

Helping India Achieve 24x7 Water Supply Service by 2010

A summary of observations and outputs from the Roundtable Discussion on Private Sector Participation in Water Supply in India (Bangalore, 15–16 June 2005) and Follow-up Conference (Delhi, 25 August 2005)

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Introduction

The period 2005–2015 has been designated by the United Nations as the International Decade for Action on “Water for Life” and was launched on World Water Day, 22 March 2005. The decade is designed to reduce the gap between progress to date and the Millennium Development Goals (MDGs) as identified in the 2004 UNICEF/WHO study, which explicitly recognizes the contribution needed from the private sector to attain the goals, and with the emphasis on action to improve physical progress towards their achievement. ADB is contributing to this focus on action to deliver the MDG water and sanitation (water sector) targets by developing a flagship program for accelerating water and sanitation coverage in metropolitan areas in selected developing member countries (DMCs), tentatively India, Indonesia, and the People’s Republic of China.

This Technical Note summarizes observations and outputs from the Roundtable Discussion on

Private Sector Participation (PSP) in Water Supply in India held in Bangalore on 15–16 June 2005¹ and the follow-up conference on 25 August 2005 in Delhi.² It is designed to disseminate to a wider audience the broader principles of PSP options that could be considered for India and other DMCs in order to promote accelerated progress towards achievement of the water sector MDGs by 2015. This document is not a detailed technical or financial synopsis of what should be done but simply seeks to provide an indication of options and an outline roadmap towards achieving greater effectiveness and improved progress in the timely delivery of MDG targets. A separate report on the roundtable discussions in Bangalore and Delhi is available.

As far as possible, the Technical Note does not propose untried approaches and methodologies but focuses on current experience and builds on proven approaches that have been successful in several locations and situations.

General Characteristics of the Water Sector in Asia and the Pacific

Water sector services in many major cities and metropolitan areas are characterized by

- limited potable water coverage, especially among the poor;
- deteriorating or poor service levels;
- high levels of nonrevenue water;
- low pressure or intermittent water supply;
- years of underinvestment in assets;
- extremely low tariffs and reluctance to increase them;
- increasing populations and rising public demand for improved services;
- reduced private financing flows in recent years;
- difficulty in sustaining reforms necessary to make the water sector commercially viable;
- increasing pressure on water resources; and
- little effective regulation implemented.

Operational performance of the water sector in the region is frequently characterized by poor governance and low tariffs, two factors that lead to a downward

¹ Participants in the Roundtable Discussion in Bangalore on 15–16 June 2005 comprised senior officials from the Ministry of Urban Development (MoUD) and the State Governments of Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh and Uttaranchal (representatives from Rajasthan and Tripura were unable to attend).

² Participants in the follow-up roundtable discussion in Delhi on 25 August 2005 included secretaries of Urban Development Department in states and union territories and commissioners of mega cities and million plus population cities.

spiral in service levels and delivery efficiency.³ Transparency and accountability are prerequisites for an efficient and cost-effective service.

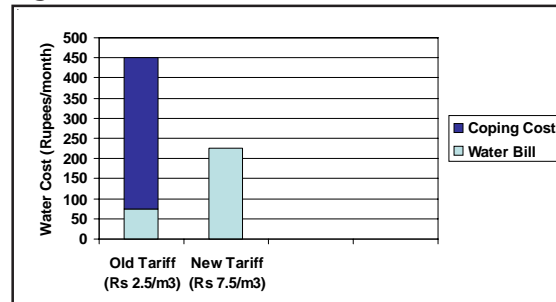
In addition, the poor consume only around 20% of that consumed by consumers directly connected to the pipe network but pay five times as much, indicating that subsidies benefit the rich far more than the poor. Ironically, increasing tariffs should benefit the poor as it would discourage excessive consumption and reduce consumer waste (leakage and pilferage), provide additional financing to increase system coverage and to improve service levels, and would reduce the overall cost paid by the poor for water provision from vendors. Water saved will help to eliminate intermittent water supply so that in many systems a 24x7 service could become a reality, improving both water quality and availability concurrently.

Social surveys indicate that the poor are not only able to pay for a piped water supply but are also willing to do so. When considering the cost and affordability of water supply, it is essential to include the cost of coping mechanisms required to deal with intermittent or inadequate supplies. Such costs include the capital and operational costs of ground storage, roof tanks and transfer pumps, power costs (water pumping costs typically account for 50% of consumer electricity bills), supplementary water treatment (boiling/treatment), etc., not including the additional burden on family and national healthcare budgets, as well as loss of earnings due to ill health. In Dehradun, Uttaranchal, India, poor households were found to be paying up to five times the prevailing water rate in coping costs. The effect of moving to a 24x7 supply at a higher hypothetical tariff is shown diagrammatically in Figure 1, assuming a consumption of 30 m³/month.

Any strategy to deliver improved progress on the achievement of MDG goals must be realistic and practically feasible within the prevailing technical, financial and social context of the country concerned. It must not only have the commitment of all key stakeholders but must be eminently “deliverable.”

Responsibility for water sector service delivery in India rests with the public sector, with only limited

Figure 1



private sector involvement. In some countries, the strategy to deliver improved performance efficiencies has been attempted or achieved through the introduction of PSP in various forms, some of which are described in the following section. Recent examples of this approach within the region are the concession contracts in Manila and Jakarta.

In Manila, prior to the concession, there were 7,000 employees and a highly educated managerial pool but productivity was low and there was limited capacity to manage the operation in a business-like manner. 2,200 staff were transferred to one of the concessionaires and a simple change program initiated, communications were improved, and rewards and incentives were implemented. This greatly improved productivity, as well as the motivation and remuneration of transferred staff.

However, reform of the public water sector in other countries has been achieved organically through a commercialization process, such as in Phnom Penh, with the public sector continuing to deliver the service but far more efficiently than prior to the introduction of greater autonomy. In such public sector success stories there is inevitably a champion who is totally committed and determined to deliver reform and is prepared to aggressively introduce it and to change the status quo. He/she invariably acts as an inspiration to others in the organization, particularly among younger staff for whom change may be less threatening. The key to success in both approaches is the clear formulation and adoption of a specific vision or goals, the allocation and acceptance of specific responsibilities by each stakeholder, and a defined programme with incentives/penalties to encourage achievement of the specified milestones or deliverables.

³ Asian Water Supplies—Reaching the Urban Poor, Arthur C. McIntosh, ADB, August 2003.

Overview of the Current Situation in India

The twin trends of general population growth and increasing urbanization will continue to swell the number of people living in Indian cities and towns from an urban population of some 280 million in 2000 to almost 400 million by 2015.⁴ This will put incredible pressure on existing facilities and will inevitably lead to the need for massive infrastructural changes.

Providing access to safe drinking water and appropriate sanitation facilities remains a challenge in India. Currently, 89% of the urban population has access to safe drinking water, but only 34% to sewerage with only 3% of that treated.⁵ In Delhi, less than 5% of the population served receives a 24x7 water supply. Despite increasing allocation of financial resources, there are serious concerns about the sustainability of investments made in the drinking water sector.

Experiences of PSP in India to date are limited (e.g., power sector, failures to reach financial close, and very limited successful schemes in the water sector).

In recent years, the Central Government, a number of state governments, and several urban local bodies have embarked upon various reforms to facilitate sustainable development of urban infrastructure such as water supply and sanitation including

- decentralization and empowerment of local bodies;
- fiscal incentives for urban reforms by the Central Government;
- legal and financial reforms initiated at state level; and
- management and other reforms carried out by urban local bodies.

The Government has set up an Urban Reform Incentive Fund for urban reforms at State and Municipal levels.

The Ministry of Urban Development (MoUD) has also developed a Model Municipal Law with provisions to enable local urban bodies to leverage funds, introduce improved accounting systems and private sector participation in the development of urban infrastructure and delivery of services. All state governments have been advised to modify their Municipal Acts along the lines suggested in the Model Municipal Law.

The Government of India has proposed to set up a National Urban Renewal Mission (NURM) as a mission mode project to augment infrastructure facilities in all metro cities, state capitals, and culturally important cities numbering 60. The infrastructure facilities include water supply, sewerage, solid waste management, and urban transport, including roads, etc. Central assistance would be provided to States/Urban Local Bodies subject to implementation of identified reforms as per the guidelines that may be issued. Each beneficiary state/ULB would be required to enter into a Memorandum of Agreement with the Central Government within a specific time limit for implementation of reforms. The reforms are classified into mandatory and optional reforms.

The NURM will be implemented by the state level nodal agency to be identified by the State, and funds will be routed through the nodal agency. The infrastructure projects envisaged under the NURM will be formulated by the ULB and appraised by the designated nodal agency at the state level. The projects would be sent to the Central Government for sanction in accordance with the guidelines that may be issued in this regard.

⁴ Drinking Water and Sanitation Status in India: Coverage, Financing and Emerging Concerns, WaterAid India, 2005.

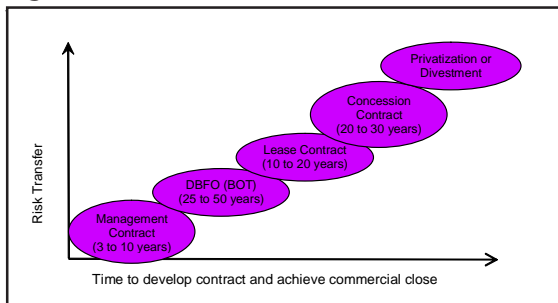
⁵ Masons Water Yearbook 2004–2005.

Private Sector Partnership Modalities

Private Sector Participation (PSP) or Public Private Participation (PPP) seeks to fuse the skills, expertise and experience of the public and private sectors to deliver high service standards to customers. The public sector brings in expertise in governance, responsibility to the electorate, access to funding, appreciation of local cultural sensitivities, as well as a local workforce, many with long years of service. The private sector contribution includes operational efficiencies, innovative technologies, international managerial experience, access to additional finance, and risk sharing.

There are several PSP models, but the main ones, in order of complexity and risk, are: Management Contract (e.g., Kathmandu), Design Build Finance Operate (DBFO, a form of BOT – e.g., Ho Chi Minh City), Lease (e.g., Johor Baru), Concession (e.g., Buenos Aires, Macau, Jakarta, Manila), Divestiture (e.g., UK, Chile). As no single model will suit all situations, PSP contracts must be tailored to suit the local situation in terms of infrastructure, affordability, cultural norms, etc.

Figure 2



Key features of each of the main PSP options, excluding divestiture, which is the most radical option and with limited appeal, are detailed below.

Management Contract:

- Municipality signs contract with competitively procured Management Contractor (MC)
- Typical contract period 3–10 years, but extendible based on performance
- MC undertakes investment planning and manages programme, but funding is provided externally

- Workforce employed by Water Service Agency but under MC supervision
- Performance incentivized through specified key performance indicators such as water quality improvement, unaccounted-for water reduction, billing, etc.
- Typically paid a fixed fee and subject to bonuses and penalties
- Assets remain under Municipality ownership

Design Build Finance Operate Contract:

- DBFO contractor procured competitively
- Contract period 25-50 years
- Assets are typically ‘ring fenced’ and ‘new build’
- Single or small number of off-takers
- Equity investment by DBFO company promotes commitment to city and service provision
- Varying levels of volume and performance risk
- Subject to performance penalties
- Typically little incentive for efficiencies (other than profit/shareholder gain)

Lease Contract:

- Lease Contractor (LC) procured competitively
- Contract period 10-20 years
- LC has responsibility for billing and revenue collection
- LC bears volume and performance risk
- Assets retained by Asset Company (City or Municipality) who are responsible for funding capital investment
- Equity investment by LC promotes commitment to City and service provision
- Workforce transferred to LC (with necessary employee rights)
- Regulated by annual target levels of service reviewed, say, every 3, 5 or 10 years
- Subject to performance penalties

Concession Contract:

- Concession Contractor (CC) procured competitively

- Contract period 20-30 years, extendible based on performance
- Full responsibility for billing and revenue collection
- Full responsibility for capital investment and securing funding
- Equity investment by CC promotes commitment to City and service provision
- Workforce transferred to CC (with necessary employee rights)
- Regulated by annual target levels of service reviewed, say, every 3, 5 or 10 years
- Subject to performance penalties
- Full volume, performance, funding, and data risk transfer

The enabling environment is critical to the success of any initiative. Key factors to be factored in prior to PSP include

- Appropriate model legislation
- Implementation of commercial accounting systems
- Establishment of effective regulatory mechanisms (regulation should not just be limited to situations where the private sector is involved – to ensure government policy is implemented efficiently independent regulation of public services is essential regardless of who is responsible for it)
- Development of appropriate tariff structures and levels of charges prior to any PSP (the system should be financially sustainable regardless of whether it is a public sector or private sector responsibility – several PSP initiatives have failed due to unsustainably low tariffs)

To encourage transparency and to monitor contract/sector performance, as well as to review and set tariffs, it is normal for a regulatory body to be established. The Regulator should be an independent organization with authority to analyze performance and costing data, and to set standards and efficiency targets. Reward to the PSP contractor for achieving efficiency gains encourages innovation, with failure to achieve them leading to the application of penalties.

Each PSP/PPP model has advantages and disadvantages, so to reduce risk and engender confidence in the process, hybrid models can be tailored to meet local requirements and to progressively move from less risky options to longer-term arrangements as confidence in the process and between the contracting parties is gained. This approach is particularly beneficial where there is little experience of PSP in the country, or where confidence and expertise in the process need to be developed. A good starting point for a country like India would be the Management Contract model, or a Lease Contract under which the Government would hold the assets and fund investments while the PSP operator delivered change and efficiency.

Measurement of PSP success is relative, and it is acknowledged that successful PSP concession contracts in developing countries are limited in number. Generally, BOT contracts have been more successful in the region than other more complex models, probably because the contractual requirements and responsibilities are much easier to define clearly. However, probably the most high profile concession contract success recently in the region has been that of East Manila (see Box 1),

Box 1. PSP Concession Contract – Manila Water

In 1997, two 25-year concession contracts were awarded, with the concessionaires responsible for operation and maintenance and capital investments. Manila Water Company won the East concession and inherited a system characterized by poor service levels, high leakage, intermittent water supply, high illegal consumption and poor financial performance. The concession is regulated by contract.

Goals: (1) Expand service coverage. (2) Improve service delivery. (3) Increase operating efficiency.

Achievements: 24x7 water availability 26% in 1997; 91% in Q1 2004; 900km of new or rehabilitated pipe installed since 1997; non-revenue water 63% in 1997; 40.7% in Q1 2005; Billed Volume 440 Mld in 1997; 840 Mld in Q1 2005; Households served 325,000 in 1997; 570,000 in Q1 2005; Program for Urban Poor – 131,400 additional poor households (0.8 million persons) served; Staff/thousand connections ratio 8.5 in 1997; 2.8 in 2004; First initial public offering sold internationally since 1997.

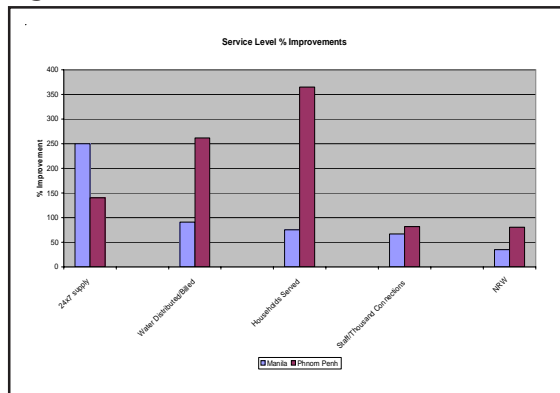
Success Factors: Define expected behavior and set clear goals. Trust your employees. Adopt targeted/simple change program. Link rewards / incentives to regulatory (e.g. NRW reduction) and corporate goals.

despite a difficult initial few years during which there was a major international currency crisis. PSP failures have been attributable to many factors, including poor system knowledge at the contract start, poor definitions of responsibilities and contract drafting, suspicion between the parties, etc. Reasons for success have typically included a commitment from all parties to resolve issues fairly and a determination to make the contract work.

PSP is not the only answer to radically improve service delivery and efficiency. Given the right conditions, the public sector has also demonstrated that it can achieve these objectives, the most notable public sector success story being that of Phnom Penh in Cambodia (see Box 2).

Relative improvements in several key service standard levels achieved in both Manila and Phnom Penh are shown schematically in Figure 3.

Figure 3



Box 2. Public Sector Success Story – Phnom Penh Water Supply Authority

The Phnom Penh Water Supply Authority (PPWSA) is operated and managed as a public sector enterprise. During the Khmer Rouge regime water sector services deteriorated dramatically and virtually ceased to function. Between 1980 and 1993, operations resumed but service levels were very poor, staff morale low and government subsidies high. Following a Government commitment to a market economy, openness to international experience, and new PPWSA leadership, 1993 saw the start of the Rehabilitation Stage, covering sector institutional reform, human resource development and preparations for autonomy. The Autonomy Stage was undertaken between 1996 and 2000, covering service level and revenue performance improvements. The Expansion Stage commenced in 2000, focusing on service expansion (quantity and quality) and social responsibility (reaching the poor). Tariffs were increased in 1997, 2001 and 2003.

Achievements:

- Population coverage: 25% in 1993; 85% in 2004
- Supply continuity: 10 hours/day in 1993; 24 hours/day in 2004
- System pressure: 0.2 bar in 1993; 2 bar in 2004
- NRW: 72% in 1993; 14% in 2004
- 65 million liters per day provided to 26,881 connections in 1993; 235 Mld to 125,000 connections in 2004
- 9,312 poor households connected to piped network between 1999 and 2004
- Staff/thousand connections ratio: 22 in 1993; 4 in 2004
- Collection ratio: 48% in 1993; 99% in 2004
- Heavy subsidy in 1993; full cost recovery in 2004

Success Factors:

- Change corporate culture and introduce team working.
- Educate, motivate and discipline staff.
- Include incentives and penalties in staff service contracts.
- Increase tariffs in line with service improvements.
- Performance more dependent on willingness and ability to work rather than private sector or public sector responsibility.

Options for the Way Forward in India—A Possible ‘Road Map’

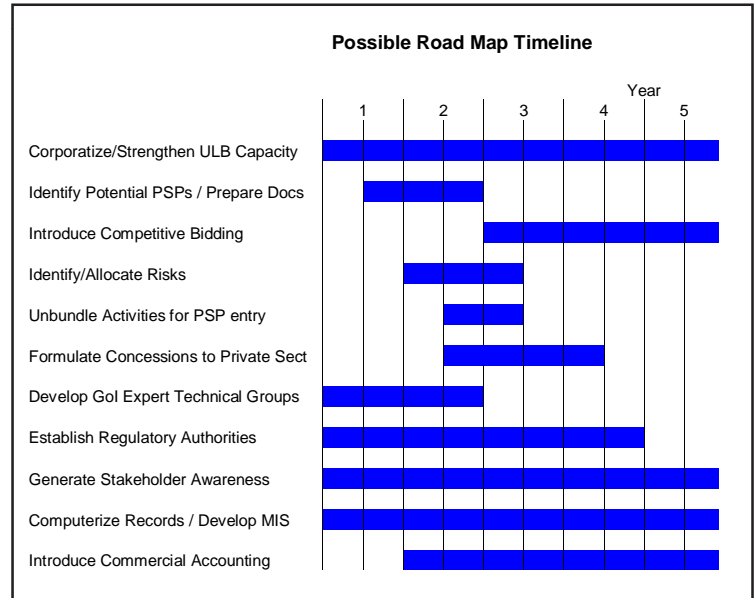
The following key components of a possible Road Map for India to prepare for PSP in urban infrastructure services were presented at the Bangalore Roundtable Discussion, with each element prioritized to meet the local situation and requirements:

- Strengthen capacity of ULBs to raise funds (this could form part of a progressive corporatization programme leading to increased autonomy)
- Identify areas for PSP and prepare standard bidding/tender documents
- Move progressively towards competitive bidding (this could include open competition and benchmarking between public and private sector players used to identify where the private sector can offer greater efficiencies and value)
- Identify and allocate risks to reduce Government guarantees progressively
- Unbundle activities to permit phased entry of private sector (to minimize disruption and establish credibility)
- Formulate ways of direct injection of concessions to private sector, allocating specific functions to it
- Use Expert Technical Groups from Federal and State Governments for technical expertise
- Establish Regulatory Authority for supervision/guidance
- Generate awareness among stakeholders on the “user pays” principle
- Computerize internal records and data to develop a Municipal Information System
- Introduce commercial accounting systems

A hypothetical timeline for the possible Road Map is shown in Figure 4.

The Public Utility Board (PUB) in Singapore, probably the most successful public sector water utility in the region, has adopted a tripartite

Figure 4



approach to managing service delivery: the 3 P’s – people/public/private. The PUB tagline of “Water for All: Conserve, Value, Enjoy” emphasizes the part consumers can play by reducing demand and using water-saving devices. Public education in water conservation, as well as pricing water to reflect its scarcity value and legislation to control waste, are other key aspects of delivering efficient water services. These, combined with the efficiencies and innovation of the private sector to deliver technical solutions, and the expertise of the PUB to manage its assets and operate systems efficiently, all contribute to the delivery of a high class service that has reduced unaccounted water to 5% and has always enjoyed a 24x7 water supply. PUB does not compromise on supply continuity and plans to meet projected demands at least 15 years ahead.

Three of the key elements conditional on a water utility being transformed into an efficient service provider, such as PUB, are to build up capacity on

policy development and planning, develop an effective communications strategy on tariff reform, and adopt technological innovation to improve service quality cost-effectively.

At the conclusion of the Bangalore Roundtable Discussion, representatives from the five state governments prepared concrete action plans for implementation at state level to expeditiously bring in 24x7 water supply to their selected cities and municipalities within the next 3 years. It should not necessarily be expected that a 24x7 water supply can be achieved for the whole network in a single step. Even if such a universal change is technically feasible, it may be preferable to phase in 24x7 in isolated areas, extending them until, ultimately, the whole network enjoys 24x7. This approach would minimize costs and disruption, and provide an opportunity to learn from the changes being implemented and to modify the approach if results were not as expected. Experience of utilities, such as PUB, indicates that progressively increasing the supply duration in areas of the network is not an efficient approach and that direct transition to 24x7 in an area is optimal.

The implementation of pilot or demonstration schemes, and the subsequent replication of successful models, can enable improvements to be made at a manageable pace and for results to be disseminated to develop confidence, educate beneficiaries and engender stronger stakeholder support, for example, to increase acceptance of the need for tariff increases to further improve service levels. Instead of awarding a PSP contract immediately, and if considered appropriate, such pilot schemes could be initiated by the public sector using existing, as well as minor supplementary, resources with the private sector being utilized at a later date during the replication or expansion stage as considered appropriate.

Several initial PSP opportunities were identified by participants and are listed below in priority sequence and with indicative targets and implementation periods:

1. Service contracts, e.g., billing and collection, meter rectification (start within 6 months);

small piped networks for peri-urban areas (1,000 households within 3 years)

2. Leakage control/reduction (20% reduction in NRW in 2 to 3 years); universal metering and bulk metering (complete within 3 to 4 years); mapping distribution networks (complete within 3 years); pilot and demonstration schemes in small areas (500 households in 2 years)
3. Management contracts for certain components, e.g., water treatment, pumping stations, distribution system (3 to 5 years)

As suggested in the preceding section, a good starting point for a country like India would be a hybrid of a Management Contract model or a Lease Contract under which the Government would hold the assets and fund investments, while the PSP operator delivered change and efficiency. As the confidence of each party was developed, and subject to satisfactory contract performance, a full Concession Contract could be awarded at the end of the Management Contract, combined with regulation and reviews at 5 yearly intervals. A hypothetical timeline for such a strategy is shown in Figure 5.

Figure 5

