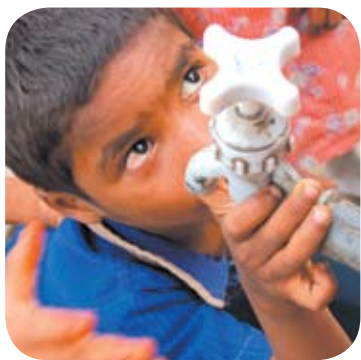


Trends in Private Sector Participation in the Indian Water Sector: A Critical Review



This Field Note is a summarized version of the Report, *Trends in Private Sector Participation in the Indian Water Sector: A Critical Review*, based on a study undertaken by the Water and Sanitation Program

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Trends in Private Sector Participation in the Indian Water Sector: A Critical Review

INTRODUCTION

Since the 1990s, there have been several attempts in India to involve the private sector in urban water supply services. These attempts have had mixed outcomes: while several projects planned during the initial years were abandoned in the development phase, there has been an increase in the number of contracts awarded to the private sector in recent years. There has also been a change in the type of projects developed and the role of the private sector in these projects.

Recognizing the changing scope and character of private sector participation in Indian urban water supply services, the Water and Sanitation Program (WSP) has undertaken a study to review these projects. This study reviews trends and the factors that have facilitated or impeded the development and implementation of projects in the sector with private sector participation; draws on learning from project design and the transactions; and reflects on future directions. As most such projects are still at early stages, it has not been possible to assess their operating or financial performance in any depth. The study covers Public Private Partnership

(PPP) attempts in urban water supply from 1990 till 2009, that have not been abandoned at conceptualization stage (Table 1). Information was collected through consultations and interviews with government and private sector stakeholders and PPP experts, as well as from publicly available documents and project case studies.

The term PPP in the Indian urban water sector generally does not mean provider functions being contracted out in their entirety to a private provider. For the purpose of this study, therefore, any project where a private operator delivers services (such as bulk water supply, domestic piped supply or water treatment) and is remunerated based on output or performance-linked payments from the project sponsor or the consumer, is termed a PPP project. Such projects may or may not involve private sector investments. Further, the study is restricted only to formal PPP arrangements sanctioned by the city/utility. Informal private provisioning of water services, as is commonly found in low income neighborhoods, is therefore not included under this study.



TABLE 1: LIST OF PPP PROJECTS SELECTED FOR ASSESSMENT

1990-2000	2000-04	2005 Onward
Cauvery Bulk Water Supply Project: Stage IV, Phase-II (Karnataka)	O&M contract, Sangli (Maharashtra)	KUWASIP: 24x7 water supply for Belgaum, Hubli-Dharwad, and Gulbarga (Karnataka)
Krishna Raw Bulk water supply project (Andhra Pradesh)	Water Treatment Plant, Sonia Vihar, Delhi	Dewas Industrial water supply (Madhya Pradesh)
Tirupur Industrial water supply project (Tamil Nadu)	O&M contract for Mumbai K East (Maharashtra)	Chennai Desalination plant (Tamil Nadu)
Selaulim Bulk Water Supply (Goa)	O&M contract for 21 pilot zones in Delhi	Contract for water supply system, Sector V, Salt Lake, Kolkata (West Bengal)
Water supply and sewerage project, Pune (Maharashtra)	O&M contract for 2 pilot zones in Bengaluru under BWSSB (Karnataka)	O&M contract for pilot zone, Nagpur (Maharashtra)
-	O&M contract for 8 municipal councils in Bengaluru under BWSSB (Karnataka)	Management contract for O&M, Latur (Maharashtra)
-	Visakhapatnam Industrial Water Supply project (Andhra Pradesh)	Industrial water supply contract, Haldia (West Bengal)
-	O&M for Chandrapur (Maharashtra)	Bulk water supply project, Bhiwandi Nizampur city (Maharashtra)
-	-	O&M contract for water supply system, Mysore (Karnataka)
-	-	O&M contract for water supply system, Madurai (Tamil Nadu)
-	-	Concession agreement distribution system, Khandwa (Madhya Pradesh)
-	-	Concession agreement: distribution system, Shivpuri (Madhya Pradesh)
-	-	BOT agreement: bulk water supply, Naya Raipur (Chhattisgarh)

BWSSB: Bangalore Water Supply and Sewerage Board; BOT: Build Operate Transfer; KUWASIP: Karnataka Urban Water Sector Improvement Project; O&M: operation and maintenance

CONTEXT

Official estimates show that over 90 percent of urban households in India have access to water supply services. Hidden within this figure, however, are numerous indicators of poor quality of access, low reliability of supply, poor water quality, high loss levels, and low cost recovery. No Indian city receives 24x7 piped water supply. Piped water is never distributed for more than a few hours per day. Coverage levels of water supply and sanitation services have increased considerably, but this has not necessarily translated into improved services that are safe and reliable.

Recognizing the need for institutional reform, the major Government of India urban programs—the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and the Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT)—have linked national

transfers for urban infrastructure to institutional reforms at state and city levels. Among the sector challenges identified in the program documents is leveraging private-sector capital and skills. The JNNURM accordingly encourages states and cities to engage the private sector to improve services.

The National Water Policy of 2002 and the Planning Commission's 11th Five Year Plan also encourage private sector participation as a means to improve services.

EMERGING TRENDS IN URBAN WATER SUPPLY PPPs

Based on the assessment of PPP projects initiated in the urban water supply sector since the 1990s, a few trends appear to be emerging. These indicate a shift in the profile of contracts being developed, and the role of stakeholders involved. A summary of PPP activity across this period is provided in Table 2.

TABLE 2: SUMMARY OF PPP PROJECTS IN THE INDIAN URBAN WATER SUPPLY SECTOR

Parameters	1990s	2000-04	2005 Onward
Number of PPP projects attempted	5	8	13
Contracts awarded	1	3	13
Current status of contracts awarded	1 operational	2 operational	12 projects are under various stages of implementation/operation; 1 project is currently stalled.
Project scope	<ul style="list-style-type: none"> • 100% bulk water supply 	<ul style="list-style-type: none"> • 75% distribution O&M • 13% bulk water supply • 12% water treatment 	<ul style="list-style-type: none"> • 38% distribution O&M • 31% distribution investment + O&M • 8% treatment + system rehabilitation/upgradation + distribution O&M • 15% bulk system investment + O&M • 8% desalination
PPP model	<ul style="list-style-type: none"> • 100% BOT/BOOT 	<ul style="list-style-type: none"> • 75% management contracts • 25% BOT/BOOT 	<ul style="list-style-type: none"> • 38% management contracts • 62% BOT/DBFOT and similar
Private operator mix	<ul style="list-style-type: none"> • 100% international 	<ul style="list-style-type: none"> • 65% international • 35% domestic 	<ul style="list-style-type: none"> • 65% domestic • 21% international • 14% local/regional

BOOT: Build Own Operate Transfer; DBFOT: Design Build Finance Operate Transfer; O&M: operation and maintenance

Increase in the number of PPP projects reaching contract award stage

Since the 1990s, there has been an increase in the number of PPP projects initiated or awarded. Whereas only four PPP contracts were awarded before 2004, another 13 were awarded since 2005. Before 2004, only 40 percent of the initiated projects were successfully awarded, whereas since 2005, all the projects initiated were awarded. Some 5 million¹ people in urban areas now obtain water supply through projects or institutional arrangements that involve the private sector. The year-wise increase in the population of cities with active PPP contracts is presented in Figure 1.

Shift in the geographic concentration of PPPs

There has been a gradual broadening of states and cities where PPPs have been undertaken in the water sector. In the 1990s, such initiatives were largely concentrated in the southern states of Tamil Nadu, Karnataka, and Andhra Pradesh.

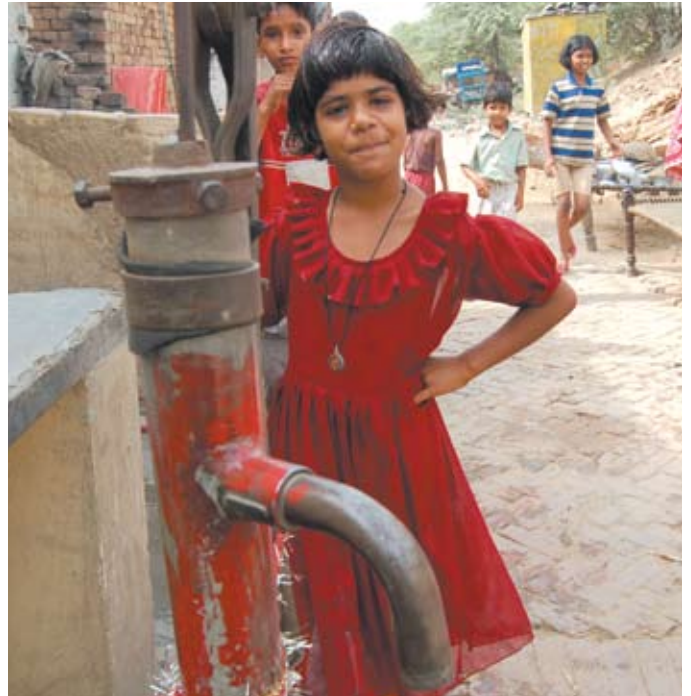
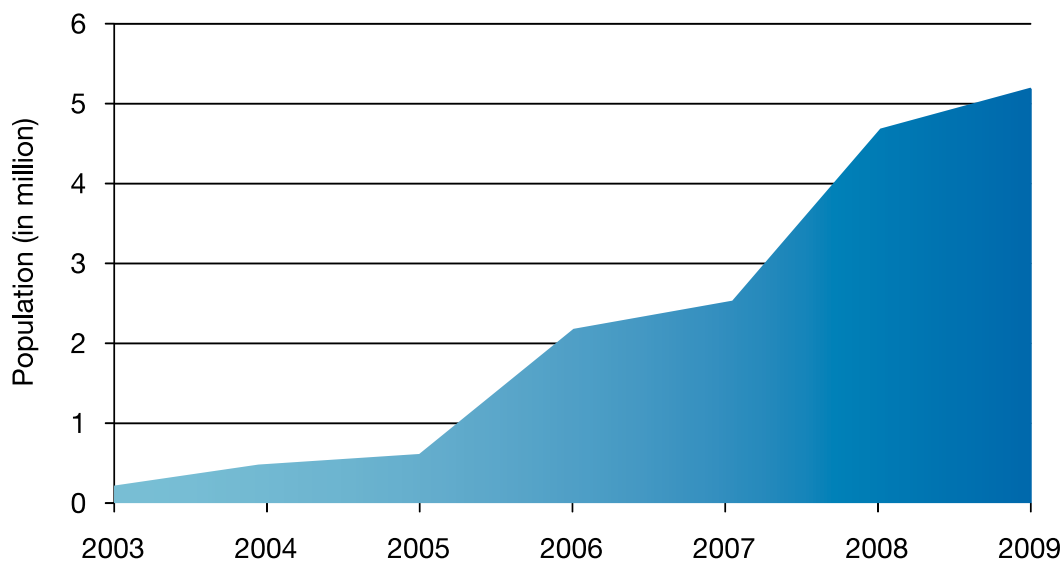


FIGURE 1: TIMELINE OF POPULATION OF CITIES WITH ACTIVE PPP CONTRACTS



1. Estimate based on population figures in cities with PPP projects. For pilot projects, the entire city population has been taken.

Between 2000 and 2004, projects were being proposed in Karnataka, Delhi, Maharashtra, and Andhra Pradesh, and since 2005, elsewhere, including Madhya Pradesh and West Bengal. The availability of public funding under schemes such as JNNURM has enabled a wider cross-section of states and cities to initiate projects on their own. Positive experiences with national PPPs in other infrastructure sectors—especially energy—have also stimulated interest in water supply PPPs.

More PPPs for distribution improvements

Most of the water supply PPP projects during the 1990s were aimed at augmentation of bulk water supply systems. Since the early 2000s, however, 80 percent of the projects that attempted to bring in the private sector were aimed at operation and maintenance (O&M) improvements of the distribution system. Today, approximately 60 percent of PPP projects address O&M improvements, 30 percent focus on bulk water supply augmentation, and the rest include both

bulk water supply augmentation and O&M of the entire water supply system (Figure 2).

The type of PPP arrangements has also changed. During the 1990s, the trend was primarily Build Operate Transfer (BOT) with 100 percent private financing. The majority of the O&M improvements since 2000 involved management contracts, with the public sector providing most of the investment. Learning from the failure of the earlier large-scale BOT projects, state governments, and international funding agencies encouraged the management contract model to emulate the managerial efficiencies of the private sector, while minimizing the risks and costs associated with previous project structures.

Today, the operational contracts are a mix of concession agreements, BOT projects, and management contracts. There are variations in the BOT models implemented, with a few of them requiring partial to full private financing. The

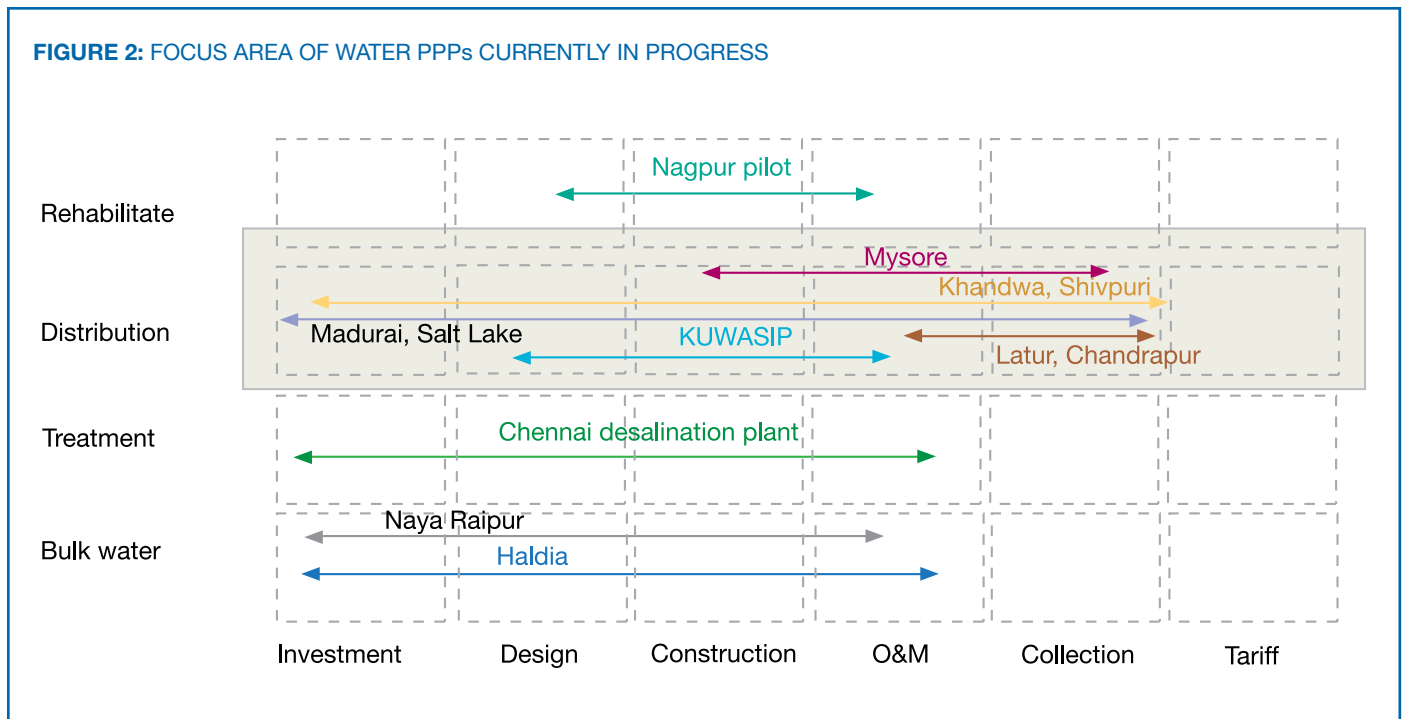


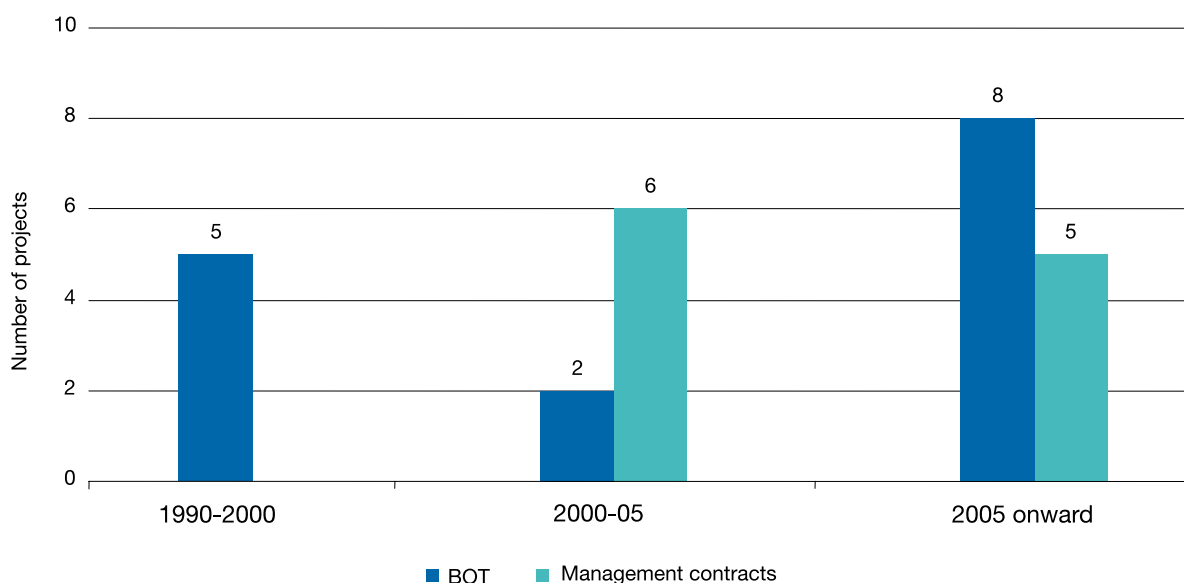
FIGURE 3: MIX OF PPP ARRANGEMENTS

illustration in Figure 3 represents the shift in the type of PPP arrangements since the 1990s

Possibly as a reflection of this shift in scope and type of PPPs, the time taken between project initiation and the award of contract has become much shorter. Up to 2000, the average time to reach the contract award stage was four years; since 2005 the time taken between project initiation and awarding PPP contracts has been two-and-a-half years on average. The reduced private investment component and absence of tariff implications may have contributed to a shorter project development period.

Reduced reliance on multilateral funding for PPPs

The attempted early water supply PPPs followed strong advocacy by multilateral funding agencies and, up to the mid-2000s, several depended heavily on financial assistance from these agencies to meet capital costs. However, since 2005, most water PPP projects have been initiated by the project-sponsoring authority itself, such as Urban Local Bodies (ULBs) and state departments.

Increased share of public financing in PPP projects

In line with the policy directions of economic liberalization in the 1990s, the earlier PPPs envisaged private financing, but since 2005, a growing number of urban water supply PPP projects have been developed on the basis of substantial public funding. At present, 50 percent of projects have been developed with financial support from the central government. The capital injection from schemes such as JNNURM and UIDSSMT has been a major driver of this shift. Public funding for PPP projects in progress within the JNNURM framework (including the UIDSSMT component) covers approximately 60-70 percent of the escalated project cost. Moreover, JNNURM has created an impetus for private sector participation. The additional funding lowers the cost of PPPs, and the appraisal process under the program encourages PPP-based projects.

Given the high risk perceptions about water PPPs in India, the share of private investment is likely to remain limited, and reliance on public funding substantial. Moreover, given the weak financial health of ULBs, most public funding would need to come from state and central government sources, rather than ULBs.

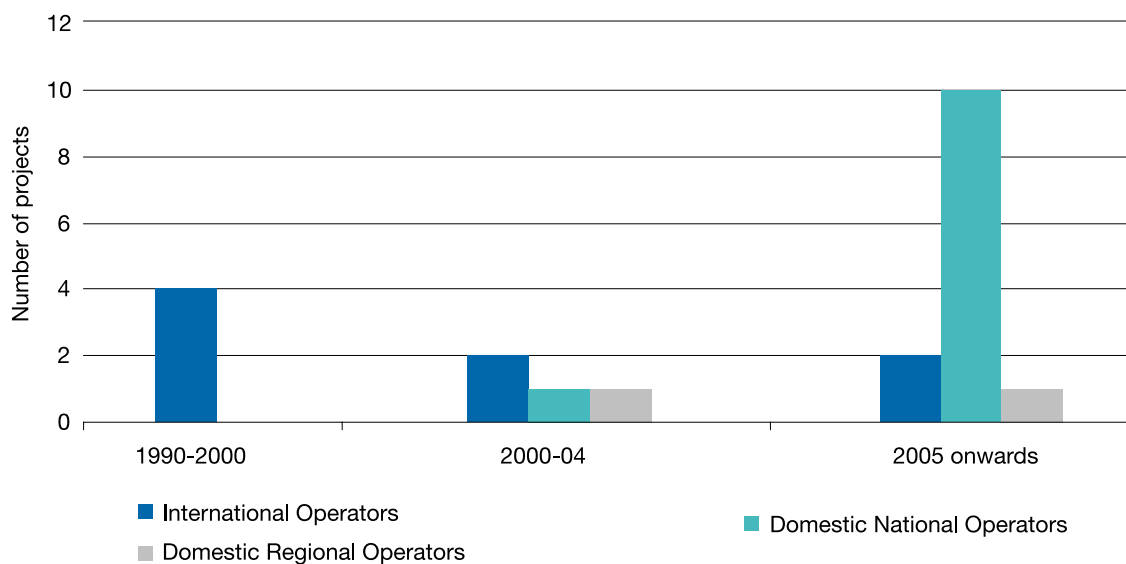
More domestic private operators

During the 1990s, water supply PPPs mostly involved international private operators. Of the five water supply PPP projects initiated at the time, three involved international private operators directly, that is, the Cauvery Bulk Water Supply Project of the Bangalore Water Supply and Sewerage Board (BWSSB); the Selaulim Bulk Water Supply Project in Goa; and the Krishna Bulk Water Supply Project of the Hyderabad Metro Water Supply and Sewerage Board (HMWSSB). While several projects planned during the early part of 2000 continued to anticipate the presence of international operators, for project awarded since 2005, domestic operators have emerged as the most important category of private players in India's water supply sector.

In as many as 75 percent of PPP contracts since 2005, the bidding consortia have been led by national-level domestic

private operators. These private operators are mostly Indian engineering, procurement and construction companies or other business houses which have added water service provision to their business lines. Sector participants suggest that domestic operators may be able to mitigate risk to a greater extent than international firms because their local knowledge enables them to navigate through the local project environment, which tends to be politically challenging in the water supply sector. Domestic operators have therefore become more prevalent, either on their own or as consortium partners alongside international operators. Figure 4 puts the growth of the domestic private sector in perspective. Among these are several domestic operators who have a provincial presence, as in the case of the Khandwa water supply PPP project which was awarded to Hyderabad-based EPC² firm, Vishwa Infrastructure and Services Private Limited.

FIGURE 4: SHIFT IN PRIVATE OPERATOR MIX IN WATER PPPs IN INDIA



2. Engineering, procurement and construction.

Over the years, there has also been a shift in the international operators who have been interested in the Indian water supply PPP market. In the 1990s, the dominant international players were United Kingdom (UK)-based operators such as Bi Water, Thames Water, and Anglian Water, and French operators such as Suez Environment and Veolia Water. Today, however, while the French and UK-based operators have a limited presence, there is increasing interest by South-East Asian water supply utilities in the Indian water PPP market. These include Ranhill Utilities Berhad (Malaysia), Manila Water Company (Philippines), among others.



How does India compare with international experience?

Several trends described above mirror those observed in other developing country contexts. A recent global study by the World Bank³ of PPPs since the 1990s reveals increased public funding, fewer full concessions, and a growing presence of domestic operators (accompanied by withdrawal of large international operators). The Indian experience at this early stage appears to be mirroring the trends observed in other parts of the developing world.

CRITICAL FACTORS FACILITATING AND CONSTRAINING PPP PROJECTS IN URBAN WATER SUPPLY SECTOR

It is too early to come to a conclusion about the success or failure of private sector participation in urban water in terms of outcomes. It is possible, however, to obtain an insight about factors that have contributed to or constrained the progress of anticipated PPPs to the point of contracts being awarded.

In the analysis below, the terms ‘success’ and ‘failure’ are used with reference to the award of contract and do not encompass performance outcomes of the PPP project.

Constraints

Most anticipated water PPPs that did not move to contracting stage, failed to do so because of cost concerns, and the limited financial and technical capacity of utilities. As a result, political and administrative support has remained tenuous for these projects. It is worth analyzing these constraints in greater detail.

- **Inconsistent and inadequate local stakeholder support:** Lack of stakeholder support for water PPP projects has been a significant reason for several PPPs not moving forward. This has blocked some high-profile attempted PPPs, such as the proposed Cauvery Bulk Water Supply and Selaulim Bulk Water Supply Projects, and a water and sewerage PPP planned in Delhi. Stakeholder groups that did not support the projects have included local political parties, civil society groups and utility or municipal employees of the public water utilities. The lack of support has been largely due to perceived threats to the specific interests of some of these stakeholder groups, and a view of water as a public good. Much of the debate has been quite emotive, with any form of private sector participation made out to be “privatization”, which dramatizes the notion of a public good being used at the behest of private profiteers.
- **Weak financial capacity to implement water PPPs and lack of mechanisms to address tariffs:** Financial risk perceptions have prevented several

3. Marin, P. 2009. Public-private partnerships for urban water utilities: a review of experiences in developing countries. Report. The World Bank.

planned PPPs from moving forward. Most water PPPs proposed in the 1990s were to be highly capital-intensive and dependent on 100 percent private financing. The implementing agencies for most of these projects could, however, not provide the guarantees required by the private water operators, and lacked the financial capacity and internal revenues to pay bulk charges. Opposition developed towards these PPP projects, as consumers expected water tariff escalation.

- Limited awareness and technical capacity to undertake PPPs:** The lack of experience and limited understanding of water PPPs resulted in implementing agencies not satisfactorily addressing the risk concerns of private operators and the demands of project structuring. Inadequate baseline information, lack of clarity on risk sharing, and weaknesses in the procurement processes contributed to difficulties in getting these PPPs off the ground.

Facilitative factors

Where PPP contracts have been awarded, one or more of the following facilitative factors seemed to have been present:

- Availability of public funding:** Water PPPs in recent years have benefited from public funding more than in earlier years when private investment was anticipated to be the major source of financing. The JNNURM has made a new form of public funding available which has enabled ULBs to pursue PPP approaches, unlike in the past when the use of public funds required public procurement. In Salt Lake City (Kolkata), and Shivpuri and Khandwa (Madhya Pradesh), public funding covered 50-60 percent of project costs, which has reduced the financial burden on the private operator, thus lowering projects costs and pressure for tariff increases.
- Improved mechanisms to address tariff concerns:** In some recent water PPP projects, measures have been built in to minimize the tariff and revenue





risk of the private operator. In the Naya Raipur project, costs outside the concessionaire's control (especially power and chemicals) are subsidized by the public sector. In the Khandwa and Shivpuri PPP projects, safeguards are provided against defaults in customer payments.

- Increased attention to stakeholder support:** Recent projects have benefited from improved stakeholder consultation at an early stage of the project (for example, Karnataka Urban Water Sector Improvement Project [KUWASIP], Salt Lake City). In several of these projects, the need for intervention was substantiated and articulated to stakeholders. For instance, against the backdrop of acute water shortage, unreliable supply, and financial losses, stakeholders in Chandrapur, Khandwa, and Shivpuri were more receptive to exploring private

sector participation as there was a strong demand for better services. The turnaround in services delivered through the KUWASIP project further strengthened faith in the private sector's ability to provide viable options for service improvements.

- Strong project ownership and expertise:** An important success factor has been strong project ownership and expertise in the project initiating authority. In the KUWASIP project, the state infrastructure financing agency, Karnataka Urban Infrastructure Development and Finance Corporation (KUIDFC), played an active role in project conceptualization, feasibility studies, stakeholder consultations, and procurement. Similarly, PPP projects in Madhya Pradesh, Kolkata, Haldia, Naya Raipur, and Latur have benefited from project management expertise in state governments departments or agencies.
- Growth in domestic private sector interest:** In several recent projects, domestic operators have been the dominant players. They have typically exhibited high risk-taking appetite, and the ability to manage their costs better. Higher participation by bidders has also contributed to the increase in contract awards.

In summary, successful contract awards in water PPPs have been based on a platform of well structured public funding, which helped address tariff concerns and thereby gain stakeholder support. The trend has been further supported by a rise in domestic private operator interest, and improved project ownership and expertise in state agencies.

EMERGING ISSUES THAT HAVE AN IMPACT ON WATER SECTOR PPPs

Recent trends in urban water supply PPPs indicate that the sector has moved in a positive direction. However, there are some emerging issues that could hamper progress of water PPPs in the future.

Current progress is still at a project level, rather than sector wide

In other infrastructure sectors (such as power, highways), PPP has been adopted as a sector strategy and sector-level enablers have been created (such as model concession agreements, the new Electricity Act). Compared to this, PPP momentum in the water sector has been a project-level initiative. Stakeholder support for water PPPs tends to be tactical and opportunistic, often aimed at trying to maximize a temporary public funding opportunity. Moreover, the dependence on public funding and inadequate movement on tariff reform raise questions on the long-term sustainability of projects.

Project preparation, structuring, and risk sharing remain patchy

The current project preparation process tends to be rushed, due to short timeframes for submission of proposals for grant programs and the short tenures of decision makers. The result is weak information baselines and hurried procurement, poor quality proposals, and high risk perception by operators. In several performance-based O&M contracts for distribution improvement, performance expectations from private operators are unrealistic with respect to both standards set and timeframes. Risk sharing is not widely adopted, so that operators often bear risks related to costs not under their control (for example, raw water, electricity).

Cities lack the capacity to design, implement, and monitor PPPs

The commitment to PPP is often restricted to the higher levels of the decision-making body and not matched by technical capacity at the operating level. Given their prior focus on asset creation, the implementing agencies usually lack the capacity to monitor and oversee contracts and service standards. They also lack the skills and flexibility to engage in dialogue on contractual and financial terms in the course of the project. Lastly, employee acceptance of private operators remains uncertain, especially for contracts that require existing employees to be absorbed by the latter.

WAY FORWARD AND POSSIBLE INTERVENTIONS

Four aspects will be relevant to achieve successful water PPPs:

Create enablers to widen the current project-specific approach into a sector trend

A clearly articulated stand from the national government will enable stakeholders and utilities to strengthen their position with respect to PPPs in the water sector. Given the substantial investment gap and weak financial health of utilities/ULBs, public funding from the central and state governments will continue to be necessary to support PPPs, for example, through JNNURM-type funding.

Pricing would become more realistic if quantitative analysis of sector viability is improved, and guidance on tariff structures and subsidies become clearer. Widespread adoption of the Ministry of Urban Development's Service Level Benchmarking program would strengthen the drivers for private sector participation and will also improve project development.

Help cities follow well established and accepted principles to increase the chance of success of PPPs

To reduce unrealistic performance expectations from private operators, a practical framework is required to phase capital investments and achieve desired service levels over a period of time. A framework to address common issues in water PPPs can provide a much desired uniformity across water PPPs. This would include connection policies, tariff collection procedures, disconnection policies, and payment security mechanisms as well as a common set of risk sharing principles.

Build cities' implementation and monitoring capacity

Even as external enablers are activated, cities' capacity to engage in PPP needs to be enhanced. Funding assistance for project preparation from the national level (for example, the India Infrastructure Project Development Fund) can help cities devote the required resources in this very important, and often expensive, activity. To accelerate knowledge transfer, a forum of administrators from utilities, ULBs



and states, who have successfully implemented water PPP projects, can be created to share lessons with other cities. State governments and nodal agencies could play an important role in creating an enabling environment (for example, public funding, tariff policies, as well as supporting and mentoring project development and implementation).

Develop sector regulation as a long-term measure

The presence of a regulator can strengthen the performance orientation of local bodies and provide an objective basis for tariff setting and targeted subsidies. In doing so, it can help create a more transparent and predictable environment for attracting investment into the sector, including from

private sources, and facilitate improved project design and implementation through PPP structures. The introduction of sector regulation, however, needs to be also accompanied by other enablers such as rationalized public funding, tariff frameworks, increased role clarity, and stakeholder participation.

In summary, recent trends indicate a growing interest in water PPPs, with more projects reaching the contracting stage, supported largely by increased availability of public funding for water PPPs. If the private sector is to play a significant role in addressing the investment and service backlogs in the sector, suitable interventions are necessary to scale up this momentum while ensuring projects that deliver the desired service outcomes on a sustainable basis.



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