

The Practice of PPP in Urban Infrastructure

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7.1 Introduction

It is widely acknowledged that in order to sustainably finance the quantum of investments required for urban infrastructure development in India and to bring in the expertise needed in executing complex urban infrastructure projects, substantial private sector involvement will be essential. Private sector participation in financing, creating, operating and maintaining urban infrastructure will be central to the large-scale delivery of public services in India.

Public-private partnership mechanisms are not new to India and have been used in urban infrastructure projects before. However, in view of the tremendous need for finance and capacities to undertake urban infrastructure projects in India, it is important that the expertise and balance sheets of the private sector are substantially leveraged going forward. While there are a number of concerns around the environment for private participation in infrastructure in India, there have also been innovations that, in an evolving environment, can significantly impact long-term infrastructure development and service delivery in India.

In this paper, we will use case studies to highlight the evolution of private participation mechanisms for financing, developing, managing and operating urban infrastructure and services in urban projects in India. We view the nature of private sector involvement through two prisms: (i) the mobilisation of private finance to fund public infrastructure and services; and (ii) the deployment of private sector's technical and managerial expertise in the design and development of public infrastructure. Our objective is to use the cases to develop a broader understanding of the nature of private participation in infrastructure projects in India and its evolution over time.

7.2 Private Financing of Public Infrastructure

The High Powered Expert Committee (HPEC) [1] on Urban Infrastructure and Services estimates that the total capital investment and operations expenditure required for the delivery of urban infrastructure services over the next 20 years is Rs. 39.2 lakh crore. It is obvious that this scale of financing will require considerable mobilisation of private sector resources and their effective utilisation for public infrastructure creation and service delivery. The absence of

sustainable financing models for municipal infrastructure could seriously jeopardise the agenda for inclusive, equitable cities in India.

Over time, we have seen the evolution of the urban infrastructure financing system in India from the traditional model of grant financed infrastructure to more market oriented mechanisms that seek to leverage private debt. Municipal infrastructure, though still largely grant dependent, is also increasingly being financed through private capital and bond issues subscribed to by private investors.

Innovations in attracting private finance will become ever more important over the next two decades as India looks to sustainably finance increased infrastructure development – both in order to remove the current backlog in urban infrastructure and to create new infrastructure for growth. As we argue in this paper, the proposed new Jawaharlal Nehru National Urban Renewal Mission (JNNURM) presents a unique opportunity to usher in reforms that squarely put the onus on state governments to deepen their engagement with the private sector in the financing and delivery of urban services.

Before we discuss the innovations in private financing, it is useful to take a step back and assess the environment for urban infrastructure prior to the economic liberalisation of the early 1990's.

7.2.1 A mixture of Government grants and Soft loans

Prior to 1990, urban infrastructure in Indian cities was financed largely by government grants and Plan funds of central and state governments. Decisions on local infrastructure investments were made by state and central governments. Because of the disconnect between local needs and infrastructure plans drawn up at higher levels of government, these infrastructure investments made were without any clear understanding of local demand. In the absence of inputs on both the nature and extent of local demands, the infrastructure that was built ended up being inadequate, of poor quality and often unrelated to people's needs.

In addition to these direct government levers of grants and Plan funds, cities were also allowed to access debt from the Housing and Urban Development Corporation (HUDCO), which was

directed by the central government to lend to cities.¹ These borrowings from HUDCO were guaranteed by state governments, thereby de-risking the investment for HUDCO by ensuring that the lender was exposed to the state government's risk and not the particular project's risk. By design, such an arrangement ensured that the credit discipline that is associated with prudent, commercial lending programs was missing here. The incentives of the lender were completely skewed by disconnecting the lending from the project risk, and the incentive of the city to structure a viable project was also skewed by the knowledge that the ultimate risk of default lay with the state government. This financing structure fundamentally lent itself to the design of sub-optimal, unsustainable projects.

It is important to note that most countries, including the now developed ones, started subsidised lending to municipalities through specialized Municipal Banks or Municipal Development Funds. In Europe, specialised municipal banks were set up to provide capital and, in addition, a range of services to complement their lending, such as assistance in preparation of municipal budgets, designing and appraising investment projects, and even managing the municipalities' financial accounts. The support services and subsidized credit provision were important in the early years of the municipalities' tryst with credit markets and were made possible because of central government policies of subsidising municipal banks by giving them preferential access to low-cost, long-term savings or to accord them partial protection from competition. What this ensured was that once the state directed low cost funding taps dried up, these municipalities had the capacity to approach the debt markets on their own. Unfortunately in India, while HUDCO has performed the job of providing subsidised debt to municipalities, it has not directed attention to developing municipal capacities for the long-term, thereby only spawning a culture of dependence and lack of accountability.

Post-1990, there has been a greater thrust towards exploring alternative funding models for urban infrastructure. The impetus for this came from three sources:

- Passage of the 74th constitutional amendment [2] has given constitutional status to urban local bodies (ULBs) and has devolved funds, functions and functionaries to the ULB level

¹Life Insurance Corporation (LIC) was also directed by the central government to direct credit for municipal infrastructure financing

- Economic liberalisation and increased competition has forced more efficient allocation of capital by financial institutions and therefore a move away from inefficient financing mechanisms
- State government finances have been under pressure and they have been unable to continue with a programme for subsidising municipal debt

All these pressures have culminated in attempts to develop new mechanisms for financing urban infrastructure with private participation. However, in order to be able to tap into private commercial financing sources, it is essential the cities put their internal sources of funding in order.

7.2.2 The importance of Own Revenue Generation

Any discussion of the private financing options available to a city² will have to begin with an understanding of the finances that it generates internally. This is because private or commercial debt finance will only flow to cities which are seen to have the ability to repay the debt over the long-term. Robust internal revenue generation is a necessary condition for attracting private financing into public infrastructure. The most prominent internal funding mechanism available to Indian municipalities is the property tax, followed by user charges for services.

Property taxes are the most important individual revenue source for municipalities. Over the long-term, they enable cities to capture the gains from improved public service delivery and increased economic growth that manifest themselves in higher land valuations and therefore higher property values. This buoyancy in property tax is crucial for municipalities because it enables them to deploy these revenues in ensuring effective maintenance of public infrastructure and improved service delivery over time.

A second major funding handle available to municipalities is that of user charges for services provided such as water supply, sewerage and garbage disposal. The absence of a user charge regime in a city is a ready indication of the low level of service delivery. For sustainable delivery

²The words 'city' and 'municipality' are used interchangeably throughout this paper

of a basic minimum quality of a service, it is an accepted rule of thumb that user levies must cover for the on-going Operations & Maintenance (O&M) costs.

Despite the JNNURM's [3] attempts to reform³ the internal revenue generation of municipalities by rationalising the property tax regime and requiring improved user charge collection, we find that there is much scope for improvement. The Thirteenth Finance Commission [4] estimates that property taxes collected constitute between 0.16% and 0.24% of the GDP, while revenues generated from user charges are also abysmally low in India, at 0.13% of the GDP.⁴

While property taxes and user charges are critical components of a city's finances, it is equally important that the quantum and predictability of inter-governmental transfers from state governments are assured. States in India have shown vastly differing performance in terms of setting up State Finance Commissions, accepting their recommendations and implementing the same. There is a case for progressively increasing the share of ULBs in state government devolution of funds - which apart from being rule-based should have a component that is linked to reforms and performance of ULBs.

While the overall picture appears to be gloomy, there are a number of cities that have put in place governance, finance and technology reforms to ensure much improved - stable and reliable - revenue generation and opened themselves to the possibilities of accessing debt markets. It is these cities that have shown the way in using innovative mechanisms to access private commercial finance at reasonable cost to fund public infrastructure.

7.2.3 The development of the Municipal Bond Market

³The JNNURM mandatory reform agenda requires repealing of land control acts, reform of rent control laws, application of GIS for property mapping, improving collection efficiencies to 85%, levy of user charges to cover for full cost of O&M over 7 years.

⁴ India's city level property taxes and non-tax revenues amount to between 0.29% to 0.37% of GDP, which is a much lower level than cities in other developing countries such as Brazil and South Africa whose corresponding own revenues are at levels of 2.58% and 3.80% of their GDPs

In many countries, municipalities have been tapping domestic and international capital markets for funds via issuance of interest bearing securities such as bonds which usually have a longer tenor than bank loans.

Generally, bonds emerge as a significant financing source at a later stage of development than municipal banks. They require a greater degree of maturity of ULBs as well as of the financial system. The bare minimums for a city contemplating a capital markets issue are a basic double entry accounting system, MIS capability to track projects, a financial position that allows for leverage, and strong managerial capacity at the municipality. These factors form the basis for the credit rating process that assesses the underlying capacity of the local government to take on debt and to determine the probability of default of such debt. Moreover, bond markets rely on extensive public disclosure requirements that issuers need to comply with. The hand-holding provided by a municipal development bank is absent in the muni-bond market: municipalities have to separately obtain financial advisory services, technical assistance on project design, and assistance in financial management and payments systems.

The practice of municipal bond financing for urban infrastructure in India began with the Rs 125 crore municipal bond issue by the Bangalore Municipal Corporation in 1997. However, this issue was backed by a state government guarantee, which made the structure susceptible to incentive issues similar to the one outlined in the case of state-guaranteed HUDCO loans.

The 1998 bond issue (**Box 7.1**) by Ahmadabad Municipal Corporation (AMC) was a real watershed in the Indian municipal finance scenario. It paved the way for the development of a municipal bond in India.

Box 7.1

The AMC bond issue of 1998 [5]

In 1998, the AMC issued a Rs 100 crore bond to partially finance a water supply and sewerage project worth Rs 439 crore. This was the first bond issue in India without a state government guarantee and a first real move towards mobilising private capital for public infrastructure. The bond issue was preceded by a number of internal management and financing reforms that the

AMC undertook. These reforms included improvements in financial management, developing computerised accounting systems, and preparing a detailed capital investment plan. AMC focused on improving its revenue collection – property taxes and octroi – and was able to move from the red in 1994 to the black in 1999 (a revenue surplus of more than Rs 200 crore).

With this background work in place, the AMC decided to access the bond market to raise private financing for their planned capital investment in water supply and sewerage. The bond issue was designed keeping in mind that this would be the first time that a ULB was accessing the market on the strength of its own balance sheet. The bond structure therefore contained a number of credit enhancement features to ensure investor comfort – escrow accounts for octroi revenues, sinking fund for principal repayments, annual Debt Service Coverage Ratio (DSCR) of 1.5 and property pledges with asset coverage ratio of 1.25.

On the back of the structural reforms carried out by the AMC and the well-designed credit-enhanced bond structure, the AMC became the first ULB in India to receive a credit rating for a municipal bond issue. The 1998 AMC municipal bond issue was rated AA (SO) by the rating agency Crisil.

In 1999, the rating was put on watch on account of the fact that octroi as a revenue source for cities in Gujarat had been abolished and the rating agency perceived that this could increase credit risk associated with the financing structure. However, the AMC continued servicing the repayments as scheduled and the bond was completely repaid on schedule.

Since the AMC bond issue, a number of cities in India⁵ have followed this route and raised funds from the market, thus leveraging private finance to build public services in a capital scarce environment. To provide additional impetus to the municipal bond market, the Union Budget of 2000 proposed the introduction of tax-free municipal bonds, wherein the interest income earned from these instruments was to be exempt from income tax. This led to a slew of tax-free bond issues; more than Rs. 900 crore of tax-free municipal bonds have been issued so far.

⁵Subsequently municipal bonds were issued by Hyderabad, Chennai, Nagpur, Indore, Madurai, Ludhiana and Vishakapatnam, among others

While the development of a municipal bond market has been a positive trend that must be appropriately encouraged, it must be noted that the bond issues have all been done by the stronger, richer cities. Smaller cities continued to remain untouched by the market. However, sustainable urbanisation in India can only be driven by the development of small and medium cities. In order for this to happen, they need to be able to plan for and viably finance their public infrastructure and services.

It was precisely in this area that the next big innovation in municipal financing occurred, creating a mechanism that provided the universe of small cities in India with a model to access funds from the debt markets.

7.2.4 Pooled Finance Bonds for Small Municipalities

Most small and medium sized ULBs lack the requisite creditworthiness and expertise to access the capital market on their own. Moreover, the transaction costs can be prohibitively high for small size issues. Pooled financing is a mechanism designed to overcome these issues and provide an avenue for small and medium ULBs to tap debt capital markets. Pooled financing enables a number of ULBs to come together and borrow under one umbrella and avail the benefits of economies of scale and credit enhancement, thereby allowing them access to the capital markets at a lower cost than if they had each attempted to access the markets on their own.

Pooled financing has been successfully attempted in several countries, including India now, and can constitute a significant means of financing smaller municipalities. There have been pooled finance issues by Tamil Nadu and Karnataka, enabling small and medium cities in these states to access debt funds from the capital markets. Their performance has helped make a strong case for the development of the pooled finance bond market in India.

The first pooled finance bond issue in India – by the Water and Sanitation Pooled Fund (WSPF) - was done in Tamil Nadu in the year 2002 (**Box 7.2**). Encouraged by the response to the first

pooled finance issue, and to the one in Karnataka⁶ that followed, the Government of India set up the Pooled Finance Development Fund (PFDF) aimed at building the infrastructure of small and medium towns. This made available a sum of money under the Credit Rating Enhancement Fund (CREF) that state pooled financing entities could access for providing credit enhancement on their pooled finance issues. The PFDF also made available a grant for implementing reforms (accounting, user charges, e-governance and collection efficiency) at ULBs. This scheme was expected to kick-start the nascent pooled financing movement in India.

Box 7.2

The first WSPF pooled bond issue of 2002 [6]

The WSPF is a pooled financing scheme set up by the Tamil Nadu Urban Development Fund (TNUDF) with the objective of helping smaller ULBs in Tamil Nadu gain access to debt capital markets and also to build the ULBs' capacity to finance and manage infrastructure projects. These ULBs would otherwise find it difficult to access the debt markets because of the small size of their debt requirements and the lack of track record in accessing debt. Pooled financing allows such entities to pool together their projects and access the market with a one single bond issue backed by the cash flows from all the underlying projects. This pooled finance mechanism enables access to private sector funds for infrastructure projects in small cities, while also having no recourse to state government guarantees.

The size of the pooled issue is large enough to attract institutional investors and the technical expertise in structuring such a transaction is provided by TNUDF, the financial intermediary. TNUDF also works with the ULBs to improve the quality of their systems and processes, thus incentivising them to improve their capabilities in order to be able to tap the markets again to access further external debt.

The first WSPF pooled bond issue for Rs 30.4 cores happened in 2002 and it pooled together projects from 13 ULBs. The AA rated bond was backed by underlying project revenues and

⁶ The Greater Bangalore Water and Sanitation Project (GBWASP) by KUIDFC was financed using the pooled financing mechanism. Details are available at: <http://www.kuidfc.com/website/webpage.nsf/lookupAllCat/Projects-GBWASP>

credit enhancement was provided through the escrow of property tax and other collections, a Bond Service Fund of Rs 6.9 crore provided by the Government of Tamil Nadu, a USAID guarantee of up to 50% of the principal amount and the ability to intercept State Finance Commission (SFC) devolutions to these ULBs.

Banks and insurance companies initially invested in the bond issue and there has been considerable trading activity in the secondary market, with provident funds making up the bulk of investors now. This activity in the secondary market is a pointer to the increasing liquidity for long-term bond issues and the willingness of long-term investors such as insurance companies and provident funds to participate in the municipal and pooled finance markets.

However, a government mandated interest rate cap of 8% per annum on tax-free municipal and pooled bonds has put the brakes on the development of this market. For instance, the second WSPF bond issue was a victim of this interest rate cap (**Box 7.3**). Municipal and pooled bond issues have become scarce over the past few years because the 8% interest cap made the bonds unattractive to investors.

Box 7.3

The Second WSPF Pooled Bond Issue of 2008

TNUDF envisaged that the second WSPF bond issue would be a Rs.90 crore issue in two tranches of Rs.45 crore each. The issue was rated AA but by the time it was approved to be placed in the market, the issue failed to generate interest among investors due to the coupon rate of 7.25%. In an environment of rising interest rates, the market possibly felt that the coupon rate on the bond was unattractive. Because of the mandated interest rate cap of 8% on tax-free bonds, this bond issue had little room to adjust the coupon rate upward. Despite the tax-free status, the capping of the return at 8% had made it uneconomical for investors, particularly mutual funds and provident funds, which were tax-exempt entities, to subscribe. However, there are no interest restrictions on the issue of taxable bonds in the market, and though there was market interest for such bonds, the PFDF Scheme did not support such paper.

Consequently, the Rs.45 crore worth of bonds found subscribers worth only Rs.6 crore and the issue was closed. After a gap of over a year, the issue was again revived and this time, due to the prevailing market conditions, the issue was fully subscribed.

While the government mandate on interest rate caps is understandable from the point of view of preventing municipalities from taking on too much high-cost debt, it would perhaps be more appropriate to define the cap as a spread over a floating benchmark (such as the average Prime Lending Rate of a few large banks in the country). This will enable municipalities to make their bond issuances competitive in an environment of high interest rates, raise funds when they need to and finance the development of much needed public infrastructure and services.

More importantly, the provisions of the Government of India's Pooled Finance Development Fund (PFDF) Scheme, which aims to promote pooled financing across the country, should be extended for taxable bonds as well. The extension of important provisions, such as the availability of Credit Rating Enhancement Fund (CREF), to taxable bond issues can help drive pooled finance issues and enable more small cities to access the markets to fund critical public infrastructure projects.

Pooled financing, as a concept, has been proved with the successful bond issues in Tamil Nadu and Karnataka. While the concept is attractive as a means for small municipalities to access financing, it also (perhaps, more importantly) has tremendous benefits in terms of helping these ULBs build capacities, improve the quality of their processes and systems, and become stronger, more creditworthy entities. State Pooled Financing Entities (SPFEs) have been set up in a number of states to promote pooled finance issues, but most SPFEs are yet to be operationalised. There needs to be a greater thrust in ensuring that this market is active and smaller municipalities have the opportunity to access the debt capital markets. The central government must re-look at the interest rate cap on tax-free municipal bonds in order to ensure that bond issues are attractive to investors and extend support to taxable bonds in equal measure.

It is also useful to reflect upon the key success factors that enabled Gujarat, Karnataka and Tamil Nadu to come out with successful standalone and pooled bond issues. The financial health of the ULBs accessing market finance and their ability to sustain long-term debt repayments is the main

criterion for the success of any bond issue. In these three states, the urban sector reforms implemented over a period of time have contributed to improving the finances of the ULBs. These reforms include the rationalisation of property taxes (including periodic revision and widening of tax base), better tax collection efficiencies, computerisation of records and service delivery, and implementing double-entry accounting systems. This has also been aided by the timely transfers of state government devolution funds based on State Finance Commission (SFC) recommendations.

The other important factor that has been critical to accessing bond markets, especially for smaller cities, is the establishment of financial intermediary institutions in Tamil Nadu (TNUDF) and Karnataka (KUIDFC). These institutions have displayed strong capability in enabling smaller ULBs access market finance - capability that includes technical as well as capital support (in the form of equity or guarantees).

Over the long term, it is possible to see the pooled finance mechanism as a game-changer in the municipal financing scenario. As more cities put their internal systems and processes in order, they will be in a position to use such mechanisms to raise financing from the markets and fund their local infrastructure needs. Rather than depending on grants and plan funds, such a financing mechanism will empower ULBs to become more proactive agents of local change.

7.2.5 Recommendations on private financing for infrastructure

Studying the municipal financing environment in India, it is apparent that the last 15 years have seen a substantial evolution from a grant and soft-loan based infrastructure creation program to increasing usage of market based mechanisms that bring in private capital. The development of the municipal bond market enabled, for the first time, Indian cities to access private, commercial funds to be deployed in financing public services. In the last decade, we have also seen the emergence of the pooled finance mechanism that enables small and medium cities to access the debt capital markets. While there are some hiccups in their development, these innovations need to be carefully nurtured to ensure that there is sustained flow of private finance for investment into public infrastructure in a capital starved economy with a huge infrastructure deficit. Considering the need for capital and the scale of investment required, it is only through further

innovation along these lines that India can hope to sustainably finance the large investments in urban infrastructure over the next two decades. While these market mechanisms have powerful potential implications, they need to be promoted through appropriate reforms.

(a) *Leveraging JNNURM Funds*

A major hurdle in the development of the municipal bond market is that the policy environment is currently dis-incentivising the use of market mechanisms to raise financing for public projects. In fact, one of the criticisms of the JNNURM has been that despite the large quantum of funds it is directing into urban infrastructure, very little, if any, of it has been used to leverage commercial capital. This has sparked concerns regarding the ‘crowding out’ of bond markets by government funds. The concern here is not so much the issue of bonds itself – not much purpose is served by local governments paying large amounts to the private sector for bond issuance and raising high-cost debt from the markets. In fact, if the central and state governments could sustainably finance all the infrastructure requirements in India by providing grants and low-cost debt to cities, then it makes sense for cities to finance their infrastructure in this way. However, cognisant of the reality of the Indian scenario, where central and state governments run huge deficits and capital is very scarce, it is essential that all efforts to promote infrastructure development and service delivery need to incorporate mechanisms to leverage scarce grant funds with debt from the capital markets.

Therefore, while all the JNNURM funds may not be suitable for leverage, a substantial portion must certainly be leveraged with commercial debt capital, as this will allow sparse central and state government funds to be spread efficiently across many more critical projects. There should be explicit conditionality that grant funds be leveraged and any exception must be clearly defined and argued. However, one part of the JNNURM corpus can be set apart for providing need-based grants, by way of viability gap funding, for poorer ULBs and for projects that demonstrably benefit poor communities.

(b) *HUDCO as Market Maker*

The other issue that needs to be highlighted is the role of HUDCO. Set up to finance housing and infrastructure, HUDCO has shifted its focus to financing larger power and gas projects. As the HPEC (2011) Ahluwalia Committee report points out, its financing for urban infrastructure (to the extent that it does) is subsidised by its profitable lending to larger infrastructure projects. The focus of HUDCO needs to be re-oriented towards urban infrastructure financing, but away from being a subsidised lender.

HUDCO could become a market-making institution for municipal debt, thus helping catalyse the municipal debt market. On this role, HUDCO could perform activities such as: (i) providing guarantees on municipal debt to entice commercial banks to lend to municipalities, (ii) investing in lower rated tranches of municipal bond issues, thereby incentivising private investors to invest in the higher rated portions, (iii) underwriting specific pooled bond issues and (iv) providing subordinate debt to a pool of projects raising bond finance. The essence of HUDCO's market making nature will be determined by its arm's length distance from the municipalities it works with, i.e. the provision of guarantees must be based on HUDCO's own assessment of the credit risk associated with the municipalities, backed up by a credit rating where available.

HUDCO can thus, on the one hand, expose the municipalities' true creditworthiness to the market, providing for transparency and incentivising municipalities to address their governance and service delivery issues and on the other hand, help attract commercial funds into investing in credit enhanced municipal debt as well as allowing lower rated municipalities to access the debt market.

7.3 Private Expertise and Efficiencies in Public Service Delivery

While accessing commercial, private debt is one way of involving the private sector in public service delivery, the other option involves accessing the expertise and increased efficiencies of the private sector in the design, development and delivery of public services. In a stylised manner, the first option has sometimes been termed Debt Private-Public Partnership (Debt PPP) and the second option Equity Public-Private Partnership (Equity PPP) [7].

Equity PPPs are seen to create value by channelizing innovative and modern management practices from the private sector in project development, structuring, resource mobilisation, asset management and project implementation. In other words, Equity PPPs provide a mechanism to deliver efficiency gains in the delivery of urban services and can also be useful agents driving improvements in the governance and accountability of municipalities. The public sector can leverage the expertise and specialization of the private sector in enhancing operational efficiency in the provision of public services. Based on the perception of risks involved, the private sector can also be incentivised to bring in financing ability.

At a conceptual level, such PPPs provide many benefits to both government and the private contracting party. The government continues to own the underlying asset, can share in the project upside, leverage scarce budgetary resources and bring in innovative practices, expertise and efficiency in the delivery of public services. The private sector, apart from its direct compensation for the project, gets policy support from government, financial assistance, fund mobilisation support because government participation enhances lender confidence and government support in resolving bottlenecks during the project period.

However, historical experience of PPPs in developed and developing countries has been decidedly mixed. This has been attributed to a number of reasons: lack of clarity in scope and framework for PPPs, absence of rigorous contracts, weak policy and regulatory support, inadequate capacity of stakeholders, lack of strong leadership to drive projects, and the non-availability of baseline data. The issues plaguing the emergence of viable urban PPPs in India are also related to the lack of capacities at the ULB level to understand, conceive, bid out and manage PPPs.

7.3.1 *The Indian Context for PPPs*

While public infrastructure projects were completely financed through government grants and plan funds up until 1990, they were also designed, developed and implemented by government line departments or para-statal agencies. Since then there has been an increasing thrust towards alternate models of financing as well as implementing infrastructure projects.

Since the late 1990's we have seen the increasing use of PPPs in urban infrastructure projects: roads, sewerage, solid waste management and water supply. Additionally, larger national infrastructure projects such as ports and airports have also been implemented in the PPP mode. On the one hand, in India, the private sector has been involved in the urban sector through lease and management contracts where the objective is efficiency improvement and investment commitment is low. On the other hand, there have also been attempts at more complex PPP projects such as water supply and sewerage concessions, metro-rail projects, roads, airports and ports.

At the policy level, there has been focused effort on creating national legal frameworks for PPPs as well as capacity building efforts at the national, state and local levels. A PPP cell⁷ has been set up in the Ministry of Finance which provides access to detailed model documents, guidelines, databases and toolkits for use by states and cities as they undertake PPP projects.

State governments in India have a critical role to play in infrastructure development – municipal, education, health, power and roads among others - and must therefore be encouraged to engage the private sector in greater measure. It must be pointed out that the private sector must not merely be looked upon as a source for financial resources; in many cases they can bring in important efficiency improvements in service delivery for the investments made. Every state has a PPP cell to guide the design of PPPs in the state. However, PPP cells can also proactively help states develop a PPP policy framework as well as PPP toolkits based on the model toolkits developed by the Government of India. With a policy framework in place, private partners are given a clear sense of the risk-sharing arrangements for PPPs in each state and public agencies have greater clarity on how to go about designing and implementing PPPs. In fact, states such as Andhra Pradesh and Gujarat have gone further and also developed specific legislation to clarify the legal environment for PPPs in the state. All these are important policy actions that signal a broad commitment of state governments to create an environment where PPPs can flourish.

Although PPPs are at a nascent stage in India, the activity on this front over the last decade is a clear indication of a break from the purely public model of service delivery and an acknowledgement that the private sector has a valuable role to play in public infrastructure

⁷The PPP Cell of the Ministry of Finance, Government of India is at: <http://www.pppinindia.com/index.php>

creation and maintenance. Especially in view of the magnitude of the infrastructure and service delivery challenge confronting India; it is pertinent that private expertise and resources be optimally engaged in ensuring better public infrastructure outcomes.

7.3.2 *The working of PPPs in India*

As cities in India find their way about PPPs for urban infrastructure and service delivery, it must be acknowledged that the type of projects in operation span the range from service contracts, where the private sector is compensated for a service provided, to concession agreements for design, development and maintenance of infrastructure that involve upfront private sector investment and revenue uncertainty. Indian PPPs also span the realm from projects that allow for full cost recovery through projects that need viability gap funding to projects that take on more of a public characteristic and lesser revenue generating characteristic. And finally, these projects come at different levels of technical complexity, with varying gestation periods, attendant complexities of land acquisition and difficulties in assessing risk.

An assessment of the Indian PPPs reveals that the projects that have been successful are technically simple with small gestation periods; enable easy estimation of costs; offer high visibility of risks involved and therefore a reasonable estimation of revenues. Examples of such projects include the water supply distribution project in Hubli-Dharwad, Belgaum and Gulbarga and the collection and transportation of solid waste in Delhi and Chennai. These projects have the potential for significant operational efficiency gains and greatly reduce the private sector's revenue risk by payment for services by the local bodies (as in Hubli-Dharwad, Belgaum and Gulbarga).

The Indore city bus service project is a useful illustration of a PPP where the private sector had a well-defined, circumscribed role that enabled a clear visibility on costs and risks, thereby ensuring a higher probability of long-term project viability (**Box 7.4**). Two key features, namely clarity on expected demand and limited upfront investment (only in the rolling stock, and not the common physical infrastructure), were drivers of success in this project – and other projects with similar characteristics.

Box 7.4

The Indore City Bus Service of 2006 [8]

The city of Indore did not have a public transportation system and much of the intra-city transport burden was handled by private minibuses, tempos, mini-vans, and auto-rickshaws. There was a need for an efficient, safe and affordable public transportation system. A special purpose vehicle, Indore City Transport Services Ltd. (ICTSL), was set up by the Indore Municipal Corporation, Indore Development Authority and the district administration to operate and manage the public transport system. ICTSL implemented the Indore city bus service as a PPP. ICTSL, the concession granting authority, identified the routes for operations of the buses and then initiated a competitive bidding process following which it appointed four concessionaires for a period of five years for different zones within the city.

The project was structured such that the investment in the common infrastructure like bus stops, bus terminals, automatic fare collection system and office space was the responsibility of ICTSL and the private partners were responsible for the investment in the rolling stock. This investment made by concessionaires was financed entirely through debt obtained from banks. O&M costs are the responsibility of the concessionaire.

The revenue stream of the concessionaire under this service comprises fares and advertisement revenues. The concessionaire retains 60% of the advertisement revenue, 80% of pass revenue and the entire daily fare collection, passing on the rest to ICTSL. In addition to a share in advertising revenue and revenue generated through passes, the concessionaires also pay a monthly premium to ICTSL for operating the service. The concessionaires are required to comply with the performance and maintenance standards issued by the ICTSL.

In this case, the only upfront investment made by the private party is in the rolling stock of buses, which it is incentivised to operate and maintain. Multiple revenue streams (advertisement, fares) also provide for reasonable revenue de-risking. Such a model for a bus transport system can be replicated by other cities across the country.

While this case is an example of the type of project that the policy and institutional environment in India supports, the reality of India's infrastructure deficit is that there is a dire need for complex projects in roads, water supply, sewerage and transportation to be designed and executed. A number of these projects have been attempted and have been confronted with varied challenges in implementation and the emergence of unplanned or unexpected risks over time.

The design and allocation of risks at the outset is based on a best efforts understanding of the possible uncertainties over the life of the agreement and the parties best equipped to handle them. But despite the best intentions, projects that are long-term in nature are susceptible to the emergence of new and unexpected risks. These uncertainties cropping up during implementation might impact the overall viability of the project.

It is therefore important that the legal, regulatory and governance frameworks give the private and public partners the ability to renegotiate the initial agreement if new risks seriously alter the understanding of the project. Especially in long-term projects involving complex structuring and higher levels of demand risk, there is a need to appreciate the fact that risks conceived at the outset could pan out very differently over time from the way they were initially envisaged and new risks could crop up depending upon factors such as market conditions, policy climate and technology. Since these types of projects tend to involve high levels of upfront investment, it is essential that upon the emergence of unexpected risks there are mechanisms built into the initial agreements that enable the project parties to attempt a meaningful resolution of the situation. Without these mechanisms, there is a high risk that parties will be unable or unwilling to reach a resolution and the continuation of the project itself might be put into jeopardy (**Box 7.5**). Not only would one or both parties lose economically, it is very possible that there will be broader long-term social costs that citizens may have to end up bearing on account of the failure of the project.

Box 7.5

The Tiruppur Water Supply Project of 2006 [9]

Tiruppur is a town in Tamil Nadu with a large export-based textile industry. The textile industrial units required large amounts of water, but the quantity and quality of water demanded was beyond

the capacity of the municipal water supply system to match. In this scenario, it was envisaged that a PPP for the delivery of water to industrial units and domestic consumers in Tiruppur would provide a comprehensive solution for water supply in the city. A special purpose vehicle called New Tiruppur Area Development Corporation Ltd. (NTADCL), a joint venture between the Tamil Nadu government, Tiruppur Exporters Association and IL&FS, was set up to implement the project. The project was expected to provide water supply to Tiruppur city as well as to neighbouring villages.

The estimated project cost was Rs 12 billion with an equity of Rs 3.9 billion from NTADCL. The project had an estimated debt component of Rs 6.9 billion and sub-ordinate debt of Rs. 0.75 billion. Project investments were expected to be recovered through a composite water charge, with industrial users subsidising domestic users. The revenue risk of the project was held by NTADCL. However, project risks were mitigated through a water shortage fund that would kick in to service debt in case of a water shortage at source (the Kaveri river) and a debt service fund.

Despite this risk apportioning and structural mitigants, the project has run into rough weather. This is because the expected demand did not materialise and therefore materially impacted revenue projections. The debt service fund meant to serve as a risk mitigant in case of demand mismatches has been completely exhausted. These consequences arose on account of multiple reasons: increased rainfall and groundwater recharge led to industries using ground water rather than the water from the project and environmental legislation leading to a number of units shutting down. NTADCL has been attempting to convert some of its debt into equity to keep the project sustainable.

The sequence of events post concession award lead to fundamental questions on the risk allocation framework of the project. The demand risk was left with the operator, and as it turned out, circumstances around the project - the natural environment, policy driven actions and the economic slowdown - led to the manifestation of this risk in such a way that the operator was in no position to handle it on its own. Since the contracts signed at the time of financial closure do not allow for re-negotiation between the parties, the project's future was itself put at stake.

The need for a more adaptive governance framework in long-term infrastructure projects is, therefore, a critical capacity that needs to be built in the Indian system. This governance framework will have to be supported by a robust legal and regulatory environment that is

conducive to stability and flexibility in the environment for PPPs in India. Over time, this will help enable the growth of trust between public and private partners in PPP projects.

The environment for complex PPP projects needs to evolve considerably, but there are still examples of such projects being structured, taking into account the learnings from past missteps and failures.

The road sector is one area where a number of projects have been commissioned as PPPs for more than a decade now, and have provided for some valuable lessons. It is well known that tolling is a major source of risk in road projects. For instance, in many projects (such as the Coimbatore bypass) there have been problems of insufficient demand and therefore poor toll collections. As a response to these challenges, recent projects (**Box 7.6**) have tried to more finely tune their risk allocation structure in a way that it substantially de-risks the long-term viability of the project, and provides for more confidence between the private and public partners.

Box 7.6

The Chennai Outer Ring Road Project of 2010

Traversing a total length of 60.15 km from Vandalur, a fast-growing southern suburb of Chennai on the Grand Southern Trunk Road (NH-45), to Minjur in the north, the proposed arterial Outer Ring Road (ORR) would form an arc to the west of the metropolis that has the potential to catalyze orderly and dispersed urbanization.

The ORR project involves 60 km of virgin highway, complete with 2 major interchanges, 3 flyovers, 5 bridges, 8 vehicular underpasses, 21 pedestrian underpasses and 100 culverts in the first phase alone. Raising funds for the project over the construction period would not have been too difficult a proposition, given Tamil Nadu's financial condition and in view of its ability to attract multilateral funding from external agencies like the World Bank and the Japanese International Cooperation Agency, which would have been cheaper than the cost of private capital. The decision to go in for private sector participation, therefore, appears to be more on efficiency considerations than financial, particularly when the private operator undertakes to

maintain the road infrastructure for over 17 years, which would necessarily entail periodic renewal of the surface - something which the state agencies are known to be not very good at.

However, in a radical departure from the tolled roads model, the key issue of tolling - which is the single biggest commercial risk in any road sector project - was de-bundled from the concession. The political risk associated with tolling has jeopardized many a PPP project in the past, and so the state government consciously shifted the risk away from the private operator, thereby making the ORR deal more attractive for private sector participation. The state decided to reserve the right to impose and collect tolls on different classes of vehicles to itself. The payment to the private sector operator was to be made through half-yearly annuities over the concession period of 20 years - 2.5 years for construction and 17.5 years for operation and maintenance. Given that in due course the road would become an urban transit corridor, which is always a challenge from a tolling point of view, this decision makes eminent sense. The revenue flow to the private party has been substantially de-risked by delinking it from the actual tolls collected to being a fixed half-yearly payment from the state government.

Land acquisition, a key project risk, was to be the responsibility of the Chennai Metropolitan Development Authority, who would hand over the entire stretch of land within a prescribed time period without any encumbrances to the State Highways department for implementation through the Tamil Nadu Road Development Company (the Managing Associate for the project).

The other significant feature of the ORR is the earmarking of land for real estate development, and for the mass transit corridor, which was prudently de-bundled from the road concession. The road development is bound to unleash large-scale developments on both its sides. If properly regulated through land use zoning, infrastructure provisioning (e.g. feeder roads, drainage, water supply and sewerage) and building rules enforcement, the real estate value of lands abutting the ORR is likely to grow manifold in the coming years. The 50 m strip of land adjacent to the carriageway reserved for future development can bring enormous returns to the government at an appropriate time, which would pay back the entire cost of the ORR development, besides aiding in the planned urbanization of the corridor. On the other hand, if left to the private sector party, this land could have been subjected to speculation and worked against the orderly growth of the

area. It could also have invited real estate players rather than professional infrastructure developers to invest in this project, possibly to its disadvantage.

While it is too early to say how the ORR project will fare over the long concession period, and creating the right institutional and governance structures will be critical to its success, it is still an important step in the involvement of the private sector in the provision of public infrastructure. It is an example of a complex project with long-term revenue uncertainty, land acquisition risks, and reasonable technical complexity.

Projects such as the ORR hint that the state agencies can be more comfortable with long-term performance-based build and operate contracts involving the private sector, and private sector operators are willing partners as long as they are not unduly expected to bear the risks of toll and tariff imposition (which have inherent political implications) on users.

Increased private participation in the provision of urban infrastructure is imperative, if the scale of the expertise and funding challenge is to be squarely met. The development of complex PPPs to address the infrastructure deficit in India will be critical to addressing the urban service delivery challenge.

7.3.3 Thoughts on evolution of Indian PPPs

It has been argued that in the Indian context, PPPs with high transaction complexity have been adversely affected by the weak institutional and policy environment which has led to sub-optimal project outcomes.

While it is important to be forward-looking and effectively address the many challenges that PPPs in India face, it is also important to realise that there has been substantial change in the philosophy of public infrastructure creation and service delivery over the past decade. There are examples of well-structured infrastructure projects in India using the PPP mechanism and there exists much greater capacity and expertise in the design of robust PPPs for infrastructure provision today than a few years ago. The creation of model laws and guidelines, PPP toolkits, state level PPP units and the passage of enabling laws in some states indicate the willingness of

many stakeholders to attempt creating an environment where PPPs can viably function. The fact that we have been able to make gradual progress on these fronts over the last decade gives some reason for hope that desirable change is possible in the future also.

However, for this change to be deep-rooted and meaningful, it must be driven with a long-term vision and clarity of purpose. It is only by concerted policy engagement in terms of driving governance and institutional improvements as well as suitable legal and regulatory reforms that it will be possible to create an environment for the effective development of critical yet basic urban infrastructure and services that citizens have been denied for far too long.

The proposed new JNNURM is a unique opportunity to bring in the next wave of reforms that induce significant private sector participation in urban infrastructure and service delivery. State Governments will need to be prodded into bringing in the enabling legislation, institutions and governance systems, besides being mandated to compulsorily leverage government funds to attract private funds. Release of future tranches of funding from JNNURM can be tied to the demonstration, by state governments, of quantifiable progress in achieving private sector participation. At the same time, grants under JNNURM could be offered to private sector operators by way of viability gap funding in order to promote PPP projects that are clearly unviable at acceptable tariff levels.

7.4 Conclusion

In this paper, we undertook an assessment of private participation in the provision of public infrastructure and services – participation in the form of financing as well as in developing, managing and operating public services.

The environment for urban infrastructure provision has undergone a sea change in the last two decades. Prior to 1991, the government (along with government-linked institutions such as parastatals and public sector institutions under direction from the government) was the financier, developer and operator of all urban infrastructure and services. While this created some much needed infrastructure in cities, the absence of accountability in this top-down, centralised approach led to the development of infrastructure of poor quality, without concern for the needs of citizens.

However, since 1991 there has been a substantial re-think on the mechanisms for the development and financing of urban infrastructure. The passage of the 74th constitutional amendment gave statutory basis for ULBs and placed the third tier of government in India on a firm pedestal. All states created enabling legislation to transfer responsibilities of local infrastructure and service delivery to this tier of government. This development was followed by the emergence of new models of financing, developing and operating public services in India.

In view of the high deficits of central and state governments, new mechanisms to leverage private capital were required. The emergence of municipal and pooled bond markets have provided municipalities, large and small, with avenues to access private commercial funding to finance public infrastructure. While these markets have seen some hiccups, they have the potential to provide access to substantial financing for urban infrastructure. However, the policy environment must actively support the deployment of debt capital for public infrastructure creation. In this context, the flagship JNNURM program must incentivise the leverage of government grants with funds raised from the capital markets, as well as other reforms that deepen private sector participation in urban infrastructure and services. Additionally, the role of HUDCO must be revamped and it must refocus on its core mission of enabling financial resources generation for urban development. Instead of acting as a subsidised lender, HUDCO could become a market maker through the provision of guarantees and investing in subordinate tranches of municipal bonds or directly providing subordinate debt to projects to supplement private capital.

There has also been a sea change in the philosophy of models of public service delivery and consequently the role of the private sector in the development, management and operation of public assets. While the private sector has been recognised as being able to bring in management and technical capabilities as well as increased efficiencies, the historical experience of PPPs in India has been decidedly mixed. India has seen success in projects that are technically simple with small gestation periods; and with lesser uncertainties in demand estimation. Projects with greater management and technical complexity, long gestation periods and difficulties in estimating demand have faced problems. However, there is some evidence that newer projects are absorbing the learnings from earlier failures and structuring risks in a way that reduce the

probability of disruptions due to unexpected events in the course of a project's life. Over the past decade there has also been increasing policy focus on PPPs with the Ministry of Finance's model laws and guidelines, setting up of state PPP cells and legislation by some states to enable PPPs. While these are important measures, they will need to be supported by fundamental reforms in governance, institutional structures, laws and regulation to create an environment that is conducive for the creation of critical public infrastructure through the design and implementation of complex PPPs in India.

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