

PPP Experiences in Indian Cities: Barriers, Enablers, and the Way Forward

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Abstract: Recent studies indicate that India must invest more than \$150 billion over the next 5 years in the development of urban infrastructure. Urban local bodies lack the financial resources and the capacity to develop these projects on their own, pointing to a large role that public-private partnerships (PPPs) need to play in the development of urban infrastructure. This paper uses a combination of archival sources, case studies, and insights from a recently concluded roundtable discussion on PPPs to highlight five key barriers that PPP projects face in the urban Indian context. These barriers are a distrust between the public and private sector, a lack of political willingness to develop PPPs, the absence of an enabling institutional environment for PPPs, a lack of project preparation capacity on the part of the public sector, and poorly designed and structured PPP projects. A series of measures that the Government of India has undertaken to enable PPPs are evaluated and it is observed that these programs address only three of the five barriers identified. A set of nine additional strategies emanating from the roundtable are then proposed, that, in addition to the existing measures outlined by the Government of India, can help comprehensively address the challenges that PPPs in urban infrastructure that India is facing. This could help improve the quantity and quality of infrastructure services in Indian cities.

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Introduction

The correlation between infrastructure and economic growth has been well documented [e.g., Queiroz et al. (1994)]. Over the past few years, the Indian economy, as measured by its GDP, has been growing at a rate of 8% per annum. To sustain this growth, a recent study done by the Committee on Infrastructure Financing, constituted by the Government of India, has indicated that India must invest close to \$500 billion in infrastructure development and maintenance over the period ranging from 2006 to 2011 (Committee on Infrastructure Financing 2007). Given the large sum of money involved as well as the vast amount of infrastructure that is to be built, it is clear that the participation of the private sector will be necessary, both in terms of financing and in terms of implementation of infrastructure projects. Public-private partnerships (PPPs) are therefore considered to be inevitable in the prevailing Indian infrastructure context and are projected to constitute 40% of new infrastructure development over the next 4 years (Department of Economic Affairs 2007a). The private sector too is increasingly becoming interested in participating in infrastructure projects. In the roads sector for instance, PPP projects attract more bidders today than they did 5 years ago (Department of Economic Affairs 2007a).

There are several advantages in engaging with the private sec-

tor for infrastructure procurement. Foremost among these are (1) the ability of the private sector to finance infrastructure that cash-strapped governments are unable to provide and (2) the expectation that a profit-motivated private operator can bring about enhanced operational efficiencies (Gomez-Ibanez et al. 2004).

However PPP projects also encounter several risks that often lead to cancellations and/or significant renegotiations. The evidence from developing countries indicates that actual or perceived rise in tariffs, macroeconomic fluctuations in currency or purchasing power, inadequate regulatory and institutional environments, societal discontent against the private sector, and political reneging are some of the key reasons for the failure of PPP projects (Harris 2003; Gomez-Ibanez et al. 2004; Vernon 1971; Klein and Roger 1994).

Infrastructure projects in India are conceptualized and enacted at two distinct levels—(1) at the national level by the central government or its affiliated agencies and (2) at the state and urban levels by the respective state governments or their associated nodal agencies. Projects at the urban/local/municipal level fall, in most cases, under the purview of the state governments. This paper will focus on the Indian PPP scenario at the urban level since relatively little work has been done in this area.

There has been a recent steady increase in the urban Indian population due to a wave of occupation-induced migration from rural areas [Savage and Dasgupta 2006; Planning Commission 1998; United Nations (UN) 2005]. Several studies have shown that this trend is likely to persist over the medium term [Planning Commission 1998; United Nations (UN) 2005]. This migration has placed great stress on existing urban infrastructure and several cities across India have experienced deterioration in several urban indicators such as traffic congestion and pollution levels (Planning Commission 1998), water supply and availability (Savage and Dasgupta 2006), and the availability of housing [United Na-

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Table 1. PPP Case Studies Conducted

Number	Project title	Year of award	PPP type	Outcomes	Sector
1	Sewerage project undertaken in the municipality of Alandur	2000	Build-operate-transfer	Success in structuring; challenges in operation	Water and sanitation
2	Solid waste management project undertaken in the municipality of Alandur	2007	Full privatization	Success in structuring; challenges in operation	Water and sanitation
3	Solid waste management project undertaken in the city of Chennai	1999	Full privatization	Minor challenges in structuring; success in operations	Water and sanitation
4	Water supply project undertaken in the town of Tirupur	1995	Build-operate-transfer	Challenges in structuring and operations	Water and sanitation
5	Bridge project undertaken in the town of Karur	2000	Build-operate-transfer	Failure in structuring	Transportation

tions (UN) 2005]. It is well understood that improvements in urban infrastructure can contribute to a nation's economic growth (Polese et al. 2002). With this in mind, the government of India has estimated that \$150 billion needs to be invested merely in the areas of urban transport, urban housing, and urban water and sanitation over the next 5 years (Planning Commission 2008)!

Indian city and municipal governments have limited autonomy within their jurisdictions to levy taxes, duties and fees to raise funds. They are effectively dependent on their respective state governments to allocate funds to them for the provision of urban infrastructure and do not possess strong balance sheets and therefore lack the financial resources to develop the infrastructure that they require (Mathur 2006). Furthermore, they are often either understaffed or staffed with personnel without adequate skills and thus lack the capacity to procure infrastructure services on their own (Savage and Dasgupta 2006). PPPs can therefore play a key role in the delivery of urban infrastructure services by augmenting the financial and capacity weaknesses of urban local bodies (ULBs) in India.

Despite the logic of this argument, very little attention has been paid to PPPs at the state and urban levels. A cursory glance at the information available on the India Infrastructure website indicates that only 178 PPP projects relating to transportation, housing, water and sanitation, and other basic urban services have been or are being undertaken in urban centers in the entire country (Department of Economic Affairs 2008), a majority of which are in the transportation sector. This is a relatively small fraction of the total number of infrastructure investments and projects that are being undertaken in Indian cities.

In this context of a need for an increase in the use of PPPs to deliver urban infrastructure in India and the potential benefits as well as challenges that the PPP procurement approach offers, this paper aims to critically analyze the urban Indian PPP environment with a view toward highlighting context-specific barriers that have contributed to project failure and which could threaten the success of the PPP model in India. These barriers are then mapped on to various recently crafted PPP enablers at the policy and implementation levels that attempt to tap the advantages of partnering with the private sector. The paper then attempts to draw upon this mapping to identify policy gaps in the current urban Indian PPP environment and suggests additional strategic approaches that can be employed to combat existing barriers and to ensure sustainable PPP projects.

In the next section the writer briefly describes the methodology used to collect evidence to substantiate the arguments made in this paper. This is followed by a discussion on the key barriers present in the Indian infrastructure scenario at the urban level. Following this, a set of policy-based approaches that the Govern-

ment of India has undertaken to enable PPPs are presented. The next section assesses the extent to which these approaches address the barriers that have been identified. Finally, a set of additional strategic approaches to more comprehensively combat barriers to PPPs in the urban Indian context are described.

Methodology

Three sources of data have been used to substantiate the arguments made in this paper. First, a set of secondary data sources such as archival records of PPP infrastructure projects in India, newspaper reports, and other publicly available documents on the policies that shape Indian infrastructure (primarily authored by various Indian governmental agencies) were used.

Second, a set of five case studies of urban PPP projects experiencing varying degrees of success were documented. Table 1 lists the case studies that were conducted with some related information. Each case study involved interviews with government officials, private project sponsor representatives, stakeholders from the local communities, project consultants and transactions advisors as well as a study of project documents such as the concession agreements. An average of 10 people were interviewed and a minimum of 15 h of interviews were conducted per project. The purpose of interviewing representatives from a variety of stakeholder groups was to ensure that biases held by one set of stakeholders were eliminated. Most interviews were recorded and all recorded interviews were transcribed. The transcripts and project documents were used to identify the sequence of events as the project unfolded and to describe the process of project conception and delivery. Each project was then written up as a 10,000 word case study. In line with typical case study practices (Yin 1984), the accounts of various stakeholders were compared with one another and with the project documents to ensure that contradictory facts were clarified and that facts presented in the case study were corroborated by multiple sources of information. This ensured the construct validity within the case study. Also, brief power point presentations of these case studies were made to some of the personnel involved in the project to see whether any salient features had been missed out or had been erroneously described. Informants independently agreed with the facts presented in the presentations that were made. This ensured the internal validity of the cases.

Third, data and insights that arose from a roundtable discussion on India's PPP infrastructure barriers at the state and urban levels were used. This roundtable was attended by 40 senior Indian and international representatives from the government of

India, leading academic institutions, consulting firms, financiers, project sponsors, and infrastructure construction companies. The participants deliberated on current barriers in Indian infrastructure at the state and urban levels and strategies to overcome these barriers. The entire roundtable discussion was recorded and the recordings were transcribed. Open coding (Strauss and Corbin, 1998) of the transcripts was first done to identify the various themes that emerged. Based on the frequency of occurrence of these themes and the qualitative magnitude of their impact, a subset of these themes were identified as a set of salient constructs. Axial coding (Strauss and Corbin, 1998) was then done to identify relationships between these key constructs and to generate causal links. For example, open coding identified a lack of trust between the public and private sectors as well as a lack of political will as being two constructs that very often acted as barriers in the PPP procurement process. Axial coding was then able to establish that in some cases the lack of trust between the public and private sectors led to an apathy toward PPPs on the part of the government, resulting in a lack of political will. The overall duration of the roundtable was 14 h spread over 2 days, and this contributed to the generation of nearly 100 pages of transcripts.

Several constructs and causal relationships that were identified as salient, manifested across case studies and were mentioned by several informants and roundtable participants. This indicated that the constructs were replicable and provided support for their external validity (Yin 1984) across urban infrastructure projects in India. However, a larger scale sample will be required to establish the extent to which these findings are externally valid. The objective of this paper is merely to explore factors that affect and enable PPPs in urban India. Given variations in the institutional contexts across countries, it will not be possible to generalize these findings outside the Indian context.

Since the roundtable was open only to a limited number of participants, there is a risk that the data might be biased. Two strategies were used to mitigate any such biases. First, roundtable participants were drawn from various stakeholder segments—academia, government, the private sector, and nongovernmental organizations so that the views of one particular segment would not dominate. Nevertheless, it must be acknowledged that most participants felt that PPPs were a viable approach for infrastructure delivery and therefore focused more on the “how PPP?” question than on “why PPPs?” Second, while coding the roundtable data, statements made by participants that were based on facts were selected for analysis, while generic opinions on PPPs were normally discarded. This enabled the analysis and findings to be empirically grounded and not affected by the cognitive biases of the participants.

In terms of the research process, secondary data sources were first used to identify generic barriers to urban and state level PPP projects in India without attempting to comment on the potency of each barrier. These findings are reported in the next section. Second, the case studies as well as the insights from the roundtable were then used to isolate a subset of frequently occurring barriers specific to the urban PPP context. In the third step, secondary data was then used again to identify and analyze actions undertaken by the Government of India to enable PPPs at the state and urban levels. These policies were compared with the barriers identified in Step 2 above to identify policy gaps. In the final step, insights from the roundtable were used to suggest strategies to bridge the policy gaps identified in the previous step.

Every qualitative research methodology has its limitations (in this case interview data can be biased and there might be difficul-

ties in generalizing evidence from only a few case studies) and therefore a strategy to minimize these shortcomings is to combine multiple methods so that the advantages of one method balance out the disadvantages of other methods (Leonard-Barton 1990; Yin 1984). This was the main reason for the use of multiple qualitative data collection and analysis methods in this paper.

Generic Barriers in Procuring State and Urban Level Infrastructure through PPPs

Urban PPP projects in India face three sets of barriers—barriers at the level of the institutional environment that envelopes these projects, at the level of the organizations that participate in implementing these projects and at the level of the specific project itself, and which have hindered the use of PPPs in Indian cities.

Barriers at the Institutional Level

Several PPP proposals for projects at the urban level face roadblocks due to the lack of enabling PPP legislation. In some cases, the existing legislations mandate that only the public sector be allowed to provide a given set of infrastructure services. Even when there is no explicit law that prevents the private sector from participating in infrastructure, the lack of enabling legislation on PPPs also implies that state government officials and bureaucrats who encourage private sector participation are doing so at their own discretion due to their own personal beliefs of the advantages of partnering with the private sector. This in turn leaves such personnel open to investigation from anticorruption agencies, which acts as a further deterrent toward soliciting involvement from the private sector. In the absence of PPP legislation, private firms also face the threat of expropriation and are reluctant to tender for such projects. Some states have framed policies for PPPs, but unless these policies are enshrined as laws, they always run the risk of being rewritten by succeeding governments. These institutional barriers result in a considerable increase in transaction costs to plan, approval, and execution of PPP projects.

Organizational Barriers

PPPs in India are a relatively recent phenomenon and are not well understood in both the public and private spheres. Public officials therefore are not trained in areas such as financial and legal structuring that are key to PPP transactions, and are not used to the new kinds of contractual arrangements that are typical of PPPs where risk and responsibility are shared between the private and the public sectors. As a result, relatively few proposals for PPP projects are put forward by the states. For instance, in 2005 the government recently proposed a scheme titled the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) wherein partial grants are provided to state governments for specific projects in the expectation that these governments will raise the remaining amount through private sources. However until now, hardly any projects under this scheme have been implemented via PPP, with state and municipal authorities preferring to use budgetary funds to bridge the financing gap.

At the political level there is a lack of clarity in several states on the practical usefulness of PPPs in developing infrastructure. Several failed attempts coupled with a lack of analysis or documentation of the projects undertaken has led to some apprehensions on whether PPPs are indeed as efficient or optimal as they are proposed to be. In addition, governments or coalitions in sev-

eral states such as Tamil Nadu, Kerala, and West Bengal that have representations from left-wing factions are often strongly opposed to the entry of the private sector to provide essential services. A lack of support from the political machinery is therefore also a reason for the lack of PPPs at the state levels.

The private sector is also grappling with capacity issues to execute infrastructure projects. Traditionally infrastructure project construction has been labor intensive and has employed ad hoc project planning and control techniques. With the exponential growth of the Indian construction industry and the increase in scale and complexity of the projects, manpower is now a scarce resource and systematic project planning, management, and control are now required. Several projects therefore face delays in execution as the private sector strives to acquire these competencies. A final organizational issue that has hampered PPP projects at the state level is the lack of trust between the private and the public sectors. Most PPP projects are therefore not true PPPs but merely private-public mixes.

Project Level Barriers

Foremost among project specific barriers is the lack of economic viability of several PPPs that are brought to the table. Recently, a bypass road project proposed on a build corporate transfer (BOT) basis around the city of Coimbatore failed to generate interest from the private sector due to an inadequate rate of return expected through toll revenues. Social pressures from activists protesting against inequitable resettlement, environmental degradation, and so on also leads to difficulties in implementing PPP projects. In other cases, the intended users of the project may resist tariff increases that result through privatization. In the case of the Coimbatore bypass road described above, the government of Tamil Nadu decided to toll a neighboring bridge and include the toll revenues as part of the financial equation for the bypass road project. However users of the bridge were upset at a toll being charged for a facility that they had used for free previously, and refused to pay. In particular, state-run buses that were subsidized by their governments lobbied for and won a decision to lower the tariff rates, which in turn placed enormous pressure on the concessionaire to break-even on this project.

A plethora of local bodies are usually involved in the implementation of a project and private agencies often need to procure permits, approvals, and the like from several agencies. This considerably increases the transaction costs of a project and often necessitates the exchange of bribes in order for the project to move forward. Finally, the occupational and organizational cultures of the Indian private and public sectors differ with the public sector being relatively bureaucratic and more process focused and the private sector being more results oriented, leading to conflicts in the day to day operations of projects. All of these concerns have contributed to a relative lack of PPPs in Indian infrastructure at the state and urban levels.

Key Barriers to Urban PPPs in India

Based on an analysis of the case studies and the roundtable transcripts, five of the generic barriers mentioned above emerged as the key impeding factors to urban PPP projects. These barriers and their nuances are elaborated upon in more detail in this section.

Contrasting Mindsets and Distrust between the Private and Public Sectors

Roundtable participants agreed that urban governments were used to dealing with the private sector as contractors and therefore it was not very easy for them to shift to a mindset where the private sector would also own and operate services traditionally run by governments and line agencies. Even in cases where PPPs were clearly possible in the area of, say, land development of unused, government owned land, local governments and agencies often were reluctant to take up these projects via an interface with the private sector, due to a distrust of the private sector. This distrust, however, was justified based on past experience. A government representative opined:

“If I talk to members of the legislative assembly, their caricature of a PPP deal is as follows. There is a private operator, he wants to rip off the state. He bribes the executive and judicial branches. They all have a good time at the expense of the public. This is the caricature of PPP in India. And I must say that with my knowledge, this is not too far from the truth. So the caricature often matches the reality.”

Past PPP failures such as the Karur bridge project where a newly elected municipal government unilaterally cancelled the concession agreement on the pretext of a damaged approach road without compensating the concessionaire often served to reinforce this notion that the private sector could not be relied upon to develop infrastructure, and added to the private sector's inhibitions to bid for PPPs, leading once more to fewer firms bidding on projects, suboptimal outcomes, and a distrust of PPPs. Very often these issues led to an unwillingness to share risks optimally and resulted in cases where government agencies put forward unbalanced contractual terms with a majority of the risk on the private sector. The private sector was then also likely to indulge in gaming behavior since neither party trusted the other nor the contractual terms that they signed on. To compound this issue, the judicial system also often took an interpretative stance toward the contract as opposed to strictly enforcing the terms and conditions, leading to further discontent among project participants. In effect, private involvement in urban infrastructure was often merely “PP” and not “PPP” with very few instances showing signs of true partnership (the third P in PPP) between the public and private sectors.

Lack of Political Will toward Project Implementation

In instances where PPPs have had complete political backing, projects have been more likely to be completed successfully. In the case of a sewerage project implemented on a BOT basis in the town of Alandur, the municipal chairman—the elected political leader of Alandur—personally pursued the involvement of the private sector and was able to obtain the consent of the opposition parties and the public at large. Despite encountering several barriers this project was ultimately completed successfully.

Several governments at both the state and municipal levels however were often not in favor of PPPs due to a lack of clarity on the benefits of PPPs coupled with a distrust of the private sector. Reluctance to go through with the project from the ruling party's point of view, a reluctance to charge tariffs from urban residents, opposition from players within the existing system such as private water tanker operators in the water supply sector, and a lack of political consensus were key reasons that prevented po-

tentially promising PPP schemes from going through. For instance, the Tamil Nadu government's reluctance to involve the private sector led to the an impasse in the realization of an economically viable proposal to involve the private sector in the development of the old prison land in the city of Chennai. Two other projects—a sewerage project in the town of Pammal and a water supply project in the town of Tiruchirapalli—faced heavy initial opposition against PPPs from municipal officials who were reluctant to increase user tariffs. However the citizens proved to be willing to increase current tariffs by greater than 100% and eventually viable PPPs were developed.

A part of the reason for a lack of political leadership on PPPs was due to past experiences in some states where after a change of government, officials and political leaders were often hauled up for “colluding” with the private sector. A government representative pointed out:

“One of the major factors was fear of victimization in future. You see, every 2nd year or 3rd year there was a change in the government and the new government invariably looked at the misdeeds of the previous government and there was victimization of those who had done something. So, this fear was very instrumental in avoiding anything to do with the private sector. Almost all political parties whether they were in government or they were in the opposition, they were not very happy with the idea of working with private sectors, opening up government ideas to private sector.”

Clear political commitment combined with well defined implementation processes are thus necessary to foster PPPs for infrastructure service delivery.

Lack of an Enabling Institutional Environment

Roundtable attendees noted that several Indian states did not have legislation or policies that favored PPPs. For instance, when the municipality of Alandur contemplated PPP projects in the sewerage and solid waste management sectors in the late 1990s, they encountered government ordinances that clearly stated that only the municipality could provide sewerage services and that the private sector could not be involved. A special ordinance had to be promulgated to allow private participation in sewerage projects in the state of Tamil Nadu, before the project could proceed, resulting in the loss of a few years.

Roundtable participants also pointed out that most states lacked strong, capable infrastructure development agencies along the lines of the Tamil Nadu Urban Development Fund or the Gujarat Infrastructure Development Board that could create, structure and execute urban PPP projects. Many participants also brought up the issue of a multiplicity of agencies that had some jurisdiction over every project. A PPP water supply project for instance would need to involve the municipality, the state water board, the land-use and urban planning department, a coordination agency setup to develop the project, and several other agencies. Even if one of these agencies attempted to bring in private participation in project delivery, other departments might have objections. The uncertain and cumbersome project approval process often contributed to a lack of interest in PPPs from the private sector.

In many cases, conflicting programs and schemes proffered at various levels of government created an institutional framework that fostered inefficiency. For instance, prior to the JNNURM program mentioned earlier, some municipal governments were

attempting to develop projects that were financially sustainable, with viable user tariffs, using private sector participation when needed or just using debt finance. However, the JNNURM scheme offered large grants that every municipal government wanted to utilize, distorting the market and allowing ULBs to develop projects without critically looking at viability or private sector involvement.

In conclusion, the case studies and the Roundtable indicated that the existing set of regulative and normative arrangements that formed the current institutional environment for infrastructure project development was quite cumbersome, conflicting, and inhibited PPPs to a large extent.

Lack of Public Sector Capacity to Select and Procure PPP Projects

Most urban government departments lack the ability to select and structure a PPP project, prepare bid documents and contracts and to enforce these contracts, hampering their ability to engage with the private sector. The private sector itself is one of the causes for this lack of capacity, since to set up their project organizations and businesses to develop, fund or consult for infrastructure projects, the private sector has often “poached” several people from the government to provide expertise. A lack of public sector capacity to structure PPPs resulted in the absence of a pipeline or a shelf of projects that could be implemented as PPPs. Also, the mortality rate of PPP projects is very high in the early project preparation phases necessitating a large pipeline to start with.

Even when PPPs are undertaken, this lack of capacity has often led to poorly structured contracts which would invite project renegotiation or failure. In the Dabhol power project in the state of Maharashtra, the fundamental assumptions made pertaining to the user charges that were proposed and the affordability of these charges were erroneous and poorly designed, and the resulting tariff was unaffordable. This project therefore failed due to a lack of capacity to understand the structure of a project on the part of the public sector, which then entered into a contractual agreement by implicitly trusting experienced private players, without understanding the social implications of the contractual agreement that they had signed. Widespread protests later led to the withdrawal of the private concessionaire.

Poor Project Design and Structuring

In the absence of rigorous feasibility studies and project analysis, urban PPP projects are often poorly structured, leading to renegotiations and failure. In the case of the Tirupur water supply project where service had recently commenced, it now appeared that demand was well under what had been estimated, project revenues had not materialized and the project sponsor was unable to break even. In the case of Chennai's solid waste management, the city of Chennai initially selected a set of zones for privatization. However the waste generated from these zones was not large enough for the private sector to operate profitably. As a result, the first round of bidding yielded no private bids. The project then had to be restructured at the expense of the exchequer. Even when detailed analysis was done, as in the case of an airline project in the state of Gujarat, governments failed to act quickly to plan and bid projects, as a result of which demand and other project related information soon became obsolete making it difficult to bid out the project. In other cases, consultants overcomplicated the struc-

turing of projects through complex financial engineering which would sometimes necessitate subsidies for even viable projects to be executed.

In many cases, risks in PPP contracts were often inequitably allocated. In some instances, initial versions of PPP contracts were often drawn up in favor of the private player. Under the influence of public pressure, the government agencies were then forced to renegotiate the contracts to make them more equitable, but this process was perceived as a renegeing of the earlier agreement, and therefore bred mistrust and a lack of confidence in PPPs. In other cases, such as in a series of proposed land development PPPs across various cities, government agencies refused to change the zoning patterns on the land, leaving all these risks to be taken by the private developer. Developers stayed away from the project until the risks were reallocated.

Project development woes also stretched beyond structuring and into the operations and handover phases. In the case of Chennai's solid waste management, at the end of the first concession period, the contract was awarded to a different firm. However, this transition process was not planned or monitored well enough and resulted in a period of time where neither firm claimed responsibility for processing the city's waste, which in turn led to a piling up of garbage along the streets. Roundtable participants agreed that several feasible PPP projects were not brought to the table due to failings in the ability to structure projects.

All of these five barriers mentioned in this section are inter-linked. A preset mindset against private involvement relates to the lack of political will for PPPs. This in turn slows down both the creation of an enabling environment for PPPs and the augmenting of project development competencies within the public sector. The offshoot of these issues is that projects were often poorly designed and structured which then led to project failure and misconceptions on PPPs. This in turn has led to the formation of cognitive biases against PPPs and distrust between the public and private sectors. It is therefore essential that these barriers be tackled collectively and not individually for PPPs to play a role in infrastructure development in the urban Indian context.

Factors Enabling the Procurement of Urban Infrastructure through PPPs

The Government of India has recognized the relative lack of PPPs at the state and urban levels. In response several schemes have been launched to incentivize the use of PPPs at the state level which are described in this section. These policies and schemes can be classified into three categories—programs to augment municipal finances, programs to strengthen capacity among government bodies, and institutional reforms. Each of these is discussed briefly below.

Finance Focused Programs

The government of India has constituted a *Viability Gap Fund* that can be used in several urban sectors such as transportation, water supply, sewerage, and solid waste management (Ministry of Finance 2005). This fund will provide grants worth up to 40% of the total costs to projects that are not financially viable on their own. The intention is that this grant will close the "viability gap" and make such projects attractive to the private sector and hence amenable to procurement through PPPs.

State and urban governments have contended that they are

often unable to bear the costs of developing projects, hiring transaction advisors, and so on. In response, the central government has instituted the *India Infrastructure Project Development Fund (IIPDF)* (Department of Economic Affairs 2007c). Based on the quality of a PPP proposal from the state or urban governments and the viability of the initial feasibility studies, the IIPDF will provide local governments with funding to bear the costs of hiring transaction advisors.

The government has earmarked an outlay of INR 500 billion for the urban upgrade of 63 selected Indian cities under the *JN-NURM* scheme (Ministry of Urban Development 2004). The selected states and cities are expected to enact certain administrative reforms and then craft detailed project reports for urban infrastructure projects to be funded under this scheme. The level of funding will be proportional to the level of development already present within the city, with the understanding that the shortfall between the project cost and the JNNURM grant will be addressed by the cities themselves, preferably through the use of private participation. It is hoped that due to the JNNURM grant acting as a project subsidy, economically feasible urban infrastructure projects can be proposed that can be undertaken through PPPs.

Capacity Strengthening Initiatives

To strengthen public sector capacity to develop and implement PPPs, a "*PPP cell*" has also been created in each state and has been staffed with an administrative officer (Department of Economic Affairs 2007d). Although the roles and responsibilities of this cell are not clearly defined yet, the mandate for these cells is to identify and create a "shelf of projects" that are necessary and are viable under the PPP mode. These projects can span various sectors including physical infrastructure, tourism, health, education, and so on.

Various nodal or *coordination agencies* such as the Gujarat Urban Development Corporation, the Tamil Nadu Urban Development Fund, [e.g., Municipal Administration and Water Supply Department (2005)] etc. have been created in many states to help ULBs structure and finance infrastructure projects. These agencies are tasked with carrying out a variety of activities ranging from arranging debt funding for infrastructure projects to developing, structuring, managing the bid process, and overseeing the implementation of urban infrastructure projects on behalf of the ULBs.

The central government has also identified a lack of capacity from within the local governments in bidding out PPP projects, and has created a *panel of transaction advisors* who have been selected based on their experience and expertise in formulating and structuring PPP projects (Department of Economic Affairs 2007b). By allowing urban governments to directly select from these empanelled organizations, the central government has eliminated the need for the urban governments to call for bids for the provision of consulting services, thereby greatly reducing the transaction costs involved in preparing PPP project reports. ULBs have used the services of firms from within this panel with great success. When the Chennai Municipal Development Authority decided to privatize the solid waste management in the city, they first hired the Tamil Nadu Industrial Development Corporation as the bid-process manager, and KPMG as the consultants who analyzed project feasibility and successfully crafted the structuring of the project.

Table 2. Mapping PPP Enablers and Barriers

Enabling strategies	Barriers				
	Distrust between public and private sectors	Lack of political will	Absence of an enabling institutional environment	Lack of public sector capacity	Poor project design and structuring
VGF					◇
IIPDF				◇	◇
JNNURM					◇
PPP cells			◇	◇	◇
Coordination agencies			◇	◇	◇
Panel of transaction advisors				◇	
74th amendment		◇	◇		

Institutional Reforms

Urban governments have historically lacked the autonomy to develop and implement projects themselves since several urban services come under the purview of the state government (Infrastructure Development and Finance Company Limited 2006). In many cases, this has resulted in urban infrastructure projects that are both necessary as well as viable via PPPs not being brought to the table due to a lack of visibility at the state level. The recently enacted 74th *constitutional amendment* has devolved the responsibility to raise finances and implement urban infrastructure projects and services to the local municipal governments, thereby increasing the possibility of relevant and feasible PPP projects being structured and procured at the municipal level (National Institute of Urban Affairs 1994).

Impact of PPP Enablers on Urban PPP Barriers

Table 2 describes the extent to which these innovative measures outlined in the previous section address the key barriers that PPP projects face. Several schemes such as the Viability Gap Funding (VGF) program, the IIPDF, the JNNURM program, the creation of PPP cells, coordination agencies, and the empanelment of transactions advisors address the issue of poorly planned and structured PPP projects being brought in to the bidding or implementation phases. VGF and JNNURM can enable previously unviable projects to be restructured in financially viable means through the injection of grant funds. The IIPDF provides funds to engage professional agencies to better structure and transact projects. The PPP Cells and coordination agencies are often staffed by competent professionals and in many cases are also called upon to help ULBs identify, design, and legally and financially structure PPP projects such that they are viable and attractive to the private sector.

In much the same manner, PPP cells, coordination agencies, and the panel of transaction advisors also help augment the capacity of ULBs. They hand hold or are contracted by the ULBs to analyze technical documents, prepare contracts, evaluate bids, and to monitor the progress of construction as well as the operations of PPP projects. This allows government agencies without the wherewithal to engage in complex, nontraditional procurement processes to choose PPPs for project delivery.

The 74th constitutional amendment, along with the creation of new institutions such as coordination agencies and PPP cells also provides the framework for the creation of an enabling environment that allows local stakeholders to assess and proactively decide on projects that need to be implemented in their communities. Local initiative, the autonomy given at the local

level and the expertise that can be channeled from coordination agencies and the like can together lead to the conceptualization of innovative project structures to deliver necessary services. The sewerage scheme in Alandur is a case in point. The project was conceived by the mayor of the municipality who championed exploring PPP as a viable procurement option. The Tamil Nadu Urban Development Fund (TNUDF) performed and facilitated detailed feasibility analysis as well as project structuring that helped the project come to fruition in record time.

Notwithstanding these measures, it can be seen that although the innovative PPP enablers that have been conceptualized by the Indian government address only three of the key barriers identified in the previous section to some extent—viz., a lack of an enabling institutional environment, a lack of public sector capacity as well as poorly designed and structured projects—they do not address the two key barriers of distrust between the public and private sectors and the lack of political will to implement PPPs. It is therefore unlikely that these recently implemented schemes will lead to a burgeoning of urban PPP projects to the extent that urban India requires.

Additional Strategies for Successful PPPs

The roundtable discussion yielded nine additional insights and strategies on how urban PPPs could be enabled. These strategies as well as their potential impacts on the key barriers to PPPs are briefly highlighted in this section.

Documenting PPP Case Studies and Establishing a Driver for PPPs

Several roundtable participants opined that in order for PPPs to be advocated as a primary or as a secondary option by government representatives, a defensible rationale should be established for PPPs. Documenting successful case studies of PPPs and quantifying the efficiencies that they generated could lead to persuasive and plausible arguments justifying PPPs. This could in turn lead to greater political will to implement PPPs as well as better trust between the public and private sectors due to a more favorable perception of the benefits that each party could bring to the project in the case of a symbiotic relationship. The government could invest some effort in crafting out well thought out pilot PPP projects that could then be documented as success stories.

Historically PPPs were driven by policies laid out by the government of India and by incentives such as the availability of VGF, as opposed to an evaluation of whether PPPs were feasible or whether they provided better services to the public. A rationale

for PPPs in a particular sector such as the ability to obtain better value for money or more efficient provision of infrastructure services need to be identified and clearly articulated to the political and administrative wings of the government for PPPs to be smoothly implemented. Tools such as a public sector comparator [e.g., Partnerships Victoria (2001)], seldom used in India, could be used to justify the use of PPPs. Such objective or analytical justification for the use of PPPs could help combat the lack of political will for PPPs since government officials could then seek recourse to such analysis to justify their decision to use PPPs.

Adopting a Programmatic Approach toward PPPs

Most PPP efforts in India are deal focused. State and urban governments often respond to central government initiatives and pick up a handful of projects to implement via PPPs. This has resulted in two problems. First, a project focus leads to a hit-or-miss approach—some projects might succeed and others might fail, leading to uncertainty on the benefits of PPPs. Second, an ad hoc approach has often led to projects being implemented piecemeal, without a holistic view of the services that need to be delivered. For instance, in the urban power sector, there have been instances where an enormous amount of attention was paid to setting up PPP power plants for generation without paying commensurate attention to the transmission and distribution of power. As a result large losses persisted.

An alternative is a program-based approach. In this approach, outcomes and outcome metrics could be set for every urban subsector in a city, and a gap analysis could be performed to identify a program of projects that would need to be implemented to achieve the desired outcomes. A “sector equation” is then developed that would provide guidelines on the amount of competition that is viable in each urban subsector, the economics of supply, the willingness to pay, and so on. Projects could then be developed through PPPs in sectors such as transportation or water supply where the private sector could provide better efficiency, where governments lacked resources or finances, where the private sector was likely to operate profitably, and where private participation would be socially, politically, and ideologically accepted. If desired outcome metrics are strongly enforced it is likely that the government bodies themselves would invite the private sector to implement projects that they were incapable of implementing themselves. Such an approach is more likely to lead to infrastructure services being delivered rather than just having stand-alone projects built. The National Highways Development Program was one example of a programmatic approach wherein the government had identified a set of highways to be built to cater to transportation needs. Most highways were deemed viable via PPPs and were being successfully bid out as such. Only when this process did not yield qualified bidders was an alternative approach adopted. Urban infrastructure in the state of Gujarat was also being developed programmatically and Gujarat was widely accepted as the state with the best infrastructure in India.

Redefining the Roles of Coordination Agencies

While coordination agencies can help bridge public sector capacity and aid in project design and structuring, they could also be tasked with playing a key role in building trust between the public and private sectors. To do so, these agencies could themselves be set up as public-private partnerships. For instance, the TNUDF, a coordination agency that helps fund and develop urban infrastructure projects in Tamil Nadu is a partnership between the govern-

ment of Tamil Nadu and three financial institutions, where the government holds 71% of the ownership. This fund is managed by an asset management organization called the Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL) where the larger portion of the equity was held by the same three financial institutions, with limited government involvement. In some ways, this was actually a 6P structure, with two set of interlinking PPPs, where the fund was largely publicly owned but was administered by a largely privately owned asset management firm. The advantage of such an arrangement was that it brought the private and public sectors together by fostered trust in the decision making process. Also political pressure could not be brought to bear while deciding to implement a project since the significant stakes held by the private sector players ensured that projects would be selected based on feasibility.

Enacting PPP Legislation

The enunciation of a legal act, or at least a policy on the part of the government that allowed for private participation in infrastructure and identified sectors where PPPs could be investigated as first-choice options for project procurement is likely provide confidence to private players to participate on PPP projects. Further, without a policy or legal framework to mandate their actions, government officials were often hesitant to engage in PPPs for fear of being subjected to investigations from anticorruption agencies in the future. The state of Gujarat had enacted such an act and this was one of the reasons for the large amount of infrastructure that had been built in the state through PPPs.

Encouraging Community Involvement

PPP experience worldwide indicates PPP projects are often at risk from community and NGO mobilization against the project. Community involvement can therefore contribute to PPP projects success by creating an enabling environment to iron out turbulences that projects might face over their lifecycle. For instance, in a PPP solid waste management project undertaken in the town of Pammal in Tamil Nadu, the ULB had partnered with a local community-led NGO. This NGO in turn played a key role in convincing the community on the benefits of this project. This ensured inclusivity and participation as well as a lack of opposition to the project. In the case of the Alandur sewerage PPP project in Tamil Nadu that was partly user-financed, proactive consultations instigated between the mayor and the residents welfare associations led to higher than expected initial collections from the citizens.

Creation of Model Concession Agreements

Creating standardized PPP agreements that are transparent, are known well in advance, have worked successfully in the past, and which contain an equitable distribution of risks, are likely to help derisk transactions and increase the potential for project financing. Such “templates” can then lead to large numbers of PPP projects being undertaken since the private sector understands what to expect on a contract from the public sector, consequently lowering the risk of mistrust between the two parties. Furthermore, in the presence of standardized agreements the confidence of public sector personnel to enter into PPP arrangements increases, thereby combating the issue of political will.

Table 3. Mapping New Strategies, PPP Enablers, and Barriers

Enabling strategies	Barriers				
	Distrust between public and private sectors	Lack of political will	Absence of an enabling institutional environment	Lack of public sector capacity	Poor project design and structuring
VGF					◇
IIPDF				◇	◇
JNNURM					◇
PPP cells			◇	◇	◇
Coordination agencies			◇	◇	◇
Panel of transaction advisors				◇	
74th amendment		◇	◇		
Documenting PPP case studies and establishing a PPP driver	◇	◇			
Adopting a programmatic approach		◇			
Redefining the role of coordination agencies	◇				
Enacting PPP legislation	◇	◇			
Encouraging community involvement			◇		
Model concession agreements	◇	◇			
Renegotiation through hierarchical contracts	◇				◇
Process transparency and flexibility	◇				◇
Public-private interaction forums	◇				

Renegotiation through Hierarchical Contracts

Since infrastructure projects span several decades, there are certain to be sociopolitical or economic changes that will affect project economics and cause even well-structured concession contracts to be renegotiated. There is therefore a clear need to move away from a simple contract model to a hierarchical contract model. Under this latter mechanism, rather than providing for specific clauses to be renegotiated, a process would be created wherein under a set of “trigger” conditions, a concerned set of clauses could be re-examined by a panel of participants through a specified process. This framework could be built into the contract as a renegotiation mechanism. Such a mechanism could also take into account preferred social and political processes in the local context such as seeking recourse to the judiciary or specially appointed tribunals depending upon prevailing local practices. Hierarchical contracts could lead to projects that were structured more sustainable, and to a situation wherein both the public and private sectors were willing to engage with each other on PPP projects with an understanding that the contracts could be re-examined in the event of extenuating circumstances and that neither side would necessarily have to solely bear the brunt of such risks.

Process Transparency and Flexibility

Flexibility in the project development and definition process could provide the private sector with a platform to provide creative solutions for infrastructure provision. Giving the private sector only a set of outcome metrics that they would be required to meet will allow private sponsors to come up with out-of-the-box design solutions that could maximize profitability as well as service and efficiency goals. In the case of a transportation project in the state of Uttar Pradesh, private developers were given the flexibility of preparing the entire master plan for the project. Such an approach yielded a large amount of interest from the private sector and led to the receipt of several innovative and competitive bids. In the case of a land development project in the state of Gujarat, the various structures that were to be built within a parcel

of land were to be decided by the private developers. Once again such flexibility attracted several private sponsors to the project.

Transparency in the project development, bid process, and procurement phases are also necessary elements in the quest to ensure a successful PPP project. Unless such transparency exists, the private sector might not be keen to participate, unsustainable projects could be awarded leading to a failure of the PPP, and there would even be objections from within the political machinery. In the case of the transportation project in Uttar Pradesh, the opposition party in parliament had many initial objections to the process by which the project was undertaken. However the transparency that was maintained by the government in acquiring land and selecting the concessionaire helped render such allegations baseless.

Public-Private Interaction Forums

In order for PPPs to last the distance, both the public and private sectors need to understand each other better, own up to their shortcomings, hold open discussions, and work through issues that come up during the course of the project. Most roundtable participants felt that events such as the roundtable and other fora that periodically brought various project stakeholders together could be used to help the public and the private sector meet each other more often to understand each other's issues and to avoid misconceptions relating to the private sector's honesty or the public sector's productivity.

Discussion

The previous section presented a number of strategies to enable PPPs, most of which aim at fostering better relations between the public and private sectors and enabling greater willingness among the political class toward implementing PPPs. Table 3 presented above develops on Table 2 shown earlier by including the nine

strategies discussed in the previous section and their potential impacts on barriers to urban PPPs.

As the table indicates, integrating these strategies with existing governmental schemes leads to a more balanced set of solutions that address all of the main PPP barriers that have been identified. It is therefore likely that this more comprehensive set of approaches are more likely to enable and foster greater numbers of PPPs since they may lead to greater trust between the public and private sectors, greater political will, the presence of a conducive institutional environment, the augmentation of public sector capacity to develop and implement projects, and the creation of bankable PPP opportunities.

Successful project structuring and risk mitigation are necessary but not sufficient conditions for PPP success. The research presented here emphasizes the importance of a favorable institutional environment for the success of PPPs. Some of the elements that constitute such an environment are listed in the first column of Table 3. By systematically ensuring that these various enabling strategies are incorporated into urban environments across India, governments can ensure a greater amount of success with PPP programs. These strategies provide a partial, actionable list of interventions that governments can use to overcome barriers to PPPs. Some of these interventions—such as the institution of PPP legislation—might help enable PPPs in other parts of the world as well. However, given large variances in the institutional contexts around the world, and barriers faced in different countries, it may not be wise to overgeneralize the findings present in this paper beyond the urban Indian context.

Conclusions

Given the necessity for PPPs to deliver infrastructure services in urban India, the purpose of this paper was to formalize and articulate the key challenges that PPP endeavors face that are specific to the urban Indian context, to take a critical look at some of the existing strategies that have been proposed to address these barriers and to suggest a limited set of additional strategies that can be employed in the future to promote large numbers of sustainable PPP projects. The intent of this paper was to start a dialog on ways and means by which to increase PPP deal-flow in India by highlighting a set of high-level technical, institutional and governance issues that these projects face and to organize them into a preliminary framework. This framework does not represent a comprehensive in-depth map of the manifestation of PPP barriers and enablers across all projects in India—merely a few key parameters. Indeed there may be several other strategies that may be suggested to further combat the challenges associated with urban PPPs. By the same token, a particular urban PPP project could be cancelled due to social or environmental protests—a challenge that was not identified as a key risk—indicating that the analysis presented here is indicative and not prescriptive.

As a consequence, more research needs to be done to dig deeper into the various constructs and parameters identified here and to answer a series of related questions. What should the role of coordination agencies be? How best can risk be allocated to various participants on a PPP project? What role can a regulator play to enhance the success of PPP projects? What kinds of strategies and contractual templates can ease, reduce or eliminate the need for renegotiation? These and other questions must be addressed to continue this dialog and to evolve strategies that can be operationalized to enhance the ability of PPPs to deliver urban infrastructure services.

Given India's infrastructure needs, PPPs are a necessity and not just an option. However there are a myriad of issues that need to be addressed and resolved to facilitate a better understanding on how to develop infrastructure efficiently and seamlessly via PPPs. To answer these research questions we require inputs and insights from engineering, management economics, sociology, political science, and other disciplines of social science. We also require passionate and dedicated minds to solve the issues identified above. I invite scholars working in these areas to take advantage of the natural laboratory that Indian infrastructure offers, to conduct applied and pure research that can help ease India's infrastructure constraints. As a research community we have the potential to contribute to India's development.

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