally recognised sources such as international banks, international capital markets, multilateral financial institutions, export credit agencies and suppliers of equipment, foreign collaborators and foreign equity holders.⁸

The availability of long-term funds in overseas markets is an area of concern, with the lenders generally preferring to limit their exposure to shorter term tenors of up to 5 years. ECB for infrastructure still remains inadequate compared to the needs. This may be attributed to the following: One, Interest rate caps pose a constraint to attracting ECBs. Thus only well established firms engaged in infrastructure could gain access rather than SPVs with no credit history. Second, the liberal policy does not apply to financial intermediaries who still need prior approval. Restrictive cap on interest rates may be adequate for “normal” industrial projects, but may impact infrastructure financing as these

⁸ RBI. 2013. *Master Circular on External Commercial Borrowings & Trade Credits*. The Reserve Bank of India.

projects are viewed risky which entails a higher risk premium. In particular, interest rate caps prevent access to different debt or quasi equity instruments (mezzanine financing), the pricing of which needs to be commensurate with the associated risks. They limit the compensation which lenders can receive for longer tenors or higher credit risk and, in effect, reduce the availability of long term loan funds for infrastructure — where the credit needs are typically for longer durations and where the risk profiles often require pricing at spreads higher than those allowed by the ECB caps. This has implications for mezzanine financing. Another hurdle in utilizing foreign currency loans is the lack of a sufficiently deep forwards market in foreign exchange. Infrastructure projects require long tenor loans, and if financed through foreign currency borrowings these need to be adequately hedged against currency risks since few infrastructure projects have forex earnings to serve as a natural hedge. Inability to hedge long term currency risk in a market which is limited to one year's forward cover poses a big challenge to the use of foreign currency loans in these projects.

Foreign Direct Investment (FDI) Inflows into Infrastructure: To facilitate infrastructure financing, 100 per cent FDI is allowed under the automatic route in sectors such as mining, power, civil aviation sector, construction and development projects, industrial parks, the petroleum and natural gas sector, telecommunications and special economic zones. FDI is also allowed through the Government approval route¹¹ in various sectors such as civil aviation sector, (domestic airlines beyond 49 per cent), existing airports (beyond 74 per cent to 100 per cent); and other companies investing in infrastructure/services sector (except telecom).

Cumulative FDI inflows into the infrastructure sector were of the order more than US \$ 25 Billion during the 12th Plan and averaged US \$ 5 Billion per annum (Table: 4). The breakup of FDI inflows reveals that telecom sector was the highest recipient of FDI inflows with a share of 40 % followed by power 25%, petroleum & natural gas 19 %, transport ,11 % and non-conventional energy 5 %. However, FDI inflows during the first 8 months (April-November) of 2012-13 US \$ 1248 Million were mere one fifth of US \$ 5,800 million during the same period of 2011-12.⁹

FII (Foreign Institutional Investor) limits: A number of measures have been taken to increase FII investment in the infrastructure sector. The Finance Minister in his Budget (2012-13) speech had announced the increase of FII investments in listed non-convertible debentures and bonds issued by core sector companies by US\$20 Billion. Until this time, the limit for such investment was US\$15 Billion in corporate debt, with an additional limit of US\$5 Billion in bonds with a residual maturity of over five years. Following the budget, this additional limit was raised to US\$25 Billion in March 2012, taking the maximum limit of FII investment in bonds and non-convertible debentures issued by infrastructure companies to US\$40 Billion. In June 2012, the Ministry of Finance further relaxed the lock-in period and the residual maturity to one year and allowed FIIs to trade amongst themselves during the lock-in period. These measures are likely to boost efforts to reach the Government of India's private funding target.

Infrastructure Debt Fund

Infrastructure Debt Funds (IDFs) were introduced in the Union Budget for 2011-12 in

⁹ MoF. 2013. *Economic Survey, 2012-2013*. Ministry of Finance, Government of India, Table 11.12, Page 250, New Delhi.

order to accelerate and enhance the flow of long term debt in infrastructure projects to fund the government's ambitious programme of infrastructure development. IDFs can refinance the bank loans of existing projects,

which will release an equivalent volume for fresh lending by banks to infrastructure projects. IDFs will also help create secondary market for bonds.

Table 4: FDI Flows to Infrastructure (US \$ Million)

Sector	2007-08	2008-09	2009-10	2010-11	2011-12	12 th Plan
Power	968.0	984.8	1437.3	1271.77	1652.38	6314.25
Non-conventional Energy	43.2	85.3	497.9	214.40	452.17	1292.97
Petroleum & Natural Gas	1426.8	412.3	272.1	556.43	2029.98	4697.43
Telecom	1261.5	2558.4	2554.0	1664.50	1997.24	10035.64
Air Transport	99.1	35.2	22.6	136.0	31.22	324.12
Sea Transport	128.4	50.2	284.9	300.51	129.36	893.37
Ports	918.2	493.2	65.4	10.92	0.0	1487.72
Railway related	12.4	18.0	34.2	70.66	42.27	177.53
Total	4857.6	4637.4	5168.40	4225.19	6334.62	25223.21

Source: MoF. 2013. *Economic Survey, 2012-2013*. Ministry of Finance. Government of India. New Delhi.

IDFs are expected to provide long-term low-cost debt for infrastructure projects by tapping into sources of long tenure savings such as insurance and pension funds which have hitherto played a comparatively limited role in financing infrastructure in India. IDFs set up as NBFC will invest only in PPP projects which have successfully completed one year of commercial operation and are a party to a Tripartite Agreement with the concessionaire and the Government authority sanctioning the project. Banks and NBFCs are eligible to sponsor IDFs subject to existing prudential limits set by RBI. The restricted portfolio of investment by the IDF, the tripartite agreement and the concept of first loss of the sponsors enable IDFs to issue bonds with at least an AA rating. Although IDFs present an attractive option for domestic entities which wish to invest for the long term in comparatively secure instruments. IDFs are essentially targeted at foreign investors such as pension funds, insurance companies and sovereign wealth funds. In November 2011, RBI allowed foreign investments in IDFs thus paving way for long term institutional investors that include sovereign wealth funds, multilateral agencies, pension funds, insurance and endowment funds and FIs

registered with SEBI. IDF-NBFCs can raise resources through issue of either rupee or dollar denominated bonds of minimum 5 year maturity. If IDFs are to become optimal instruments for financing among global investors some changes are needed. From a foreign investor's view, the guidelines are mainly aimed at helping to refinance existing projects, and may well not assist in the financing of new projects. Some of the issues need to be addressed are:

Infrastructure Non-Banking Finance Companies (NBFCs): RBI introduced a special category of Non-Banking Finance Companies (NBFCs), called Infrastructure Finance Companies (IFCs). To qualify as an IFC, over 75% of its total assets should comprise infrastructure assets. Besides IFCs would benefit from a lower risk weight on their bank borrowings (from a flat 100% to as low as 20% for AAA rated borrowers), higher permissible bank borrowing (up to 20% of bank's net worth as against 15% for an NBFC), access to external commercial borrowings (up to 50% of owned funds on an automatic basis) and relaxation in their single party/group exposure norms on both debt and equity. Altogether this should enable a highly rated IFC to raise more funds, of longer tenor and

lower cost, and lend more to infrastructure companies.¹⁰

The major Infrastructure Finance Companies are Power Finance Corporation (PFC), Rural Electrification Corporation (REC), Infrastructure Development Finance Company (IDFC), and India Infrastructure Finance Company (IIFCL). These companies increased their lending sharply as the credit demand for power, telecoms and roads expanded (Table: 5).

PFC is now the largest Non-Banking Infrastructure Finance Company in the country, having overtaken HDFC. PFC's Cumulative Sanctions stood at Rs. 3,709 Billion and cumulative disbursement at Rs. 2,089 Billion (up to March 31st, 2012). These staggering sums have been accumulated while maintaining a very low percentage of Non-Performing Assets (NPAs) of the order 0.93% of our loan assets as at the end March 2012.

The outstanding loan asset of PFC and REC to infrastructure sector stood at Rs 2316 Billion as on end of March 2012. In terms of type of borrower the exposure to private sector for PFC and REC was 11 % and 10 % respectively. However, by type of assets the exposure of PFC was 83 % for generation business and only about 12 in transmission and distribution in case of PFC end March 2012¹¹ and in case of REC exposure towards power generation and transmission & distribution assets was 45 % and 49 % respectively as at the end March 2012.¹²

Bond Market: The Indian Financial system lacks large active and liquid debt market. The

Corporate Debt Market in India is at a nascent stage both in terms of microstructure as well as market outcomes. Primary market is dominated by financial sector and relatively small amount of funds are raised by manufacturing and other service industries. Indian companies largely rely on bank finance to meet their funding requirement. In contrast, the government securities market has grown fast during last decade due to many structural changes introduced by the government and RBI to improve transparency in the market dealings, method of primary auctions, deepening the market with new market participants like primary dealers, borrowings at market determined rates, and creating technology platforms to recognise the institutional characteristics of the market. However, secondary market activities in corporate bonds have not picked up as in the case of government securities.

The Indian debt market is dominated by government securities, which accounts for a large share in total debt outstanding. In terms of trading activity, government securities are the most liquid and stand out in trading volume of the debt market. The primary market in corporate debt is basically a private placement market with most of the corporate bond issues being privately placed among the wholesale investors i.e. the banks, mutual funds, provident funds & other large investors like LIC, etc. The proportion of public issues in the total quantum of debt capital issued annually has substantially decreased in the last few years.

The lack of trading in the government debt market may be attributed to two other factors. First, institutional investors such as pension funds and insurance companies are mandated to hold Government securities until maturity, thus hindering active trading. Second, retail investors prefer to invest in instruments such as postal savings and

¹⁰ RBI. 2013. *Master Circular: Bank Finance to Non-Bank Finance Companies*. The Reserve Bank of India. New Delhi.

¹¹ PFC India. 2012. *Annual Reports- 2011-12*, Power Finance Corporation Ltd. New Delhi.

¹² REC. 2012. *Annual Report -2011-12*, Rural Electrification Corporation Ltd. New Delhi.

provident funds where returns are administered at much higher rates and reduce attraction to invest in the debt market, and

the relatively higher cost of trading in the retail segment of Government securities.

Table 5 Disbursements for Infrastructure by Non-Bank Finance Companies (Rs Billion)					
Company	2007-08	2008-09	2009-10	2010-11	2011-12
1.PFC	162	211	258	341	414
2.REC	163	223	271	285	306
Total (1+2)	325	433	529	626	720
3.IDFC	120	81	130	267	184
4.IIFCL	15	32	51	53	51
Total(1+2+3+4)	461	546	710	947	955

Source: Based on Annual Reports of PFC, REC, IDFC & IIFCL
PFC India. 2008;2009;2010;2011; 2012. *Annual Reports- 2007-08; 2008-09; 2009-10; 2010-11; 2011-12*, Power Finance Corporation Ltd. New Delhi.
REC. 2008;2009;2010;2011; 2012. *Annual Report -2007-08; 2008-09; 2009-10; 2010-11; 2011-12*. Rural Electrification Corporation Ltd. New Delhi.
IDFC. 2008;2009;2010;2011; 2012. *Annual Report-2007-08; 2008-09; 2009-10; 2010-11; 2011-12*. Infrastructure Development Finance Company.

Debt instruments such as bonds are widely used because of their specific characteristics. For example, bonds are considered a relatively more stable source of debt financing, as bond yields do not vary much on the basis of changing market circumstances. On the other hand, bank loans are primarily illiquid, fixed-price assets in the sense that the bank interest rate, which is the price of a loan, reflects general macroeconomic factors and is set by monetary authorities. Thus, almost all the adjustment has to take place via rises and falls in the quantity of bank lending.

Corporate debt markets are constrained by detailed primary issuance guidelines, tedious enforcement of default laws, and absence of long-term investors. Long-term providers of capital, such as insurance and pension funds, are constrained partly by regulation. Retail investors prefer to invest in postal savings and provident funds, where returns are artificially pegged at higher rates. Basically, bonds are seen as buy-and-hold investments, and there is little to be gained from the regular trading that is a feature of retail dominated equity markets. Hence, bonds are rarely instruments for direct retail investment.

Private placement debt market: The corporate bond market is largely private

placement market. Public issues are difficult, slow, costly, risky, and inflexible. A public issue requires a very detailed information intensive prospectus to be submitted to the Securities and Exchange Board of India (SEBI). Consequently, the private placement market of debt in India has witnessed sharp increase. Private placements are debt typically raised by companies as an alternative to bank loans or public bond issuance and as part of a diversified funding strategy. They are usually fixed-rate and longer-dated than bank loans (10 to 15 years on average). Infrastructure industries have started tapping significant amount of resources through private placement of debt.

Takeout financing: Take-out Financing mechanism, though in its nascent stage in India, provides opportunities to the commercial banks to create long term assets from short term liabilities. The participation of a long-term player is crucial in this mechanism. After a specified period of time, the long-term asset is transferred to the books of the long-term financial institution. Take out financing is a method of effectively extending the debt tenor of infrastructure projects. When a project attains a financial closure, a take-out arrangement is entered

into amongst the three players, viz. the original lender, the borrower and the Takeout Institution.

There are some fundamental concerns in the present model - when a bank extends loans for a particular project and takes the risk for the first five to six years, why would it then transfer the account to another bank, when the going becomes smoother. The lack of a strong and viable project pipeline is another reason for banks not opting for takeout financing.

VII. CONCLUSIONS

The ability to meet infrastructure investment target of US \$ 1 trillion will critically depend on two factors. First, the authorities' ability to successfully increase reliance on the bond market as an alternative source of financing to bank loans and, second, their ability to implement fiscal consolidation as a means of freeing up bank lending and reducing upward pressure on interest rates. The two are closely linked. So far, banks have been the main providers of infrastructure financing. While this is not a desirable arrangement, given the long-term financing required for infrastructure investment. Commercial banks are now facing a number of barriers to expand lending to infrastructure, including regulatory constraints such as exposure limits to groups (infrastructure companies) as well as sectors to prevent the build-up of asset liability mismatches in the system. This raises the fundamental question of raising finance for infrastructure investment. The US\$1 trillion that India plans to spend in infrastructure over the 12th Plan raises questions about its financing. A critical question that has not made it into the mainstream policy debate is: what is the cost of financing the trillion-dollar infrastructure bill? Currently, India has among the highest interest rates among the BRICS (Brazil, Russia, India, China and South Africa) nations. The current yield on the 10-year

government bond in India is slightly over eight per cent compared with below four per cent in the People's Republic of China. Lower interest rates could generate substantial financial savings for India even as it borrows heavily for infrastructure. Even a 100 to 150 basis points drop in interest rates on \$1 trillion of borrowing over 10 years would lead to considerable saving.

Merely increasing the amount that we invest, however, must not be sole objective. Selecting projects that have the highest return is critically important, as is providing opportunities for the private sector to invest in public infrastructure. For instance, investments in transport and communications infrastructure allow goods and services to be moved more quickly and at lower costs, resulting in both lower prices for consumers and increased profitability for firms. Given the significant need for greater investment, the government alone should not, be expected to be the sole source provider of funds. More effectively leveraging central government investment by pairing it with state, local, and private investment is necessary to meet the challenges we face in our infrastructure sector.

India is heavily reliant on budgetary support and bank credit for funding its infrastructure needs. Banks and Infrastructure Finance Companies (IFCs) are the predominant sources of financing. Balance sheet size of many Indian banks and IFCs are small vis-à-vis many global banks. Credit exposure limits of banks and IFCs have been stretched to the limits. Any future exposure seems to be severely constrained by balance sheet size, their incremental credit growth and lack of incentives to lend to certain infrastructure sectors. For instance, any downgrade in the credit rating of power sector borrowers would adversely impact the ability of the major NBFCs viz. PFC and REC to raise large quantum

of funds at a competitive rate from domestic as well as international capital markets. In such a scenario, the sources of funds available for power sector projects are expected to be further constrained. Specialised NBFCs have become a significant source of infra finance, but their growth is constrained by their access to bank finance, due to lack of alternate wholesale funding sources. Another funding source for NBFCs is insurance companies.

Overwhelming reliance on public sector banks in particular to meet the debt requirement of infrastructure is fraught with risk in the concentration of exposure. To prepare banks to meet the challenge of financing infrastructure several changes are required. One, banks need to raise the additional capital to avoid sector concentration. This could be achieved either by injection of capital or divestiture of government equity stake or else banks may have to rely more on tier II capital. Second, mergers and consolidation in the banking sector could help mitigate exposure constraint. Securitisation of the loan portfolios of banks could help disperse risks more widely and facilitate them to undertake more new projects. This needs regulation and supervision to avoid situations like subprime crises in USA and its implications.

Pension and insurance funds may be permitted to deposit part of their long-term funds with banks for infrastructure financing. Project evaluation and fund management skills at banks and other FIs with long term funds (insurance companies and pension funds) need to be strengthened. In particular, insurance companies need to be encouraged to develop specialised appraisal skills in the infrastructure projects.

In many countries across the world, long term debt in form of corporate/ sovereign or municipal bonds forms a major share of infrastructure finance. However, in India, we are constrained by lack of depth and breadth

of the secondary debt markets. Infrastructure projects have a long pay-back period and require long-term financing in order to be sustainable and cost effective. There is a need to improve depth and liquidity of the corporate bond market to provide additional source of funding for infrastructure companies. Equity funding is likely to be a bigger constraint than debt funding.

Infrastructure financing is long term in nature. The depository profile of insurance companies is more in tune with the funding requirement of infrastructure. Banks face asset liability mismatch issues because their depository base is short term against long term nature of infrastructure loans assets. It is therefore essential that some regulatory changes are given effect so that a greater participation by insurance companies in infrastructure funding mix is ensured. Insurance/Pension funds have the ability to invest for longer terms due to long term nature of their liabilities and are not faced with asset-liability mismatch issue.

However, presently these institutions are restricted by their respective regulatory institutions which limit their exposure to the infrastructure sector even when they have sufficient funds available to invest. India, boasts of a large and growing middle class, but only a small proportion of its population is investing in insurance and pension products compared to South Africa and Brazil. However, this can be changed by introducing proper incentives and suitable schemes, thereby generating additional long term funds for infrastructure investments by these institutions.

Given the gigantic task of financing infrastructure investment during the 12th Plan would require shift away from the traditional mode of bank financing towards other modes. Investment policies and regulatory guidelines for insurance companies, pension funds, mutual funds, banks and other financial

institutions need to be sufficiently flexible for these entities to choose an appropriate risk-return profile within fiduciary constraints. Need to look at the existing investment norms prescribed for Insurance, Employees Provident Fund (EPF) and Public Provident Fund (PPF) with a view to relaxing them so that these institutions can commit significantly larger amounts of long-term funds for infrastructure. In particular, investment guidelines for insurance companies need to be modified to allow investment in instruments with a rating of less than AA. At present these investments are counted towards 'unapproved' investments.

This, along with development of credit enhancement products should enable insurance companies to invest in infrastructure projects. In addition, pension funds should be modified to allow them to invest in infrastructure projects, which have a guarantee from the central government or multilateral agencies. The cost of such funding will also be lower since these will not carry any currency risk. Success in attracting private funding to infrastructure will depend partly on India's ability to develop a more sophisticated debt market, requiring regulatory reforms that facilitate the use of diverse financial instruments by investors, and address the current barriers to increased participation by both sponsors and financial institutions.

The small steps suggested could unlock flow of funds into infrastructure investment over the next decade. Access to external commercial borrowings, in particular, bonds may be constrained due to

- (a) weak balance sheets of infrastructure players and lack of established credit history;
- (b) limited hedging possibilities owing to long tenor of borrowing; and
- (c) it would be imprudent to acquire foreign currency debt against local currency revenue

stream in an environment of exchange rate volatility.

In facing the challenge of infrastructure financing, the problem is not of inadequacy of financial savings but lack of financial intermediation capable of mobilizing and channelling domestic financial savings into infrastructure in a manner that does not create risks associated with the traditional bank financing mode. India's aggregate domestic savings rate (31 % of GDP) is high but pool of financial savings is small (only 8% of GDP) to meet the growing needs of infrastructure investment. This would require measures to scale up financial savings and their financial intermediations to promote diversified financial system with diverse investors, financial products together with depth and liquidity to support capital markets for long term funding.

ABOUT CIRC

CUTS Institute for Regulation and Competition (CIRC) was established in 2008 by CUTS International (www.cuts-international.org). With the mission to *be a Centre of Excellence on Regulatory and Competition Issues*, CIRC primarily focuses on economic regulation in infrastructure sectors, and competition policy and law with an objective of reaching out to the target audience in India and other developing countries in Asia and Africa. Its crucial role in research and capacity building in the area of competition policy and law and regulatory reforms has created an intellectual knowledge base. This rich experience of working on regulatory issues and competition policy and law has resulted in many national and international publications which has enriched a more informed discourse on public policies and greatly benefited different stakeholders in the society. Since its inception, CIRC has been undertaking several trainings, seminars and public lectures on competition policy and law in India and abroad. It also organises international symposia on the political economy of competition and regulation in the developing world and India.

CIRC offers practical focus on educational and training programmes on economic regulation, and competition policy and law. The Institute aims to facilitate research to enhance understanding and explore inter-disciplinary linkages among the identified subjects. Increasing demand of long and short-term courses offered by CIRC is appreciated by many national and international organisations. The Institute has also made cerebral contribution in the work of the High Level Committee on National Competition Policy.



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