INDIA: Improving Urban Water Supply & Sanitation Services

Lessons from Business Plans for Maharashtra, Rajasthan, Haryana and International Good Practices

July 2012

The World Bank

Ministry of Urban Development
Government of India
INDIA:
Improving Urban Water Supply and Sanitation Service Provision

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Acknowledgement

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Accompanying India’s rapid economic growth and urbanization are unprecedented challenges in meeting the growing demands of the urban population, including demand for improved water supply and sanitation (WSS). A number of programs have been launched in the last few decades, including the Accelerated Urban WSS Program, the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), the Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT), and various State Government Programs for improving infrastructure facilities and services to the urban population. While these programs have helped in increasing access to improved water sources for more than 90% of the urban population, and increasing access to basic sanitation for more than 60% of the population, the sector now has to address the twin challenge of universal coverage and improved reliability and sustainability of services. Not only piped water coverage has to increase, but specific programs are required to address the sector challenges for improving services from 3-4 hours of water supply to 24/7 sustainable supply, reducing Non Revenue Water estimated between 40-70% on account of leakages, unauthorized connections, billing and collection inefficiencies, as well as addressing issues related to inadequate operations and maintenance. Along with water supply, cost effective sanitation and sewerage programs are required to meet the growing needs of the urban population.

Since most of the WSS projects survive on large subsidies and capital grants from the State and Central Government, improving sector performance is critical for meeting the growing needs of the urban population. The Ministry of Urban Development has announced a number of initiatives, including ‘Service Level Benchmarks’ (SLBs) requiring Urban Local Bodies (ULBs) to report performance, ‘National Urban Sanitation Policy’, preparation of ‘City Sanitation Plans’, and ‘Rating of Cities on Sanitation Performance’. Moving forwards, a major limiting factor is that hardly any State has a well-defined sector policy and institutional and infrastructure development program. The main challenge is to motivate States to move away from the typical ‘infrastructure targeted programs’ and start developing and implementing programs dedicated for improving water and sanitation services. Simply focusing on increasing ‘access’ and creating infrastructure, without addressing management of service may not lead to sustainable services. The key questions that need to be addressed are:

How can we improve sustainability of services and accountability to customers?
What should be the institutional and regulatory framework for improving service delivery?
How can we improve financial and operational sustainability of services?
What kind of programs can incentivize service improvements?
How can we build capacity and professionalize the sector?
What are the key elements of a comprehensive program for improving water and sanitation services?
Improving Urban Water Supply and Sanitation Service Provision

Responding to the above questions, this report prepared in collaboration with the States of Maharashtra, Rajasthan and Haryana, is very timely in addressing the key sector issues and providing guidance to other States in preparing a comprehensive WSS Sector Program, describing where a State wishes its Urban WSS Sector to be in, say, 5-10 years from now. Although there is no “one-size-fits-all” solution, such sector programs could build on national and international experiences for achieving good practices. As we decentralize services to the Urban Local Bodies, we need to create appropriate institutions at the local level that are responsible, efficient, and accountable, and are capable of providing quality services. The report seeks to address key policy, institutional, financial and professional issues for formulating a Comprehensive Sector Development Plan at the State and the ULB level. It specifically identifies policies and principles for clarifying the mandates, improving governance, financing and developing infrastructure, regulating services, and building capacity.

We look forward to more and more States and ULBs adopting the proposed framework for progressively achieving improved, customer oriented, sustainable and accountable services.

(Ch. Sudhir Krishna)
Secretary Urban Development
Government of India
Preface

This report, prepared in collaboration with the Ministry of Urban Development (MoUD) and partner States, builds on an earlier document, Bridging the Gap Between Infrastructure and Services, published in 2006, which identified that creating water supply and sanitation (WSS) infrastructure did not, in itself, result in improved long term service. The findings of this earlier report showed that the sectoral mindset needed to change from a singular focus on asset creation towards issues of equity, quality of service delivery, and sustainability.

Over the period 2008-2011 the World Bank team, in close collaboration with MoUD and the States of Maharashtra, Rajasthan and Haryana, have prepared State-wide business plans for the sector. The report identifies the key elements of a State-wide program for improving WSS services and accountability on the basis of the following three pillars:

- **Policies and Institutions:** Appropriate policies and institutional arrangements that clarify the roles and responsibilities of key actors, and which create service providers that are efficient, accountable and customer focused with sufficient autonomy to manage their affairs in a professional manner.

- **Infrastructure and Financing:** Medium term infrastructure development program with appropriate financial frameworks that encourage service providers to rely increasingly on user fees and, later on, loans as their main sources of financing. Any subsidies within that framework should be provided in a targeted and transparent manner to support government policies.

- **Capacity Building for Professional Services:** Ensuring well trained, knowledgeable and motivated staff to deliver the services in a high quality manner.

The above pillars can be regarded as essential ingredients for a well run sector. These plans were subject to significant discussion and interaction with stakeholders through a series of workshops which were kindly supported by AUSAID funding.

The Business Plans are supplemented by a sample of international good practices to provide further insights into how other nations have overcome performance shortfalls. Taken together, the Business Plans and international practices summarized in this report give Indian practitioners a valuable reference and learning document. It has also provided significant contributions to the Ministry’s own Advisory Note on Improving Water Supply and Sanitation Services which is being published in parallel.

I would like to thank the sector officials in MoUD and the States of Maharashtra, Rajasthan and Haryana, and World Bank team, for their dedication and effort over an extended period to bring this piece to publication.

(Roberto Zagha)
Country Director
World Bank
India
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<th>Acronym</th>
<th>Description</th>
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<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<tr>
<td>BOOT</td>
<td>Build-Own-Operate-Transfer</td>
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<td>Capex</td>
<td>Capital Expenditures</td>
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<td>CPHEEO</td>
<td>Central Public Health and Environmental Organization</td>
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<td>CMU</td>
<td>Change Management Unit</td>
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<td>GoH</td>
<td>Government of Haryana</td>
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<td>GoI</td>
<td>Government of India</td>
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<td>GoM</td>
<td>Government of Maharashtra</td>
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<td>GoR</td>
<td>Government of Rajasthan</td>
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<td>GP</td>
<td>Gram Panchayat</td>
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<td>HUDA</td>
<td>Haryana Urban Development Agency</td>
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<td>IBNET</td>
<td>International Benchmarking Network for Water and Sanitation Utilities</td>
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<td>JMP</td>
<td>Joint Monitoring Program (WHO/UNICEF)</td>
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<td>JNNURM</td>
<td>Jawaharlal Nehru Urban Renewal Mission</td>
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<tr>
<td>Lpcd</td>
<td>Liters Per Capita Daily</td>
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<td>LSG</td>
<td>Local Self Government</td>
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<td>LRMC</td>
<td>Long Run Marginal Cost</td>
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<td>MDGs</td>
<td>Millennium Development Goals</td>
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<td>MJP</td>
<td>Maharashtra Jeevan Pradhikaran</td>
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<td>MMSRC</td>
<td>Maharashtra Municipal Services Regulatory Commission</td>
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<td>MSNA</td>
<td>Maharashtra Sujal And Nirmal Abhiyan</td>
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<tr>
<td>MUIDC</td>
<td>Maharashtra Urban Infrastructure Development Company Limited</td>
</tr>
<tr>
<td>MWRRA</td>
<td>Maharashtra Water and Waste Water Regulatory Authority</td>
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<td>MIS</td>
<td>Management Information System</td>
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<td>MoU</td>
<td>Memorandum of Understanding</td>
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<td>MoUD</td>
<td>Ministry of Urban Development</td>
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<td>MMRDA</td>
<td>Mumbai Metropolitan Region Development Authority</td>
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<td>MSNA</td>
<td>Maharashtra Sujal Nirmal Abhiyan</td>
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<tr>
<td>MSW</td>
<td>Municipal Solid Waste</td>
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<td>NRW</td>
<td>Non Revenue Water</td>
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<td>O&amp;M</td>
<td>Operation and Maintenance</td>
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<td>Opex</td>
<td>Operational Expenditures</td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>PRI</td>
<td>Panchayat Raj Institution</td>
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<td>PHED</td>
<td>Public Health Engineering Department</td>
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<td>PPP</td>
<td>Public-Private Partnership</td>
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<td>PMC</td>
<td>Pune Municipal Corporation</td>
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<td>PWC</td>
<td>Pricewaterhouse Coopers</td>
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<td>RUDF</td>
<td>Rajasthan Urban Development Fund</td>
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<td>RUIDP</td>
<td>Rajasthan Urban Infrastructure Development Project</td>
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<tr>
<td>RUFIDCO</td>
<td>Rajasthan Urban Infrastructure Finance and Development Corporation</td>
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<td>RWSSC</td>
<td>Rajasthan Water Supply and Sanitation Corporation</td>
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<td>RWSSMB</td>
<td>Rajasthan Water Supply and Sewerage Management Board</td>
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<td>RU</td>
<td>Regional Utility</td>
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<td>RWSS</td>
<td>Rural Water Supply and Sanitation</td>
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<td>SLB</td>
<td>Service Level Benchmarks</td>
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<td>STP</td>
<td>Sewage Treatment Plant</td>
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<td>SSB</td>
<td>State Sanitary Board</td>
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<td>SISS</td>
<td>Superintendencia de Servicios Sanitarios (Chile)</td>
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<td>UDH</td>
<td>Urban Development Housing</td>
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<td>UIDSSMT</td>
<td>Urban Infrastructure Development Scheme for Small &amp; Medium Towns</td>
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<td>ULB</td>
<td>Urban Local Bodies</td>
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<td>UWSS</td>
<td>Urban Water Supply and Sanitation</td>
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<td>WSS</td>
<td>Water Supply and Sanitation</td>
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<td>WSSD</td>
<td>Water Supply and Sanitation Department</td>
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<tr>
<td>WSSC</td>
<td>Water Supply and Sanitation Company</td>
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<td>WSSSP</td>
<td>Water Supply and Sanitation Service Provider</td>
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1. Executive Summary

1.1 The purpose of this report is to distill lessons learnt for improving Water Supply and Sanitation (WSS) services in India, by reference to the recent WSS Business Plans prepared for the three States of Maharashtra, Rajasthan and Haryana and from various studies carried out by the World Bank on international good practices in urban water service delivery. The report culls out the core elements of the WSS reform program and proposes how such reforms might be implemented. The intended audience for this report is policy makers at the National and State levels, sector professionals and practitioners.

1.2 The preparation of the WSS Business Plans for the three states was supported through the Non Lending Technical Assistance Program of the World Bank, with the objective of developing State-wide programs for improving service delivery and accountability. This was a follow-up to the earlier report on Bridging the Gap Between Infrastructure and Services (2006)¹ which highlights that simply ‘increasing access to infrastructure is not usually the solution’; creating infrastructure and not addressing management of WSS services does not lead to sustainable services. Although a number of national and state programs have been launched in India to increase ‘access’ to WSS ‘infrastructure’, including the centrally supported Accelerated Urban WSS Program and recent programs like Jawaharlal Nehru National Urban Renewal Mission (JNNURM), the Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT) and the Service Level Benchmarks (SLBs), these programs are still work-in-progress with initiatives yet to be taken up by the states for improving reliability, sustainability and affordability of service delivery.

1.3 The WSS SLBs were introduced in 2008 by the Ministry of Urban Development (MoUD), followed by a mandatory requirement by the 13th Finance Commission that current performance levels and annual improvement targets are to be reported by different categories of cities for accessing performance grants from the Finance Commission. The first set of data reported in March 2011 by 1493 cities across 14 states is presented in Annex 1. The data shows low levels of performance indicators for water supply and sewerage against the identified benchmarks, including the need for improving coverage, reducing Non Revenue Water, improving services and cost recovery. In this context, a major limiting factor is that hardly any state has a well-defined WSS policy, institutional and infrastructure development program. The main challenge is to motivate states to move away from the typical ‘infrastructure targeted programs’ and start developing and implementing state-specific programs, dedicated for improving WSS service delivery.

1.4 The report identifies the key elements of a State-wide program for improving WSS services and accountability on the basis of the following three pillars:

- Policies and Institutions: Appropriate policies and institutional arrangements that clarify the roles and responsibilities of key actors, and which create service providers that are

efficient, accountable and customer focused with sufficient autonomy to manage their affairs in a professional manner.

- Infrastructure and Financing: Medium term infrastructure development program with appropriate financial frameworks that encourage service providers to rely increasingly on user fees and, later on, loans as their main sources of financing. Any subsidies within that framework should be provided in a targeted and transparent manner to support government policies.

- Capacity Building for Professional Services: Ensuring well trained, knowledgeable and motivated staff to deliver the services in a high quality manner.

1.5 The WSS Business Plans for the three states were prepared at the request of the concerned states and the Ministry of Urban Development (MoUD), with the WSS Department in each state as the principal counterpart agency. The respective WSS Departments worked closely with the Consulting Firms to develop their state programs during a course of two years (2008-10). This included a number of discussions and consultation workshops at the state and the ULB levels, preparation of draft reports and feed-back from the various state agencies and representative ULBs. A list of representative ULBs was agreed with each state for consultations, data collection and feed-back. The draft intermediary report was also presented to the MoUD and the concerned State Secretaries, including WSS and Urban Secretaries, at a workshop organized by the MoUD in 2009. A series of workshops were organized in each state in 2010, to get feed-back on the draft final reports. Maharashtra has already started implementing its WSS Business Plan through the ‘Maharashtra Sujal Nirmal Abhiyan’ (MSNA), an incentive driven WSS reform program launched by the Maharashtra Chief Minister in 2010. Rajasthan is starting to implement the WSS Business Plan through various sector programs, and Haryana is currently taking up the reform initiatives for a number of identified ULBs.

1.6 To put the sector in context, the report begins by summarizing the results of various international studies undertaken over the last several years by the World Bank to better understand the makings of well run public WSS companies. These findings point towards the need to establish sectors which encourage the development of autonomous, accountable and customer oriented service providers. Within that framework the report provides suggestions on practical steps that can be taken by governments and service providers.

**WSS Sector Challenges**

1.7 The three business plans, summarized in this main report and annexes, provide insights into the challenges facing the sector as a whole in India. While some progress has been made in terms of coverage, the service is generally of poor quality and is unsustainable to the extent that it relies heavily on government subsidies for both operations & maintenance costs, and for capital costs. Poor managerial and financial autonomy, limited accountability, weak cost recovery, perverse incentives and limited capacity has led to poor services to customers across the country. Urban India is at the bottom of most international measures of performance. The major challenges are:

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2 The Consulting Firms which assisted the three states in preparing their WSS Business Plans are Price Waterhouse Coopers, Crisil and Powertek. Detailed Consultant Reports are available with the respective State Governments.
Executive Summary

- preparing a comprehensive program for improving WSS services;
- creating consensus on sector governance and institutional arrangements;
- developing and testing service provider models that have characteristics of well run public companies for different market segments (large/small);
- improving financial sustainability of providers (commercial, energy, Non Revenue Water);
- professionalizing the WSS sector.

1.8 As popular expectations increase across India over the coming years, the water sector will be hit by two forces, both of which will make the current situation untenable; a) demand for improved WSS service quality – which will need investments in new institutions, human capacity and assets, and b) increasing demand on limited public funds for a wide range of social and economic development activities, which will only serve to reduce the funds available for financing the water sector. Thus improving sector performance is critical for meeting the growing needs of the urban population.

WSS Sector — Areas of Immediate Concern

1.9 The business plans make a start in preparing a comprehensive program for addressing the priority areas of immediate concern:

- **Establishing Autonomous and Accountable Customer Oriented Service Providers:** Maharashtra is certainly further advanced in its thinking than the other two States but it will clearly be a daunting, yet achievable, task to set in place the autonomous, accountable and customer oriented service providers that international experience indicates is necessary. All the plans show very large investment needs, but without a comprehensive financing plan. Where financing has been identified it relies solely on government funding (which will come under increasing pressure over time). It is clear therefore that there is a need to create efficient well run companies to implement the investment program, and then operate those assets to maximize service to customers over their full life.

- **Restructuring the Public Health Engineering Departments (PHEDs):** Fortunately there is increasing understanding of the need to reform institutional structures. There is some movement towards separation of roles and responsibilities and moving towards autonomous, accountable and customer oriented service providers. These moves need to be consolidated and their introduction speeded up. At the heart of this institutional reform agenda, particularly in Rajasthan and Haryana, is the evolving role of the PHEDs. Here there are similarities appearing across the business plans with the roles of the PHEDs being reformulated along the separate lines of service provision, capital development, and policy advisors.

- **Decentralizing Service Delivery Responsibilities:** Policies are also moving in the right direction with Maharashtra setting out its decentralization policy early on in 2003. Rajasthan has recasted its policy in 2010, whilst Haryana has recently initiated the process. It is also encouraging to see that implementation plans are in place or at least being considered, for the business plans.
• **Recovering Operations and Maintenance Costs:** Recovering operations and maintenance costs from user fees is considered a minimum for a well-run company, yet none of the States can claim such performance. Again, Maharashtra is well ahead of the others. Much of this gap can be covered by increasing technical efficiency and improving commercial operations, yet with few hard budget constraints and poor incentives, the current modus operandi will continue. Without moving beyond O&M cost recovery, the sector will be unable to access the broader sources of funding needed to support the planned investments.

• **Preparing WSS Reform Implementation Plan:** Overall, the business plans show that the States understand that sector programs have to change to meet the needs of the 21st century. There is also an emerging commonality of view on how this can be achieved – with increasing separation of roles and responsibilities amongst the actors, and an appreciation of the need to improve efficiency and cost recovery. However, States need practical advice and guidance to implement these changes. In addition, they clearly need financial support to make the necessary changes.

• **Implementing Incentive Based Financing Program:** The challenge for the sector therefore is to develop a sound modernization program that can support initiatives at the State and ULB level. Such a program will, necessarily, require significant investment support in the short term, but such support should be predicated on implementing institutional and service provider reforms. As such incentive-based financing schemes need to be developed that will reward adoption of change, and which, over time, will transfer sector financing from Government to other sources of funding, particularly the local capital market. In doing so, the natural result will be autonomous, accountable, and customer-oriented service providers that are efficient and effective in their activities.

• **Building Capacity and Professionalizing the Sector:** The Business Plans recognize the need for an effective program for building capacity and professionalization of the sector at all levels. There is agreement to move away from the traditional engineering-driven sector, to a sector with a mix of professional skills, including technical, financial, managerial, social, and environmental skills. Community participation in the design and implementation of the sector program, including independent assessment of the service delivery achievements, is an essential core of the reform program.

**Key Recommendations**

1.10 The key recommendations of this report are the policy, institutional, financial, and professional reforms that are needed to develop a comprehensive WSS Sector Program and Accountability Framework, describing where a State wishes its urban WSS Sector to be in, say, 5-10 years from now. Although there is no “one-size-fits-all” solution, such Sector Programs could build on national and international experiences for achieving good practices. The report identifies the following key elements for the sector program:

a) Clarifying the Mandates of Water Supply and Sanitation Service Providers

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1 Based on the experience gained in the preparation of the WSS Business Plans for the three States and international good practices, the Ministry of Urban Development (MoUD), GoI, has prepared an ‘Advisory Note’ for all States, highlighting the critical reform areas for improving WSS services.
b) Improving the Governance of Water Supply and Sanitation Service Providers

c) Preparing Predictable and Sustainable Financing Programs

d) Regulating the Urban Water Supply & Sanitation Services

e) Developing Procedures, Building Capacity and Professionalizing Actors of the Water Supply and Sanitation Sector

**The Way Ahead**

1.11 The report concludes with a chapter which considers how the key findings from the Business Plan preparation can be operationalized. Implementing the findings requires consideration of how to combine and sequence the reforms, where to start, and the critical role that communication and consensus building plays in the process. The role of the Central Government is critical. Whilst not responsible for service delivery, this being a State subject, Central Government can use its monitoring, capacity building and advocacy role to help shape the thinking of key decision makers. Through its sector financing it can introduce stronger incentives to go beyond asset creation into performance improvement and sector sustainability. State governments also play a key role through the promulgation of model urban water supply and sanitation policies and the preparation of the Business Plans. They also have to address institutional reforms as roles and responsibilities are redefined and state entities move towards a more facilitating and partnering role with lower levels of government. At the municipal level, increased capacity will be needed to allow the proposed reforms to be implemented in a way that meets the needs of their constituents in terms of service delivery whilst at the same time ensuring financial stability. While the three states (Maharashtra, Rajasthan and Haryana) are in broad agreement with the recommendations, there are concerns regarding the time-frame for implementation and the adoption of measures related to tariff policy and institutional restructuring, as these are politically sensitive subjects.
2. International Good Practices – Setting the Context

2.1 Background

2.1.1 Water services in Urban Local Bodies (ULBs) in India are characterized by high levels of coverage, yet relatively low levels of service quality and weak financial performance4. This has not happened by accident and has resulted from a combination of factors. The primary reason has been the priority placed on expanding access, and constructing new assets, at the expense of professionally managing assets already built to deliver a high quality, sustainable, service. The subject of improving WSS service in India is extremely wide ranging including a host of policy, institutional, financial, technical, managerial, political and socio-economic aspects each of which has a bearing on delivery of the final service to the customer. However, this report focuses on just three critical pillars5 which will support the delivery of sustainable and accountable WSS services that people want and are willing to pay for, namely: (i) Policies and Institutions; (ii) Infrastructure and Financing; and (iii) Capacity Building for Professional Services.

2.1.2 This report draws on international experience and that gained in the preparation of urban WSS business plans in three states in India. These business plans were prepared to assist State Governments and ULBs in developing plans to improve overall sector performance. The individual State Business Plans6 continue to evolve and are considered working documents but summaries have been prepared and provided in this document. The report starts by briefly reviewing relevant international experience in each of the pillars in order to provide some context for the report. The key findings from the State Business Plans are then presented and compared. This then leads, naturally, to the conclusions and recommendations from the study.

2.1.3 Improving access to the WSS infrastructure, efficiency of WSS operations and reliability, sustainability and affordability of the WSS service almost always requires reforms of policies, institutional arrangements, procedures and incentives. This is a complex package of activities all of which could, individually, be the subject of significant research studies in their own right. The presentation in this section draws heavily on international research undertaken by the World Bank to evaluate key features for improving the performance of public utilities.

2.2 The Institutional Framework

2.2.1 Reforming an urban WSS sector usually consists in enhancing its “accountability framework” for achieving increased coverage, efficiency of operations, reliability, financial and environmental sustainability and affordability of the service. The set of actors, their mandates

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4 Annex 6 presents the Service Level Benchmarks and notified data from 1493 cities.
5 These three pillars were selected based on author’s experience in preparation of the State Business Plans and on various international studies looking at improving performance of public service providers
6 This refers to the detailed State Business Plan Documents developed by the consultants for the WSS Departments of each state.
and contractual obligations and the procedure they use for carrying out the five key functions of policy setting, service provision, infrastructure development, financing and economic regulation constitute what is referred to as the accountability framework.\textsuperscript{7} There is no “one-size-fits-all” institutional arrangement and the “unbundled” WSS sector depicted in Figure 1 below is used to introduce the concepts of actors (rectangles), mandates (lozenges), contracts (circles) and instruments (lines). Annex 2 discusses this accountability framework in detail and clarifies the content of the mandates, contracts and instruments.

\textbf{Figure 1: Example of “Unbundled” Accountability Framework}

2.2.2 International studies by the World Bank\textsuperscript{8} indicate that Well Performing Public WSS Service Providers are characterized by three key criteria:

- autonomy, i.e., their ability to manage and finance WSS operations professionally without arbitrary interference by others,
- accountability, i.e., the obligation to be answerable for the use of public resources and their overall performance, and
- customer orientation, i.e., the willingness and capacity to listen to clients and work to better meet their needs.

\textsuperscript{7} Template for Assessing the Governance of Public WSS Service Providers; A. Locussol and M. van Ginneken; World Bank, 23; 2010

\textsuperscript{8} Characteristics of Well Performing Public Water Utilities; A. Baietti, W. Kingdom, M. van Ginneken; World Bank; 2006
In the following paragraphs these concepts are expanded by reference to examples of practical ways in which they can be achieved.

**Autonomy of Service Providers**

2.2.3 Creating a Corporate WSS entity is found to be the model most likely to enhance the autonomy of the service provider. Options include creating statutory bodies in application of a specific urban WSS law or incorporating a public enterprise under the country’s company law, with all shares owned by the government. The funding of a corporatized WSS service provider should be specified in its articles of incorporation, as should the distribution of dividends (if any) – especially when the corporation is owned by several local governments. The issue of ownership of WSS assets should also be clarified.

2.2.4 Critical in the effective operationalization of the corporate entity is the composition, appointment criteria, compensation and code of conduct of the members of the Board of Directors (BoD). It is the BoD that helps create the space that managers and staff need to professionally deliver service and to move away from short term objectives which can undermine the long term nature of WSS service provision. Likewise the conditions under which key managers and the staff would be recruited into the corporate entity, and their performance evaluated, will be critical in establishing a strong foundation for improved autonomy of operations. Simple “reshuffling” of existing power brokers and non performing managers into a new corporate entity and its BoD will not deliver the autonomy that the model sets out to achieve.

2.2.5 Johannesburg provides an example of how separating policy and regulation from other functions improved a utility’s management. The city has separated the roles of owner, policymaker and regulator and set out its objectives and expectations of the water utility in a number of documents (Box 1).

**Box 1: How City of Johannesburg (South Africa) Separated Policy Making, Ownership and Regulation Functions**

In 2000/2001, the City of Johannesburg, as part of a broader initiative to reform local government, established a number of government-owned companies, including Johannesburg Water (Pty) Ltd. Johannesburg Water delivers services specified in a Service Delivery Agreement (SDA) between the municipality and the utility. The SDA sets out the performance standards to be achieved by the company, the procedure to develop an agreed business plan, requirements with respect to management of the assets, various financial obligations, and general reporting requirements. The SDA is monitored by a Contract Management Unit (CMU) established within the municipality to oversee the delivery of services by all the municipal service entities.

In addition to the SDA, the municipality also entered into a Sale of Business Agreement (SBA) with Johannesburg Water which set out the sale price of the business and how this would be paid by the company. This agreement, combined with the Articles of Association (AoA) and By-laws of the company, sets out the objectives and expectations of the municipality as the sole owner of the water company. The ownership role within the municipality was initially allocated to the Department of Finance but subsequently a Shareholder Support Unit was created in the Office of the City Manager.

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*Key Topics in Public Water Utility Reform; Meike van Ginneken, Bill Kingdom; World Bank; 2008*
Thus, whilst the City of Johannesburg retains a triple role of policy maker, owner and regulator, it has gone some way to clarify and separate these roles. The ownership role lies with the Shareholder Support Unit, much of the regulation role has been passed to the CMU through management of the SDA (although the municipal council still agrees the tariffs), while the council retains its central role with respect to policy making at the municipal level.

Through this separation each party can focus on the implementation of its assigned role and responsibility. Whilst the municipal council has ultimate veto over the actions of the CMU and the Shareholder Support Unit, the parties have maintained the separation of powers as envisaged in the reform process and the new model has been implemented as planned.

**Accountability of Service Providers**

2.2.6 Accountability is the area of institutional reform where the most number of options can be put forward by policy makers and sector professionals. However, such accountability measures will have limited value unless they are matched by the provision of the key autonomy characteristics noted above. A utility is accountable to a variety of actors, such as Central and Local Governments, customers, and financial institutions. The leverage that each actor has depends on the functions it fulfils vis-à-vis the utility. The main functions that actors have are:

- **Policy-Making**: Setting principles that guides the management of a given organization
- **Ownership**
- **Financing**: Financing investment financing of the utility both in debt and equity
- **Demand for service by customers**

2.2.7 Mapping the utility and other actors, including the level of power that each actor has on the utility is a useful tool to conceptualize accountability. Local Governments are usually the most influential actor. Often Local Governments combine the function of ownership with those of financing and policy making. To a large extent, financial flows determine accountability. Thus diversifying sources of financing is part and parcel of creating balanced accountability. Also, accountability to customers depends on the degree of cost recovery. For instance, the National Water and Sewerage Company in Uganda has increased its accountability to its customers in recent years by recovering most of its operational and capital costs from its customers. The provincial government has a strong hold over the Hai Phong Water Corporation in Vietnam, as it regulates tariffs and the quality of services provided (Box 2).

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10 Utility ownership sometimes differs from asset ownership. In the public management models described in this paragraph asset ownership can either be (a) in the hands of the same (local) governments who own the utility, or (b) in the hands of the utility. The second arrangement gives substantially more autonomy to the utility.
Improving Urban Water Supply and Sanitation Service Provision

Box 2: How HPWC (Vietnam) and NWSC (Uganda) Balance their Accountabilities

In Hai Phong, four main actors impact the water utility. Most important is the provincial government (Hai Phong People’s Committee), which has a strong hold over the utility as it regulates both the tariff level as well the quality of services provided. The influence of customers is largely linked to the revenue they generate for the utility. Approximately 85% of the utility’s revenue derives from customers. International Agencies such as the World Bank and FINIDA have been instrumental in providing access to financial resources.

The National government sets out the main policy lines to which the utility must adhere through the Ministry of Construction. Investment decisions for water supply and sanitation are made by Ministry of Planning in consultation with other Ministries and the Provincial People Committees.

In Uganda, three main actors influence the functioning of the NWSC. Most influential is the central government, which appoints and is represented on the Board of Directors, formulates the policy for the water sector, regulates tariffs and quality of services and, at times, subsidizes investments, which are in line with the government’s social mission policy. Donor agencies, provide funds and hold the utility accountable through covenants in their financing agreements. Thirdly customers hold the utility accountable through strategic alliance meetings. As cost recovery from customers generate a considerable amount of the revenues, their voice is quite strong.

Key to functions: D = Demand for Service, F = Financing, O = ownership, P = Policy making, R = Regulation

2.2.8 Building Accountability - Decentralization of WSS Responsibilities. Where services are provided by State level entities there can be reduced accountability at the ULB level. Decentralizing responsibility for service provision to the ULBs increases accountability at that level. A central-local split in responsibilities should, however, build on the comparative advantages of Local Governments (better local knowledge, proximity to the utility and its customers) and higher levels of government (less prone to utility capture, higher technical competence). Central Government agencies, for example, could play a central role to catalyze change and support local governments, mainly through incentives and technical assistance. Any move to decentralization should be carefully planned to ensure that the local governments have sufficient capacity, or access to sufficient capacity, to take on their new responsibilities. In some cases decentralization to the lowest levels results in loss of economies of scale and access to professional staff. In such cases ULBs can consider grouping through Special Purpose Vehicles (SPVs) to provide regional, multi ULB services.

2.2.9 Performance Agreements. A Memorandum of Understanding (MoU) between a government and a public WSS service provider can be used to clarify commitments and obligations of both parties for a period of 5-10 years; their enforceability would need to be assessed, in particular if there is a risk that the defaulting party is the Government. Performance

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11 Characteristics of Well Performing Public Water Utilities; A. Baietti, W. Kingdom, M. van Ginneken; World Bank; 2006
based intergovernmental transfer systems whereby decentralized WSS service providers have to compete for public funds whose availability is linked to the implementation of reforms and achievements of specific performance targets should also be considered.

**Box 3: Performance Contract of ONEA (Burkina Faso)**

For ONEA performance objectives are established in the performance contract, which the utility has with the government. This performance contract includes 34 technical, financial and commercial indicators. The implementation of this performance contract is submitted to the review of an external technical auditor.

In addition to the review by the external auditor, a follow-up committee for the implementation of the Performance Contract exists. This follow-up committee includes nine members representing the Government, three members representing ONEA and one member representing consumers. The committee meets three times a year and drafts a report on the performance indicators, which is then submitted to the Board of Directors.

The Performance Contract does not provide for penalties or rewards for failing to achieve the set targets. The contract does allow for modifications if economic, financial or social conditions change dramatically.

2.2.10 **Licensing WSS Service Providers.** The Performance Agreement model could be further strengthened and under pinned by the use of a licensing approach by government/regulators. An operating license granted to a WSS service provider should specify: (i) the characteristics of the WSS service to be provided to customers; (ii) tariffs and user fees that could be charged and procedures for adjusting and resetting them; (iii) minimum technical, commercial and financial performance that should be achieved; and (iv) reporting obligations. The mandate of a regulator, if established, should include the licensing of decentralized public and private providers of WSS services. If no regulator is established, the above could be clarified as the Performance Agreement between the authority responsible for the WSS service and the WSS service provider.

2.2.11 **Increasing Accountability and Limiting Monopoly Abuse through Economic Regulation.** Economic regulation of the WSS service, i.e., the rules and organizations that set, monitor, enforce and change allowed tariffs and service standards, should primarily be about increasing accountability and stopping the monopoly abuse of providers who could provide a service of poor quality, charge high tariffs to increase their profits or charge high tariffs to cover the cost of their inefficiencies. When it comes to regulation, there is no one-size-fits-all solution and importing regulatory models designed for a particular country is seldom a good option. In particular, establishing a formal “regulator” should be considered after a thorough analysis of its potential contribution to the enhancement of the Accountability Framework. Whether a regulator is established or not, key regulatory functions that typically include: (i) the licensing of WSS service providers; (ii) the monitoring of the compliance of WSS service providers with the terms of their license; and (iii) the adjustment and resetting of tariffs and other user fees should be carried out in an independent, transparent and predictable manner.

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12 Key Topics in Public Water Utility Reform; Meike van Ginneken, Bill Kingdom; World Bank; 2008
13 Explanatory Notes on Key Topics in the Regulation of WSS Services, E. Groom, J. Halpern, D. Ehrhardt, PPIAF, World Bank; 2006

2.2.12 **Framing the Regulator’s Operations.** If a regulator is established, it should have the power to set or approve tariffs and other user fees, monitor markets and service quality, investigate and mediate customer complaints, provide dispute resolution mechanisms, compel provision of information and monitor and enforce its decisions without prior approval from other government agencies. Duplication of the regulator’s mandate with that of other institutions should be avoided. A regulator should finance its operations from a regulatory fee levied on regulated WSS service providers, not from budget allocations, and subject its staff to strict conflict of interest rules. The regulator’s decisions should be preferably be made by a group of commissioners, rather than by an individual, to increase transparency and should follow principles and rules that can be amended only after an extensive public notice to increase predictability. The documentation prepared for supporting decisions should be made available to all parties and the public. Parties which feel that their interests have been be affected by discretionary decisions of the regulator should be allowed to appeal them in a designated tribunal with regulatory expertise.\textsuperscript{14} Given that almost all service provision in India is through public entities it is worth reflecting on the particular challenges associated with their regulation (Box 4).

### Box 4: Regulating Government Owned Utilities\textsuperscript{15}

Economic regulation refers to the organization and rules that set allowed tariffs and required service standards. Private utilities are regulated to control their monopoly power. Government ownership is another way of doing the same thing. Governments can direct the utilities they own. In the case of departments of ministries or municipalities, this is done through the normal line of command in civil service. For corporatized utilities, this is done through the oversight board.

Regulation can only complement ownership, not replace it. There are a number of circumstances in separating the regulatory responsibilities from the government’s responsibilities as owner, that make sense:

- When government-owned, companies in effect, are asked to pursue similar objectives to those of private utilities, they may need to be regulated in the same way and for the same reason as private utilities.
- An independent regulator may protect governments from political pressure, making necessary tariff increases easier to introduce.
- A competent independent body can be an alternative source of information, benchmarking and scrutinizing the utility, and forcing the utility to disclose information and answer criticisms.

Independent regulation of public utilities has often failed to deliver the expected outcomes. The principal reason is the inability to apply sanctions. Effective regulation requires the ability to reward good performance and punish poor performance. A refusal of a regulator to grant a tariff increase to a privately owned utility due to an assessment of inefficiency can move the private owners of the utility into action by threatening their profits. If the regulator punishes a publicly owned utility for inefficient performance by refusing it a tariff increase, the government- owner will likely cover this deficit through taxes or a cut back on expenditure, in either case, the public suffers.

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When a government wants to separate the ownership, policy, and regulatory functions, it has a spectrum of options: from no regulatory oversight at one end to a full-fledged “independent regulator” at the other. In between, a number of options exist, such as a unit in a government ministry that develops a competence in water utility monitoring or an independent body that issues public reports on the efficiency and service performance of the utility but does not set tariffs and service standards.

Whatever option is chosen, it makes sense to use existing organizational competencies in carrying out the new role. It is essential to build in ways to discourage poor performance and encourage good performance. Without rewards and sanctions, the regulatory mechanisms used to control private utilities are unlikely to be effective in changing the behavior of publicly owned water utilities.

2.2.13 Monitoring the Quality of the WSS Service. Once a contractual arrangement or licensing regime has been entered into: (i) the technical, commercial and financial performance of the WSS service provider and the quality of the service provided to customers should be monitored; (ii) customer complaints should be investigated and disputes should be resolved; and (iii) penalties, preferably defined in a Regulatory Act, should be applied to WSS service providers who do not comply with the terms of their license. Obviously licenses and/or contracts should be easier to enforce when the WSS service provider reacts to financial incentives and penalties, i.e., when it behaves like a private company aiming at maximizing its profit. In the absence of strong financial incentives the regulator can use public dissemination and benchmarking of performance as an effective tool to encourage good performance.

Increasing Customer Orientation

2.2.14 The term “Customer Orientation” is a surrogate which captures the many aspects of the operational performance of the service provider. In its most obvious form it means recognizing customers as customers for the service, not just recipients of the service. More fundamentally, it means professional management of the provider to maximize the service delivered, being responsive to customer needs, and being efficient.

2.2.15 Increasing Customer Orientation by improving: (i) information, for example by making annual reports available to customers, distributing fliers with WSS bills or providing answers to most commonly asked questions at service centers or on-line; (ii) consultation, for example by systematically obtaining customer feedback through structured surveys, public hearings or advisory committees; (iii) participation, for example by having consumers represented at Boards of Directors or in regulatory committees; and (iv) recourse and redress procedures.16

2.2.16 Changing the Culture of Public WSS Service Providers is necessary to increase customer orientation and can be achieved by: (i) formulating a strong mission statement and ensuring that managers and staff identify with it; (ii) clarifying procedures for each technical, commercial and financial task; (iii) establishing quality control procedures; (iv) setting realistic performance targets to departments, managers and staff and evaluating their achievement during scheduled meetings; (v) paying bonuses to managers and staff for achieving of exceeding performance targets; (vi) clarifying rules for promotion; (vii) instituting healthy

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15 Groom et al. 2006
16 Ways to improve Water Services by Making Utilities more Accountable to their Users; A review; M. Muller, World Bank; 2008
competition between departments; and (viii) improving internal communication processes to convey management decisions to staff and obtain staff and staff representatives feedback. Obtaining an ISO certification provides a proof that the WSS service provider operates according to internationally accepted standards.\(^\text{17}\)

2.2.17 **Improving Professional Management through use of PPP to Improve Service Delivery.** A comprehensive review of recent experiences worldwide concludes that PPP should primarily be considered for improving the quality of the WSS service and efficiency of WSS operations.\(^\text{18}\) When there is no major ideological opposition to the PPP concept and a positive response from the private sector can reasonably be expected, involving a professional operator in WSS service provision should normally bring the professional management skills that are often missing within public WSS service providers and help achieve efficiency gains. Indeed, it is easier to enforce contractual obligations between a public and a private partner than between two public partners because private operators tend to react swiftly to financial incentives. PPP could also be considered for raising commercial financing, without recourse to sovereign guarantees, to develop the WSS infrastructure. In developing countries this is a long term goal as it requires that the creditworthiness of the WSS operation has been established, that local capital markets are able to provide debt in local currency and on terms compatible with the characteristics of the WSS sector, and that the transparency and predictability of WSS tariff resetting procedures have been proven.

2.2.18 Successful reforms of urban WSS sectors do not always rely on PPPs, but successful PPPs can be designed and implemented as an integral part of reforms of urban WSS sectors. A Toolkit recently published by the World Bank proposes nine key steps for engaging in a PPP: (i) considering PPP; (ii) planning the process of introducing PPP; (iii) involving stakeholders in the design of the PPP; (iv) setting upstream policies; (v) setting service standards, tariffs, subsidies and financial arrangements; (vi) allocating responsibilities and risks; (vii) developing institutions to manage the relationship; (viii) designing the legal instruments for the arrangement; and (ix) selecting an operator.\(^\text{19}\)

2.3 The Financing Framework

2.3.1 Cost recovery from user fees, of at least operations and maintenance costs, should be considered a minimum performance standard in any urban WSS. This will mean that service providers have sufficient revenue to finance day to day operation of the system, and importantly, will sharpen the provider’s customer focus. If providers are reliant on higher levels of government to provide funds for O&M costs, then they will focus their attention on demanding funds from government entities on which they depend, rather than on their customers. The following paragraphs outline the overall approach to moving towards financial sustainability, and complement this with some specific examples of actions that can be taken along the way.

### Overall Approach to Financial Sustainability

2.3.2 **Aiming at Financial Sustainability and Discipline.** The financial sustainability of an urban WSS service is usually achieved when it is treated as a commercial operation with O&M and capital costs recovered from tariffs and user fees, rather than from tax payers. The financial

\(^{17}\) Key Topics in Public water Utility Reform; M. van Ginneken, W. Kingdom, World Bank; 2008

\(^{18}\) Public-Private Partnerships in Urban Water Utilities: Findings from Developing Countries; P. Marin, World Bank; 2008

\(^{19}\) Approaches to Private Participation in Water Services, a Toolkit; World Bank; 2006.
discipline of an urban WSS service provider is usually achieved when an arm-length relation is established with its financiers and applications submitted by the former are independently appraised by the latter. Table 1 below identifies the various levels of creditworthiness of WSS service providers and financing options available depending upon the level of tariffs and user fees.

Table 1: Credit worthiness and Financing Options

<table>
<thead>
<tr>
<th>Level of Creditworthiness</th>
<th>Tariffs and User Fees</th>
<th>Financing Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss-making</td>
<td>Below O&amp;M costs</td>
<td>Government operational and capital subsidies</td>
</tr>
<tr>
<td>Pay-as-you go recovery of cash costs</td>
<td>O&amp;M costs, principal and interest of ongoing debt</td>
<td>Mostly government guaranteed IFI loans and infrastructure funds</td>
</tr>
<tr>
<td>Cost recovery</td>
<td>O&amp;M costs, depreciation, interest on debt and return on equity</td>
<td>Capital markets with government guarantees</td>
</tr>
<tr>
<td>Sustainable cost recovery</td>
<td>O&amp;M costs, depreciation on revalued assets, interest on debt, return on capital, foreign exchange risk</td>
<td>Capital markets with limited government guarantees</td>
</tr>
<tr>
<td>Creditworthy</td>
<td>As in sustainable cost recovery plus reliable refinancing sources, security for loans, and stable regulatory environment</td>
<td>Capital markets</td>
</tr>
</tbody>
</table>

Source: Financing Water Supply and Sanitation Investments; Estimating Revenue Requirements and Financial Sustainability; A. Baietti and P. Curiel, World Bank; 2005

2.3.3 Moving to the Cost Recovery Stage. Collected tariffs and user fees should allow a WSS service provider: (i) recovering its O&M costs; (ii) depreciating its fixed assets; and (iii) generating a return on assets sufficient to cover interest of its long-term debt and to remunerate the equity invested. Moving a WSS service provider out of a “loss making” stage where it survives on operating subsidies and development grants to the “cost recovery” stage usually requires:20

- Improving cash flows and restoring liquidity through a combination of tariff adjustment, O&M cost reduction and collection improvement (see later); and
- Identifying, through an iterative process an “affordable” Capex and financing plan by: (i) assessing the customer willingness to pay, or the expressed government willingness to charge, for estimating operating revenues; (ii) preparing realistic scenarios of future operational efficiency gains for estimating O&M expenses (Opex); (iii) preparing reasonable WSS infrastructure development scenarios for estimating capital expenditures (Capex); and (iv) identifying the optimum mix of cash generation, long-term debt and development grants to cover all costs.

20 WSS service providers that have reached the “pay-as-you-go” stage generate sufficient revenues to finance O&M costs and repay their loans, but since they do not generate cash surpluses, they continuously have to raise debt financing for new projects. Since they usually raise debt from public lending agencies, it is usually easy to reschedule it or even partially write it off, as part of the design of the reform.
Because lumpy tariff increases are seldom socially and politically acceptable transparent financing mechanisms of the gap between the loss making and cost recovery stages, the “financial viability gap”, could be considered (Box 5).

**Box 5: Guinea - Transparent Financing of the “Financial Viability Gap” using an “Output Based” Tariff Subsidy**

In the late 1980s, Guinea (Conakry) embarked on a bold reform of its urban WSS sector based on: (i) the sub-contracting of the technical and commercial operations to the private operator SEEG within the framework of a 10-year **aftermage** contract with the public asset holding company SONEG; and (ii) the gradual move towards full recovery of O&M and capital costs from tariffs and user fees. Under its contract SEEG was requested to collect the customer tariff from customers, allowed to retain part of it (the operator tariff) to cover its operating costs and pay SONEG the difference (the owner tariff) to finance infrastructure development. SEEG professional partners were selected after international competition on the basis of the lower operator tariff proposed.

The government agreed that the full cost of water estimated at about GF400/m³ (equivalent to US$0.80/m³) would be covered by the customer tariff after ten years. It immediately raised the customer tariff from GF60/m³ to GF150/m³ when SONEG and SEEG mobilized, a level sufficient to cover SEEG operating expenses in local currency and to make a limited cash contribution to SONEG’s capital budget. The government requested funds from the World Bank (IDA) to finance 100 percent of the foreign exchange component of the operator tariff for four years, and a gradually decreasing share of it for six more years. This support was to be paid on the basis of the actual collection of water bills, so that SEEG would obtain the operator tariff indicated in its bid for each cubic meter of water billed and collected. This was indeed a good example of “output-based” financing. The government further agreed to service 100 percent of SONEG long-term debt for two years and then to gradually decrease its support so that the debt would become fully serviced by SONEG revenues after six years.

This move from a “loss making” to a “cost recovery” situation was ambitious, but nevertheless implemented, even more rapidly than initially envisaged. After seven years, revenues from customers were sufficient to cover O&M, depreciation and financing costs and to contribute cash to SONEG Capex as shown in the figure below.

2.3.4 **Achieving Sustainable Cost Recovery Stage.** Guaranteeing long-term financial sustainability usually requires that: (i) local capital markets are able to provide long-term debt on conditions compatible with the characteristics of the WSS sector whose assets are
depreciated over long periods (this avoids repayment of loan principals being higher than depreciation) and (ii) WSS service providers are protected against sudden variations of exchange rates when funds are borrowed in foreign currencies. Once a WSS service provider recovers all explicit and implicit costs, including return on assets, foreign exchange variations and depreciation of assets on a revalued basis, it should have access to a much wider pool of local and international financing options, although they may still need government guarantees to reduce their borrowing costs.

2.3.5 Easing Access to Capital Markets. In order to raise commercial debt and private equity and reach the sustainable cost recovery stage defined above, WSS service providers would also have to adequately mitigate risks typically associated with WSS projects. Guarantee schemes offered (in particular by the World Bank Group) for privately financed WSS projects could cover political risks (war, civil disturbance, terrorism, expropriation and confiscation currency convertibility and transferability risks) and contractual risks (breach of contracts or regulatory capture). They could also mitigate credit risks and cover lenders and bondholders, but not equity investors. Partial credit guarantees could cover part of the borrowed funds and the portion of the debt service that falls due beyond the normal tenure of loans normally available from commercial lenders or a portion of the debt service throughout the life of the loan.21

Practical Examples in moving towards Financial Sustainability

2.3.6 Increasing the Efficiency of Technical Operations is likely to necessitate an overhaul of the detailed operating procedures for water production, transmission and distribution and waste water collection and treatment and a significant training effort of middle management. A particular attention should be paid to reducing non-revenue water (NRW) and energy consumption.

• NRW Reduction. A World Bank Note clarifies issues related to reducing physical losses and NRW.22 Physical losses reduction programs should pay a particular attention to service connections. Replacing “spaghetti” connections in cities where the development of tertiary distribution networks has been neglected is an effort whose magnitude is often underestimated. A pressure management program may have to be included in the NRW reduction program, as rehabilitation and extension of distribution networks should normally result in increased pressures. Conducting Water Audit of water supply system and its rehabilitation will reduce NRW.

• Energy Efficiency. Energy is also one of the largest operating expenses of WSS service providers. Limiting physical losses to reduce pumping costs is an efficient way of addressing the issue. Technical audits of pumping stations should also be carried out to identify the need for replacing outdated equipment and/or adapting pumping programs to the characteristics of the pumping equipment and electricity tariff structures. Financial incentives available through the Carbon Fund should be considered. Energy

22 The Challenge of Reducing Non-Revenue Water (NRW) in Developing Countries – How the Private Sector can help: A Look at Performance-based Service Contracting; B. Kingdom, R. Liemberger, P. Marin; World Bank; 2006.
rehabilitation programs can be taken to improve energy efficiency and reduce electricity bills.  

2.3.7 **Improving Commercial Operations**

- **Customer Relations.** A recent Bank Note proposes options for improving accountability to their customers. WSS service providers should offer several WSS service options, in particular to low income households, and explain the impact of the tariff structure on the initial connection costs and WSS bills. Customer contracts should clarify that the WSS service provider is allowed to disconnect customers in arrears and required to promptly reestablish the service upon payment. WSS service providers should monitor the handling of customer complaints, seek feedback from customers on the quality of the service provided, and make independent assessments of its performance for handling complaints available to the public. Particular attention should be paid to government agencies which could represent a large share of the billing and arrears.

- **Metering.** Accurate bulk water metering, necessary in any case, should be a priority of infrastructure development programs. When individual metering is nonexistent or deficient, the priority should be to meter customers who contribute the largest share of the revenues of the WSS service provider. Comprehensive metering programs may take time to implement if connections have to be rebuilt. The dependability of meters should be investigated if water is still planned to be distributed on intermittent basis for some years.

- **Billing and Collection.** Meter reading and billing errors, whether involuntary or resulting from fraudulent practices, should be eliminated by limiting the human handling of data. Well tested commercial software available on the market should be preferred to “home-grown” ones. Options for paying WSS bills through post offices or banks with well developed networks including intranet and mobile, as payment points should be investigated. Disconnection and reconnection procedures should be the subject of a particular attention: well run WSS service providers cannot afford the accumulation of large accounts receivable. A particular attention should be paid to public customers that often constitute a large part of billing and arrears.

2.3.8 **Pricing WSS Services: Achieving Several Objectives.** Pricing of the WSS service should pursue two main objectives: (i) managing demand; and (ii) recovering costs. Well run urban WSS sectors set tariff levels and structures in accordance with sound economic, financial, efficiency, equity and simplicity principles.

- **Economic principle.** To maximize the user and supplier “surpluses” and limit water consumption to what is strictly necessary and wastewater disposal to what is environmentally sustainable, the tariff should be set, in reference to the Long Run Marginal Cost (LRMC) of water.

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23 The State of Maharashtra, India has initiated Water Audit, Energy Audit and Hydraulic Modelling program under Maharashtra Sujal & Nirmal Abhiyan for urban water supply schemes, wherein these initiatives will reduce NRW and electricity bills expenditure.

24 Ways to Improve Water Services by Making Utilities more Accountable to their Users: A Review; M. Muller, R. Simpson, M. van Ginneken, World Bank; 2008

25 Maharashtra has completed installation of bulk meters in 50 urban water supply schemes

26 The State of Maharashtra, India has transformed the current manual water billing and collection practice into computerized web based billing and collection systems.
• **Financial principle.** To allow access to long-term debt financing, the tariff should be set to recover O&M costs, depreciate fixed assets and yield a return on net fixed assets in operation sufficient to service the long-term debt and remunerate the equity invested. In case of discrepancy between the economic and the financial principles, the tariff should be set to allow the WSS service provider meeting its financial obligations.

• **Efficiency principle.** To avoid passing the cost of inefficiencies of WSS service providers to customers, the tariff should be set in reference to efficient WSS operations, with operating expenses calculated using good practice performance indicators as a basis and infrastructure development plans corresponding to the least cost solution.

• **Equity principle.** While the tariff should not discriminate among customers and should preferably be uniform for all categories of customers, any subsidy program needs to be targeted. Whilst popular around the world Increasing Block Tariff (IBT) structures designed to provide cross subsidies from one category of customers to others should be used judiciously because they distort consumption and do encourage overcharged large customers opt out of the piped WSS service thus depriving its provider from a large share of its revenues.

• **Simplicity principle.** To limit the risks of consumption distortion and billing fraud, the tariff should, ideally, be uniform. Politically a “lifeline” tariff is proposed but this should a) still try to cover efficient O&M costs to create an incentive to financially responsible WSS service providers to serve all categories of customers and b) have an upper consumption limit that is sufficient for basic needs.

2.3.9 **Subsidies.** Because the WSS service has a strong “public good” element in terms of public health, subsidies could be justified to help low income households connect to WSS networks and encourage consumption of a minimum quantity of piped water. However these need to be carefully designed to ensure they reach the intended beneficiaries and are not captured by the middle and upper income groups connected to the networks. Well run WSS sectors have typically phased out operating subsidies and set realistic deadlines for phasing out development grants, except for projects with a strong public good element, such as water source development, pollution abatement or extension of the WSS in low income areas. Well run WSS sectors have usually implemented targeted subsidy schemes aimed at limiting the cost of connection to the WSS networks and of monthly expenditure for a life-line consumption of water for households with incomes in the lower quintile. A good example of targeted subsidies comes from the water sector in Chile (See Box 6).

2.3.10 **Resetting and Adjusting Tariffs.** Whether a regulator is established or not, tariffs and user fees should be reset in an independent, transparent and predictable manner to meet the objectives spelt out in the pricing policy. The regulator should either set tariffs and user fees, or review applications submitted by WSS service providers. Tariff resetting should preferably take place every four to five years; between two resetting, tariffs should be automatically adjusted to protect the revenues of the WSS service provider against inflation.
In Chile, the various functions of the WSS service are clearly separated with: (i) a central ministry, in charge of setting WSS policies and standards, granting regional concessions, and implementing a subsidy scheme targeted at lower income households; (ii) 18 regional concessionaires, initially public and now all privatized, responsible for providing the WSS service according to standards and for developing the WSS infrastructure; (iii) an independent regulator SISS, responsible for setting tariffs in reference to the long run marginal cost (LRMC) of water, full recovery of O&M and capital costs, efficiency of operations and asset development and equity among customers; and (iv) SISS responsible for closely monitoring the technical, commercial and financial performance of the concessionaires and for applying penalties in case of non-compliance with agreed standards.

Between 1970 and 2005, water supply and sewerage coverage ratios in urban areas evolved from 66% to 99.5% and 31% to 95% in 2005 respectively. Between 1990 and 2005, the wastewater treatment ratio increased from about 10% to 73.5%. In 2005, water was supplied on a permanent (24/7) basis in all urban centers (total population: 11.5 million) through 3.9 million connections; compliance with water quality standards reached 99.5%. Water production and sales were measured at averages of 330 and 224 lpcd respectively, suggesting NRW at 33% of water production, above the 15% set by the regulator. The WSS sector directly employed about 2.5 staff per 1,000 connections.


In 2005, about US$285 million equivalent were invested as part of a fully justified medium-term infrastructure development plan, of which more than a third was devoted to the wastewater treatment program. The capital expenditure program was entirely financed from the cash generated from operations and from local capital markets, without any financial support or guarantee from the government. In 2005, the return on the equity invested in the sector averaged 15.7%.

In 2005, about 17.5% of the households, identified as poor according to strict standards, benefited from a subsidy scheme administered by the central government. Vouchers distributed to low income households covered, depending upon the city or town, between 15% and 85% of the WSS bill for the first 15 m3 consumed each month. In 2005, vouchers scheme contributed less than 6% of the total sector sales revenue (there is no subsidy scheme applying to new connections).

2.3.11 Improving Financial Management. Regular and timely audits of financial operations of service providers should be carried out to help design and implement programs aimed at improving accounting procedures including accounts receivable and payable, inventory records, provision for income taxes, valuation of fixed assets, profit distribution (if applicable) and internal controls. Audits should also help identify software and hardware to be acquired and outline training programs. Reforms could very well involve a complete overhaul of current accounting procedures. As a general rule, financial statements should be independently audited annually.

2.3.12 Designing Grants aimed at Building Sustainability. Development grants usually needed to help WSS service providers move to the cost recovery stage can lead to unsatisfactory results as developing WSS infrastructure does not guarantee the provision of a reliable, sustainable and affordable WSS service. “Output-based financing” is an option for mitigating this risk. Output-based financing has so far mostly been provided in support to PPP to encourage extension of the service to the poor, with private partners bidding for it. It could also be considered to support medium term performance improvement plans of public WSS
service providers if a sound incentive structure can be put in place, which is independently verifiable, and enforceable.

2.4 Building Human Capacity

2.4.1 Even with good policies, institutions and financing frameworks in place, the delivery of service to the customer relies on a well trained and motivated workforce and management. Unfortunately there are limited studies on the critical issue of professional capacity and institutional competence/sustainability. Sectoral studies typically focus on assessing infrastructure investment gaps, rather than institutional and human capacity gaps. However, both anecdotally and by observation of the authors, this is a critical building block for improving service in a sustainable manner.

2.4.2 Building the Capacity of the Various Actors could be achieved through a combination of classroom and on-the-job training, networking between professionals, twinning and public-private partnerships (PPP). Capacity building should target: (i) owners, i.e., government officials and Board members to introduce good practices in planning, financing, pricing and regulation of WSS services and PPP; (ii) managers on the same topics plus human resources development, team building and communication; (iii) operational staff on infrastructure development, operational efficiency, commercial operations and customer management, accounting and financial reporting and quality control. The possibility of instituting a formal “certification” of managers and key operational staff should be considered when the WSS service is decentralized to increase transparency of recruitment and favor an active staff market. Capacity building efforts should also target other stakeholders, such as NGO and the media, who could influence the design and implementation of reforms.

2.4.3 Ongoing technical and operational support systems are needed to provide professional support to utilities. This is especially crucial to smaller operators in small cities and towns and which have limited in-house resources. Box 7 gives an example of how in South East Asia, a network of utilities took the lead in building capacity.

Box 7: How South East Asian Water Utilities Network Builds Capacities

The South East Asian Water Utilities Network (SEAWUN) was established in 2002 as an initiative of the directors of water utilities in the region. These directors realized that water utilities in the region could enjoy significant benefits by sharing experiences, common problems/issues and by developing a regional network for communications and joint activities.

One of the key objectives of SEAWUN is to assist its member water utilities to improve efficiency in operation and management, achieve financial viability, and advocate for reforms in the sector to improve the policy environment. SEAWUN also provides consulting services to member country governments on mechanisms and policy reforms for the water sector.

In order to realize this objective SEAWUN members agreed an initial development program with four key components:

1. Performance Benchmarking, with the intention of developing a data book for South East Asian utilities;
2. Training and Human Resources Development, including the development of a professional certification system;
3. Full Cost Recovery, with a focus on identifying key challenges and sharing experiences; and
4. Unaccounted -for Water Reduction, including the identification of “centers of excellence” and the development of training and partnering networks.

The network has been actively seeking support from donors including USAID, USAEP, ADB and the World Bank.

Key Topics in Public Water Utility Reform; M. van Ginneken, W. Kingdom, World Bank; 2008
3. India WSS Business Plans
Maharashtra, Rajasthan and Haryana - Comparisons and Observations

3.1 Introduction

3.1.1 The WSS Business Plans for the three states were prepared at the request of the concerned states and the MoUD, with the WSS Department in each state as the principal counterpart agency. The respective WSS Departments worked closely with the Consulting Firms to develop their state programs during a course of two years (2008-10). This included a number of discussions and consultation workshops at the state and the ULB levels, preparation of draft reports and feedback from the various state agencies and representative ULBs. A list of representative ULBs was agreed with each state for consultations, data collection and feedback. The draft intermediary report was also presented to the MoUD and the concerned State Secretaries, including WSS and Urban Secretaries, at a workshop organized by the MoUD in 2009. A series of workshops were organized in each state in 2010, to get feedback on the draft final reports. Maharashtra has already started implementing its WSS Business Plan through the ‘Maharashtra Sujal Nirmal Abhiyan’ (MSNA), an incentive driven WSS reform program launched by the Maharashtra Chief Minister in 2010. Rajasthan is starting to implement the WSS Business Plan through various sector programs, and Haryana is currently taking up the reform initiatives for a number of identified ULBs.

3.1.2 This Chapter provides a broad overview of the three WSS Business Plans, the details for which are provided in Annex 3. It starts with an overview of the current WSS situation in each State and then moves to look at issues of institutions, financing, human capacity and planned implementation activities.

3.2 Current Situation

Population and Urbanization

3.2.1 The three states have a range of populations and urbanization rates. With a population of 111 million people in 2010 and an urbanization ratio of 45.9% Maharashtra is the second most populous state in India and one of the most urbanized, with a rapid increase of the urbanization ratio projected in the coming years. On the other hand, Rajasthan’s population is still predominantly rural with an urbanization ratio of 23.9%. The state’s population growth in the coming years is expected to be balanced between rural and urban areas, leading to an expected urbanization ratio below 25% in 2025. Finally, with a population of around 25 million people and an urbanization ratio of 33%, Haryana is a rather less populous state with...
an urbanization ratio close to the national average. However, Haryana is projected to undergo a very rapid urbanization in the coming years, largely driven by its proximity to the National Capital and the rapid growth of cities such as Faridabad, Sonipat, and Gurgaon.

### Table 2: Demography and Urbanization

<table>
<thead>
<tr>
<th></th>
<th>Maharashtra</th>
<th>Rajasthan</th>
<th>Haryana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population in million (2010)</td>
<td>111.04</td>
<td>66.75</td>
<td>25.02</td>
</tr>
<tr>
<td>Urbanization ratio in million (2010)</td>
<td>45.9%</td>
<td>23.9%</td>
<td>33.1%</td>
</tr>
<tr>
<td>Projected Total Population in million (2025)</td>
<td>132.06</td>
<td>80.84</td>
<td>30.76</td>
</tr>
<tr>
<td>Projected Urban Population in million (2025)</td>
<td>68.21</td>
<td>19.92</td>
<td>12.55</td>
</tr>
<tr>
<td>Projected Urbanization ratio (2025)</td>
<td>51.6%</td>
<td>24.6%</td>
<td>40.8%</td>
</tr>
<tr>
<td>Total Pop Avg Annual Growth Rate (2010-2025)</td>
<td>1.2%</td>
<td>1.3%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Urban Pop Avg Annual Growth Rate (2010-2025)</td>
<td>2.0%</td>
<td>1.5%</td>
<td>2.8%</td>
</tr>
</tbody>
</table>

3.2.2 The urban structure of each state reflects the demographic characteristics mentioned above. Maharashtra has a total of 249 Towns (as per census classification), among which 40 have a population of more than 100,000 people and 10 of these have a population of more than one million. Rajasthan has a similar number of towns (222) in proportion with the state’s population, however, out of these 222 towns, only 17 have a population over 100,000 and only Jaipur has a population over one million. With a much smaller population and a significantly larger number of towns (73) in proportion to its total population, Haryana has the same number of towns as Rajasthan with population over 100,000, among which Faridabad has a population of more than 1 million.

### Table 3: Urban Structure

<table>
<thead>
<tr>
<th></th>
<th>Maharashtra</th>
<th>Rajasthan</th>
<th>Haryana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Towns (As per census of India classification)</td>
<td>249</td>
<td>222</td>
<td>73</td>
</tr>
<tr>
<td>Class I towns (population &gt; 100,000)</td>
<td>40</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Million plus cities (population &gt; 1,000,000)</td>
<td>10</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### Service Delivery

3.2.3 **Access, availability and reliability.** The three states present a similar picture when looking at access figures, with access to piped water supply ranging from 78% in Maharashtra to 74% in Haryana. However, some disparities appear when one considers the situation in terms of quantity and reliability of the water supply. Figures show that Haryana towns get the highest average quantity, but suffer from irregular supply, aggravated by seasonal variability. Towns in Maharashtra have on average slightly lower quantity available but benefit from a more regular, even if systematically intermittent water supply. Rajasthan presents a more problematic situation with the lowest quantities available and less reliable supply, with only 162 out of 222 towns receiving water every day.
3.2.4 **Cost Recovery.** The picture is strikingly diverse when it comes to cost recovery, with the average working ratio\(^{29}\) varying from 68% in Maharashtra to 35% in Rajasthan and 11% in Haryana. The three states also have significantly different processes for tariff setting. Maharashtra provides the example of decentralized tariff setting process, where the ULBs are given more flexibility in the definition of their cost recovery mechanisms, whereas tariffs in Rajasthan and Haryana are defined at the state level and are uniformly low.

**Table 4: Comparison - Service Delivery**

<table>
<thead>
<tr>
<th></th>
<th>Maharashtra</th>
<th>Rajasthan</th>
<th>Haryana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to piped water within premise</td>
<td>78%</td>
<td>76%</td>
<td>74%</td>
</tr>
<tr>
<td>Sanitation coverage (access to latrine)</td>
<td>60%</td>
<td>60%</td>
<td>69%</td>
</tr>
<tr>
<td>Quantity of water supplied (average)</td>
<td>78 Lpcd</td>
<td>&lt;80 Lpcd</td>
<td>95-105 Lpcd</td>
</tr>
<tr>
<td>Reliability</td>
<td>Most towns receive water 2 to 4 hours per day</td>
<td>Only 162 out of 222 towns receive water every day</td>
<td>Water is supplied ½ to 6 hours a day and ground water schemes are subject to high seasonal variability</td>
</tr>
<tr>
<td>Metering</td>
<td>30 ULBs fully metered</td>
<td>Active expansion of metering in larger cities. (Jaipur, Jodphur, Ajmer, Kota, Mt Abu)</td>
<td>Very limited metering of domestic connections. Reported systematic metering of commercial connections.</td>
</tr>
<tr>
<td>Average O&amp;M cost (Rs./m3)</td>
<td>9.8</td>
<td>5.6</td>
<td>12.3</td>
</tr>
<tr>
<td>Average revenue (Rs./m3)</td>
<td>7.8</td>
<td>1.94</td>
<td>1.3</td>
</tr>
<tr>
<td>Average working ratio</td>
<td>80%</td>
<td>35%</td>
<td>11%</td>
</tr>
<tr>
<td>Tariffs</td>
<td>Flexibility given to the ULBs (service fee included in Property tax, Flat fee, Volumetric tariff)</td>
<td>Very low state-wide tariffs defined by PHED (last revised in 1998)</td>
<td>Low state-wide tariff structure defined by PHED (tariff revised in 2006)</td>
</tr>
</tbody>
</table>

**Roles and Responsibility**

3.2.5 **Policy formulation.** Technical departments of the respective State Governments play an important role of policy formulation and technical advice in the three states. However, in the case of Maharashtra and Rajasthan, responsibility in terms of policy formulation and service delivery are more clearly allocated while in the case of Haryana, the Public Health Engineering Department (PHED) plays both roles. The existing policy statements illustrate

\(^{29}\) Working ratio is the ratio between the annual revenue and the operating (O&M) costs
the outcome of a clearer definition of the roles and responsibility of the various sector players. Maharashtra, where this responsibility is clearly allocated to the WSSD, has published an ambitious and detailed State Water Policy as early as 2003. In Rajasthan, a State Drinking Water Policy has been published in 2010, while Haryana does not have a State Water Policy as yet.

3.2.6 Infrastructure development and financing. In Maharashtra, planning, implementation and financing of infrastructure investments is carried out in a decentralized manner. ULBs have been entrusted with the responsibility of planning and implementation as well as mobilization of central (JNNURM & UIDSSMT) and state (MSNA) funding. In Rajasthan and Haryana, the respective State-level departments (PHED) play the pivotal role in the planning, implementation and financing of most of the WSS investments.

3.2.7 Regulation. There is limited independent regulation of service provision across the three states. Maharashtra was the first state to create a regulatory authority (MWWRA). However, even in this case, the scope of formal regulation is limited to water resources and bulk water allocation. Although tariffs structures proposed by PHED in Rajasthan and Haryana have to be approved by their respective Governments, there is no independent monitoring of the technical and commercial performance of the Service Providers.

Table 5: Comparison - Roles and Responsibilities

<table>
<thead>
<tr>
<th></th>
<th>Maharashtra</th>
<th>Rajasthan</th>
<th>Haryana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy formulation</td>
<td>WSSD with technical support from MJP</td>
<td>PHED and Urban Dept.</td>
<td>PHED SSB sanctions UWSS budget</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inputs from National Water Policy</td>
</tr>
<tr>
<td>Service provision</td>
<td>ULBs or MJP</td>
<td>PHED</td>
<td>PHED (except Faridabad)</td>
</tr>
<tr>
<td>Infrastructure development</td>
<td>Planning and implementation by ULBs</td>
<td>Planning and implementation by PHED</td>
<td>Implementation by PHED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Budgets sanctioned by SSB</td>
</tr>
<tr>
<td>Financing</td>
<td>JNNURM, UIDSSMT, MSNA</td>
<td>GoR through PHED budget</td>
<td>GoH through PHED budget</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RUIDDCO coordinates JNNURM and UIDSSMT funds</td>
<td></td>
</tr>
<tr>
<td>Regulation</td>
<td>First state to create a regulatory authority (MWWRA).</td>
<td>GoR approves tariffs with inputs from PHED.</td>
<td>GoH approves tariffs with inputs from PHED.</td>
</tr>
<tr>
<td></td>
<td>Scope of formal regulation currently limited to water resources and bulk water allocation.</td>
<td>No external monitoring of PHED’s technical and commercial performance.</td>
<td>No external monitoring of PHED’s technical and commercial performance.</td>
</tr>
</tbody>
</table>
3.3 Proposed Business Plans

Institutional Structure and Culture of Service Providers

3.3.1 The three business plans present similarities in the proposed evolution of the institutional structure, with a movement towards separation of roles and responsibilities:

- **Restructuring of state WSS agencies.** The restructuring of the Maharashtra Jeevan Pradhikaran (MJP) is currently on-going. In Rajasthan and Haryana, where the role of policy formulation is currently not clearly separated from the service delivery function, it is proposed to respectively restructure GoR-PHED and GoH-PHED into a (i) policy advisory department and (ii) an autonomous technical agency.

- **Decentralization of WSS service delivery functions to ULBs.** Maharashtra has already decentralized the WSS roles and responsibilities. In the case of Rajasthan and Haryana, this evolution is proposed to be first initiated in larger cities.

- **Regional Utilities.** Creation of Regional Utilities is proposed for the operation of multi-town schemes in all three states.

3.3.2 The three business plans also acknowledge the need to increase autonomy, accountability, and customer orientation of service providers. However, the specific recommendations regarding increased autonomy of service providers are adapted to the states current institutional set up and pace of adoption of reforms:

- **Ring-fencing of WSS operations.** In the case of Maharashtra, it is proposed to rapidly establish ring-fenced operation of WSS in all ULBs and move to corporatization of utilities. This process will be much slower in Rajasthan and Haryana.

- **Service Agreements.** Maharashtra has several examples of Service Agreements between the ULBs and Private Sector Service Providers (PPP arrangements). In the case of Rajasthan and Haryana, service agreements between ULBs and respectively GoR-PHED and GoH-PHED are proposed as a first step to better define roles and responsibility in WSS service provision. Rajasthan envisages PPP as an option for larger cities in the short to medium term.

3.3.3 The increasing separation of roles and responsibilities is best illustrated by the figures presented below from the Maharashtra business plan. These figures show different models of service provision, with clear separation of roles and responsibilities, and a much improved accountability framework.
India WSS Business Plans - Comparisons and Observations

**Figure 2: Maharashtra Model 1 - Ring fenced ULBs**

- Monitoring Support
- Review of Proposals
- WSSD Technical
- Back Stop for Reforms
- ULB
- Ring-fenced WSS division of ULB
- Customer

**Regulatory Framework**

**Level 1**: Public disclosure of WSS information

**Level 2**: Tariffs and service level standards provided through regulatory mechanism

**Level 3**: Tariffs to be set by an independent regulatory mechanism

- Capital Fund Flow
- O & M Fund Flow
- Accountability

**Performance Agreement**

**Figure 3: Maharashtra Model 2 - Ring fenced ULB with MJP/PPP Service Provider**

- Monitoring Support
- Review of Proposals
- WSSD Technical Support
- Back Stop for Reforms
- ULB
- Ring-fenced WSS division of ULB
- Customer

**Regulatory Framework**

**Level 1**: Public disclosure of WSS information

**Level 2**: Tariffs and service level standards provided through regulatory mechanism

**Level 3**: Tariffs to be set by an independent regulatory mechanism

- Capital Fund Flow
- O & M Fund Flow
- Accountability

**Performance Agreement**

**MJP/PPP**

- O & M deficit
- Capex
- User charges (option where payment is made to the operator)

- Service

**Service Delivery Agreement**
Improving Efficiency

3.3.4 Through the MSNA, Maharashtra has defined a comprehensive programmatic approach for increasing efficiency of service delivery. The approach defines three stages (MSNA Level I, II & III) for the achievement of efficient provision of high quality services. Most importantly, Maharashtra has actually started the water reform program implementation in various ULBs. In the case of Rajasthan and Haryana, although the interim and definitive targets for reduction of NRW and staff per connection ratio have been defined, these states have yet to translate these objectives in a programmatic approach.

3.3.5 In terms of cost recovery, as well, the targets vary significantly between Maharashtra, where full cost recovery of O&M costs and partial recovery of capital costs is targeted for the year 2017, compared to Rajasthan and Haryana, where O&M cost recovery is targeted for the year 2025.

Investment and Financing Plans

3.3.6 The short to medium term investment plans prepared as part of the respective State Business Plans all represent significant amounts. The 2009-2017 investment plan prepared for Maharashtra amounts to Rs. 152 billion and the investment plan prepared for the same period in Rajasthan amounts to Rs. 225 billion. In Haryana, an investment plan for 2009-2012 was prepared, for a total amount of Rs. 43 billion. When divided by the respective projected urban population at the end of the investment period, these investment plans represent a per capita amount of around Rs. 2,600 per capita for Maharashtra, Rs. 12,700 per capita in Rajasthan, and Rs 4,900 per capita in Haryana.

3.3.7 In terms of financing, the three investment plans rely fully on Government programs and budget transfers, and a significant share of the investment plans remains unfunded. The funding gap amounts to 31% of the projected investments in Maharashtra, 52% in Rajasthan,
and 37% in Haryana. What is more, in the case of Rajasthan and Haryana, additional funding is required for covering O&M expenses due to the very low level of cost recovery from the users. The yearly per capita requirements for the coverage of O&M expenditures are estimated around Rs. 300 per capita in Rajasthan and Rs. 500 per capita in Haryana. In the case of Maharashtra, it is assumed that under the rules devised under the MSNA program, O&M funding gaps will be covered by the ULBs themselves. Therefore, no funding requirements for O&M expenditures are projected at the state level.

3.3.8 The investment and O&M expenditures mentioned above represent a significant challenge for the three states, both in terms of implementation and financing. These challenges call for rapid improvements in the efficiency of service providers and in their access to funds. Indeed, efficient & well run service providers will be required to adequately implement the proposed investment programs and ensure efficient operation of the proposed infrastructure. What is more, given the existing funding gaps, it appears that a predictable and increasing stream of revenues from user fees will be a necessary condition for the ULBs and service providers to raise the funds required to bridge the financing gap.

**Capacity Building**

3.3.9 Capacity building in Maharashtra is to be carried out both at state level as well as ULB level. Massive training programs are envisaged and its beneficiaries could be representatives from all levels. Its implementation arrangements need to be thought through carefully. Coordination of implementation could be through formation of the MSNA-CMU (Change Management Unit) and provision of interim professional support from external consultants to the CMU. All these capacity building activities will require significant financing which has been incorporated into the medium term forecasts. For instance, an immediate allocation of over $4 million is envisaged for these activities.

3.3.10 In Rajasthan the proposed Performance Gap Fund is expected to pay for capacity building costs. In addition, outsourcing of several activities will help increase the capacity and competence levels. The state government is expected to play a crucial role in capacity building for PHED and ULB staff as well as the new utilities established under the proposed vision for the sector.

3.3.11 Haryana is yet to carry out a detailed capacity building needs assessment which will require a detailed dialogue with all the institutions to assess the present levels of capacity. This has to be at the GoH level, in PHED and in ULBs. Given the critical role of GoH in the reform process and the need to formulate effective policies and drive reforms, several important capacity building measures are needed to improve the policy making process. Only the very senior people in the Government who are generally heading the department have all round training in administration and policy making. A number of others, who generally have to support the senior people – through analysis of implications of policies do not have training in relevant tools needed to do a thorough and comprehensive job of policy making.
### Table 6: Comparison of Proposed Business Plans

<table>
<thead>
<tr>
<th></th>
<th>Maharashtra</th>
<th>Rajasthan</th>
<th>Haryana</th>
</tr>
</thead>
</table>
| **Proposed Institutional structure** | - MJP to be restructured as (i) Principal MJP, (ii) MJP Project, (iii) MJP O&M.  
- Ring-fenced operation of WSS in all ULBs  
- Corporatization of utilities in larger ULBs  
- Creation of Regional Utilities for operation of multi-town schemes | - PHED to be restructured as (i) a policy advisory department and (ii) a bulk water supply provider, also operating as O&M agency in smaller towns,  
- creation of autonomous utilities for large cities  
- creation of Regional Utilities for operation of multi-town/ villages schemes  
- ULBs to enter in service agreements with PHED/ PSPs | - PHED to be restructured as (i) a policy advisory department and (ii) an autonomous engineering corporation  
- Larger ULBs (Faridabad and Gurgaon) to take over service delivery  
- Progressive institution of Regional Utilities |
| **Changing the culture of service providers** | - All ULBs to have ring-fenced accounts  
- Large ULBs to meet operational deficits through municipal budget  
- Institution of corporatized utilities for million plus cities  
- smaller ULBs to constitute Regional Utilities  
- capacity building programs identified | - All ULBs to have ring-fenced accounts  
- service delivery agreements between ULBs and WSS operators  
- smaller ULBs to constitute Regional Utilities  
- capacity building for GoR, PHED and ULBs  
- investment in IT | - All ULBs to have ring-fenced accounts  
- service delivery agreements between ULBs and WSS operators  
- smaller ULBs to constitute Regional Utilities  
- capacity building for GoH, PHED and ULBs  
- investment in IT |
| **Improving efficiency** | - State wide phased approach through MSNA Reform Program. Water audit, energy audit, NRW reduction and staff ratio (as per standard benchmarks) to be achieved in most cities by 2017 | - 25% NRW by 2025  
- 4 staff/1000 connections by 2025 | - 30% NRW by 2012  
- 15% NRW by 2025  
- 5 staff/1000 connections by 2025 |
| **Financing gap** | **Medium term plan (2017 horizon)**  
- Required : Rs. 83 bn  
- Available : Rs. 50 bn  
- Gap : Rs 33 bn | **Medium term plan (2017 horizon)**  
- Required : Rs. 225 bn  
- Available : Rs. 108 bn  
- Gap : Rs 117 bn | **Short term plan (2012 horizon)**  
- Required : Rs. 43 bn  
- Available : Rs. 26.9 bn  
- Gap : Rs 16.1bn |
| **Proposed pricing** | Full recovery of O&M cost and partial recovery of capital cost by 2017 | Full recovery of O&M costs from users by 2025 | Full recovery of O&M costs from users by 2025 |
India WSS Business Plans - Comparisons and Observations

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<thead>
<tr>
<th>Proposed regulation</th>
<th>Maharashtra</th>
<th>Rajasthan</th>
<th>Haryana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment of an independent regulator (MMSRC)</td>
<td>GoR to define a regulatory framework and institute an independent regulator</td>
<td>PHED to define and implement a comprehensive regulatory framework</td>
<td></td>
</tr>
<tr>
<td>Three tiered strategy articulated as per three MSNA phases, on an opt-in basis</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Capacity Building</th>
<th>Maharashtra</th>
<th>Rajasthan</th>
<th>Haryana</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSNA-CMU to be responsible for implementing comprehensive CB plan for ULBs, MJP O&amp;M</td>
<td>Capacity building for staff transferred from PHED to new utilities</td>
<td>GoH to set up a dedicated institution for assessing the capacity building needs of PHED, RUs and ULBs</td>
<td></td>
</tr>
</tbody>
</table>

### 3.4 Implementation Plans

#### 3.4.1 Maharashtra

The proposed implementation plan in the case of Maharashtra synchronizes with the proposed MSNA program. In the short term (2010-2012) all ULBs are expected to start implementing MSNA Level 1 activities, including setting the basis for reduction of NRW, ring fencing WSS operation, moving to full cost recovery of O&M cost and experimenting disclosure of selected indicators. Most ULBs are expected to graduate to MSNA Level II during the 2012-2017 period, including piloting of 24x7 water supply, city-wide metering, sanitation systems, 100% billing and collection, increasing the autonomy of service providers and adopting service standards and tariff guidelines. Finally, during the 2017-2025 period, most ULBs are expected to implement Level III activities, including generalization of 24x7 supply across cities, corporatization of utilities, and regulating mechanism.

#### 3.4.2 Rajasthan

In Rajasthan, the short term (2010-2012) includes the restructuring of the PHED, establishment of a legal framework for the sector, and the setting up of a Change Management Unit (CMU) within the PHED, similar to the MSNA-CMU. The medium term objectives are similar to the MSNA Level II of Maharashtra, such as the formation of city-level and Regional Utilities, piloting of 24x7 supply, and introduction of a regulatory framework. However their implementation is envisaged in a less systematic way as in the case of Maharashtra. Medium term goals for Rajasthan also include the innovative introduction of a Performance-Based Grants scheme to finance operational deficits on a transitional basis through the Performance Gap Fund (PGF). Long term goals for Rajasthan mainly include the generalization of the medium term activities mentioned above and a comprehensive performance review.

#### 3.4.3 Haryana

The implementation plan for Haryana is mainly articulated around the incremental improvement of the PHED in the short term, with an increased role of the ULBs in service provision, starting with larger cities in the medium term (2012-2017), and with the objective of generalizing the devolution to smaller ULBs in the longer term (2017-2025).
Table 7: Comparison of the Implementation Plans\textsuperscript{30}

<table>
<thead>
<tr>
<th>Maharashtra</th>
<th>Rajasthan</th>
<th>Haryana</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-2012</td>
<td>- MJP Restructuring (on-going) - MSNA program launched - MSNA Level I Setting the basis for reduction of NRW, including: - Water Audit, Energy Audit, GIS mapping, - Bulk Metering, Computerized Billing &amp; Collection - Ring fencing WSS operation - Moving to full cost recovery of O&amp;M cost - Experimenting disclosure of selected indicators CMU has been identified for supporting implementation of MSNA</td>
<td>- PHED Restructuring - Legal framework for Rajasthan Water and Sanitation Bill - Creation of PHED-CMU to support implementation of reforms</td>
</tr>
<tr>
<td>2012-2017</td>
<td>- MSNA Level II activities including: - Piloting of 24x7 water supply - City-wide metering &amp; sanitation systems - 100% billing and collection - Increasing the autonomy of service providers - Adopting service standards and tariff guidelines</td>
<td>- Formation of city-level and Regional Utilities. - Pilot 24x7 project - Introduction of targeted subsidies - Performance Gap Funding - Introduction of regulatory framework</td>
</tr>
<tr>
<td>2017-2025</td>
<td>- MSNA Level III activities including: - Generalization of 24x7 supply across cities - Corporatization of utilities - Regulating Mechanism</td>
<td>- Comprehensive performance review - Scaling up of institution of independent utilities and PPPs</td>
</tr>
</tbody>
</table>

3.5 Summary

3.5.1 The three business plans, summarized in this Section and in the annexes, provide insights into the challenges facing the sector as a whole in India. While the data shows relatively high levels of access to service, that service may not necessarily be of desirable quality and could be unsustainable to the extent that it relies heavily on government subsidies for both operations & maintenance costs, and for capital costs. As popular expectations increase across India over the coming years, the water sector will be hit by two forces, both of which will make the current situation untenable; a) demand for improved WSS service quality – which will need investments in new institutions, human capacity and assets and b) increasing demand on limited public funds for a wide range of social and economic development activities, which will only serve to reduce the funds available for financing the water sector.

\textsuperscript{30} Details presented in Annex 3.
3.5.2 The business plans make a start in comprehensively addressing these challenges. Maharashtra is certainly further advanced in its thinking than the other two States but it will clearly be a daunting, yet achievable, task to set in place the autonomous, accountable and customer oriented service providers that international experience indicates is necessary. All the plans show very large investment needs, but without a comprehensive financing plan. Where financing has been identified it relies solely on government funding (which will come under increasing pressure over time). It is clear therefore that there is a need to create efficient well run SPVs to implement the investment program, and then operate those assets to maximize service to customers over their full life.

3.5.3 Recovering operations and maintenance costs from user fees is considered a minimum for a well run company, yet none of the States can boast such performance. Again Maharashtra is well ahead of the others. Much of this gap can be covered by increasing technical efficiency and improving commercial operations, yet with few hard budget constraints and poor incentives, the current modus operandi will continue. Without moving beyond O&M cost recovery the sector will be unable to access the broader sources of funding needed to support the planned investments.

3.5.4 Fortunately there is increasing understanding of the need to reform institutional structures. There is some movement towards separation of roles and responsibilities and moving towards autonomous, accountable and customer oriented service providers. These moves need to be consolidated and their introduction speeded up. At the heart of this institutional reform agenda, particularly in Rajasthan and Haryana, is the evolving role of the PHEDs. Here there are similarities appearing across the business plans with the roles of the PHEDs being reformulated along the separate lines of service provision, capital development, and policy advisors.

3.5.5 Policies are also moving in the right direction with Maharashtra setting out its decentralization policy early on in 2003. Rajasthan recasted its policy in 2010, whilst Haryana is yet to act on this. It is also encouraging to see that implementation plans are in place or at least being considered.

3.5.6 Overall the business plans show that the States understand that sector policies have to change to meet the needs of the 21st century. There is also an emerging commonality of view on how this can be achieved – with increasing separation of roles and responsibilities amongst the actors, and an appreciation of the need to improve efficiency and cost recovery. However, States need practical advice and guidance to implement these changes. In addition, they clearly need financial support to make the necessary changes.

3.5.7 The challenge for the sector therefore is to develop a sound modernization program that can support initiatives at the State and ULB level. Such a program will, necessarily, require significant investment support in the short term, but such support should be predicated on implementing institutional and service provider reforms. As such incentive based financing schemes need to be developed that will reward adoption of change, and which, over time, will transfer sector financing from Government to other sources of funding, particularly the local capital market. In doing so the natural result will be autonomous, accountable, and customer oriented service providers that are efficient and effective in their activities.
4. Key Findings

4.1 The key findings, based on the experience gained in the preparation of Business Plans for the urban WSS sectors in the three States of Maharashtra, Rajasthan and Haryana and international good practices, identified the following areas as critical for moving towards improved and accountable WSS services under the three pillars of the study. The findings are primarily technical approaches to address the identified issues at the State or ULB level. The possible ways forwards to implement the findings are presented in Chapter 5 – Conclusions and Way Ahead.

A. Policies and Institutions

- Clarifying the Mandates of Water Supply and Sanitation Service Providers
- Improving the Governance of Water Supply and Sanitation Service Providers
- Regulating the Urban Water Supply and Sanitation Services

B. Infrastructure and Financing

- Preparing Predictable and Sustainable Infrastructure Development and Financing Program

C. Capacity Building for Professional Services

- Developing Procedures, Building Capacity and Professionalizing Actors of the Water Supply and Sanitation Sector

A. Policies and Institutions

The following are the core elements of the policies and institutional development program for improving service delivery and accountability.

a) Clarifying the Mandates of Water Supply and Sanitation Service Providers:

- Decentralization: State Departments responsible for urban WSS should mandate Urban Local Bodies (ULB) to take full responsibility for the urban WSS service in their territory. The role of the State Departments would shift to policy formulation, facilitating reforms and technical guidance. This will also imply restructuring of the State Water Boards into single or multiple WSS infrastructure construction and O&M entities, as appropriate.

- Corporatization: ULB could incorporate autonomous WSS service providers (WSSSP) according to standard procedures to be defined by the State Department.

- Licensing: In order to be allowed to operate a piped WSS service and apply for public financing, WSSSP needs to be “licensed” by the State or an independent Regulatory Authority, or, a formal arrangement with the service provider needs to be evolved.
Key Findings

- **Operation and Maintenance**: WSSSP can operate and maintain WSS facilities either by using their own workforce or by outsourcing part or the entirety of WSS operation and maintenance activities to private contractors or operators.

- **Customer Service**: WSSSP can provide the service to Customers according to a standard Customer contract, appended to their License.

- **Infrastructure Development**: WSSSP can be responsible for developing their WSS infrastructure. They can be encouraged to outsource project identification, preparation and implementation to specialized engineering consultants. State Department can develop procedures to be followed to employ such consultants.

- **Financing of WSS Operations and Infrastructure Development**: WSSSP can finance their operation, maintenance and capital cost from a mix of cash generation, subsidies and grants and public and commercial debt.

- **Reporting Requirements**: WSSSP can report on their performance to an independent Regulatory Authority.

**b) Improving the Governance of Water Supply and Sanitation Service Providers:**

- **Autonomy**: ULB can incorporate autonomous WSS service providers (WSSSP) according to standard procedures defined by the State Department. ULB within a same geographical area should be encouraged to regroup their urban WSS operations to reach a minimum size of operations to achieve economies of scale.

- **Corporatization**: WSSSP bye-laws can clarify:
  
a. The composition, appointment criteria, compensation and code of conduct of the members of Board of Directors of WSSSP and operation of the Board of Directors;
  
b. Conditions under which key WSSSP managers and staff should be recruited and compensated and their performance evaluated;
  
c. The initial funding of the WSSSP, conditions for establishing the WSSSP opening balance sheet, preparing financial statements and auditing them.

- **Accountability to ULB**: WSSSP and ULB (or grouping of ULB, in case of aggregated WSS operation) can be encouraged to enter into short-term memoranda of understanding (MoU) to clarify short term commitments and obligations of both parties regarding infrastructure development and improvement of service quality and operating performance. The key features of these memoranda need to be disclosed to the public.

- **Accountability to Customers**: WSSSP can improve information made available to, consultation with, and participation of, customers in their decisions. WSSSP can also improve the recourse and redress procedures available to customers.

- **Improving Internal Procedures**: WSSSP can be encouraged to improve their internal procedures by:
a. Formulating “mission statement” and ensuring that managers and staff identify with it;

b. Clarifying processes for each technical, commercial and financial task and establishing quality control mechanisms;

c. Setting realistic performance targets and evaluating achievements; paying bonuses when performance targets are met; clarifying rules for staff promotion; and conveying management decisions to staff and obtaining feedback.

- Engaging in Public-Private Partnerships (PPP). Where appropriate WSSSP can be encouraged to outsource part or the entirety of the WSS service to private contractors and operators. State Departments can prepare procedures to be followed by WSSSP for identifying risks, mitigation arrangements and adequate forms of PPP, consulting with stakeholders, drafting contracts, selecting private partners and implementing PPP.

c) Regulating the Urban Water Supply & Sanitation Service:

- Regulatory Functions: State Departments can limit the risks of monopoly abuse by WSSSP that could result in poor quality service or high tariffs to cover the cost of inefficiencies by strengthening the WSS sector regulatory function. The latter can primarily cover the licensing of WSSSP, the monitoring of the compliance with the terms of their License, and the periodic resetting of tariffs.

- Regulatory Act: State Department can pass a Regulatory Act to:

  a. Clarify the objectives of economic regulation;

  b. Set a timetable for establishing an independent Regulatory Authority and spell out: (i) conditions to be met before its establishment; and (ii) interim arrangements to be made before the Regulatory Authority is established;

  c. Clarify pricing principles that can apply to the piped urban WSS service and spell out the objectives for: (i) recovering operation, maintenance and capital costs (differentiating between short and long term actions); (ii) managing demand; (iii) encouraging efficiency of operations; and (iv) favoring access to and consumption of minimum service by low income customers; and

  d. Clarify regulations that apply to the provision of mobile (water tankers, sludge handlers) or fixed (independent networks) “substitutes” to the piped WSS service provided by operators other than the WSSSP.

- Licensing of WSSSP: WSSSP can apply for an operating License according to procedures to be clarified by the Regulatory Authority. License could be granted for a 10 year period and specify:

  a. Conditions under which the WSS infrastructure should be operated and maintained and the service should be provided to customers;
b. Minimum technical, commercial and financial performances to be achieved by the WSSSP to maintain its License and penalties that should apply in terms of non-compliance;

c. Tariffs and other user charges the WSSSP should be allowed to apply as well as procedures for periodically resetting them; and

d. The WSSSP reporting obligations.

- **Monitoring the Quality of the WSS Service.**
  a. WSSSP can report on their technical, commercial and financial performance according to formats developed by the Regulatory Authority; the Regulatory Authority should employ independent experts and auditors, as necessary, to validate reports submitted by WSSSP;
  
b. The Regulatory Authority can create incentives to ensure WSSSP comply with their License. Licenses should be revoked for persistent non compliance.

- **Resetting and Adjusting Tariffs.**
  a. WSS tariffs and other user fees can be periodically reset, at the request of either the WSSSP or the Regulatory Authority, to meet objectives spelt out in the Regulatory Act and in application of transparent and predictable principles and rules;
  
b. Between two resetting, tariffs can be automatically adjusted to protect WSSSP revenues against inflation.

- **Resolving Disputes between WSSSP, Customers and other Parties.** The Regulatory Authority can investigate and mediate Customer complaints and provide a mechanism for resolving disputes between WSSSP, Customers and other parties such as ULB.

- **Monitoring the Provision of Substitutes to piped WSS.** The Regulatory Authority can monitor local WSS markets and document activities of providers of substitutes to the piped WSS service.

- **Framing the Operations of the Regulatory Authority.**
  a. Once established, the Regulatory Authority should have the power to reset tariffs and other user fees, monitor markets and service quality, investigate and mediate customer complaints, provide dispute resolution mechanisms, compel provision of information and monitor and enforce its decisions without prior approval from other government agencies; the mandate of the Regulatory Authority should not duplicate that of other institutions;
  
b. The Regulatory Authority should finance its operations from a regulatory fee levied on Licensed WSSSP;
  
c. The Regulatory Authority should subject its staff to strict conflict of interest rules;
d. The decisions of the Regulatory Authority should be made by a group of commissioners and follow principles and rules that can be amended only after an extensive public notice. The documentation prepared for supporting decisions should be made available to all parties and the public;

e. Parties which feel that their interests have been affected by the decisions of the Regulatory Authority should be allowed to appeal them in a designated tribunal.

- Interim Procedures. Pending the creation of a regulatory body the State should specify how the functions of regulation can be carried out within the existing institutional arrangements.

B. Infrastructure and Financing

a) Preparing Predictable and Sustainable Infrastructure Development and Financing Program:

- Medium Term Infrastructure Development Program. State Department and ULBs can together develop a medium term program for infrastructure development, taking into consideration upgradation of existing assets and requirement of new assets for moving to 24/7 water supply.

- Financing Sources. In the short term WSSP can move quickly to finance their operations and maintenance costs from user fees. In the long term WSSSP can finance their
Key Findings

operating and maintenance costs and capital expenditure programs (capex) from a mix of cash generated from operations, subsidies and grants and long term debt extended by public or commercial lenders.

- **Application for Public Financing.** Only incorporated and licensed WSSSP should be allowed to apply for public financing. State Department should set a reasonable deadline for causing ULB to incorporate WSSSP and WSSSP to apply for a License. 2015 could be considered a reasonable deadline for incorporating WSSSP.
  
a. WSSSP should support all requests for public financing with medium-term forecasts of their financial statements (income and cash flow statements, balance sheet);
  
b. Departments in charge of WSS and the Regulatory Authority should develop standard formats for presenting financial forecasts;
  
c. WSSSP should be encouraged to use specialized consultants to prepare financial forecasts.

- **Phasing out of Operating Subsidies.** State Department can set a reasonable deadline for phasing out operating subsidies to WSS operations and cause WSSSP to recover their cash operating costs from collected tariffs.

- **Targeting Development Grants.** In the medium to long term, State Department can target capital development grants only to projects with strong “public good” characteristics such as extension of the service to low income areas or pollution abatement. In the meantime the State can cause WSSSP to gradually finance the development of their remaining infrastructure on long-term debt. State Departments can set a reasonable deadline for limiting capital development grants.

- **Developing Public Lending Capacities.** State Department can state as long term objective the financing of WSS capital expenditure programs from capital markets (commercial debt, corporate bonds or equity). As capital markets cannot currently provide debt financing on conditions compatible with the characteristics of the WSS sector whose fixed assets are depreciated over long periods, State Department can request public lending agencies to extend loans to WSSSP:
  
a. Public lending agencies can develop together with Departments in charge of WSS and Regulatory Authorities meaningful project appraisal and supervision procedures;
  
b. State Government can investigate the need for providing guarantees to public lenders to soften lending terms.

- **Accessing Commercial Financing.** State Department in charge of Finance can set rules for WSSSP access to commercial financing. In the long term the State should not provide guarantees to such lenders, but to help foster the creation of new “borrower/lender” relationships between commercial lenders and WSSSP, some interim risk sharing guarantee arrangements may be necessary.
• **Financial Recovery Plans.** Because most WSSSP would initially operate under strong tariff level and operating performance constraints, likely to translate in operating losses, financial forecasts should initially help identify:

  a. Realistic financial recovery plan aimed cleaning balance sheets, gradually moving to full recovery of operation and maintenance costs from user charges and identifying affordable capital expenditure programs and financing plans;

  b. WSSSP should ensure that data input in financial forecasts are credible and supported by adequate analysis and assumptions.

### C. Capacity Building for Professional Services

#### a) Developing Procedures, Building Capacity and Professionalizing Actors of the Water Supply and Sanitation Sector:

• **Developing Procedures.** Professionalizing the WSS sector requires the updating of existing procedures and/or the development of new ones. Indeed, almost each bullet point above requires a detailed review of the current practice, an identification of gaps with stated objectives and the development of a new Procedure and training of relevant Actors to their application. State Departments in charge of WSS should be responsible for this effort and ensuring consistency of the various outputs.

• **Building the Capacity** of State officials, ULB, WSSSP Board members, WSSSP managers and staff, staff of Regulatory Authorities, Customer Associations, NGO and the media to understand the rationale of new procedures and apply them through a combination of classroom and on-the-job training, networking between professionals, twinning with well performing WSSSP within and outside of India and public-private partnerships. This massive effort to be coordinated by State Departments in charge of WSS.

• **Establishing an Independent Certification** of WSSSP Management and Operational Staff should guarantee minimum competence and understanding of procedures and increase transparency of recruitment and favor an active staff market. This should include certification of both individuals and the WSSSP as an entity (e.g. ISO certification).

• **Ensuring Community Participation** during design, implementation and management of sector program. Procedures need to be developed for community participation through Resident Welfare Associations, community welfare groups, NGOs etc., including independent verification of service delivery achievements.
5. Conclusions and The Way Ahead

5.1 The preparation of the State Business Plans has provided the opportunity to better understand the current water supply and sanitation situation in three different States. These have provided insights into the range of technical, financial, and institutional challenges that face the sector in India. Combining the lessons learnt from the Business Plan preparation, with relevant international experiences, has allowed the distillation of a range of critical reform activities for the sector. Converting a list of reform activities into improved service and sustainability at the ground level is not easy. The starting point is to prepare a State policy statement that sets out the vision of the future. The policy can then be used to drive a State-wide business plan along the lines prepared in the three States. Further evolution into ULB level Service Improvement Plans can then be undertaken.

5.2 To deliver the results of the Business Plans and the Service Improvement Plans requires investment in new assets, in new systems and procedures, and in creating a new mindset of service delivery and sustainability, and not simply the creation of assets. To that end the Central Government has a key role to play through advocating reforms, providing guidance to the States and, critically, using its finance as a vehicle to incentivize change and reward improvements in performance. At the State level reforms will require roles and responsibilities to be better defined and current State level agencies will likely evolve into facilitators and partners with the municipal bodies. The municipal bodies will face particular challenges as they move from being passive recipients of services, typically provided by State entities, into proactive managers of the service delivery process which is both sustainable and provides good levels of service.

5.3 The challenge for India is how to turn the key findings from the study into improved service delivery and sector sustainability. In this section some suggestions are made on the way ahead.

5.3.1 Capturing the Government’s intentions through a Policy Statement: A Policy Statement describes where a State wishes its urban WSS Sector to be in, say, 5-10 years from now. The Policy Statement can be formally captured through enactment of a State WSS Sector Policy. Although there is no “one-size-fits-all” solution, Policy Statements should preferably build on national and international experiences for achieving what is usually accepted as good practice. It should set performance objectives in terms of access to, and reliability, sustainability and affordability of the WSS service and clarify how the key functions of policy formulation, service provision, infrastructure development, financing and regulation would be carried out. Box 8 and Annex 5 give examples of Policy Statement that incorporates most of the good practices presented in this report.
Box 8: Example of Policy Statement for Urban WSS

By 2025 the State will have established an urban WSS sector with the following characteristics:

Access: (i) 98% of the urban population has access to piped water supply, of which 90% through individual connections; (ii) 70% of the urban population has access to sewers through individual connections.

Reliability: (i) Piped water is provided on a permanent (24/7) basis at a minimum pressure of 10 meters 99% of the time; (ii) 99% of water samples collected at customer delivery points meet national bacteriological and chemical quality standards; (iii) accidental overflows of raw sewage in storm water drains are below five per 100 kilometers of sewer per year.

Efficiency: (i) average non-revenue water is a minimum percentage of the production; (ii) the average bill collection ratio is higher than 96%; (iii) the average staffing ratio for water supply and wastewater operations is as per international standards.

Financial sustainability: Tariffs and user fees collected from customers are sufficient to cover O&M costs, depreciate WSS fixed assets and yield a return on fixed assets sufficient to service long-term debt of WSS service providers and remunerate the equity invested.

Environmental sustainability: (i) Quantities of water consumed and wastewater disposed off are limited to what is strictly necessary through pricing of the WSS service and financial incentives to encourage loss reduction; (ii) 90% of the waste water collected is treated to meet effluent quality set by the State agency in charge of environmental protection.

Affordability: Households in the lower income quintile obtain State subsidies for: (i) limiting the cost of connection to the WSS infrastructure; and (ii) monthly WSS bill for a lifeline consumption per household.

Decentralization: Financially autonomous Municipal and/or Regional WSS Companies (WSSC) managed by Boards of Directors representing public and private stakeholders are responsible for providing the WSS service in the area specified in the license granted by the Regulator. The license clarifies the minimum technical, commercial and financial performance to be achieved by the WSSC.

Access to water sources: WSSC are authorized to trade water entitlements with other users of water such as irrigation schemes and industrial estates.

Policy formulation: The State agency in charge of the urban WSS sector regularly updates WSS policies on the basis of independent field surveys, economic analyses and reviews of best practice worldwide.

Asset management and infrastructure development: WSSC spend an average 25% of their operating budget for maintaining fixed assets and prepare and implement infrastructure rehabilitation and extension programs in their service areas that correspond to the least cost solution.

Service provision: WSSC operate the service according to their license. WSSC managers and key staff are recruited competitively among State certified staff. WSSC are encouraged to enter into public-private partnerships (PPP) aimed at improving efficiency of the service within the framework set by the State agencies in charge of the urban WSS sector and public sector reforms.

Financing: WSSC finance the operation of the WSS service and the development of the WSS infrastructure from cash generated from operations, debt extended by public or commercial lenders and equity injected by public and private investors. WSSC are allowed to enter into PPP aimed at mobilizing commercial financing for developing the WSS infrastructure. The State does not provide any guarantee to WSSC borrowing.

Regulation: An independent Regulator: (i) issues and renews operating licenses to public WSSC and private WSS service providers; (ii) monitors compliance of the WSS performance with the terms of the licenses; and (iii) set WSS tariff levels and structures in application with the State pricing policies.
5.3.2 **Turning Policy into Plans:** A State wide Business Plan will explain how the urban WSS sector described in the Policy Statement would be arrived, through: (i) adjustment or change of the relevant legislation; (ii) adaptation or modification of mandates of the various institutions and actors; (iii) establishment or strengthening of contractual arrangements; and (iv) update or overhaul of working procedures. A Business Plan should include outlines of the programs and activities as well as budget estimates and reasonable timetables. The WSS Business Plans for Maharashtra, Rajasthan, Haryana, the first of this kind of activity in India, are detailed in Annex 3 and provide a possible template for future Business Plans.

5.3.3 **Preparing Service Improvement Plans:** The practical vehicle for turning State wide Business Plans into reality at the ULB level is a “Service Improvement Plan” (Annex 6). This should set out the improvements in commercial, financial and technical performance that will move a service provider and its owner (the ULB) towards achievement of the articulated Policy Statement.

5.3.4 **Building Consensus on the State-wide WSS Business Plan.** Unlike the formulation of a Policy Statement, that sets long term objectives in somewhat general terms, a Business Plan could be a challenging task for the State. Consulting with stakeholders should aim at better understanding of reforming the urban WSS, building a support from potential “winners” and designing mitigation arrangements for potential “losers”. Such consultations are required at each stage of reform preparation and implementation. Stakeholders to be consulted with typically are: consumers, elected representatives, staff of WSS service providers and other agencies involved in the urban WSS sector, NGOs, providers of substitutes to the piped WSS service, the media, the private sector (if PPPs are envisaged) and of course financiers. Building a strong support on the reform agenda is likely to require that the concerns be understood and that the legitimate ones be properly mitigated. The Business Plans should:

- Understand the implications of the reform process for various stakeholders;
- List legitimate concerns of potential losers; and
- Suggest options, such as financial compensations, for mitigating negative effects of reforms on certain categories of stakeholders.

5.3.5 **Capacity Building and Trainings on WSS Best Practices:** The Business Plans could emphasize the need for organizing a series of training on best practices in urban WSS be targeted at State and ULB levels decision makers, Board members, and managers of WSS service providers. These sessions could cover issues such as: (i) political economy of reforms; (ii) role of substitutes to piped WSS; (iii) involving stakeholders in the design of reforms; (iv) changing the culture of public WSS service providers; (v) assessing demand for WSS services; (vi) managing WSS assets; (vii) developing WSS infrastructure; (viii) increasing the efficiency of WSS operations internally and through PPP; (ix) financing WSS operations; (x) pricing the WSS service; and (xi) regulating the WSS service. The World Bank Institute (WBI) has developed a training package on these issues that includes lectures, case studies and interactive discussions that could be used to tailor a program specifically targeted at Indian States.

5.3.6 **Sequencing of the Reform Activities:** Reform involves an interaction between the utility and its direct institutional environment. The reforms that can be undertaken by
a utility are dependent on the reforms that the environment supports (World Bank, 2004b). Similarly, improvements in the environment in which the utility operates, are likely to have only a limited impact if the utility has insufficient internal capacity to make the most of this (beneficial) situation.

Plotting the various reform measures against an environment and a utility axis is a useful exercise. A typical reform path will always evolve around the diagonal axis that combines environment and utility reforms (see figure). Indeed it is arguable that any reform that moves the reform path too far away from the diagonal is unsustainable. The reform program in Uganda, illustrates how reform steps in the utility and the environment can be combined and sequenced into a coherent reform program. The reforms made the utility as a whole, its business units and its individual employees more autonomous and accountable for outputs. This has led to substantial improvement in service delivery (Box 9).

**Box 9: How Reform Program in Uganda Combined Measures to Reform the Utility and its Environment**

During the 1970s and 1980s, Uganda was in public turmoil and the performance of the National Water and Sewerage Corporation (NWSC), like many other institutions, declined considerably. Between 1986 and 1997 NWSC, with the help of international donor support, embarked on major rehabilitation and expansion of its water supply and sewerage systems. However commercial and managerial practices were not improved so poor service provision continued despite improved infrastructure.

During 1997 a new Board of Directors (BoD) was appointed and in 1998 a new Managing Director was appointed. Having a new management team presented a rare opportunity to review past performance and implement improvement strategies. In addition to the changes in management of the utility, a series of external drivers for improvement appeared at the same time:

- From donor agencies to improve performance levels
- From the Government of Uganda for NWSC to provide satisfactory customer service.
- Of competition due to the possible increase in private sector participation.

From February 1999 onwards the management of NWSC has sequentially implemented a number of programs. More autonomy was transferred to the Area Service Providers (“Areas”), along with defined performance targets and accountability for results. The “100-Days Program” and the “Service and Revenue Enhancement Programs” resulted in better specification of targets for the Area Service Providers. These programs also increased commitment from the Head Office to provide logistics to enable different Areas to implement programs.

The Government of Uganda introduced a performance contract with NWSC to increase NWSC’s accountability for results and provided the utility with incentives for good performance. In turn, NWSC initiated internal performance based contracts with Areas.
Conclusions and the Way Ahead

In 2002, automatic tariff indexation was introduced in order to keep the tariff levels in line with levels of inflation. In addition the “Stretch-Out Program” resulted in a higher level of commitment from the employees by improving internal communication and setting tougher performance targets and corresponding incentives.

Recently, “One-Minute Management” was introduced which aims to further enhance an individual’s accountability for achieving targets.

The Ugandan reforms have delivered results. It is obvious however that despite improved efficiency customers have to pay more for the benefits being delivered.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Situation in 1999</th>
<th>Position in 2002/03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water supply coverage</td>
<td>54%</td>
<td>63%</td>
</tr>
<tr>
<td>Unaccounted water</td>
<td>42%</td>
<td>39%</td>
</tr>
<tr>
<td>Staff per 1000 connections</td>
<td>21</td>
<td>11</td>
</tr>
<tr>
<td>Tariffs (Ushs/cubic meter)</td>
<td>881</td>
<td>1015</td>
</tr>
</tbody>
</table>

5.3.7 The Big Bang or Step by Step Implementation Approach: Water sector reforms are in their nascent stage in India. Whilst the State policy can be developed based on established national and international experience there are no established models for practical implementation. In fact, given the size and complexity of the country, it is likely that implementation models will be state specific. As such States may feel more comfortable implementing the reforms on a step by step basis so that experience can be gained along the way and the implementation activities adjusted accordingly. Reforms can be piloted in certain forward looking municipalities before scaling-up and adapting to other localities. Colombia provides an example of how successful reforms in two cities led the way for similar programs in other locations (Box 10).

Box 10: Reforms in Colombia Spearheaded by few Local Authorities and Replicated by Many

Colombia has been a pioneer in adopting sound WSS policies. It was among the forerunners of decentralizing responsibilities for the provision of water supply and sanitation services to local governments, rendering institutions more closely accountable to communities.

Colombia’s reforms were spearheaded in two cities, Catagena and Barranquilla. Both municipalities contracted out operation to a mixed company. The mixed companies are jointly owned by the municipality, a private operator, and local private shareholders. The municipalities remain the owner of the infrastructure. Reforms also included capacity building for local authorities. Water supply coverage improved substantially and more than 80 percent of new connections were in poor neighborhoods. Services also became more efficient and reliable: taps now function 24 hours a day, metering reduced losses from unaccounted for water and time taken to respond to customer complaints was dramatically reduced.

As the performance of the utilities in Cartagena and Barranquilla improved, customer satisfaction grew. Mayors of other cities became interested in reforming their utilities. Their political constituents are water consumers as well. Success in Cartagena and Barranquilla became a catalyst for scaling up reforms elsewhere.

The central government supports smaller cities and towns to improve services. Cross subsidies cannot finance services for all so transparent, performance-linked budget transfers from the central government are helping provide for the poor. Transparent budget transfers from central government are targeted to municipalities that meet policy and pro-poor targeting criteria and contract local entrepreneurs for operation and maintenance. Initial positive results of the project show improvements on the ground. Results up till now have created a new dynamic in town water supply and sanitation, that is bound to spread and prosper over time.

5.3.8 Providing Incentives for Reform: Reforms rarely occur without societal pressure for change and/or incentives to improve. Within the framework of basic rules, realistic and transparent targets can incentivize actors to improve performance. Performance targets can range from financial performance targets, efficiency targets (unaccounted for water, number of staff per population served), to output targets (expansion in poor neighborhoods, continuity and quality of service). Creating an incentive framework requires some form of binding agreements between different public entities. Examples of incentives:

- performance based inter-governmental transfers between central government and local governments
- performance based agreements between local governments and utilities.

The central government can provide financial incentives to those municipalities or utilities that do better, withholding finances from the non-performing municipalities. A good practice in this regard is the Australian central government that combined a number of measures to incentivize lower tier governments to improve performance and lower the price of service delivery (Box 11).
The provision of water supply and sanitation is a responsibility of state governments in Australia. However, the commonwealth (central) government has been an important driver for change in the water supply and sanitation sector through its 1995 National Competition Policy (NCP). The NCP is a multi-sectoral package of reforms. The NCP is combines enabling measures, with mandatory requirements with financial incentives for states and territories that achieve certain milestones, such as commercial viability, transparency of subsidies, separation of functions, and introduction of performance monitoring and public consultation. While annual payments have been small (most states receive about 0.65-0.70% of their total receipts this way), it provided sufficient incentive at the marking for the states to stay committed to the reform path.

The actual reform path is left to the discretion of the states. This has led to a number of institutional models, including single state-owned utilities, municipal utilities and aggregated regional utilities serving a number of municipalities. All utilities are government owned companies, with government-appointed expert board of directors. Price regulation is carried out by an independent (often multi-utility) regulator in some states, while in other states regulation is done by state or local governments. Prices have increased but – also due to extensive awareness campaigns – usage has gone down. As a result average water bills have decreased by 5.5 percent over the five year period ending in 2000-01.

The reforms in Australia have taken over 15 years to be completed, well beyond the timetable of five to seven years. However, the progress has been impressive and across the board, due to the sustained strategic role of the central government.

Source: Lessons for India: Australia’s Water Sector Reforms, WSP, 2004

Traditionally, central government has used grants to local governments and utilities for scaling up ‘access to water and sanitation facilities’. However, when these transfers can be made conditional on the milestones in reform or performance of local governments of utilities then the Intergovernmental grants and loans can become a strong driver for reforms.

5.3.9 Roles and Responsibilities of Different Levels of Government: The reform agenda outlined in this report requires the deleniation of roles and responsibilities of different levels of Government for improving service delivery.

(a) Central Government has no direct control over water service provision as this is a State responsibility and not within the purview of Central Government. The key tools of central government are financing, oversight, capacity building and advocacy. Thus central government can monitor sector activities to identify the range of performance delivered by those responsible for service delivery. This is a powerful tool to bring improved accountability into the sector.

The central government can monitor and evaluate the sector to identify the challenges in raising performance and expanding service. Based on this, central government can provide guidance and direction to the States on actions that might be taken to improve WSS services.

The Central Government can use its advocacy role to push for reforms and create a dynamic for change in the way people think about the sector.

The main tool of central government, at least at the present time, is that of financing. Central Government is a key financier of the sector and can use such financing to meet its own policy goals. In the past such goals may have been linked to providing access – with
the emphasis on using funds to expand infrastructure. Now the focus is on improving service and sustainability. The government funding can be used to incentivize the changes needed at the State and the municipal level. The focus of such incentives should be on delivery of results as improving service and sustainability depend more on changing institutions and mindsets, rather than financing infrastructure.

(b) State Governments: Achieving the Policy Statement and delivering on the business plans will require the roles and responsibilities of the various sectoral actors in the State to be better defined. This clarity will focus the actors on their part in the complex process that will deliver sustainable, efficient, quality and affordable services to customers. Whilst the Water Supply and Sanitation Service Providers will be on the “front line” in improving service delivery, the State Water Supply and Sanitation Departments will play a transformational role, responsible for delivering the sectoral improvement. They will set and advocate new policy, assist all actors in operationalizing their redefined roles (a major capacity building role), secure adequate resources, monitor implementation performance and support the establishment of new functions (such as a regulatory framework).

State governments also play a similar role to Central Government in terms of sector oversight, advocacy and financing.

(c) Municipal Bodies: Through the operationalization of the 74th Constitutional Amendment, it is municipal bodies that will be most impacted by reform of the WSS sector. They will have to work out how best to provide services (e.g. by public management, by delegated management to the private sector, or a mix of the two), and how to finance them (e.g. by securing government finance, by increasing efficiencies, and if necessary by adjusting tariffs). This is a significant change for many municipalities that have been used to taking a more passive role in the sector. The municipalities will need a lot of capacity building and support as they take on these new roles. As noted earlier, a step by step approach to reform may be most appropriate in India. The States could work more closely in the short term with those municipalities that have sufficient capacity to demonstrate how the reforms can be implemented.

5.4 Based on the work captured in this report some immediate first steps that can be identified for improving WSS services are given below.

(i) Establishing Autonomous and Accountable Service Providers.

• Developing Institutional & Regulatory Framework. Role of various actors at state and local city/town level (policy maker, regulator, financier, asset owner, service operator) need to be clearly defined in line with the decentralization mandate of the 74th Constitutional Amendment. The reform of State Level Public Health Engineering Department needs to be supported in order to create the space for greater autonomy, accountability, and financial sustainability.

• Strengthening Implementation Capacity. Planning and implementation capacity of ULB-level WSS agencies needs to be improved. A crucial step is to ring-fence WSS assets, staff, financing and accounts. Service provision would also improve if central/
state policies encourage the practice of contractual service agreements between asset-owner and service provider, alongside robust monitoring mechanisms.

• **Building Capacity and Professionalizing the Sector.** There is need to move away from the traditional engineering driven sector, to a sector with a mix of professional skills, including technical, financial, managerial, social and environmental skills.

**(ii) Implementing Incentive Schemes.** Financing programs can be linked to outputs and/or service improvements:

• **Incentives for Service Improvements.** Centre, State and ULB programs can be linked to a mix of reform activities (e.g. ring fenced accounts) and service improvements (e.g. reduction of Non Revenue Water including water audits and energy audits; energy efficiency improvements, 24/7 water supply) rather than simply as a source of finance to build assets. JNNURM, for example, can be used as an effective vehicle to deepen WSS reforms and improve sector performance.

• **Financial Program for Declining Operational Subsidies:** This will require service providers to increase efficiency and improve revenue collection over a given time period. This will make WSS providers focus attention on the customers, rather than on government, as the customer will be their main source of revenue.

• **Subsidies Targeting the Poor.** Subsidies need to be transparent and targeted, and possibly linked to actual performance and time limited. Also, the ULB-level Service Provider can support specific programs aimed at improving services to the poor.

• **Monitoring & Evaluation Programs:** Practices such as comparative benchmarking can allow stakeholders to better understand the range of service provided – from the best to the worst. This will bring pressure to bear on the poorer performers to improve performance against a “frontier of best practices”.

**(iii) Supporting a Series of Transformational (Demonstration) Projects.** With the right incentives and support, the Indian water sector can turn itself around. A key tool to do this is the use of demonstration projects that can provide a new “best practice” for others to emulate. Example: scaling up of 24/7 schemes through efficient and accountable institutions demonstrating service delivery improvements.
## Annex 1: Service Level Benchmarks in Urban WSS sectors

### Water Supply

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Indicator</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Coverage of WS connections (Popn)</td>
<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>Per capita availability of WS at consumer end</td>
<td>135 Lpcd</td>
</tr>
<tr>
<td>3</td>
<td>Extent of metering of WS connections</td>
<td>100%</td>
</tr>
<tr>
<td>4</td>
<td>Extent of non-revenue water</td>
<td>20%</td>
</tr>
<tr>
<td>5</td>
<td>Continuity of water supply</td>
<td>24x7</td>
</tr>
<tr>
<td>6</td>
<td>Efficiency of redressal of customer complaints</td>
<td>80%</td>
</tr>
<tr>
<td>7</td>
<td>Quality of water supplied</td>
<td>100%</td>
</tr>
<tr>
<td>8</td>
<td>Cost recovery of water supply services</td>
<td>100%</td>
</tr>
<tr>
<td>9</td>
<td>Efficiency in collection of water supply charges</td>
<td>90%</td>
</tr>
</tbody>
</table>

### Sewerage

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Indicator</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Coverage of wastewater network services</td>
<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>Collection efficiency of wastewater network</td>
<td>100%</td>
</tr>
<tr>
<td>3</td>
<td>Adequacy of wastewater treatment capacity</td>
<td>100%</td>
</tr>
<tr>
<td>4</td>
<td>Quality of wastewater treatment</td>
<td>100%</td>
</tr>
<tr>
<td>5</td>
<td>Extent of reuse &amp; recycling of treated wastewater</td>
<td>20%</td>
</tr>
<tr>
<td>6</td>
<td>Extent of cost recovery in wastewater management</td>
<td>100%</td>
</tr>
<tr>
<td>7</td>
<td>Efficiency of redressal of customer complaints</td>
<td>80%</td>
</tr>
<tr>
<td>8</td>
<td>Efficiency in collection of sewerage charges</td>
<td>90%</td>
</tr>
<tr>
<td>9</td>
<td>Coverage of toilets</td>
<td>100%</td>
</tr>
</tbody>
</table>

### Solid Waste Management

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Indicator</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Household level coverage of solid waste management services</td>
<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>Efficiency of collection of municipal solid waste</td>
<td>100%</td>
</tr>
<tr>
<td>3</td>
<td>Extent of segregation of municipal solid waste</td>
<td>100%</td>
</tr>
<tr>
<td>4</td>
<td>Extent of municipal solid waste recovered / recycled</td>
<td>80%</td>
</tr>
<tr>
<td>5</td>
<td>Extent of scientific disposal of municipal solid waste</td>
<td>100%</td>
</tr>
<tr>
<td>6</td>
<td>Extent of cost recovery in solid waste management services</td>
<td>100%</td>
</tr>
<tr>
<td>7</td>
<td>Efficiency of redressal of customer complaints</td>
<td>80%</td>
</tr>
<tr>
<td>8</td>
<td>Efficiency in collection of user charges</td>
<td>90%</td>
</tr>
</tbody>
</table>
### Storm Water Drainage

<table>
<thead>
<tr>
<th></th>
<th>Coverage of storm water drainage network</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Incidence of water logging / flooding</td>
<td>0</td>
</tr>
</tbody>
</table>

### Median Values of SLB Indicators Notified by Different Categories of Cities

<table>
<thead>
<tr>
<th>Category</th>
<th>Coverage connections (%)</th>
<th>Per capita supply (lpcd)</th>
<th>Metering of connections (%)</th>
<th>Non-revenue water (NRW %)</th>
<th>Continuity of supply (hrs. per day)</th>
<th>Quality &amp; Treatment (%)</th>
<th>Redressal of customer complaints (%)</th>
<th>Cost recovery (%)</th>
<th>Efficiency in collection charges (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>53.3</td>
<td>70.0</td>
<td>0.0</td>
<td>30.0</td>
<td>2.0</td>
<td>95.0</td>
<td>76.0</td>
<td>33.0</td>
<td>65.0</td>
</tr>
<tr>
<td>IA</td>
<td>64.5</td>
<td>109.0</td>
<td>48.0</td>
<td>30.5</td>
<td>1.8</td>
<td>67.5</td>
<td>75.0</td>
<td>96.0</td>
<td>78.5</td>
</tr>
<tr>
<td>IB</td>
<td>71.0</td>
<td>112.0</td>
<td>0.0</td>
<td>31.3</td>
<td>3.0</td>
<td>96.2</td>
<td>82.0</td>
<td>50.0</td>
<td>80.0</td>
</tr>
<tr>
<td>IC</td>
<td>46.1</td>
<td>75.0</td>
<td>0.0</td>
<td>32.0</td>
<td>2.0</td>
<td>95.0</td>
<td>78.0</td>
<td>36.0</td>
<td>60.0</td>
</tr>
<tr>
<td>II</td>
<td>45.7</td>
<td>70.0</td>
<td>0.0</td>
<td>30.0</td>
<td>1.5</td>
<td>95.0</td>
<td>78.0</td>
<td>33.0</td>
<td>66.0</td>
</tr>
<tr>
<td>III</td>
<td>53.0</td>
<td>70.0</td>
<td>0.0</td>
<td>30.0</td>
<td>1.5</td>
<td>95.0</td>
<td>76.0</td>
<td>33.6</td>
<td>65.0</td>
</tr>
<tr>
<td>IV</td>
<td>65.0</td>
<td>71.9</td>
<td>0.0</td>
<td>30.0</td>
<td>2.0</td>
<td>93.5</td>
<td>75.0</td>
<td>23.7</td>
<td>70.0</td>
</tr>
</tbody>
</table>

**Note:** SLB notified data for 1493 Cities across 14 States, March 31, 2011

### SEWERAGE

<table>
<thead>
<tr>
<th>Category</th>
<th>Coverage of toilets (% households)</th>
<th>Coverage of sewage network services (% households)</th>
<th>Collection efficiency of the sewage network (%)</th>
<th>Adequacy of sewage treatment capacity (%)</th>
<th>Reuse and recycling (%)</th>
<th>Quality of sewage treatment (%)</th>
<th>Efficiency in redressal of customer complaints (%)</th>
<th>Cost recovery (%)</th>
<th>Efficiency in collection of charges (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>71.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>40.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>IA</td>
<td>97.5</td>
<td>42.0</td>
<td>47.5</td>
<td>77.5</td>
<td>19.2</td>
<td>50.5</td>
<td>53.0</td>
<td>84.5</td>
<td>78.5</td>
</tr>
<tr>
<td>IB</td>
<td>85.0</td>
<td>30.0</td>
<td>54.5</td>
<td>56.0</td>
<td>3.0</td>
<td>11.0</td>
<td>80.0</td>
<td>35.0</td>
<td>73.0</td>
</tr>
<tr>
<td>IC</td>
<td>75.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>18.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>II</td>
<td>72.6</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
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<td>0.0</td>
<td>0.0</td>
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<td>0.0</td>
</tr>
<tr>
<td>III</td>
<td>70.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>45.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>IV</td>
<td>68.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>50.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Note:** SLB notified data for 1493 Cities across 14 States, March 31, 2011
Annex 2: Guidance Toolbox for Improving Performance of Water Supply and Sanitation Service Providers

1. Improving access to the WSS infrastructure, efficiency of WSS operations and reliability, sustainability and affordability of the WSS service almost always requires reforms in policies, institutional arrangements, procedures and incentives. Before designing reforms, it is important to objectively measure the performance of WSS services against usually accepted “good practices”, and to identify the reasons for “apparent performance gaps”. This is covered under accountability framework in section (A) below. Sub-section (B) discusses policy issues related to the structure of the urban WSS sector, access to water sources and to the levels of service to be provided to customers. Sub-sections C to J present good practices for: (C) changing the culture of WSS service providers; (D) improving the efficiency of the WSS service provision; (E) engaging in public-private partnerships; (F) developing the WSS infrastructure; (G) financing WSS operations and WSS infrastructure development; (H) pricing the WSS service; (I) regulating the WSS service; and (J) translating good practice into action plans.

(A) Understanding the Accountability Framework of an Urban WSS Sector

2. Measuring the Performance of a Piped WSS Service. The International Benchmarking Network for Water and Sanitation Utilities (IBNET) has since 2005 developed a series of indicators to help carry out a “check-up” of a piped WSS service provider, aiming at measuring coverage, efficiency, reliability, financial and environmental sustainability and affordability of the WSS service. Benchmarking is not about allocating marks to rank the performance of WSS service providers but rather, as defined by IBNET, about “identifying best practice with the objective of implementing it for improving performance”. IBNET differentiates between “metric” benchmarking, i.e., the analysis of the indicators and “process” benchmarking, i.e., the understanding of the legal, policy and institutional factors that lead to “apparent performance gaps”. Process benchmarking utilizes metric benchmarking as a basis for bridging performance gaps and achieving good practice.

3. Understanding the Current Accountability Framework. Reforming an urban WSS sector usually consists in enhancing its “accountability framework” for achieving increased coverage, efficiency of operations, reliability, financial and environmental sustainability and affordability of the service. The set of actors, their mandates and contractual obligations and the procedure they use for carrying out the five key functions of policy setting, service provision, infrastructure development, financing and economic regulation, constitute what is referred
to as the accountability framework.\textsuperscript{32} Of course, there is no “one-size-fits-all” institutional arrangement and the fairly “unbundled” WSS sector depicted in Figure 1 below is used mostly to introduce the concepts of actors (rectangles), mandates (lozenges), contracts (circles) and instruments (lines) for clarifying the accountability framework.

\textit{Figure 1: Example of “Unbundled” Accountability Framework}

4. \textit{Substitutes to the Piped WSS Service}. IBNET focuses on the official piped WSS service. In cities where the latter is deficient, households and businesses have to rely on “substitutes” such as backyard boreholes, roof tanks fed by booster pumps, in house disinfection equipment, water vendors or sludge handlers. Substitutes could play a significant role in a city’s WSS service. They could also have negative impact on the local environment, as unauthorized abstraction of groundwater and indiscriminate dumping of sludge could endanger local aquifers and receiving bodies. Substitutes could also divert a significant share of the cash injected by users for their WSS service from the official piped WWS service provider. Understanding the role of substitutes is essential for appreciating the “political economy” of reforming the WSS service: providers of substitutes are indeed important stakeholders to consult with when designing a reform.

\textsuperscript{32} Template for Assessing the Governance of Public WSS Service Providers; A. Locussol and M. van Ginneken; World Bank, 23; 2010
Guiding Principles for Successful Reforms of Urban WSS Sectors; A. Locussol and M. Fall; World Bank, 2009
Revisiting an Urban WSS Sector Structure

- **Horizontal structure.** Before decentralizing poorly performing central WSS service providers to increase accountability to customers or, on the contrary, aggregating inefficient local providers several considerations should be taken into account. Reliance on a same water source, administrative boundaries, capacity of local governments, potential economies of scale, existence of geographical cross-subsidies or attractiveness to potential private partners could be some of them.

- **Vertical structure.** Ensuring quality of the WSS service from water sources to customers and from customers back to water bodies could be a good argument for maintaining water production, transmission, distribution and wastewater collection and treatment activities in the mandate of a WSS service provider. But when bulk water schemes serve several urban centers and require large investment it could make sense to separate water production from water distribution. Splitting water supply and wastewater operations could make water operations more attractive to a private operator if a public-private partnership (PPP) is considered, but there could be a risk of unbalanced development of the two sub-sectors. When water supply and wastewater activities are regrouped, the responsibility for on-site sanitation, on which large shares of the urban population rely, and for storm water drainage, should be clarified.

- **Cross-sector structure.** Economies of scale could be achieved by combining WSS services with other municipal services, such as solid waste or electricity distribution. Issues of cost allocations and cross subsidies or inadequate management focus could be good reasons for considering multi-sector monopolies with caution.

6. Again, when it comes to urban WSS sector structures, there is no “one-size-fits-all”. The co-existence of different structures and institutional arrangements adapted to specific circumstances could even be envisaged within the same country (Box 12).

**Box 12: Morocco - Co-Existence of Several Structures and Institutional Arrangements in the Urban WSS Sector**

In Morocco, local governments are responsible for WSS service in their territories. The provision of service in urban areas is, however, characterized by several structures, institutional arrangements, cost recovery and financing policies.

**Long term concessions** of the water distribution, waste water collection and disposal and electric power distribution have been awarded during the last ten years in the larger urban centers of Casablanca, Rabat-Sale and Tangiers-Tetouan. The private concessionaires, which include international operators as investor/manager, finance regular extensions of the networks from cash generated from operations and debt raised on the local capital markets. Tariffs are regularly adjusted in accordance with the concession contracts. Cross-subsidies between electric power and WSS operations seem to have allowed a sustained program of extension of the sewer networks.
**Municipal statutory bodies** (Régies autonomes) have similar responsibilities in 12 large cities; however as their tariffs are not automatically adjusted and as they no longer enjoy sovereign guarantees for the debt contracted, network extensions are often limited to those financed by private real estate developers. A program aimed at facilitating access to debt financing by the régies is being implemented.

**Office national de l’eau potable – ONEP**, a public water supply utility with a national coverage, acts at the same time as: (i) supplier of bulk water for the Atlantic coastal region concentrating several large urban centers (including Casablanca and Rabat-Sale) through an integrated network of reservoirs and long transmission lines; (ii) supplier of bulk water for several of the 12 larger cities; (iii) operator, under contract with municipal governments of the water supply service in about 300 smaller urban centers; (iv) operator of the waste water service in about 40 of these smaller centers; and (v) developer of rural piped water supply. ONEP is an efficient public operator, now able to export its know-how: it was recently awarded the affermage contract for the urban WSS service in Cameroon after international competition.

At the lower end of the spectrum are **direct operations** by the municipal government of some smaller towns of waste water collection and disposal that usually result in sub-standard service.


7. **Accessing Water Sources.** Most national water legislations mention that the government owns water resources and that water provision for human consumption should have priority over other usages. In practice, this means that when the quantity of water to be allocated to urban WSS service providers has to be increased it could be at the detriment of other users, such as irrigation or industries.

- **Water rights and entitlements.** Granting users the right to “own” part of the water resource – a “water entitlement” – allows those requiring additional quantities of high value water, such as urban WSS service providers, to meet growing demand by acquiring entitlements from those using water for lower value purposes, such as low value agriculture. The “trading” of water entitlements becomes a consensual – and thus politically attractive – approach to water resources allocation. Water entitlements also increase the pressure for limiting overexploitation of aquifers, as owners of entitlements have a strong interest in ensuring their sustainability.

- **Individual groundwater abstraction.** Individual abstraction of groundwater in cities with a poor quality piped water service has often resulted in an irreversible degradation of local aquifers through depletion or (when relevant) seawater intrusion. It could also have highly negative effects on the environment, such as land subsidence that could negatively affect storm water drainage and flood protection. Revisiting the granting of groundwater abstraction rights, monitoring quantities of water pumped and taxing groundwater usage at its economic value often has to be addressed in urban WSS sector reform.

- **Wastewater disposal.** Effluent quality standards have to be set at levels consistent with ambient water quality improvement objectives, overall quality of the waste water collection service and financial constraints of the WSS service provider. Obviously, it makes little sense to impose tertiary treatment to the limited portion the wastewater
reaching treatment plants, while the remainder is still disposed off in water bodies and if the revenues of the WSS service provider are insufficient for maintaining sewers.

8. Setting the Level of the WSS Service to be provided

- **Demand for piped water.** Standardized per capita water demand (in liters per capita per day – lpcd) recommended by central engineering agencies often result in over-designing WSS infrastructure. In addition to overall health and sanitation requirements, customer surveys aimed at identifying preferred services, consumption patterns and elasticity of demand to pricing should be the basis for WSS infrastructure planning. Assessing elasticity of demand to pricing in situations where the WSS service is of poor quality and user charges are set below O&M costs may be difficult. Using cases where tariffs are set at cost recovery levels and sound commercial procedures are enforced as comparators should be considered (Box 13).

- **Demand for sanitation.** The demand for sanitation services is influenced by hygiene promotion, a responsibility that seldom falls under urban a WSS service provider. A wide range of technical options and their associated capital and operating costs, ranging from on-site installations to sewerage networks should be considered. Strategic sanitation planning using the findings of demand and willingness to pay surveys for selecting affordable options should be preferred to traditional sewer master plans that often result in idle infrastructure. Preparing City Sanitation Plans will be useful for long-term planning.

- **Service to the Poor.** Reaching poorest segments of the population often requires targeted interventions, such as subsidizing direct access to piped WSS infrastructure or lifeline water consumption, bearing in mind that tariff blocks below O&M costs usually create disincentives for financially responsible WSS providers to serve customers to whom they should apply. Particular attention should be paid to the WSS service to be provided in informal settlements, where extension of piped networks could be forbidden by city planning regulations.

- **Drinking water quality.** In the absence of national standards, WHO standards could apply.

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**Box 13: Eastern Europe: Water Demand Elasticity to Pricing**

Eastern European countries use to have high water consumptions because WSS tariffs were low and financial incentives to reduce operating costs did not exist. The figures below show that the average consumption in Chisinau, Moldova decreased from 600 lpcd in the mid 1990s to about 200 lpcd in 2007 as the result of a threefold tariff increase. Actually, this level of consumption was achieved as soon as 2002, when the tariff had only doubled; it has since shown little elasticity to pricing. Even in Budapest, Hungary (a country that has to comply with European Union regulations), the average consumption of about 310 lpcd in the mid 1990s was reduced by 30% to about 220 lpcd in 2007 as a result of a WW tariff increases of about 300% over the period (note: tariffs are reported in current terms).


(C) Changing the Culture of Public WSS Service Providers

9. **Well Performing Public WSS Service Providers** are characterized by their autonomy, i.e., their ability to manage WSS operations professionally without arbitrary interference by others, accountability, i.e., the obligation to be answerable for the use of public resources and their overall performance, and customer orientation, i.e., the willingness and capacity to listen to clients and work to better meet their needs.33

10. **Increasing the Autonomy of Public WSS Service Providers.** “Corporatizing” a WSS service provider is a first step towards moving incentives away from short term political objectives. Options include creating statutory bodies in application of a specific urban WSS laws or incorporating a public enterprises under the country’s company law, with all shares owned by the government. The funding of a corporatized WSS service provider should be specified in its articles of incorporation, as should the distribution of dividends (if any) in particular when the corporation is owned by several local governments. The issue of ownership of WSS assets should also be clarified. As part of this process, should further be clarified the composition, appointment criteria, compensation and code of conduct of the members of the Board of Directors (BOD), and conditions under which key managers and the staff would be recruited and their performance be evaluated.

11. **Increasing Accountability through Performance Agreements.** A Memorandum of Understanding (MoU) between a government and a public WSS service provider could clarify commitments and obligations of both parties for a period of four to five years; their

33 Characteristics of Well Performing Public Water Utilities; A. Baietti, W. Kingdom, M. van Ginneken; World Bank; 2006
enforceability would need to be assessed, in particular if there is a risk that the defaulting party is the government. Performance based intergovernmental transfer systems whereby decentralized WSS service providers have to compete for public funds whose availability is linked to the implementation of reforms and achievements of specific performance targets should also be considered.

12. **Increasing Customer Orientation** could be achieved by improving: (i) information, for example by making annual reports available to customers, distributing fliers with WSS bills or providing answers to most commonly asked questions at service centers or on-line; (ii) consultation, for example by systematically obtaining customer feedback through structured surveys, public hearings or advisory committees; (iii) participation, for example by having consumers represented at Boards of Directors or in regulatory committees; and (iv) recourse and redress procedures.34

13. **Changing the Culture of Public WSS Service Providers** could further be achieved by: (i) formulating a strong mission statement and ensuring that managers and staff identify with it; (ii) clarifying procedures for each technical, commercial and financial task; (iii) establishing quality control procedures; (iv) setting realistic performance targets to departments, managers and staff and evaluating their achievement during scheduled meetings; (v) paying bonuses to managers and staff for achieving of exceeding performance targets; (vi) clarifying rules for promotion; (vii) instituting healthy competition between departments; and (viii) improving internal communication processes to convey management decisions to staff and obtain staff and staff representatives feedback. Obtaining an ISO certification provides a proof that the WSS service provider operates according to internationally accepted standards.35

14. **Building the Capacity of the Various Actors** could be achieved through a combination of classroom and on-the-job training, networking between professionals, twinning and public-private partnerships (PPP). Capacity building should target: (i) owners, i.e., government officials and Board members to introduce good practices in planning, financing, pricing and regulation of WSS services and PPP; (ii) managers on the same topics plus human resources development, team building and communication; (iii) operational staff on infrastructure development, operational efficiency, commercial operations and customer management, accounting and financial reporting and quality control. The possibility of instituting a formal “certification” of managers and key operational staff should be considered when the WSS service is decentralized to increase transparency of recruitment and favor an active staff market. Capacity building efforts should also target other stakeholders, such as NGO and the media, who could influence the design and implementation of reforms.

15. **Fighting Fraud and Corruption in WSS Service Provision**. Fraudulent and corrupt practices could affect: (i) commercial operations, through a manipulation of meter reading, billing and collection; (ii) technical operations, through improper procurement of chemicals and parts; (iii) human resources management by organizing a “bidding” process for lucrative positions and allowing ghost staff to perceive salaries; (iv) illegal use of assets of the WSS

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34 Ways to improve Water Services by Making Utilities more Accountable to their Users; A review; M. Muller, World Bank; 2008
35 Key Topics in Public water Utility Reform; M. van Ginneken, W. Kingdom, World Bank; 2008
service provider such as vehicles and land; (v) provision of substitutes to piped WSS service, through the granting of unofficial “licenses” and the collection of “dividends”; and of course (vi) capital development projects through improper planning, design, procurement and construction supervision procedures. The recently published “Sourcebook” of this topic recommends discouraging fraud and corruption by implementing sound industry practices, redefining the mandates of the various actors, drafting and enforcing contractual commitments and designing and implementing operating procedures.36

(D) Increasing the Efficiency of WSS Service Operations

16. **Fixing Organizational Set Ups.** As part of the reform process, departments of WSS service providers in charge of public relations, technical operations, asset management and infrastructure development, commercial operations, procurement, financial operations, human resources development and internal audit may have to be strengthened, reorganized or created. Specialized management consultants or experienced WSS service providers could be associated with the definition of the optimal structure, level of decentralization, procedures, rules that apply to financial commitments or reporting, and realistic implementation timetable. Staff costs usually are one of the largest operating expenses of public WSS service providers; outsourcing non-core activities, such as security, maintenance of vehicles and buildings or construction as part of service contracts (sub-section E) should be considered.

17. **Improving Technical Operations** is likely to necessitate an overhaul of the detailed operating procedures for water production, transmission and distribution and waste water collection and treatment and a significant training effort of middle management. A particular attention should be paid to reducing non-revenue water (NRW) and energy consumption.

- **NRW Reduction.** A World Bank Note clarifies issues related to reducing physical losses and NRW.37 Physical losses reduction programs should pay a particular attention to service connections.

- **Energy Efficiency.** Energy efficiency improvement programs need to be taken up as it is one of the largest operating expenses of WSS service providers.

18. **Improving Commercial Operations**

- **Customer Relations.** A recent Bank Note proposes options for improving accountability to their customers.38 WSS service providers should monitor the handling of customer complaints, seek feedback from customers on the quality of the service provided, and make independent assessments of its performance for handling complaints available to the public.

- **Metering.** Accurate bulk water metering, necessary in any case, should be a priority of

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36 Corruption in Public Services Delivery: Experience from South Asia’s Water and Sanitation Sector; J. Davis; 2003.
37 Deterring Corruption and Improving Governance in the Urban WSS Sector, a Sourcebook, J. Halpern, C. Kenny, E. Dickson, D. Ehrhardt, C. Oliver, World bank; 2008
38 The Challenge of Reducing Non-Revenue Water (NRW) in Developing Countries – How the Private Sector can help: A Look at Performance-based Service Contracting; B. Kingdom, R. Liemberger, P. Marin; World Bank; 2006.
39 Ways to Improve Water Services by Making Utilities more Accountable to their Users: A Review; M. Muller, R. Simpson, M. van Ginneken, World Bank; 2008
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infrastructure development programs. When individual metering is in-existent or deficient, the priority should be to meter customers who contribute the largest share of the revenues of the WSS service provider.

- **Billing and Collection.** Meter reading and billing errors should be eliminated by limiting the human handling of data. Well tested commercial software available on the market should be preferred to “home-grown” ones.

19. **Improving Financial Management.** Audits of financial operations should be carried out to help design and implement programs aimed at improving accounting procedures including accounts receivable and payable, inventory records, provision for income taxes, valuation of fixed assets, profit distribution (if applicable) and internal controls.

(E) Engaging in Public-Private Partnerships

20. Successful reforms of urban WSS sectors do not always rely on Public-Private Partnerships (PPP), but successful PPP are always designed and implemented as an integral part of reforms of urban WSS sectors. A Toolkit recently published by the World Bank proposes nine key steps for engaging in a PPP: (i) considering PPP; (ii) planning the process of introducing PPP; (iii) involving stakeholders in the design of the PPP; (iv) setting upstream policies; (v) setting service standards, tariffs, subsidies and financial arrangements; (vi) allocating responsibilities and risks; (vii) developing institutions to manage the relationship; (viii) designing the legal instruments for the arrangement; and (ix) selecting an operator.39

21. **Considering PPP for Improving the WSS Service or for Raising Financing?** A comprehensive review of recent experiences worldwide concludes that PPP should primarily be considered for improving the quality of the WSS service and efficiency of WSS operations.40 When there is no major ideological opposition to the PPP concept and a positive response from the private sector can reasonably be expected, involving a professional operator in WSS service provision should normally bring the know-how that is often missing within public WSS service providers and help achieve efficiency gains. Indeed, it is easier to enforce contractual obligations between a public and a private partner than between two public partners because private operators tend to react swiftly to financial incentives. PPP could also be considered for raising commercial financing, without recourse to sovereign guarantees, to develop the WSS infrastructure if the creditworthiness of the WSS operation has been established and local capital markets are able to provide debt in local currency and on terms compatible with the characteristics of the WSS sector (sub-section G) and the transparency and predictability of WSS tariff resetting procedures have been proven (sub-section I).

22. **Identifying the Appropriate PPP Option.** Five PPP options could usually be considered:

- **Service contracts,** which outsource specific activities, such as meter reading or leak detection to specialized contractors, are awarded for short durations. The contractor receives a fixed payment from the WSS service provider owner of the service contract, sometimes complemented by a bonus if contractual targets are exceeded.

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39 Approaches to Private Participation in Water Services, a Toolkit; World Bank; 2006.
40 Public-Private Partnerships in Urban Water Utilities: Findings from Developing Countries; P. Marin, World Bank; 2008
**Management contacts** are designed to outsource the entire WSS technical and commercial operations for durations usually limited to five years. The manager’s remuneration is similar to that of a service contractor. The WSS service provider as owner of the management contract remains responsible for developing the WSS infrastructure.

**Affermage** contracts also outsource the entire technical and commercial operations but unlike in management contracts: (i) customers are under contract with the operator, not the owner of the contract; (ii) the staff is employed by the operator; and (iii) the private operator shares bill collections with the owner of the contract. Since the operator has to finance the working capital required for operating the WSS service, *affermage* contracts are usually awarded for duration of about ten years to allow the operator’s equity investment to be recouped and remunerated and its debt to be serviced. The owner of the contract could, which is responsible for developing the infrastructure, either be a government or a public WSS service provider. In the latter case the role of the public WSS service provider is limited to that of an asset holding company.41

**Concessions** transfer in addition to the private operator the responsibility for developing the WSS infrastructure and for raising the financing required. Because of long depreciation periods of WSS assets, WSS concessions are usually awarded for duration of 25 years and more. Concession contracts specify coverage objectives, service standards, tariffs the operator is allowed to charge and conditions under which they can be reset, and conditions for returning WSS assets (whose ownership remain in public hands throughout the concession) to their owner at the end of the concession.

**BOOT** (Build-Own-Operate-Transfer) schemes are concessions mostly designed for developing and operating new bulk water production facilities or waste water treatment plants; at the end of the BOOT assets are transferred to the owner of the contract. A BOOT is not well adapted for developing and operating water distribution and wastewater collection networks.

### 23. Allocating Risks and Responsibilities

If all the risks associated with the provision of a WSS service and the development of its infrastructure could be properly mitigated, a long-term concession arrangement should in theory be possible.

- **Operational risks**, linked to the reliability of water and energy supply or conditions of WSS assets, could be transferred to a private operator if rehabilitation programs to mitigate them are implemented timely; if not, it may be preferable to initially settle for service contracts of limited scope.

- **Commercial risks**, associated with demand evolution, customer capacity and willingness to pay, ability to collect bills (and to disconnect customers in arrears), could be transferred to a private operator if they are properly assessed; if not, it may be preferable to initially opt for a management contract that guarantees part of the payment to the operator.

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41 This Report uses the French word *affermage* because its best translation, i.e., lease contract could be confusing. In an affermage, revenues from collections are shared between the operator and the owner of the contract; in a lease contract, the operator is supposed to pay a fixed leasing fee to the owner of the contract, meaning that the commercial risk taken by the operator is somewhat higher. Indeed, there are only a few examples of true lease contracts in urban WSS, such as in some small towns of the Philippines. Asset holding companies owner of affermage contracts are common in West Africa.
- **Financing and foreign exchange risks**, linked to the capacity to generate cash surpluses to service a long-term debt and contribute to the Capex could be transferred to the private operator if local capital markets can provide long-term debt financing in local currency or if cash surpluses are expected to be sufficient to finance the entire Capex; if not, it may be preferable to allocate these risks to public partners, able to access financing from international financing institutions (IFI) and, provided that the operational and commercial risks could reasonably be mitigated, opt for an *affermage* contract.

- **Regulatory risks**, associated with changes of allowed tariffs and service standards affect mostly medium-term *affermage* and long-term concession contracts. If the transparency and predictability of procedures cannot be guaranteed, it may be advisable to opt for service or management contracts that secure the operator’s revenues. Regulatory risks are more limited in short-term for which there should normally be no need for amending tariffs and standards.

- **Political risks** are obviously higher for longer term *affermage* and concession contracts which could face changes of political environment and shifts of policies during their implementation period. Ensuring that a dispute resolution mechanism acceptable to all parties is specified in the contract and that all parties are willing to refer to it in case of disagreement should help mitigate the risk of unilateral contract termination or expropriation.

24. **Developing Institutions to Manage the PPP.** A PPP is a “partnership” and a key ingredient for its success is the building of a good working relationship between parties.

- **Monitoring the performance** of the private operator should normally be carried out by the owner of the contract; if a regulator has been established, its role with regards to the PPP should be clarified to avoid confusion. Monitoring the performance of public partners is equally important, as many PPP have failed because the latter have defaulted on their commitments. When an independent regulator exists, it could be requested to do it.

- **Resolving disputes** that may arise even if the PPP is well designed, should normally involve several steps with negotiations between partners, facilitated by a mediator or a regulator, being the first one. Reviews by an independent panel of experts could be considered to help find a solution if negotiations are in an impasse. Arbitration, that allows parties to choose a tribunal and arbitrators and appoint experts, has many advantages over courts of law whose rulings could take long time. But since arbitration awards are not directly enforceable, one may eventually have to go to court to enforce them.

25. **Selecting an Operator.** While there are several examples of successful direct negotiations for large PPP throughout the world, it is widely accepted that competitive bidding is the best method for selecting an operator, as it encourages transparency and stimulates interest among a broad range of potential partners.

- **Pre-qualifying** operators is a must for most management, *affermage* and concession contracts; setting pre-qualification criteria too high would limit competition to a few international operators, but setting them too low could attract companies which do not have the technical breadth and financial depth to implement the contract.
• Bid evaluation procedures should normally include a two-stage process with a technical evaluation followed by a financial evaluation of bids that have been declared technically responsive. When the operator of an aftermage is requested to implement large rehabilitation and extension programs, a special attention should be paid to the respective weights of the elements of the bid. Voluntary underbidding by companies which could expect to be in a strong position for renegotiating service standards and/or remuneration soon after the contract is awarded is a risk against which owners of contracts should be protected by, for example, indicating the minimum financial bid that would be declared responsive.

(F) Developing the WSS Infrastructure

26. Responsibility for Developing the WSS Infrastructure. Infrastructure development is an area where significant savings could be achieved through proper demand assessment, planning, design and implementation procedures. The responsibility for developing the WSS infrastructure should be vested with WSS service providers who are in charge of managing WSS assets and servicing the debt attached to their financing. Assessing the affordability of the capital expenditure program (Capex) and of its financing plan should be an essential step of the planning process. When the functions of WSS infrastructure development and WSS service provision are unbundled (such as presented in Figure 1) the financial situation of the WSS service would be more transparent if WSS assets are held by a corporatized WSS service provider acting as asset-holding company (AHC) rather than by a local government, not requested to issue financial statements along a commercial format.

27. Focusing on WSS Asset Management. Deferred maintenance usually results in the need for diverting a large share of the Capex to rehabilitate the existing infrastructure rather than to extend it to un-served areas. Transferring the responsibility of WSS infrastructure development to WSS service providers should help focus more on asset management: Stopping the downwards spiral in which many urban WSS sectors are caught – low WSS tariffs/insufficient revenues to maintain WSS infrastructure/poor WSS infrastructure leading to poor quality WSS service/poor quality service used as an excuse for not increasing tariff – should be one of the main objectives of urban WSS sector reforms. While establishing financially sustainable WSS service providers, assets revaluation may have to be carried out and depreciation rules may have to be revisited – at least on a pro-forma basis – to reflect life durations consistent with construction quality. In any case, adequate funds should be set aside in annual budgets for maintaining WSS assets.

28. Planning WSS Infrastructure. Once the characteristics of the WSS service to be provided has been assessed, the technical, environmental, social, financial and economic criteria to be used for identifying the “least cost solution” should be clarified. Technical criteria should define design specifications such as minimum delivery pressure, storage capacity or water velocity in sewers. They should also clarify environmental and social costs to be taken into account in economic comparisons. Standard terms of reference (TOR) for planning exercises should be prepared in particular in countries with decentralized WSS service providers and the capacity of the latter, as well as that of the local consulting industry, should be strengthened through training. Key stakeholders should be involved in the review of infrastructure development
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plans so that concerns about environmental, or social and economic consequences could be reflected in their final version.

29. **Designing WSS Projects.** Restrictions on technical specifications should be discussed as part of the reform process: while some may still be justified on, for example, pipe materials, meter technologies or water treatment processes, they should periodically be revisited by independent committees including external independent experts. WSS service providers should employ specialized engineering consultants selected after competition and be discouraged to pay them percentages of the project cost. Standard TOR should be prepared to assist decentralized WSS service providers take over this responsibility. It could be appropriate to develop programs to strengthen the local consulting industry on specific topics.

30. **Procuring Goods and Works.** While it is likely that public WSS service providers would still have to comply with government procurement rules, the reform should focus on increasing efficiency and transparency of procurement procedures. Internal guidelines and standard bidding documents, requests for proposals and formats for bid evaluation reports should be prepared. Specialized consultants should be employed for drafting technical specifications, providing clarifications during the bidding period and preparing bid evaluation reports. Reliance on central public procurement agencies should be limited to very large contracts for which an independent review could add value.

31. **Supervising Project Implementation.** Specialized consultants should also be employed to supervise construction activities, certify payment applications and commission works; their remuneration should be based on time spent and not on a percentage of the contracts supervised. For large projects, technical audits of the performance of construction supervisors should be carried out preferably by external technical auditors employed by the WSS service provider.

(G) Financing WSS Operations and WSS Infrastructure Development

32. **Aiming at Financial Sustainability and Discipline.** The financial sustainability of an urban WSS service is usually achieved when it is treated as a commercial operation with O&M and capital costs recovered from tariffs and user fees, rather than from tax payers. The financial discipline of an urban WSS service provider is usually achieved when an arm-length relation is established with its financiers and applications submitted by the former are independently appraise by the latter.

33. **Moving to the Cost Recovery Stage.** Collected tariffs and user fees should allow a WSS service provider: (i) recovering its O&M costs; (ii) depreciating its fixed assets; and (iii) generating a return on assets sufficient to cover interest of its long-term debt and to remunerate the equity invested.

34. **Achieving Sustainable Cost Recovery Stage.** Guaranteeing long-term financial sustainability usually requires that local capital markets are able to provide long-term debt on conditions compatible with the characteristics of the WSS sector, whose assets are depreciated over long periods, to avoid repayment of loan principals being higher than depreciation, and WSS service providers are protected against sudden variations of exchange rates when funds are borrowed in foreign currencies.
35. **Easing Access to Capital Markets.** Guarantee schemes offered, in particular by the World Bank Group, for privately financed WSS projects could cover political risks (war, civil disturbance, terrorism, expropriation and confiscation currency convertibility and transferability risks) and contractual risks (breach of contracts or regulatory capture). They could also mitigate credit risks and cover lenders and bondholders, but not equity investors. Partial credit guarantees could cover part of the borrowed funds and portion of debt service.42

36. **Dealing with the Foreign Exchange Risk.** For WSS service providers which generate revenues in local currency but have to borrow in foreign exchange, the foreign exchange risk is always significant. As WSS service providers move towards the cost recovery stage, this risk is usually taken care of by governments which on-lend in local currency externally borrowed funds against a premium on the interest rate. When service providers are able to raise private financing, creeping exchange rate variations can rather easily be taken care of by automatic tariff adjustments based on cost index formula. However, there is currently no meaningful coverage for shock, let alone catastrophic, devaluations, such as that that hit some Latin American or East Asian countries in the late 1990s. The focus has thus mostly been on developing local currency financing and enhancing products offered by local capital markets that usually cannot mobilize long-term financing at affordable conditions. IFI lending in local currency has been limited to a select group of countries where funds in local currency can be raised and where cross currency swap markets are available to hedge IFI exposure.43

**Designing Grants aimed at Building Sustainability.** Development grants usually needed to help WSS service providers move to the cost recovery stage could lead to unsatisfactory results as developing WSS infrastructure does not guarantee the provision of a reliable, sustainable and affordable WSS service. “Output-based financing” is an option for mitigating this risk. Output-based financing has so far mostly been provided in support to PPP to encourage extension of the service to the poor, with private partners bidding for it. It could also be considered to support medium term performance improvement plans of public WSS service providers, provided that its amount is set by an independent party. The adequate output to be financed has to be properly identified and the potentially counterproductive incentives need to be carefully assessed. It could make more sense to complement WSS bills collected from customers, because they correspond to a service that has actually been delivered and partially paid for, than new connections, as there is no guarantee that water will reach customers or bills will be collected.44

43 Baietti and Raymond provide the following definition: (i) creeping devaluation: a band with which, based on past performance and future assessments, a currency may be expected to fluctuate on a year-to-year basis; (ii) shock devaluation: unexpected and significant devaluation in the order of 5 to 10 percent; and (iii) catastrophic devaluation unexpected and significant devaluation where the prospect of exchange rates returning to previous levels are remote over the foreseeable futures.
44 Contracting for Public Services: Output-based Aid and its Applications; P. Brook, S. Smith, World Bank; 2001
(H) Pricing the WSS Service

37. **Achieving several objectives.** Pricing of the WSS service should pursue two main objectives: (i) managing demand; and (ii) recovering costs. Well run urban WSS sectors set tariff levels and structures in accordance with sound economic, financial, efficiency, equity and simplicity principles.

38. **Subsidies.** Subsidies could be justified to help low income households connect to WSS networks and encourage consumption of a minimum quantity of piped water. Well run WSS sectors have usually implemented targeted subsidy schemes aimed at limiting the cost of connection to the WSS networks and of monthly expenditure for a life-line consumption of water for households with incomes in the lower quintile.

(I) Regulating the Provision of the WSS Service

39. **Limiting Monopoly Abuse.** Economic regulation of the WSS service, i.e., the rules and organizations that set, monitor, enforce and change allowed tariffs and service standards, should primarily be about stopping the monopoly abuse of providers who could provide a service of poor quality, charge high tariffs to increase their profits or charge high tariffs to cover the cost of their inefficiencies. When it comes to regulation, there is no one-size-fits-all solution and importing regulatory models designed for a particular country is seldom a good option. In particular, establishing a formal “regulator” should be considered after a thorough analysis of its potential contribution to the enhancement of the Accountability Framework. Whether a regulator is established or not, key regulatory functions that typically include: (i) the licensing of WSS service providers; (ii) the monitoring of the compliance of WSS service providers with the terms of their license; and (iii) the adjustment and resetting of tariffs and other user fees should be carried out in an independent, transparent and predictable manner.

40. **Licensing WSS Service Providers.** An operating license granted to a WSS service provider should specify: (i) the characteristics of the WSS service to be provided to customers; (ii) tariffs and user fees that could be charged and procedures for adjusting and resetting them; (iii) minimum technical, commercial and financial performance that should be achieved; and (iv) reporting obligations. The mandate of a regulator, if established, should include the licensing of decentralized public and private providers of WSS services. If no regulator is established, the above should be clarified in an agreement between the authority responsible for the WSS service and the WSS service provider.

41. **Monitoring the Quality of the WSS Service.** Once a contractual arrangement has been entered into: (i) the technical, commercial and financial performance of the WSS service provider and the quality of the service provided to customers should be monitored; (ii) customer complaints should be investigated and disputes should be resolved; and (iii) penalties, preferably defined in a Regulatory Act, should be applied to WSS service providers who do not comply with the terms of their license. Obviously licenses and/or contracts should be easier to enforce when the WSS service provider reacts to financial incentives and penalties, i.e., when it behaves like a private company aiming at maximizing its profit.

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45 Explanatory Notes on Key Topics in the Regulation of WSS Services, E. Groom, J. Halpern, D. Ehrhardt, PPIAF, World Bank; 2006

42. **Resetting and Adjusting Tariffs.** Tariffs and user fees should be reset in an independent, transparent and predictable manner to meet the objectives spelt out in the pricing policy. The regulator should either set tariffs and user fees, or review applications submitted by WSS service providers.

43. **Framing the Regulator’s Operations.** If a regulator is established, it should have the power to set or approve tariffs and other user fees, monitor markets and service quality, investigate and mediate customer complaints, provide dispute resolution mechanisms, compel provision of information and monitor and enforce its decisions without prior approval from other government agencies. Duplication of the regulator’s mandate with that of other institutions should be avoided. A regulator should finance its operations from a regulatory fee levied on regulated WSS service providers, not from budget allocations, and subject its staff to strict conflict of interest rules. The regulator’s decisions should be preferably be made by a group of commissioners, rather than by an individual, to increase transparency and should follow principles and rules that can be amended only after an extensive public notice to increase predictability. The documentation prepared for supporting decisions should be made available to all parties and the public. Parties which feel that their interests have been be affected by discretionary decisions of the regulator should be allowed to appeal them in a designated tribunal with minimum regulatory expertise.46

44. **Regulating Substitutes to the Piped WSS Service.** Providers of substitutes could be key actors and the regulations that apply to the provision of mobile services (water tankers, water vending or sludge handling) and fixed ones (independent water distribution networks and sometimes sewers) should be clarified. Issues of legal environment, compensation in case of expropriation, tariff and service area restrictions, technical and operating standards and financing of capital expenditures should normally be covered.

**J) Formulating a Policy Statement and Translating it into a Business Plan**

45. **Formulating a Policy Statement.** A Policy Statement should present where the government wishes the urban WSS sector to be in, say, 15 years. It should be a short document that should set performance objectives in terms of access to, and reliability, sustainability and affordability of the WSS service and clarify how the key functions of policy formulation, service provision, infrastructure development, financing and regulation would be carried out. Annex 5 gives an example of a Policy Statement that translates most of the good practices presented above.

46. **Translating a Policy Statement into a Business Plan.** A Business Plan should explain how the urban WSS sector described in the Policy Statement would be arrived at through: (i) adjustment or change of the relevant legislation; (ii) adaptation or modification of mandates of the various actors; (iii) establishment or strengthening of contractual arrangements; and (iv) update or overhaul of working procedures. A Business Plan should include outlines of the terms of reference for these activities as well as budget estimates and reasonable timetables.

---


47. **Building a Consensus on a Business Plan.** A Business Plan could attract strong opposition from “vested interests”. Consulting with stakeholders should aim at better understanding the “political economy” of reforming the urban WSS, building a support from potential “winners” and designing mitigation arrangements for potential “losers”.

48. **Winners** should normally be:

- Consumers who currently obtain a poor quality service or rely on expensive and unsafe substitutes;
- Staff of public WSS service providers whose competence would increase as a result of changes of the corporate culture;
- Public finances, as subsidies to the urban WSS sector should be phased out and eventually replaced by taxes paid by service providers; and
- The environment, as depletion and pollution of local water sources resulting from unregulated reliance on substitutes to piped WSS would be reduced.

49. **Losers** usually include:

- Already connected customers benefiting from a highly subsidized service who may be affected by more equitable tariff structures: willingness to pay surveys, including detailed analysis of the cost of substitutes, comparison with other cities and/or countries in similar situations could bring some rationale to the debate.
- Staff of public WSS service providers who may be affected by right-sizing efforts: early discussions with staff representatives and unions should help design retrenchment packages.
- Providers of substitutes who should eventually disappear: the capacity of the private sector to adapt to market conditions should help mitigate the effects of reforms that are unlikely to happen overnight.
- Engineering lobbies (public engineering agencies, suppliers and contractors) who may feel threatened by a shift of focus from WSS infrastructure development to WSS service improvement: associating them with benchmarking exercises should educate them on the real issues of the WSS sector.
Annex 3: Outline Business Plans – Maharashtra, Rajasthan and Haryana

A. Maharashtra State WSS Business Plan

Current Performance of the Urban WSS Service.

Population and Urbanization

1. In Maharashtra State, the urban population is expected to grow from 41 million in 2010 to 70 million in 2025. In 2001, 40 of the 378 towns had a population of more than 100,000, out of which 10 had a population of more than one million. Maharashtra has slum population of about 11 million (Census 2001).

Water and Sanitation Services

2. Water supply. Access to piped water through individual and shared connections was estimated at 51% in 2002, which has increased to 58% in 2010. Urban centers in Maharashtra are categorized according to their population: Municipal Corporation, Class A, Class B, Class C and Nagar Panchayats. Towns with larger population have better availability of water compared to smaller towns (Figure 7). About 45% of the urban centers, in particular all cities with a population above one million receive more than the CPHEEO recommended per capita norm of 135 lpcd (cities with population above 50,000), or 70 lpcd (towns with population below 50,000). However, about 15% of urban centers receive less than 50% of these standard allocations.

Figure 7: Maharashtra – Quantity available by classes of towns 2010

<table>
<thead>
<tr>
<th>Class of Towns</th>
<th>Average LPCD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nagar Panchayat</td>
<td>58</td>
</tr>
<tr>
<td>Class C</td>
<td>69</td>
</tr>
<tr>
<td>Class B</td>
<td>78</td>
</tr>
<tr>
<td>Class A</td>
<td>99</td>
</tr>
<tr>
<td>Municipal Corporation</td>
<td>100</td>
</tr>
</tbody>
</table>

Data provided by MJP 2010 study
3. Water is not distributed on a 24X7 basis and varies widely from 2 to 14 hours per day, a performance that is apparently not linked to the quantity of water available for distribution. Figure 8 depicts on an average about 1-2 hours of daily supply across different categories of towns. There is high unaccounted for water due to technical and commercial reasons. Leakages, theft and free water, all add up to a large NRW which is estimated at about 35% to 40% in the absence of reliable bulk and individual metering.

Figure 8: Maharashtra - Water Supply 2010

4. Sanitation. In 2002, 32% of the urban population relied on public latrines, 13% on shared latrines and 38% on individual latrines, which has improved to 72 % public latrines (from data of 177 cities), 16 % shared latrines (from data of 48 cities), and 49% individual latrines in 2010. More than 95% of those were septic tank/ flush system. In slum areas the dependence on public latrines is higher at 67%, with 4% shared latrines and only 8% individual latrines.

Figure 9: Maharashtra - Sanitation arrangements for slum areas 2010
5. Only 22 urban centers, of which 14 municipal corporations and four Class A cities (population above 300,000) have a sewerage system, with average coverage of 75% population in metropolitan cities and slightly less than 70% in Class A cities. Nine additional sewerage systems are under construction. Only 25% of the wastewater generated in metropolitan cities and 45% in Class A cities is treated before disposal in receiving bodies.

Commercial and Financial Aspects

6. Commercial operations. Most ULBs do not have metered connections, with 24% of 188 assessed ULBs having instances of metered connections. It is seen that metering practices vary greatly among ULBs with some reporting metering ratios of 90%. Metering information for 188 assessed ULBs categorized according to population shows no visible patterns or correlation between metering % and population size of the towns. ULB are allowed to include the WSS service fee in the property tax, to charge a flat fee based on the diameter of the connection or to charge a fee based on metered consumption.
7. **Financial performance.** Average O&M costs are estimated at Rs 9.8/m³ (US$0.22/m³) and average revenue at Rs 7.8/m³ (US$0.17/m³). 20% of the total O&M costs result as revenue deficit. About 27% ULBs recover their O&M costs from collected user fees. However, debt servicing costs and depreciation costs are not recovered by any ULB from the WSS charges, as these are not considered costs by the ULBs.

**Figure 12: Maharashtra – Average O&M Cost Recovery 2010**

![O&M Cost Recovery Diagram](image)

**Existing Roles and Responsibilities.**

8. The policies, institutions and accountability framework of the urban WSS sector can be described as follows:

**Figure 13: Maharashtra – WSS sector Institutional framework**

![Institutional Framework Diagram](image)
9. **Policy formulation.** Govt. of Maharashtra’s Water Supply and Sanitation Department (WSSD) is responsible for formulating policies, allocating funds from the State budget and for approving projects.\(^{48}\) The WSSD, which is also tasked with monitoring the evolution of the WSS sector and which implements capacity building programs, increasingly plays the role of a facilitator.

10. **Service provision.** Since 2000, ULBs have been responsible for providing the WSS service in their jurisdiction. Most of them carry out this function directly, but 25 (relatively smaller ones) have their water supply services operated by MJP. In addition, there are few ULBs who have subcontracted part or whole of the WSS service to private operators selected through a competitive process and with a ‘concession like’ contract. There are alternative sources to piped water available in many of the towns in the state, but these are relatively expensive. No survey data is available to assess the financial or economic impact of alternative sources of water to the households.

11. **Infrastructure development.** ULBs have been responsible for developing the WSS infrastructure in their jurisdiction since 2000, a task that hitherto was under the MJP responsibility. ULBs have the choice of seeking assistance from MJP or private engineering consultants for identifying, preparing and implementing WSS projects for both GoM and ULB financed projects. The 26 Municipal Corporations and all other ULBs come under the administrative purview of the Urban Development Department (UDD) which channels funds made available to ULB by JNNURM and UIDSSMT programs.

12. **Financing.** Developmental grants are mainly provided for capital investments. Six large cities are eligible for JNNURM funds and 85 towns have access to UIDSSMT financing. ULBs are eligible for additional assistance in support of the GoM’s major urban WSS reform program, the MSNA, which is scheduled to become the main source of State financing for urban WSS projects. Also the Mumbai Metropolitan Region Development Authority (MMRDA) finances some WSS projects in the Greater Mumbai area and the Maharashtra Urban Infrastructure Development Company Limited (MUIDCL) has been created to provide debt and grant financing to ULBs for urban WSS projects.

13. **Regulation.** The WSS sector activities in the state comply with a number of Central Government and State Government regulations which prescribe technical, commercial and financial specifications.

- **WSS Quantity and quality specifications:** The State follows standards and norms related to quantity and quality of water (or waste water) as prescribed by CPHEEO a Central Government organization. Recently, Ministry of Urban Development, Gov has prepared and issued a Handbook on Service Level Benchmarks (SLB) for Urban WSS that covers standards related to availability, reliability, metering, quality of water, coverage etc. The State Government has started introducing the SLBs. Maharashtra additionally has bulk water regulator which regulates mainly water sources and bulk water supply.

\(^{48}\) MJP, which until 2000 enjoyed a quasi State monopoly for preparing and implementing WSS projects, raising debt financing from HUDCO on behalf of ULB, and operating the WSS service, has been split in three companies: (i) an engineering company; (ii) an operating company; and (iii) a residual company that continues with staff which have not yet been transferred to the other two companies. The engineering and operating companies have to compete with private companies to be awarded contracts by the ULB.
Improving Urban Water Supply and Sanitation Service Provision

- **WSS Technical specifications:** Technical standards relating to asset construction and materials used therein are prescribed by national bodies such as the ISI. Both WSSD and MJP follow the technical standards stipulated by ISI.

- **WSS Commercial and financial specifications:** There are no specific or separate commercial or financial standards in the Urban WSS sector in Maharashtra, except for a limited few PPP contracts. In the 5 towns where PPP has been attempted, regulations are essentially through contractual arrangements. In general, ULBs are supposed to enhance O&M cost recovery.

- **Water Resource Management:** Maharashtra is the first state to create a regulatory authority called Maharashtra Water Resources Regulatory Authority (MWRRA). MWRRA was created to regulate water resources within the state and to facilitate and ensure judicious, equitable and sustainable management, allocation and utilization of water resources. Key responsibilities of MWWRA include determination of entitlements and priorities of water resources among various categories of use; establish the bulk water tariff system such that the water charges reflect the full recovery of cost of water resource management, administration, O&M; and administer and manage inter-state water resources.

**Proposed Policies and Institutions**

**Policy Statement**

14. Maharashtra has formulated a State Water Policy with an objective to “ensure the sustainable development and optimal use and management of the State’s water resources to provide the greatest economic and social benefit to the people of the State of Maharashtra in a manner that maintains important ecological values within rivers and adjoining lands”. The overall vision of GoM for UWSS sector is that “the ULBs shall ensure universal coverage and provision of a minimum level of service for water supply and sanitation to all its citizens and further that such services shall be rendered in a manner that ensures financial and environmental sustainability”.

15. Key features of the policy in WSS sector are (i) enabling equitable and productive management of water supply, (ii) moving to full cost recovery of O&M costs, (ii) promoting decentralized planning, development, management, and O&M of WSS facilities, (iv) encouraging recycling and re-use, and (v) encouraging PPPs for providing WSS services. These policies are linked to the reform-oriented MSNA program presented in the following sections.

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*Stakeholder consultations for preparation of the Business Plan are presented in Annex 6*
Institutional Structure of the WSS sector and Changing Culture of WSS Service Provision.

16. GoM envisages multiple models of decentralized service delivery arrangements across ULBs of different sizes and capacities. While policy making will continue to be with GoM (WSSD), ULBs will have ultimate responsibility for service delivery. ULBs can either provide the service themselves, or through MJP or the private sector. In any case, ring fencing of WSS budget and costs would be mandatory. It is envisaged that some of the larger ULBs may move beyond mere ring fencing to utilities or corporatization structures, for improving accountability. Regional Utilities owned by a group of ULBs or by one of the larger ULB in the region are also possibilities encouraged by GoM. PPPs for service delivery can be one of the vehicles that can be adopted under these models for water supply and sanitation activities. (details in figures below).
17. GoM decentralized the responsibility of the WSS services to ULBs in 2000. Most ULBs operate the WSS services themselves, about 25 water supply schemes are run by the MJP and about half a dozen have entered into various types of contracts with private operators to improve the efficiency of the operations and develop the infrastructure. The capacity of ULB is limited and the incentive framework within which its staff operates may not always be appropriate. Various combinations of accountability and service delivery options discussed above could be implemented in Maharashtra:

- All ULBs need to have ring-fenced WSS accounts.
- In very large ULBs, corporate entities could be created by the ULB.
- For smaller ULB with limited capacity, the WSS services could be provided by a WSS utility.

Figure 16: Maharashtra Model 1 - Ring fenced ULBs
18. In all of the above models, three service delivery options are envisaged: (i) operation by the ULB’s own work force; (ii) sub-contracting by the ULB or the corporatized WSS utility, a part or entire WSS services to a private operator; or (iii) sub-contracting by the ULB or corporatized WSS utility, the WSS services to the MJP. Bringing about service delivery through contractual arrangements will enhance performance and accountability levels.
MSNA Reform Program for Improving Efficiency and Accountability of WSS Services.

19. GoM has launched an ambitious program to enhance WSS services provided by the ULB to a “world class level”. The MSNA (Maharashtra Sujal and Nirmal Abhiyan) aims at providing universal access to piped water of high quality supplied on a 24/7 basis, universal access to sewers, full treatment of wastewater and open free defecation environment, full O&M and capital cost recovery and high level of accountability to customers. Key dimensions of MSNA are presented in table below.

Table 8: Key features of MSNA

<table>
<thead>
<tr>
<th>Service delivery</th>
<th>Financial sustainability</th>
<th>Environment sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Individual/ group connections to all citizens,</td>
<td>• Achieving efficiency improvements in UWSS operations to minimize O&amp;M cost</td>
<td>• Source sustainability</td>
</tr>
<tr>
<td>• Continuous and uninterrupted 24 x 7 water supply</td>
<td>• Recovery of full O&amp;M costs for water supply and sanitation services</td>
<td>• Reduction of water losses and leakages for supply of safe water</td>
</tr>
<tr>
<td>• Addressing customer grievances in a time-bound manner</td>
<td>• Revenue enhancement through metering of all consumers</td>
<td>• Developing rain-water harvesting systems</td>
</tr>
<tr>
<td>• Safe and affordable sewerage, sanitation and MSW services for all</td>
<td>• Reduction in energy charges</td>
<td>• Treating 100% of waste water, reuse and recycle</td>
</tr>
<tr>
<td></td>
<td>• Achieving efficiency improvements in other aspects of UWSS operations</td>
<td>• Eliminate open defecation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Collection, treatment and disposal of municipal solid waste</td>
</tr>
</tbody>
</table>

20. MSNA is to be implemented in three levels (see diagram on next page), with levels I and II scheduled to be completed by 2017.

- **MSNA level I**: ULB would be required to engage in a series of preparatory activities including, among others: (i) water supply: updating of customer databases, bulk water metering, digital mapping, metering of commercial and industrial customers, water and energy audits; (ii) sanitation: preparation of sanitation plan; (iii) wastewater: mapping of pollution sources, improvement of existing collection and treatment systems; (iv) financial management: establishment of computerized billing, ring fencing of WSS accounts, reduction of energy expenses, adjustment of WSS tariffs for meeting 100% O&M costs; and (v) others: establishment of complaint redressal mechanisms, preparation of city level WSS business plans, implementation of pilot 24/7 contracts, selection of ULB institutional arrangements for WSS, preparation of a regulatory framework, capacity building and setting up of a public information procedures.

- **MSNA level II**: ULB would be required to follow-up on the reform agenda initiated under MSNA I and implement projects that maximize the value and performance of existing assets, including among others: (i) water supply: implementation of pilot 24/7 projects, preparation of mathematical models of water distribution networks, reduction of NRW to 15%, identification of sustainable sources of water, implementation of rain water harvesting programs, metering of at least 80% of residential connections; (ii) sanitation:
implementation of the sanitation plan; (iii) wastewater: continued improvement of sewerage coverage and wastewater treatment ratios; (iv) financial management: full recovery of O&M costs from tariffs, reduction of O&M costs through service contracts; and (v) others: finalization of tariff setting guidelines, establishment of ULB level WSS institutions, installation of management information systems (MIS) and establishment of customer grievances mechanisms.

- **MSNA level III**: ULB would carry out infrastructure development projects aimed at achieving best practice as measured by access, efficiency, reliability, financial and environmental sustainability indicators and accountability framework, including economic regulation.

**Figure 19: MSNA- three levels of implementation**

**MSNA Level I**
- 100% house to house survey
- Illegal connections identified
- Bulk Meter installed
- Detailed information on water supply network using SCADA
- 100% metering of commercial connections
- Water & energy audit completed
- Hydraulic Modelling and GIS prepared
- Citywide sanitation plan prepared
- Establishing sewerage connections
- Computerized billing system
- 100% Billing with at least 80% collection
- Full cost recovery of O&M achieved
- UWSS budgets ring fenced
- Regulatory framework prepared
- City level business plan prepared
- Suitable options for ULB level and WSS institution established
- All cities agree to disclose pre-determined indicators on WSS

**MSNA Level II**
- 24 x 7 projects with hydraulic modeling
- Rain water harvesting implemented
- Quality of water as per norms ensured
- 80% households meters installed
- Collection, transportation, treatment and safe disposal of wastewater through conventional sewerage system or low cost sewerage system
- All properties connected to appropriate sewerage system
- Water tariffs indexed to always recover 100% O&M costs targeted 100% recovery
- 100% billing and 100% collection;
- No illegal connections
- Suitable ULB level WSS institution is established
- Service standards and tariff guidelines adopted

**MSNA Level III**
- 24x7 water supply project implemented across the city
- All households with access to sewerage system are connected to the network
- 100% metering, billing and collection
- Credit rating to achieve at least two notches more than investment grade
- 100% waste water treatment and its re-use
- Independent regulator established
- ULBs to adhere to service standards and tariffs as determined by the regulator

**Sanitation & Sewerage Strategy**

21. GoM intends to specifically focus on a strategy of substantial improvement in sanitation, sewerage and solid waste management in the urban areas of the state. In particular the strategy aims at achieving:

- open defecation free status;
- universal access to either decentralized or centralized underground sewerage system, or hygienic on-site collection and disposal system;
- collection and treatment of sewage with no open flow of sewage.
22. City Sanitation Plans will be drawn up for all towns in line with the state sanitation policy. Special emphasis will be on city-wide sanitation coverage, including slum areas with large investments for slum sanitation infrastructure. Consultations and involvement of slum residents would be key to adopting locally suitable and acceptable sanitation strategies. International good practices would be adapted to suit local requirements.

**Engaging in PPP**

23. Maharashtra offers several examples of PPP, mostly aimed at improving the reliability of water services by supplying water on a 24/7 basis and efficiency of operations by reducing NRW. Some examples of PPP in WSS sector in the state include:

- In Latur, an Indian company was selected competitively to operate and maintain the water supply services. The main objective is city-wide 24/7 water supply at 140 LPCD, under a Management Contract for 10 years, executed through a Special Purpose Vehicle “Latur Water Management Company Limited”.

- In Nagpur, a successful pilot management contract aimed at achieving a 24/7 water supply is currently being extended to 10 zones of the municipal corporation. The operator, under a 25 year *aftermage* /concession contract is required to contribute about US$20 million for rehabilitation and extension program supported by JNNURM.

- In Chandrapur, a 10-year management contract, for which the manager is paid fixed annual fees, has already led to improved collection ratio and maintenance procedures.

24. While all these PPP experiments are at early stages and thus difficult to draw any concrete lessons, the ULBs in Maharashtra are convinced about advantages of bringing in private sector for improving service levels and accountability. While GoM is supporting the use of PPP models, it is also concerned about the post award contract management capabilities of the ULBs and possible disputes during long concession periods. In this context, the establishment of a Regulator is becoming increasingly important.

**Proposed Pricing the WSS Service**

25. Even though ULBs have the freedom to set water tariffs and have an interest in recovering costs, most of the cities levy a flat tariff based on the size of connection with no reference to actual volume of water consumed. While some cities have volumetric charges, the percentage of water charged on the basis of actual consumption is negligible. The GoM has issued guidelines for the ULBs towards achieving financial sustainability of O&M costs, along with rehabilitation, rejuvenation and augmentation of schemes. The tariff guidelines as part of the MSNA framework will include the following:

- Financial sustainability to be achieved by moving towards 100% recovery of O&M costs through user charges
- Tariff structure to be equitable to different users, depending on affordability and services offered
- Billing and collection processes to achieve user convenience, transparency and efficiency
- Penalties for payment defaults and incentives for on-time / early payments
- Tariff guidelines for Bulk and Retail tariffs.
26. GoM and ULBs will be taking a phased approach in improving tariff policies, moving from the loss making stage to full recovery of O&M costs, and then to partial recovery of capital costs. The financing plans, as in medium term forecasts, make the O&M cost recovery a critical element for achieving financial sustainability.

**Performance Indicators under Various Scenarios**

27. Various scenarios have been developed by the GoM to understand the financial impact of the reform program. Under a realistic scenario, GoM is looking at the following achievements:

- NRW of 30%
- Collection ratio of 90%

**Figure 20: Performance Indicators Under Various Reform Scenarios**

28. Under the realistic scenario, although the NRW reduces to 30%, cost recovery of O&M costs increases to more than 90%, and collection ratio improves to 90%, there is aggregate revenue deficit of about Rs 131 billion till 2017. Clearly the business-as-usual is not an acceptable situation as it results in a financial unsustainable position. While GoM may attempt to fast track the reforms and investments in an aggressive manner, its implementation success will depend upon a number of ground factors such as the commitment from ULBs, capacity of staff, availability of finances etc. The figures depict the comparison of the three scenarios.

**Proposed Regulation of the WSS Service**

29. Among several options, there is possibility of establishing an independent “Maharashtra Municipal Services Regulatory Commission, MMSRC” to regulate WSS tariffs and WSS service standards. The WSS services would be governed by contractual arrangement between the service provider and the asset owner, typically under a performance contract. An “opt-in” arrangement could be a solution, wherein the WSS service provider could self-select the level of compliance, starting with disclosure of information as a minimum requirement and thereafter moving towards higher levels of complying with service standards and tariff guidelines. WSS service providers would be encouraged to “opt in” higher levels of regulation, with financial incentives extended by the State. The data received would be independently validated.
30. This form of regulation will become an integral part of the MSNA program. MSNA Level 1 (minimum regulation) of opt-in would be mandatory for all ULBs entering the program. Those graduating to MSNA Level II will be required to “opt-in” the next level of regulation in order to receive additional funding support from the State, and same applies to those ULBs graduating to MSNA Level III.

**Building Capacity of Various Actors**

31. Capacity building will be carried out at the state level and the ULB level. The MSNA Change Management Unit (CMU) will carry out the preparation and implementation of the capacity building activities, with professional support through external consultants. The envisaged activities are as follows:

- Technical assistance for consumer survey, procurement and installation of bulk metering, billing and collection, water audit, energy audit and double entry accounting system implementation.
- Technical Assistance for PPP projects in water supply and sanitation.
- Capacity building through dedicated training programs for state and ULB level functionaries.
Monitoring and Evaluation

32. As part of the Business Plan, the GoM has drawn up a detailed implementation action plan, including monitoring and evaluation during the roll out of the reform program. The overall responsibility of monitoring and evaluation lies with WSSD, with support by the CMU. Monitoring would include a high emphasis on monitoring of all contractual arrangements between public and private agencies or between public (ULB) and public (MJP) agencies. Suitable capacity building for effective monitoring will be undertaken, along with enhanced use of technology. In addition the SLB and other indicators specific to the MSNA program have been identified for close monitoring by the CMU.

Proposed Financing Arrangements

33. The total investment requirement for WSS sector till 2017 for all urban areas (excluding Mumbai) is estimated at Rs 82,650 million (USD 1837 million). This includes investment requirements as well as requirement for undertaking various reforms and capacity building initiatives envisaged under the business plan. These reforms include support for MSNA, water and energy audits, improvement in accounting and billing systems, preparation of city
sanitation plans, etc. The State Government and ULB contributions would amount to Rs 25,650 million (USD 570 million). Contribution from MMRDA for development of infrastructure in the MMR towns is estimated at Rs 20,000 million (USD 435 million) till 2017, covering MSNA Level I and MSNA Level II. Finally, the National River Action Plan (NRAP) is expected to meet Rs 4000 million (USD 88 million) primarily for sewerage related projects till 2017. The total funding gap will be approximately Rs 33,000 million or USD 733 million for MSNA Level I and Level II.

Table 9: Financing Gap for Capital Expenditure in Urban WSS sector in Maharashtra (excluding Mumbai)

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Particulars (Capital expenditure)</th>
<th>Requirement of funds (Rs million)</th>
<th>Requirement of funds (Rs million)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Level I</td>
<td>Level II</td>
</tr>
<tr>
<td>1</td>
<td>Funds requirement Total investment Required</td>
<td>21550</td>
<td>61100</td>
</tr>
<tr>
<td>1</td>
<td>State Govt.</td>
<td>3000</td>
<td>9000</td>
</tr>
<tr>
<td>2</td>
<td>MMRDA / Nagarothan</td>
<td>4000</td>
<td>16000</td>
</tr>
<tr>
<td>3</td>
<td>National River Action Plan</td>
<td>1000</td>
<td>3000</td>
</tr>
<tr>
<td>4</td>
<td>ULB Share#</td>
<td>3350</td>
<td>10300</td>
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<tr>
<td></td>
<td>Total Funding Available</td>
<td>11350</td>
<td>38300</td>
</tr>
<tr>
<td>1</td>
<td>Funding gap to be met</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Funding gap to be met from other sources</td>
<td>10200</td>
<td>22800</td>
</tr>
</tbody>
</table>

# It is estimated that ULB contribution would be raised through soft loans from MUINFRA

34. The Table above has been prepared by consolidating information on investment requirement for urban water supply sewerage and solid waste management in various categories of towns in Maharashtra. The JNNURM is funding eleven towns (excluding Mumbai) & UIDSSMT is funding 94 towns in Maharashtra and investment requirement for those towns has been separately captured by reviewing the list of projects approved under the scheme.

Way Forward

35. The overall implementation for each phase of MSNA activities, as well as the implementation plan for institutional reforms in the WSS sector is summarized in the activity chart given in Annex 4. It is envisaged that MSNA Level I and II activities will be implemented until 2011-17, during which most of the ULBs would have completed or substantially accomplished the mandatory reform activities. Level II of MSNA will commence after the ULB completes MSNA Level I activities. While ULBs may be at different stages of accomplishing specific reform activities, it is expected that by 2013, most of the ULBs would have initiated MSNA Level II activities. MSNA Level III is expected to commence as soon as MSNA I and II are completed in each city and will continue until all cities are covered with 24x7 water supply and city-wide sanitation.

36. The institutional reform activities are expected to commence in 2012 and are expected to continue for the next 5 to 7 years. While some of the reforms such as ring-fencing of utilities
will be accomplished in the first few years across most of the ULBs, other activities such as corporatization and adoption of the regulatory framework will take more time.

37. The implementation plan shows the detailed steps required to be undertaken by ULBs in different phases. It is expected that most ULBs will undertake the mandatory reforms under MSNA in the near term, but the timeline for undertaking other reforms will vary across different ULBs. The implementation plan is structured as follows:

- Detailing the various activities to be taken up under each item of the reform program;
- Indicative time schedule for completing various activities;
- Agencies that would be responsible for these activities; and
- Milestones or indicators against which progress on the action plan can be periodically reviewed.

38. The initiative taken by Maharashtra by starting the incentive linked water supply reform program (MSNA) is unique, which will deliver long term benefits in the urban water sector. The ULBs have been showing keen interest in implementing these reforms as these are mandatory for any new capital investment in this sector. Maharashtra is also geared up to start reforms in the urban sanitation under MSNA, integrating the water and sanitation programs. Maharashtra model of water reforms need to be replicated in other states for bringing sustainability in Urban WSS services.

**B. Rajasthan State WSS Business Plan**

**Current Performance of the Urban WSS Service**

*Population and Urbanization*

39. Rajasthan has a population of 56.5 million people (as per census 2001). The urban population of Rajasthan is 13.2 million with urbanization ratio of 23%, which is less than national average of 28%. 57% of the urban population is concentrated in 20 towns with population of more than 100,000. As per 2001 census, only Jaipur is a million plus population city in Rajasthan. The urban population is expected to increase to 20 million by 2025 with a projected urbanization of less than 25%.

*Water and Sanitation Services*

40. **Water supply.** Rajasthan has total of 222 cities of which 151 cities depend on groundwater, 40 on surface water and remaining use both sources. As per PHED data, 76% of the urban population is covered through individual connections. Per capita availability is estimated at less than 80 lpcd. However, this is at the production end. In the absence of volumetric measurement, and lack of data on wastages, the availability of water at customer end is difficult to predict. None of the cities get 24x7 water supply. Availability of water varies from daily to once every three days. Rajasthan faces acute water shortage as it accounts for 10.4 % of the geographical area but has only 1.16 % of the total surface water available in the country. Only 23 towns have a service level above 100 LPCD.
41. There is no clear pattern of relation between service times and size or nature of town or source of water. As in many other states, there is high unaccounted for water due to technical and commercial reasons. Leakages, theft and free water all add up to a large NRW which is guesstimated at about 50% in the absence of reliable individual metering and non-functioning bulk metering. The water supply infrastructure is ageing and is badly in need of rehabilitation and replacement.

42. **Sanitation.** As of 2001, 76.1% households have access to sanitation in the house in the form of pit latrine or water closet (Census, 2001). Remaining households defecate in the open. The figure below presents census information on distribution of households by type of latrine and drainage. Only 24.1% of households have access to closed drainage. Only 11 cities have access to partial sewerage. Under ADB funded RUIDP I project, 1,167 kms of sewers were laid in five cities of Ajmer, Bikaner, Jaipur, Jodhpur and Kota. RUIDP II will cover partial sewerage and drainage projects in fifteen cities.

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50 Based on a study done under Special Assistance for Project Implementation (SAPI) under a JBIC funded project for Jaipur

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Commercial and Financial Aspects of UWSS

43. Commercial operations. Data available from PHED shows that over 90% of the connections are metered in the five towns of Jaipur, Jodhpur, Ajmer, Kota and Mt. Abu. However, there is no reliable information on whether these meters are functioning or not.

44. Financial performance. The urban WSS sector relies entirely on fiscal transfers from the Government of Rajasthan (GoH) and of India (GoI), as revenues collected from users is estimated at an average Rs1.94 /m³ (US$ 0.04/m³) or only 35% of operating expenses of Rs 5.9/m³ (US$ 0.12/m³). 40% of the cost is accounted for by power charges while salaries account for 30% and the remaining 30% is spent towards other expenses. Despite being water deficit state, the tariffs in Rajasthan is amongst the lowest in the country and do not reflect the economic cost of water. Despite reasonable coverage of metering, it is estimated that most of the consumers are actually billed at flat rate. Within the framework of the increasing block tariffs applied to consumers billed on the basis of actual consumption, the highest volumetric rate are is 3.2 Rs./m³ for domestic consumption, which is still significantly lower than the O&M cost given above, and Rs. 8.80 per KL (m³) for industrial consumption.

Existing Institutions and Accountability Framework of the WSS Sector

45. Policy formulation. Rajasthan Water Supply and Sewerage Management Board (RWSSMB) headed by Minister for Water Resources is responsible for providing direction and supervision for management of the sector. Secretary, PHED in GoR is the key in driving policy making. Inputs to policy are taken primarily from planning and finance departments, though Urban Development and housing Department This dept is overall responsible for Urban Local Bodies in the state and also administers various schemes for the urban sector. Unlike some other states in the country, Rajasthan has not set up a parastatal corporation for WSS activities.

46. Service provision. PHED is responsible for service provision including O&M of all facilities for water supply, in case of sewerage, the O&M of sewerage system is the responsibility of the respective ULBs. Management of STPs is not with ULBs as these are relatively new assets and are being managed by private operators through O&M contracts. PHED collects sewerage charges along with water tariffs and transfers the same to ULBs.

47. Infrastructure development. All new asset creation and rehabilitation is carried out by PHED itself and ULBs are not involved in this process. PHED usually gets all asset creation work done through private Contractors. Government of Rajasthan has created a special project unit for implementing the ADB financed RUIDP project. This entity comes under the Urban Development Housing (UDH) and Local Self Government (LSG) and has largely drawn technical staff from PHED, including a Chief Engineer. RUIDP project unit under LSG is responsible for asset creation in the sewerage sector. RUIDP unit is also responsible for executing sewerage projects under JNNURM and UIDSSMT.

48. Financing. 100% of infrastructure development costs and almost 70% to 80% of operating costs are funded by budgetary allocations from GoR (through the PHED budget). Cost recovery from user charges is insignificant and is not considered as any important source. Since even the O&M costs are incurred by PHED, ULB revenues are not used for WSS sector. The ULB finances are in relatively poor shape. Rajasthan Urban Infrastructure Finance and Development Corporation (RUFIDCO) is a dedicated state level urban infrastructure financing agency that has
been recently set up by the state government to channelize resources to ULBs in the state and also perform the role of state level nodal agency for JNNURM and UIDSSMT. The state is also considering establishing the Rajasthan Urban Development Fund along the lines of the Tamil Nadu Urban Development Fund in order to leverage resources for the urban sector in the state, with RUFIDCO playing the role of Asset Management Company to the Fund.

49. Regulation. GoR is responsible for approving WSS tariffs, with technical inputs from the PHED. No agency is in charge of monitoring the quality of the WSS services provided by the PHED and handling customer complaints. Several State agencies are responsible for monitoring water quality, ground water abstraction and environmental protection. As in every other state, the WSS sector activities in Rajasthan have to comply with a number of Central Government and State Government regulations which prescribe technical, commercial and financial specifications. While Rajasthan has accepted the norms on quantity of water and quality of water and wastewater, it has not achieved quantity norms and monitoring of quality standards has not been strong. Rajasthan has also not been one of the early states in adopting the Service Level Benchmarks issued by Ministry of Urban Development.

50. The existing institutional framework in Urban WSS sector is presented in the diagram below.

Figure 25: Rajasthan - Institutional framework of the WSS sector
PPP Initiatives

51. A limited number of PPP initiatives have been undertaken in the state. Rajasthan has experimented with PPP for O&M of water treatment plants and sewerage treatment plants. PHED is keen to explore the PPP route and has appointed consultants to assess suitable technical options for inviting private operators. The O&M of water supply and sewerage functions in few towns, including Jaipur, Ajmer-Pushkar, Kota-Baran, Udaipur and Jodhpur are envisaged to be transferred to separate city level utilities. These utilities would be owned by ULBs and may have private sector participation as service providers (with limited investments also possible). A PPP model for the city level utility is being explored in Ajmer, Udaipur and Jodhpur.

Proposed Policies and Institutions\(^5\)

Policy Statement

52. The state drinking water policy (February 2010) recognizes water as a prime natural resource, a basic human need and a precious asset of the state. In view of the above state water policy, the \textbf{Sector Vision for 2025} is the following: “Support socio-economical development of state by ensuring safe, potable, affordable, accessible, reliable, and equitable drinking water supply to all its citizens by creating robust and sustainable infrastructure backed up by strong institutional and financial structure and comprehensive legal and regulatory framework”. Key elements of this vision and policy framework are given below.

\(^5\) Stakeholder consultations for preparation of the Business Plan are presented in Annex 6.
### Access
- Water Supply - 85% of the urban population to have access to piped water supply by 2017 and more than 95% by 2025. (135 LPCD supply in towns with population greater than 50,000 and 70 LPCD supply in other towns).
- Achievement of adequate sewerage services in 25% of cities (about 50 cities having population > 50,000 and where there is 135 LPCD of water supply) by 2017. Sewerage networks to be extended to balance cities with 135 LPCD of water supply by 2025.
- Low cost sanitation services to all citizens not covered by sewerage networks by 2025.

### Reliability
- Daily water supply to be provided to all cities by 2025.
- The quality of water supplied to citizens to meet CPHEEO norms.
- 24/7 supply – at least in three cities in medium term by 2017 (Jaipur, Ajmer-Pushkar and Kota) with 100% metering. More cities in the long term (2025) to have 24/7 water supply.

### Efficiency
- Average non-revenue water to be reduced to 25% from 50% of the production.
- The average bill collection ratio to go up from 80% to 96%.
- The average staffing ratio for water supply and wastewater operations to be reduced significantly from current 20 staff per 1,000 water connections (international norms 4 per 1000 connections).

### Affordability
- Lifeline consumption of 40 LPCD of water to be provided to all urban citizens at subsidized rates.

### Environmental Sustainability
- Quantities of water consumed and wastewater disposed off are limited to what is strictly necessary through appropriate tariffs and financial incentives to encourage loss reduction.
- All the wastewater collected is treated to meet effluent quality set by the State Pollution Control Board.

### Decentralization
- State Government to be responsible only for policy formulation in this sector
- Responsibility for UWSS service provision to be transferred to ULBs in the long term while actual service delivery in the short term may vest with PHED. ULBs to enter into formal contracts for service provision with PHED or the private sector;
- Creation of separate utilities owned by ULBs/state level intermediaries/State Government in large cities in the state such as Jaipur, Jodhpur, Udaipur, Ajmer-Puskar, Kota-Baran and Bikaner;
- Creation of a few regional utilities serving multiple towns as well as adjoining rural areas by 2017;
- PHED to function as bulk water supplier to corporatized city/regional utilities and continue to provide O&M services in areas not covered by separate utilities through formal contracts with ULBs.

### Financier Policy
- Performance (Viability) Gap Fund: Establishing a PGF to provide transparent subsidies to utilities; the funding from PGF to be in the form of multi-year commitments and gradually decreased as a proportion of short-fall in relation to improved revenues from water and sewerage. The PGF to also fund transition costs related to reforms in the sector.
- Capital Subsidies: State government to gradually move away from 100% capital subsidies to PPP models aimed at partial recovery of capital costs. Around 20% of the new projects in this sector to be developed on this basis by 2025.

### Tariff Policy
- The future tariff setting mechanism to be based on following principles:
  - Water:
    - Annual increases that are indexed to input costs such as salary and electricity , major increases related to improvement in service levels in cities where investments are underway;
    - Move towards city/regional tariffs instead of current practise of state level uniform tariffs;
    - Volumetric telescopic tariffs for different users and consumption levels;
  - Sewerage and Sanitation:
    - Linking of sewerage tariffs with water consumption.
    - Full recovery of O&M cost to be done by 2025.
Institutional Structure of the WSS sector

53. Due to low technical and financial capacity of the ULBs, GoR is adopting a gradual approach to moving the service delivery responsibility to ULBs as per Constitutional requirements. PHED therefore would continue to play a key role, particularly as it brings technical expertise and experience. Creation of separate utilities owned by ULBs/state level intermediaries/State Government in large cities such as Jaipur, Jodhpur, Udaipur, Ajmer-Puskar, Kota-Baran and Bikaner is being envisaged (Model 1). There could also be a few regional utilities that may serve multiple towns as well as adjoining rural areas (Model 2). The involvement of other ULBs in service delivery will increase over time, starting with contractual arrangements with PHED to deliver services, to formation of utilities and getting into contract with either PHED or Private Service Providers.

Figure 27: Rajasthan - Model 1: City Utility / PPP for Large Cities

Figure 28: Rajasthan – Model 2 : Regional Utility Model for Smaller Cities
54. In addition, the PHED would be restructured into: (i) a bulk water supply service provider to city utilities; and (ii) an O&M agency that will provide O&M and distribution services to ULBs and City Utilities, under a contractual framework.

Proposed Changes in the Culture of WSS Service Providers and Improving Efficiency and Accountability of Services.

55. A series of changes, including institutional, capacity building and financial autonomy are likely to bring about cultural changes to the WSS sector.

- Getting into “service delivery agreements” between customers and WSS service providers would significantly enhance performance orientation and customer orientation. Accountability to customers is likely to improve.

- A number of training institutions would be involved in developing the capacity of GoR, PHED and ULB staff. The content of the proposed training on the key issues of financing, pricing, PPP, regulation changes, corporate culture would bring about cultural changes in the medium to long term. International best practices through training and exposure visits will lead to more commercial and customer orientation.

- Significant investments are also envisaged in information technology that would greatly enhance transparency in working of service providers, better interface with customers and more informed and efficient decision making.

56. GoR has a vision of providing universal access and enhanced service delivery to all urban residents in the medium to long term. 24/7 is also envisaged in a phased manner. While there is no mission mode or programmatic approach that is envisaged for achieving the vision, GoR has definitive interim and final targets. NRW is proposed to come down from an estimated 50% to 25% by 2025. The staffing ratio is proposed to evolve to four per 1,000 customers between the same dates. Accountability enhancement is largely through institutional arrangements as described earlier, with transparency also being a key enabler.

*Proposed Pricing the WSS Service.*

57. Like in many other parts of the Country, there is customer willingness to pay but the issue of “willingness to charge” continues to dominate. There is a growing awareness of using good practice pricing principles such as efficiency, equity and affordability and further that metering and volumetric charging would help to achieve water resource conservation, waste reduction and financial sustainability. However, considering that the O&M cost recovery gap is large (around 63%), the approach adopted would probably be an incremental one. The issue of whether “WSS tariffs can be raised before the service has improved” will also be seriously considered.

58. Based on various scenario analysis, and taking the realistic scenario of NRW reduction to 25%; collection ratio increase to 85%; and tariff increase of about Rs 4 per KL, the water and sanitation sector does not achieve operating viability even by 2025. Since there is no recovery of capital cost under all the three scenarios, these are entirely met by the State Government. On the other hand, total operating subsidies reduce to varying levels in the realistic and aggressive scenario depending on the extent of tariff reforms and O&M cost reduction (Figures below).
Proposed Regulation of the WSS Service

59. The state is keen to consider an independent Regulator for authorizing service providers, setting-up and ensuring adherence to service and economic regulation. Irrespective of the institutional form, the key functions envisaged through the regulatory framework include:

- **Economic Regulation** – framing of principles for tariff setting as well as tariff determination;
- **Service Quality Regulation** – monitoring service standards provided by the utility with respect to quantity and hours of water supplied, continuity and reliability of service, timely redressal of consumer grievances, standards for wastewater disposal etc.;
- **Collection of information on WSS service provision** -- collecting and publishing data and forecasts on the demand and use of water and wastewater; and
- **Coordination with other regulators** – health, environment, water resources, etc.

The framework will also have provision for benchmarking performance against other ULBs in the country to judge the performance of service provided and reasonableness of cost estimates.

Building Capacity of Various Actors

60. No reform will be complete unless accompanied by the empowerment of the change agents. The proposed PGF is expected to pay for capacity building costs. In addition, outsourcing of several activities will help increase the capacity and competence levels. The
state government is expected to play a crucial role in capacity building for PHED and ULB staff as well as the new utilities established under the proposed sector program.

61. Capacity Building in City/ Regional Utilities. At Middle and Junior Levels, capacity building for the staff transferred from PHED to the new utilities is critical. These staff members need training in both technical functions as well as general functions related to organizational behavior, team building etc. Once the staff for the utilities has been identified, they would undergo special training at the Rajasthan Institute of Public Administration. Specific courses designed by premier institutes such as IIMs, XLRI and ASCI on organizational behavior, internal change agents, team building, decision making skills etc. need to be run for all the staff members.

62. Apart from training on general courses, staff members engaged in technical functions should be trained in NRW control measures including leak detection surveys, latest metering procedures, detection of unauthorized connections and procedures for disconnections, rehabilitation of old systems, planning and design of new schemes and projects, project management, bid process management and contract negotiations, PPP frameworks and legal issues, international best practices for operations & maintenance of water supply and sewerage systems, new technologies for water and sewerage treatment etc. The accounts staff should be trained in reporting requirements under the Companies Act, including preparation of annual accounts, balance sheet, costing and budgeting etc.

63. Capacity Building in PHED. Capacity Building at PHED would focus on preparing existing staff for their new role as part of the RWSSC entity, focusing on bulk water supply under contractual arrangement with ULBs and Panchayati Raj Institutions. The existing operations & maintenance staff in areas not under the jurisdiction of the utilities should be trained in the preparation of asset management plans, leakage reduction programs and operationalising 24x7 water supply. They should also be trained in customer orientation and grievance redressal procedures. In addition, they should undergo training in contract preparation, project negotiations and management.

Proposed Financing Arrangements

64. The total investment requirement for WSS sector till 2017 for all urban areas is estimated at Rs 225,518 million (USD 4,896 million). Under the 11th Five Year Plan (2007-2012), funding support available through PHED for urban water supply amounts to Rs 24,020 million (USD 522 million). Funding available under the Plan for housing and urban development department, including allocations from Central Government and ULB contributions for RUIDP, JNNURM and UIDSSMT programs amounts to Rs 27,500 million (USD 598 million). Assuming a 10% increase in allocation for 12th plan period, the funds available for 2012-2017 period amount to Rs 56,672 million (USD 1232 million). This leaves a funding gap of approximately Rs 117,025 million or USD 2,544 million for the period till 2017. Thus the gap is approximately 52% of the total requirement.
### Table 10: Financing Gap for Capital Expenditure in WSS Sector Rajasthan

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Capital Expenditure till 2017</th>
<th>Requirement of funds (Rs. million) till 2017</th>
<th>Requirement of funds (USD million) till 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Water supply</td>
<td>83,427.90</td>
<td>1,813.65</td>
</tr>
<tr>
<td>2</td>
<td>Sewerage</td>
<td>73,885.60</td>
<td>1,606.21</td>
</tr>
<tr>
<td>3</td>
<td>Sanitation</td>
<td>67,904.70</td>
<td>1,476.19</td>
</tr>
<tr>
<td></td>
<td>Total investment requirement till 2017</td>
<td>225,218.30</td>
<td>4,896.05</td>
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</table>

#### Funding sources

<table>
<thead>
<tr>
<th></th>
<th>Funds requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PHED (Urban Water Supply)</td>
</tr>
<tr>
<td>2</td>
<td>Housing &amp; Urban Development</td>
</tr>
<tr>
<td></td>
<td>RUIDP Phase I &amp; II (assuming 50% allocation to UWSS projects.)</td>
</tr>
<tr>
<td></td>
<td>JNNURM (water supply and sewerage projects)</td>
</tr>
<tr>
<td></td>
<td>UIDSSMT (water supply and sewerage projects)</td>
</tr>
<tr>
<td>1+2</td>
<td>Total Provision for UWSS in XIth Plan</td>
</tr>
<tr>
<td></td>
<td>Proposed Government Allocations XII Plan (2017)</td>
</tr>
<tr>
<td></td>
<td>– Assuming 10% increase over previous Plan allocation</td>
</tr>
<tr>
<td></td>
<td>Total Funding available</td>
</tr>
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#### Funding Gap

<table>
<thead>
<tr>
<th>Fund</th>
<th>Total Financing Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Financing Gap</td>
<td>117,025.50</td>
</tr>
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</table>

### Way Forward

65. A variety of reforms need to be initiated in the WSS sector in Rajasthan. GoR has already taken the important step for the formation of the Water Sector Reforms Committee. This committee should take the leadership in driving the reform process in the entire sector. The reforms to be taken-up have been divided into three phases: Phase I (till 2012); Phase II (2012-2017); and Phase III (2017 onwards). The following is a brief outline of the activities in the three phases. (details in Annex 3).

**Phase I (2010 to 2012)**

- Preparation of Rajasthan Water and Sanitation Bill to strengthen the legal framework for management of the water sector in accordance with the 73rd and 74th constitutional amendments.
- Preparation of legal framework for Rajasthan Municipal Bill to facilitate oversight and ownership of water supply function.
- Creation of Change Management Unit (CMU) attached to Secretary, PHED, GoR, to help PHED as well as ULBs in reducing unaccounted for water through following initiatives:
Improving Urban Water Supply and Sanitation Service Provision

- Implementation of bulk meters at the city level to ensure leakage levels are reduced;
- Water audits including survey to identify illegal connections and leakages;
- Energy audits to identify the energy efficiency measures to be adopted on PPP mode;
- Training and capacity building programs to implement reforms and improve service delivery.

- Preparation of framework for formation of city level utility and regional utilities.
- Preparation of framework for transparent service delivery arrangements for ULB and service provider.
- Implementation of Performance Grant Fund and Technical Assistance Window.

**Phase II (2012-17)**

- Formation of city level and regional utilities and gradual transfer of operations in the towns of divisional headquarters such as Jaipur, Jodhpur, Bikaner, Ajmer, Kota-Baran, Udaipur, etc.
- Implementation of 24x7 water supply projects on a pilot basis in select towns in Rajasthan.
- Creation of Rajasthan Water Supply and Sewerage Corporation (RWSSC) responsible for asset creation, provision of bulk water supply, and operations and maintenance.
- Introduction of targeted subsidies, including subsidy for life-line consumption.
- Implementation of ‘performance-linked financial support’ for capital investment and O&M support, through the proposed Performance Gap Fund.
- Introduction of suitable regulatory framework for urban WSS sector.
- CMU to actively facilitate the above activities.

**Phase III (2017 onwards)**

- Performance review of the city and regional utilities/ PPP models implemented across various towns.
- Scaling up of independent utilities and Public Private Partnerships across the State.

**C. Haryana State WSS Business Plan**

**Current Performance of the Urban WSS Service**

**Population and Urbanization**

66. In Haryana State, the urban population is expected to grow from 8.3 million in 2010 to 12.55 million in 2025. The population in the 73 urban local bodies\(^{52}\) that are the focus is expected to grow from 5.5 to 8.55 million between the same dates. 17 of these 73 ULBs have a population above 100,000; almost all ULBs have a population of more than 20,000.

\(^{52}\) Excluding the largest cities of Faridabad, Gurgaon and Panchkula
Water and Sanitation Services

67. Water supply. Coverage is estimated at about 74%. Average availability of water is estimated to be in the 100 lpcd range, with only 32 towns having access to more than 135 lpcd (plus 15% for losses), the CPHEEO\textsuperscript{53} standard for cities with population above 50,000. Water distribution is not 24 X 7 and distribution times vary widely between 30 minutes and 6 hours per day. There is no clear pattern of relation between service times and size or nature of town or source of water. As in many other states, there is high unaccounted for water due to technical and commercial reasons. Leakages, theft and free water all add up to a large NRW which is guesstimated at about 40% in the absence of reliable individual metering and non-functioning bulk metering. The water supply infrastructure is aging and is badly in need of rehabilitation or replacement. Data generated on bacteriological water quality are reported to be unreliable.

Figure 30: Haryana – Water and Wastewater Coverage 2010

68. Wastewater collection and treatment. 50 of the 73 towns have more than 50% coverage. 4 towns however do not have access to any waste water system. 90% of the urban population has access to latrines but only 52 out of the 73 towns have a sewerage network and only 30

\textsuperscript{53} CPHEEO: Central Public Health and Environmental Organization
of these networks serve more than 50% of the town population. Not all towns with sewerage systems have proper treatment facilities. Only 14 towns having a sewage treatment plant (STP), with a combined capacity of about 210,000 m$^3$/day to be compared with a combined water production capacity in the 73 towns of more than 600,000 m$^3$/day.

Commercial and Financial Aspects of UWSS

69. **Commercial operations.** While 100% of commercial connections are reportedly metered, less than 10% of residential are connections are metered, resulting in most bills based on flat monthly charges. Improvement of commercial operations does not appear to be the focus of the State Public Health Engineering Department (PHED).

70. **Financial performance.** The urban WSS sector relies entirely on fiscal transfers from the Government of Haryana (GoH) and of India (GoI), as revenues collected from users is estimated at an average Rs1.3/m$^3$ (US$0.03/m$^3$) or only 11% of operating expenses of Rs12.3/m$^3$ (US$0.27/m$^3$).

![Figure 31: Haryana – O&M Cost Recovery 2010](image)

71. Staff and energy costs represent 90% of O&M costs. In fact, between FY03 and FY10 the recovery of O&M costs from collected tariffs and user fees has declined from 15% to 10%. Since PHED is the service provider throughout the state, and it does not separate its costs town-wise, it is difficult to assess the extent of O&M cost recovery across towns in the state.

Existing Institutions and Accountability Framework of the WSS Sector

72. **Policy formulation.** GoH is responsible for policy setting and the Secretary, PHED is responsible for driving policies and programs. Inputs to policy are taken primarily from the Planning and Finance Departments, although Urban Department is overall responsible for the ULBs. Haryana has established a multi disciplinary body called the Water Supply and Sewerage Board (WS&S) that approves annual budgetary allocations. Unlike some other states in the country, Haryana has not set up a parastatal corporation for WSS activities. PHED in Haryana is also responsible for rural WSS, though Haryana has started the process of transferring the rural WSS responsibilities to the Rural Local Bodies (PRIs).

73. **Service provision.** The PHED is the main service provider in all urban centers except Faridabad, where the WSS service is already decentralized to the ULB. Also, in Panchukla and
some parts of Gurgaon industrial estates, the WSS service is currently provided by other GoH agencies such as HUDA and HSIIDC.54

74. **Infrastructure Development.** All new asset creation and rehabilitation is carried out by PHED itself, and ULBs are not involved in this process. PHED usually gets infrastructure development work through private contractors. The State Sanitary Board approves annual urban WSS Capex. The PHED plans, prepares and implements WSS projects. Funds are allocated for infrastructure development more on the basis of budget availability than on actual demand. The National Capital Region (NCR) Planning Board, however, ensures that projects of the greater NCR area, which affect several States including Haryana, are designed and implemented in a coordinated matter.

75. **Financing.** 100% of infrastructure development costs and almost 85 to 90% of operating costs are funded by budgetary allocations from GoH, through the PHED budget. Cost recovery from user charges is insignificant and is not considered an important source. Since even the O&M costs are incurred by PHED, ULB revenues are not used for WSS sector.

76. **Regulation.** GoH is responsible for approving WSS tariffs, with inputs from the PHED. PHED monitors the quality of the WSS service provided and handling customer complaints. As in other states, the WSS sector activities in Haryana have to comply with a number of Central Government and State Government regulations which prescribe technical, commercial and financial specifications, including norms prescribed by CPHEEO. Haryana has also adopted the Service Level Benchmarks issued by the Ministry of Urban Development.

77. The existing institutional framework for Urban WSS sector is presented below.

**Figure 32: Haryana – Institutional Framework of the WSS Sector**

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54 HUDA: Haryana Urban Development Authority; HSIIDC: Haryana State Industrial Infrastructure Development Corporation
PPP Initiatives

78. A limited number of PPP initiatives have been undertaken in the state. Some examples of private sector involvement include contracting O&M of Sewage Treatment Plant (STP) and part of sewerage network of Gurgaon on a three year management contract, and contracting part of Hissar STP to private sector on a three year management contract. In addition, in principle approval has been obtained for contracting private sector for O&M of water supply in Rohtak, Sonipat, Rewari, Panipat and Narwana and for O&M of sewerage network in Kaithal, Rohtak, Bhiwani, Hansi, Narwana, Gurgaon and Hisar. However the move towards private sector participation has met with resistance from the local staff and unions.

Proposed Policies and Institutions

Policy Statement

79. The state does not have a comprehensive water or sanitation policy. In the absence of any specific policy statement or legislation related to water sector in Haryana, the National Water Policy formulated by Central Government becomes the main framework for state level policy. The long term vision for the Urban Water Supply and Sewerage Sector in Haryana is “provision of universal safe water supply and sewerage services in an equitable, efficient and sustainable manner in a customer friendly manner”. The key elements of this vision are presented in Table 11.

Table 11: Haryana WSS Policy Framework

<table>
<thead>
<tr>
<th>Access</th>
<th>Environmental Sustainability</th>
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<tbody>
<tr>
<td>135 lpcd for all cities (before 25% UfW) with 100% coverage for water supply</td>
<td>Water resource management is designed &amp; implemented in a sustainable manner</td>
</tr>
<tr>
<td>Connection ratio increases from 49% at present to 100% and from present 16% to 100% by 2025 for water supply and sewerage respectively</td>
<td>Provision of comprehensive wastewater collection, treatment and disposal system</td>
</tr>
<tr>
<td>100% coverage of sewerage network by the end of 2025</td>
<td>Promotion of cost-effective water conservation measures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Financial Sustainability</th>
<th>Affordability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial sustainability through revenue enhancement &amp; cost reduction measures</td>
<td>Subsidies to disadvantaged/poor group of customers are clearly identified, targeted and ring fenced in the budgets</td>
</tr>
<tr>
<td>More than 100% recovery of O&amp;M costs by 2025</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Efficiency</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reducing NRW from 50% to 25% by 2025</td>
<td>Ensuring continuous access of WSS services at affordable price to economically weaker</td>
</tr>
<tr>
<td>Energy and water audits results implemented</td>
<td>Use of maintenance schedules, operating manuals and allocation of more resources to O&amp;M</td>
</tr>
<tr>
<td>Collection ratio increased to 100%</td>
<td></td>
</tr>
</tbody>
</table>

---

55 Stakeholder consultations for preparation of the Business Plan are presented in Annex 6.
80. **Institutional Structure of the WSS sector.** Due to the low technical and financial capacity of ULBs, GoH is adopting a gradual approach to moving the service delivery responsibility to ULBs, as per Constitutional requirements. PHED therefore would continue to play a key role, particularly as it brings technical expertise and experience. Some larger cities such as Faridabad and Gurgaon (partially) have moved service delivery responsibility to the ULB. The involvement of other ULBs in service delivery will increase over time, starting with contractual arrangements with PHED to deliver services, to formation of utilities and getting into contract with either PHED or Private Service Providers (similar to Rajasthan).

81. It is envisaged that the PHED would be restructured into: (i) WSS policy advisory department that will also play a monitoring role; and (ii) financially autonomous, corporatized, regional engineering companies that would enter into contract with the ULB(s) for infrastructure development and O&M activities. Figures below show the options envisaged with the first figure showing PHED Regional Companies as Service Provider to one or more ULBs, and the second figure showing a Regional Utility Model with PHED or Private Operator as Service Provider for a number of small ULBs.

---

**Accountability & Decentralization**
- Clear separation of Governance, Execution and Regulation roles
- Bringing ULBs to centre of UWSS service provision in which it would be responsible for O&M & construction
- Ring-fencing of WSS budget
- Clear accountability framework for ULB performance

**Financing**
- Committed contributions from central government, state government, ULB contributions and funds from NCR planning board
- Additional budgetary support, external borrowings, institutional finance, and private investments to bridge this investment gap.

**Tariffs**
- An explicit move towards rationalization of tariff through a revised tariff policy
- Volumetric metering of water supplies
- 100% metering

**Regulation**
- Comprehensive regulatory framework by GoH indicating what and how it will be regulated and who will regulate
- GoH will act the regulator in the short term, though this function will move over to an independent regulator later
Figure 33: Haryana Model 1 - PHED Regional Companies as Service Provider

Figure 34: Haryana Model 2 - Regional Utility Model with PHED Regional Company/Private Operator
Proposed Changes in the Culture of WSS Service Provision and Improving Efficiency and Accountability of WSS Services.

82. A series of changes, including institutional, capacity building and financial autonomy are likely to bring about cultural changes in the WSS sector:

- Service delivery agreements between customers and WSS Service Providers would significantly enhance performance orientation and customer accountability.

- Capacity building of GoH, PHED and ULB staff through a number of training institutions. The proposed training will focus on key issues of financing, pricing, PPP, regulation, etc. International best practices through training and exposure visits will lead to commercial and customer orientation.

- Significant investments are envisaged in information technology that would greatly enhance transparency in working of service providers, better interface with customers and more informed and efficient decision making.

83. GoH has a vision of providing universal access and enhanced service delivery to all urban residents in the medium to long term. 24/7 is also envisaged in a phased manner. While there is no mission mode or programmatic approach that is envisaged for achieving the vision, GoH has definite interim and final targets. NRW is proposed to reduce from an estimated 40% to 30% in 2012 and 15% in 2025. The staffing ratio is proposed to evolve from 10 to five per 1,000 customers between the same dates. Accountability enhancement is largely through institutional arrangements as described earlier, with transparency being a key enabler.

Proposed Pricing the WSS Service

84. Like in many other parts of the Country, there is customer willingness to pay but the issue of “willingness to charge” continues to dominate. There is a growing awareness of using good practice pricing principles such as efficiency, equity and affordability as well as metering and volumetric charging to help achieve water resource conservation, waste reduction and financial sustainability. However, considering that the O&M cost recovery gap is large (almost 90%), the approach adopted would probably be an incremental one. The issue of whether “WSS tariffs can be raised before the service has improved” will also be seriously considered.

85. Three scenarios have been developed to analyze impact of different assumptions on the funding gap and revenue deficit (figures below). These scenarios differ on tariffs, O&M cost reduction, NRW reduction, collection efficiency etc. It is assumed that household tariff would increase by 5% and 7% per annum for realistic and aggressive scenarios respectively. It is seen that only under aggressive scenario the operations are financially sustainable. The revenue exceeds operational expenditure from 2014 under aggressive scenario. The aggregate surplus of Rs 55 billion till 2025 is estimated under this scenario. However, under realistic and business as usual scenarios, the aggregate revenue deficit till 2025 is estimated to be around Rs 31 billion and Rs 114 billion respectively.
Proposed Regulation of the WSS Service

86. Haryana is a long way off from accepting the need for an independent regulator. At the moment, good regulatory practice framework is expected to be implemented with GoH/PHED as the regulator. Irrespective of the institutional form, the key functions envisaged to be discharged through the regulatory framework include Economic Regulation, Service Quality Regulation, and Coordination with other regulators including health, environment and water resources. Information collection and publishing data on water and wastewater will be one of the important aspects of regulation. The framework will also have provision for benchmarking performance against other ULBs in the country.

Building Capacity of Various Actors

87. Haryana is yet to carry out a detailed capacity building needs assessment, which will require a detailed dialogue with all the institutions to assess the present level of capacity and their requirements. At present the training initiatives by the PHED are minimal and there is no separate budget for the same. ULBs have no capacity in the WSS sector. Currently, Haryana Institute of Public Administration is involved in providing training. There are also some GoI sponsored training programs. Given the critical role to be played by GoH and ULBs in the reform process it is imperative that training programs are targeted for a wider audience and stakeholders.
88. GoH proposes to set up a dedicated institution for capacity building. A capacity building unit will function at the state level, including a small team staffed by members appropriately chosen in consultation with PHED and the ULBs. The institution will be funded by GoH and will design the training efforts based on the capacity building needs assessment. The institution will have the option of using external consultants to deliver the training programs. GoH has already identified the essential training required for various levels of staff. These include technical, managerial and leadership training programs.

**Table 12: Training courses required at various levels**

<table>
<thead>
<tr>
<th>Training Courses</th>
<th>For Whom it is Required in Haryana</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Training</strong></td>
<td></td>
</tr>
<tr>
<td>• Personal Management skills</td>
<td>Staff at all levels of all ULBs/ RUs and PHED.</td>
</tr>
<tr>
<td>• Time management</td>
<td></td>
</tr>
<tr>
<td>• Effective communications</td>
<td></td>
</tr>
<tr>
<td>• Team building</td>
<td></td>
</tr>
<tr>
<td>• Decision making skills</td>
<td></td>
</tr>
<tr>
<td><strong>Leadership skills</strong></td>
<td></td>
</tr>
<tr>
<td>• Leadership aspects</td>
<td>Top level management of all ULBs/ RUs and PHED.</td>
</tr>
<tr>
<td>• Motivational aspects</td>
<td></td>
</tr>
<tr>
<td><strong>Reform Orientation Program</strong></td>
<td></td>
</tr>
<tr>
<td>• Need for reform</td>
<td>Staff at all levels of all ULBs/ RUs and PHED.</td>
</tr>
<tr>
<td>• Un-sustainability of the sector</td>
<td></td>
</tr>
<tr>
<td>• Benefits of reform</td>
<td></td>
</tr>
<tr>
<td><strong>Technical Training</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Accounting</strong></td>
<td>Accounts staff of all ULBs/ RUs and PHED.</td>
</tr>
<tr>
<td>• Budgeting</td>
<td></td>
</tr>
<tr>
<td>• Double Entry Accrual Based Accounting</td>
<td></td>
</tr>
<tr>
<td><strong>Financial management</strong></td>
<td>Accounts staff and senior management staff responsible for revenue functions</td>
</tr>
<tr>
<td>• Revenue Improvement and Cost Reduction</td>
<td></td>
</tr>
<tr>
<td>• Cashflow</td>
<td></td>
</tr>
<tr>
<td>• Project Finance</td>
<td></td>
</tr>
<tr>
<td>• Tariff setting</td>
<td></td>
</tr>
<tr>
<td><strong>Project Development</strong> (including technical aspects)</td>
<td>Technical staffs of PHED.</td>
</tr>
<tr>
<td>in the following sectors</td>
<td></td>
</tr>
<tr>
<td>• Water Supply</td>
<td></td>
</tr>
<tr>
<td>• Sewerage and Sanitation</td>
<td></td>
</tr>
<tr>
<td><strong>Project Management</strong></td>
<td>Senior staff and project managers (PMES) of PHED.</td>
</tr>
<tr>
<td>• Planning and designing projects</td>
<td></td>
</tr>
<tr>
<td>• Tools for Project Management (MS Project, Primavera etc.)</td>
<td></td>
</tr>
</tbody>
</table>
Improving Urban Water Supply and Sanitation Service Provision

<table>
<thead>
<tr>
<th>Training Courses</th>
<th>For Whom it is Required in Haryana</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Implementation</strong></td>
<td>• Procurement of goods and services</td>
</tr>
<tr>
<td></td>
<td>• Project structuring</td>
</tr>
<tr>
<td></td>
<td>• Quality Control and Monitoring</td>
</tr>
<tr>
<td></td>
<td>• Contract management</td>
</tr>
<tr>
<td></td>
<td>Junior and middle level O&amp;M staffs of all ULBs/ RUs and PHED.</td>
</tr>
<tr>
<td><strong>Legal Training</strong></td>
<td>• Contract documentations</td>
</tr>
<tr>
<td></td>
<td>• Negotiations</td>
</tr>
<tr>
<td></td>
<td>• Public Private Partnership Frameworks</td>
</tr>
<tr>
<td></td>
<td>Legal staff of all ULBs/ RUs and PHED.</td>
</tr>
<tr>
<td><strong>IT Applications</strong></td>
<td>• Basic competence in use of computers (as necessary)</td>
</tr>
<tr>
<td></td>
<td>• MIS (Management Information Systems)</td>
</tr>
<tr>
<td></td>
<td>• GIS (Geographic Information System)</td>
</tr>
<tr>
<td></td>
<td>• E-governance</td>
</tr>
<tr>
<td></td>
<td>Staff at all levels of all ULBs/ RUs and PHED.</td>
</tr>
</tbody>
</table>

**Monitoring and Evaluation.**

89. As a part of the Business Plan, GoH has drawn up a detailed implementation plan, including a monitoring and evaluation program as a key element of the roll out of the reform program. The overall responsibility of monitoring and evaluation lies with PHED, with support from a small dedicated team at the head quarter and several regional offices of PHED. GoH also intends to utilize the Service Level Benchmarks that MoUD has drawn for the Urban WSS sector.

**Proposed Financing Arrangements**

90. The total investment requirement for the Urban WSS sector is estimated at Rs 43,092 million (USD 937 million) till 2012. The requirement for Faridabad is captured under JNNURM head as it is the only city in Haryana under JNNURM program. Funding support from Central Government would be available to the tune of Rs 6,789 million (USD 148 million) under JNNURM and UIDSSMT projects. In addition, State Government and ULB contributions would amount to Rs 9,033 million (USD 196 million). Contribution from NCRPB for development of infrastructure is estimated at Rs 1500 million (USD 33 million) till 2012. Finally, Rs 9592 million (USD 209 million) is approved under the economic stimulus package. This project will provide 100% Water Supply and Sewerage system in the 14 towns.

91. Given the above investment requirements and availability of resources, the overall funding gap will be approximately Rs 16,178 million (USD 352 million) till 2012. This is approximately 37% of the investment requirement. The state government will consider a combination of options such as additional budgetary support, external borrowings, institutional finance, and private investments to bridge this investment gap.
### Table 13: Financing Gap for WSS Sector in Haryana

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Capital Expenditure till 2012</th>
<th>Requirement of funds (Rs. million) till 2012</th>
<th>Requirement of funds (USD million) till 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UIDSSMT</td>
<td>1,080</td>
<td>23.48</td>
</tr>
<tr>
<td>2</td>
<td>Other investments (excluding JNNURM and existing UIDSSMT projects)</td>
<td>30,162</td>
<td>655.70</td>
</tr>
<tr>
<td>3</td>
<td>JNNURM[57]</td>
<td>11,850</td>
<td>257.61</td>
</tr>
<tr>
<td></td>
<td>Total investment requirement till 2012</td>
<td>43,092</td>
<td>936.78</td>
</tr>
</tbody>
</table>

#### Funding sources

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Funding Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Central assistance</td>
</tr>
<tr>
<td></td>
<td>- JNNURM grant for Faridabad (50%) – Rs. 5925 million</td>
</tr>
<tr>
<td></td>
<td>- UIDSSMT grant (80%) – Rs. 864 million</td>
</tr>
<tr>
<td>2</td>
<td>ULB contribution</td>
</tr>
<tr>
<td></td>
<td>- UIDSSMT (10%) – Rs. 108 million</td>
</tr>
<tr>
<td></td>
<td>- Faridabad Municipal Corporation (30%) – Rs. 3555 million</td>
</tr>
<tr>
<td>3</td>
<td>Contribution from state budget</td>
</tr>
<tr>
<td></td>
<td>Rs. 1000 million every year for three years till 2012 – Rs.3,000 million</td>
</tr>
<tr>
<td></td>
<td>State grant for Faridabad (20%) – Rs.2370 million</td>
</tr>
<tr>
<td>4</td>
<td>Contribution from NCR Planning Board</td>
</tr>
<tr>
<td></td>
<td>Rs. 500 million every year for three years till 2012</td>
</tr>
<tr>
<td>5</td>
<td>Economic Stimulus Package</td>
</tr>
<tr>
<td></td>
<td>Rs. 9592 million has been approved under Economic Stimulus Package</td>
</tr>
</tbody>
</table>

#### Funding Gap

Gap to be funded by the State government through various sources such as
- Additional budgetary support
- External borrowings
- Others

16,178 351.70

#### Way Forward

91. The WSS reforms in Haryana are proposed to be implemented in a phased manner to ensure smooth transition to the ULBs. Three interim stages are envisaged:

---

[56] Based on investment projections made reduced by estimated investments under UIDSSMT projects
[57] Investment requirement as on 2012 (escalated costs) for Faridabad town (a JNNURM town)
• Stage I: Incremental improvement in the functioning of PHED (2009-12)
• Stage II: More prominent role in service provision for select large ULBs (2012-17)
• Stage III: Central service provision role for ULBs (2017 onwards)

The first stage would essentially aim at improving the functioning of PHED with a much higher level of commercial orientation. Budgetary support will be provided to ensure ring fencing of WSS operations. PHED will also start maintaining and providing information on ULB-wise service levels and financial parameters. Discussions on formation of Large Utilities and Regional Utilities (RUs) would be initiated and a clear road map and policy framework for the Urban WSS sector will be evolved. In the second stage, select large ULBs, as well as one or two RUs will get more responsibility for WSS service provision. Remaining smaller ULBs will continue to have the existing institutional arrangements with PHED as the service provider. In this stage, discussions on corporatization and restructuring of PHED will be initiated. In the third stage, all ULBs will become responsible for service provision either independently or through structuring themselves under one of the RUs. ULBs/ RUs will decide the tariff and service standards within the broad framework of standards laid down by GoH. PHED will act as a technical consultant to the ULB/ RU, for contracting the private sector. The regulatory set up in the last stage will be initiated to regulate the entire sector. The regulator will receive information from ULBs/ RUs and will also conduct independent audits to verify the information.
### Annex 4: Proposed (Summary) WSS Implementation Plans

**Maharashtra Proposed Summary Implementation Plan**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activity Description</th>
<th>Responsibility</th>
<th>Time Frame</th>
<th>Monitorable Indicator/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Creation of MSNA Change Management Unit (CMU)</td>
<td>WSSD</td>
<td>First month</td>
<td>MSNA-CMU created</td>
</tr>
<tr>
<td>2</td>
<td>Preparation of ToRs for consultants</td>
<td>ISC for CMU-MSNA</td>
<td>Initial 3 months</td>
<td>ToRs approved</td>
</tr>
<tr>
<td>3</td>
<td>Preparation of sample contracts for various types of PPP projects</td>
<td>ISC for CMU-MSNA, WSSD</td>
<td>Within the first year</td>
<td>Sample contracts approved</td>
</tr>
<tr>
<td>4</td>
<td>Design and approval of reform milestones including indicators</td>
<td>ISC for CMU-MSNA, WSSD</td>
<td>Within the first year</td>
<td>Monitorable indicators approved</td>
</tr>
<tr>
<td>5</td>
<td>Preparation for MoA to be entered into with ULBs</td>
<td>ISC for CMU-MSNA, WSSD</td>
<td>Within the first year</td>
<td>MoA between ULB and state government finalized</td>
</tr>
</tbody>
</table>

**Implementation Plan: MSNA Level I**

#### Water supply

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activity Description</th>
<th>Responsibility</th>
<th>Time Frame</th>
<th>Monitorable Indicator/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Baseline consumer survey and regularization</td>
<td>ULB, WSSD</td>
<td>From Year 1 till the end of Level I</td>
<td>Unauthorized connections estimated and regularization of individual and group connections</td>
</tr>
<tr>
<td>2</td>
<td>Bulk metering</td>
<td>ULB, WSSD</td>
<td>From Year 1 till the end of Level I</td>
<td>Funding support provided and meters installed and Hydraulic model prepared</td>
</tr>
<tr>
<td>3</td>
<td>GIS Mapping</td>
<td>ULB, WSSD</td>
<td>From Year 1 till the Level end</td>
<td>Up to date GIS maps prepared for the entire WSS network</td>
</tr>
<tr>
<td>4</td>
<td>Water audit and leakage reduction</td>
<td>ULB, WSSD</td>
<td>From Year 1 till the end of Level I</td>
<td>Leakage detection study and water audit done</td>
</tr>
<tr>
<td>5</td>
<td>Energy audit and leakage reduction</td>
<td>ULB, WSSD</td>
<td>From Year 1 till the end of Level I</td>
<td>Leakage detection study and energy audit done</td>
</tr>
</tbody>
</table>

#### Sanitation

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activity Description</th>
<th>Responsibility</th>
<th>Time Frame</th>
<th>Monitorable Indicator/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Preparation of city sanitation plan</td>
<td>ULB, WSSD</td>
<td>From Year 1 till the end of Level I</td>
<td>CSP prepared</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Activity</td>
<td>Responsibility</td>
<td>Time frame</td>
<td>Monitorable Indicator/s</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------</td>
<td>----------------</td>
<td>-----------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td><strong>Sewerage</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Sewerage improvement plan</td>
<td>ULB, WSSD</td>
<td>By the end of year 1</td>
<td>Priority projects identified and DPR prepared. Approval of investment support for identified projects.</td>
</tr>
<tr>
<td>2</td>
<td>Improvement of on-site system</td>
<td>ULB, WSSD</td>
<td>Throughout Level I</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Implementation of decentralized and low cost sewerage system</td>
<td>ULB, WSSD</td>
<td>Throughout Level I</td>
<td>Decentralized and low cost sewerage system implemented</td>
</tr>
<tr>
<td>4</td>
<td>Implementation of de-sludging</td>
<td>ULB, WSSD</td>
<td>From Year 1 till the Level end</td>
<td>Funds provided for de-sludging</td>
</tr>
<tr>
<td></td>
<td><strong>Municipal solid waste management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>City solid waste management plan</td>
<td>ULB</td>
<td>By the end of year 1 of Level I</td>
<td>City level SWM improvement plan prepared</td>
</tr>
<tr>
<td></td>
<td><strong>Basic services for urban poor</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Plan for improving services to urban poor</td>
<td>ULB, WSSD</td>
<td>By the end of year 1 of Level I</td>
<td>Plan for improved services prepared</td>
</tr>
<tr>
<td>2</td>
<td>Improvement in infrastructure services</td>
<td>ULB, WSSD</td>
<td>Throughout Level I</td>
<td>Infrastructure projects implemented</td>
</tr>
<tr>
<td></td>
<td><strong>Financial management reforms</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Improve billing and collection efficiency</td>
<td>ULB</td>
<td>From Year 1 till the end of Level I</td>
<td>Collection improvement plan prepared. Collection efficiency improved by at 25%.</td>
</tr>
<tr>
<td>2</td>
<td>Ring-fencing UWSS operations</td>
<td>ULB</td>
<td>From Year 1 till the end of Level I</td>
<td>Ring-fencing of UWSS operations achieved through legal framework and/ or clear regulations on cross subsidy from general accounts of ULB</td>
</tr>
<tr>
<td>3</td>
<td>Achieving financial sustainability</td>
<td></td>
<td>From Year 1 till the end of Level I</td>
<td>Setting user tariffs to at least meet O&amp;M costs by end of Level I</td>
</tr>
<tr>
<td>4</td>
<td>Implementation of double entry accounting system</td>
<td>ULB, WSSD</td>
<td>From Year 1 till the end of Level I</td>
<td>Training conducted on double entry accounting system. Financial statements prepared as per commercial format.</td>
</tr>
<tr>
<td></td>
<td><strong>Other reforms</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Establish a complaint redressal system</td>
<td>ULB</td>
<td>By the end of year 1 of Level I</td>
<td>Framework for complaint redressal system established and approved by the ULB</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Activity</td>
<td>Responsibility</td>
<td>Time frame</td>
<td>Monitorable Indicator/s</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td>----------------</td>
<td>------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>2</td>
<td>Preparing a city level UWSS business plan</td>
<td>ULB, WSSD</td>
<td>By the end of year I of Level I</td>
<td>The City level UWSS business plan prepared and approved</td>
</tr>
<tr>
<td>3</td>
<td>Selection of ULB level UWSS Reforms</td>
<td>ULB, WSSD, UDD, GoM</td>
<td>From Year I till the end of Level I</td>
<td>The decentralized service delivery arrangements finalized ULBs</td>
</tr>
<tr>
<td>4</td>
<td>Preparing for regulatory framework</td>
<td>ULBs, WSSD, UDD, GoM</td>
<td>By the end of Level I</td>
<td>The regulatory framework approved by end of Level I</td>
</tr>
<tr>
<td>5</td>
<td>MJP restructuring plan</td>
<td>WSSD, GoM</td>
<td>By the end of Level I</td>
<td>The MJP restructuring plan is approved by the end of Level I</td>
</tr>
<tr>
<td>6</td>
<td>Identification of PPP project opportunities</td>
<td>ULB</td>
<td>From Year I till the end of Level I</td>
<td>List of project profiles for PPP projects prepared with the help of PPP consultant.</td>
</tr>
<tr>
<td>7</td>
<td>Introducing pilot 24X7 Contracts</td>
<td>ULB, WSSD</td>
<td>From Year I till the end of Level I</td>
<td>Service / management contracts designed &amp; implemented on pilot basis for small areas/ a few DMAs</td>
</tr>
<tr>
<td>8</td>
<td>Capacity building plan</td>
<td>ULB, WSSD, UDD, GoM</td>
<td>From Year I till the end of Level I</td>
<td>Capacity building and technical assistance training programs organized for ULBs</td>
</tr>
<tr>
<td>9</td>
<td>Public disclosure of WSS information</td>
<td>ULB</td>
<td>Throughout Level I</td>
<td>WSS indicators disclosed in public domain</td>
</tr>
</tbody>
</table>

### Implementation Plan: MSNA Level II

#### Water supply

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activity</th>
<th>Responsibility</th>
<th>Time frame</th>
<th>Monitorable Indicator/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24X7 projects completed with hydraulic modeling</td>
<td>ULB, WSSD</td>
<td>Throughout Level II</td>
<td>24 x 7 projects with hydraulic modeling achieved in pilot cities Individual or group connections provided to all households</td>
</tr>
<tr>
<td>2</td>
<td>Achieving sustainability of water source</td>
<td>ULB, WSSD</td>
<td>Year 4-5 of Level II</td>
<td>Prepare a technical and management plan for ensuring sustainability of water source</td>
</tr>
<tr>
<td>3</td>
<td>Household level metering</td>
<td>ULB, WSSD</td>
<td>Before end of Level II</td>
<td>80% household level metering achieved</td>
</tr>
<tr>
<td>4</td>
<td>Implement augmentation schemes</td>
<td>ULB, WSSD</td>
<td>Before end of Level II</td>
<td>Augmentation scheme for meeting water demand till 2032 achieved by end of Level II</td>
</tr>
</tbody>
</table>

#### Sewerage

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activity</th>
<th>Responsibility</th>
<th>Time frame</th>
<th>Monitorable Indicator/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Implementation of comprehensive sewerage schemes</td>
<td>ULB, WSSD</td>
<td>Before end of Level II</td>
<td>Comprehensive sewerage schemes implemented by end of Level II</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Activity</td>
<td>Responsibility</td>
<td>Time frame</td>
<td>Monitorable Indicator/s</td>
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</tr>
<tr>
<td></td>
<td><strong>Sanitation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Implement findings of CSP</td>
<td>ULB, WSSD</td>
<td>Before end of Level II</td>
<td>CSP Plan approved. Financial support from MSNA approved.</td>
</tr>
<tr>
<td></td>
<td><strong>Municipal Solid Waste Management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Implementation of MSW management plan</td>
<td>ULB,</td>
<td>Before end of Level II</td>
<td>Full coverage with respect to primary collection and transportation of waste achieved.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Scientific treatment and disposal of MSW achieved</td>
</tr>
<tr>
<td></td>
<td><strong>Basic services for urban poor</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Continuous improvement in service delivery to urban poor</td>
<td>ULB</td>
<td>Throughout Level II</td>
<td>Continuous improvements achieved</td>
</tr>
<tr>
<td></td>
<td><strong>Financial management reforms</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Completion of migration to double entry accounting system</td>
<td>ULB</td>
<td>By Year 5 of Level II</td>
<td>Revised balance sheets prepared under double entry system</td>
</tr>
<tr>
<td>2</td>
<td>Implementation of a billing and collection system</td>
<td>ULB</td>
<td>By Year 5 of Level II</td>
<td>Completion of revised customer database. Bills generated using the new system.</td>
</tr>
<tr>
<td>3</td>
<td>Improve recovery of O&amp;M expenses</td>
<td>ULB</td>
<td>By Year 5 of Level II</td>
<td>Tariff revision and improvement in collection efficiencies.</td>
</tr>
<tr>
<td></td>
<td><strong>Other reforms</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Implementation of a complaint redressal system</td>
<td>ULB, WSSD</td>
<td>By Year 5 of Level II</td>
<td>Computerized CRS implemented. Report on CRS submitted.</td>
</tr>
<tr>
<td>2</td>
<td>ULB Level WSS Institution established</td>
<td>ULBs, WSSD, UDD, GoM</td>
<td>Throughout Level II</td>
<td>ULBs adopt different institutional arrangements with clear contractual framework for service delivery</td>
</tr>
<tr>
<td>3</td>
<td>Detailed structuring and bidding out of PPP projects</td>
<td>ULB, WSSD</td>
<td>Throughout Level II</td>
<td>Proposal for financial support from MSNA cleared. Viability gap assessed and approved. Bid documents approved. Preferred bidder finalized and contract agreement signed.</td>
</tr>
<tr>
<td>4</td>
<td>Implementation of MJP restructuring Plan</td>
<td>WSSD, MJP, GoM</td>
<td>Before end of Level II</td>
<td>Restructuring plan implemented including the formation and staffing of new entities</td>
</tr>
<tr>
<td>5</td>
<td>MIS system</td>
<td>ULB</td>
<td>Before end of Level II</td>
<td>Testing and implementation of MIS system</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Activity</td>
<td>Responsibility</td>
<td>Time frame</td>
<td>Monitorable Indicator/s</td>
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</tr>
<tr>
<td>6</td>
<td>Solid Waste Management Program</td>
<td>ULB, WSSD, GoM</td>
<td>Before end of Level II</td>
<td>SWM program prepared and implemented</td>
</tr>
<tr>
<td>7</td>
<td>City achieves ODF Status</td>
<td>ULB, WSSD, GoM</td>
<td>Before end of Level II</td>
<td>Abundant sanitation facilities, no open defecation in the city</td>
</tr>
<tr>
<td>8</td>
<td>Adoption of service standards and tariff guidelines</td>
<td>ULB</td>
<td>Throughout Level II</td>
<td>ULBs adopt the guidelines issued by the regulator</td>
</tr>
</tbody>
</table>

**Implementation Plan: MSNA Level III**

**Water supply**

| 1 | Delivery of 24x7 projects across the entire city | ULB, WSSD | Throughout Level III | 24x7 projects extended to entire city |

**Sewerage**

| 1 | Implementation of sewerage improvement projects | ULB, WSSD | Throughout Level III | MSNA support for sewerage projects extended |

**Sanitation**

| 1 | Continuous improvement in sanitation facilities | ULB | By end of Level III | Achievement of open defecation free status |

**Solid waste management**

| 1 | Continuous improvement in MSW collection and treatment | ULB | Throughout Level III | Continuous improvement in service coverage, treatment and disposal of waste |

**Financial management reforms**

| 1 | Credit rating of ULBs | ULB | Throughout Level III | ULBs achieve credit rating of two notches better than investment grade (BBB+ or better) within Level III |
| 2 | Raising municipal bonds | ULB | Throughout Level III | Large ULBs able to raise funds through municipal bonds in Level III |
|    |                     |     |                     | Smaller ULBs access the market through pooled finance framework |
| 3 | Metering, billing and collection | ULB | By the end of Level III | 100% metering, billing and collection |

**Environment sustainability related reforms**

| 1 | Sustaining NRW reduction | ULBs | Throughout Level III | Sustaining the NRW at less than 15% |
| 2 | Waste water treatment as per norms | ULBs | Throughout Level III | 100% wastewater treated as per the MPCB norms |

**Other reforms**

| 1 | Implementation of regulatory framework | ULBs, WSSD, UDD, GoM | Throughout Level III | ULBs adopt the suitable regulatory framework |
### Rajasthan Proposed Summary Implementation Plan

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activity</th>
<th>Responsibility</th>
<th>Time frame</th>
<th>Monitorable Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase I: 2010-12</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Formation of CMU</td>
<td>State government</td>
<td>2010</td>
<td>Government order on formation of CMU passed</td>
</tr>
<tr>
<td>3</td>
<td>Setting up PGF</td>
<td>State Government</td>
<td>2010-2012</td>
<td>Establishment of Performance Gap Fund</td>
</tr>
<tr>
<td>4</td>
<td>Implementation of operational improvement plans</td>
<td>CMU and State government</td>
<td>2010 onwards</td>
<td>Suitable technical support available for CMU to undertake various reforms</td>
</tr>
<tr>
<td>5</td>
<td>Preparatory work for formation of city and regional utilities</td>
<td>CMU, ULBs PHED, UDD and State government</td>
<td>2010-2012</td>
<td>Plan for formation of utilities approved by the state government</td>
</tr>
<tr>
<td>6</td>
<td>Preparatory work for implementation of PPP models</td>
<td>CMU, ULBs PHED, UDD &amp; State government</td>
<td>2010-2012</td>
<td>Approval of suitable PPP model by the state government</td>
</tr>
<tr>
<td>7</td>
<td>Involvement of ULBs in service delivery</td>
<td>CMU, ULBs PHED, UDD and State government</td>
<td>2010-2012</td>
<td>Finalization of possible contractual options for ULBs</td>
</tr>
<tr>
<td>8</td>
<td>Preparatory work for institutionalizing RWSSC</td>
<td>PHED, State government</td>
<td>2010-2012</td>
<td>State government approval for operationalising RWSSC under the new framework</td>
</tr>
<tr>
<td><strong>Phase II: (2012-2017)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Operationalisation of RWSSC</td>
<td>State Government, PHED, RWSSC</td>
<td>2012-2017</td>
<td>RWSSC set-up and is operational</td>
</tr>
<tr>
<td>10</td>
<td>Formation of city and regional utilities</td>
<td>State government, PHED, ULBs</td>
<td>2012-2014</td>
<td>Necessary government orders and legal changes made for formation for city and regional utilities</td>
</tr>
<tr>
<td>11</td>
<td>Implementation of contractual arrangement</td>
<td>PHED, ULBs, city utilities, PPP operators</td>
<td>2012-2017</td>
<td>The contractual framework for service delivery through external providers is operationalised</td>
</tr>
<tr>
<td>12</td>
<td>Setup of independent regulatory framework</td>
<td>State government/ RWRC</td>
<td>Throughout the phase</td>
<td>RWRC setup by state government and RWRC would start performing its functions.</td>
</tr>
<tr>
<td><strong>Phase III: Comprehensive model for institutional restructuring (2017 onwards)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Review of Performance of utilities and restructured PHED</td>
<td>ULBs/ State government</td>
<td>2017-2020</td>
<td>Based on review, revised policy document on sector institutions.</td>
</tr>
<tr>
<td>14</td>
<td>Implementation of contractual framework for service delivery through PHED, PPP across the state</td>
<td>PHED/ ULBs/ Regulator</td>
<td>2020 onwards</td>
<td>Performance agreement between ULB and PHED/ Pvt operator finalized</td>
</tr>
</tbody>
</table>
# Haryana Proposed Summary Implementation Plan

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activity</th>
<th>Responsibility</th>
<th>Time frame</th>
<th>Monitorable Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage I: Incremental improvement in the functioning of PHED (2009-12)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Involvement of ULBs in service delivery, Formation of RUs</td>
<td>ULBs/ PHED/ State governments/ RUs</td>
<td>Initial 2 quarters</td>
<td>Finalization of possible contractual options for ULBs. RUs formed.</td>
</tr>
<tr>
<td>2</td>
<td>Improvement of accountability framework for PHED</td>
<td>PHED/ State governments</td>
<td>Initial 5 quarters</td>
<td>Performance agreement between PHED and state government finalized.</td>
</tr>
<tr>
<td>3</td>
<td>Preparation of Policy framework</td>
<td>ULBs/ State governments/ RUs</td>
<td>Initial 2 years</td>
<td>Strategy and reform policy approved</td>
</tr>
<tr>
<td>4</td>
<td>Ring-fencing of WSS functions</td>
<td>ULBs/ PHED/ RUs</td>
<td>Initial 3 years</td>
<td>Accounting system re-designed to capture WSS costs. Financing of O&amp;M deficit finalized.</td>
</tr>
</tbody>
</table>

| **Stage II: More prominent role in service provision for select large ULBs/ 1-2 newly formed RUs (2012-2017)** | | | | |
| 1 | Bringing select large ULBs/ 1-2 newly formed RUs to the centre of WSS operations | Select ULBs/ 1-2 new RUs | Throughout the phase | Select ULBs/ 1-2 new RUs at the centre of UWSS service provision |
| 2 | Smaller ULBs to continue with existing framework | PHED/ smaller ULBs | Throughout the phase | PHED responsible for UWSS service provision. Smaller ULBs under peripheral role. |
| 3 | Implementation of contractual framework for service delivery through PHED, PPP | PHED/ Select ULBs/ 1-2 new RUs | Initial 1 year | Performance agreement between ULB/ 1-2 new RUs and PHED/ Pvt operator finalized |
| 4 | PHED staff reorganization | PHED | Last 2 years of the phase | Staff reorganization plan to be prepared and finalized |
| 5 | Corporatization of PHED | PHED | Last 2 years of the phase | Registration and Certificate of Incorporation for PHED. Asset and liabilities transferred to the corporatized entity. |

| **Stage III: Central service provision role for all ULBs/ newly formed RUs (2017 onward)** | | | | |
| 1 | Bringing all ULBs/ newly formed RUs to the centre of WSS operations | ULBs/ new RUs | Throughout the phase | All ULBs/ new RUs at the centre of UWSS service provision |
| 2 | Implementation of contractual framework for service delivery through PHED, PPP | PHED/ ULBs/ new RUs | Initial 2 years of the phase | Performance agreement between ULBs/ new RUs and PHED/ Pvt operator finalized |
| 3 | Creation of robust regulatory framework | PHED/ State government/ Regulator | Throughout the phase | Regulatory framework finalized and Regulator commences discharge of functions. |
Annex 5: Example of Policy Statement for an Urban Water Supply & Sanitation Sector

By 2025, the State Department should have established an urban water supply and sanitation sector that has the characteristics given below.

The Water Supply and Sanitation Service

i. **Access**: (i) [XX%] of the urban population has access to piped water supply, mostly through individual connections; (ii) [YY%] of the urban population has access to sewers through individual connections.

ii. **Reliability**: (i) Piped water is provided on a permanent (24/7) basis at a minimum pressure of [10 meters] [XX%] of the time; (ii) [YY%] of drinking water samples collected at customer delivery points meet national bacteriological quality standards; (iii) accidental overflows of raw sewage in storm water drains are below [ZZ] per 100 kilometers of sewer per year.

iii. **Efficiency**: (i) the average non-revenue water is lower than [XX m3/day/km] of distribution pipe; (ii) the average bill collection ratio is higher than [YY%]; (iii) the average staffing ratio for water supply and wastewater operations is lower than [ZZ] staff per 1,000 water connections.

iv. **Financial sustainability**: (i) Tariffs and user fees collected from customers are sufficient to cover operation and maintenance costs, depreciate fixed assets and yield a return on fixed assets sufficient to service the debt and remunerate equity invested.

v. **Environmental sustainability**: (i) Quantities of water consumed and wastewater disposed off are limited to what is strictly necessary through pricing of the WSS service; (ii) financial incentives are provided to encourage water supply service providers reduce physical losses; (iii) [XX%] of the waste water collected is treated to meet effluent quality set by the State agency in charge of environmental protection.

vi. **Affordability**: Households in the lower income group quintile may qualify for State subsidies to limit the cost of connection to the WSS infrastructure and the monthly WSS bill for a lifeline consumption of [6] cubic meters per month per household is limited to [XX%] of the average monthly household income for this group.

The Water Supply and Sanitation Service Providers

vii. **Autonomous Service Providers**: Financially autonomous municipal and/or regional water supply and sanitation service providers have been incorporated by Urban Local Bodies or groups of Urban Local Bodies. They are responsible for providing the water
supply and sanitation service in the area specified in their operating License. The operating License clarifies the minimum technical, commercial and financial performance to be achieved. Water supply and sanitation service providers are managed by Boards of Directors representing public and private stakeholders. Water supply and sanitation service providers and employ managers and staff recruited competitively among independently certified staff.

The Functions of the Water Supply and Sanitation Services

viii. **Service provision**: Water supply and sanitation service providers operate the service and maintain the fixed assets as specified in their operating License. They are encouraged to enter into public-private partnerships aimed at improving efficiency of the services within a framework set by the State.

ix. **Infrastructure development**: Water supply and sanitation service providers prepare and implement rehabilitation and extension programs of the infrastructure in their service area that correspond to the least cost solution. They are encouraged to seek assistance of specialized engineering consultants for these tasks.

x. **Financing**: Water supply and sanitation service providers finance the operation of the service and the development of the infrastructure from cash generated from operations, debt extended by public or commercial lenders and equity injected by public and private investors. Development grants are provided by the State government are limited to support projects with strong public good characteristics. Water supply and sanitation service providers can enter into public-private partnerships aimed at mobilizing commercial financing for developing the infrastructure within a framework set by the State.

xi. **Regulation**: An independent Regulatory Authority issues and renews operating Licenses to public and private water supply and sanitation service providers and monitors the compliance of their performance with the terms of the License and applies penalties in case of default. The Regulatory Authority sets tariff levels and structures in accordance with the State pricing policies that aim at the same time at recovering operation, maintenance and capital costs, managing demand and ensure affordability by lower income households.

xii. **Policy Formulation**: The State agency in charge of the urban water supply and sanitation sector regularly updates policies on the basis of independent field surveys, stakeholder consultations economic analyses and reviews of best practices worldwide.
Annex 6: Indicative Contents of a Service Improvement Plan (SIP)

1. **Introduction**
   - Why a SIP is being prepared
   - Description of Service Area (geographic and customer categorization)
   - Statement of existing utility mandate

2. **Existing Situation**
   i. Situational analysis *(where is the utility now?)*
      - Analysis of Existing Service Provision (Technical/performance analysis)
        - Extent and capacity of assets
        - Condition of assets
        - Water resources (availability and quality of raw water etc)
        - Service performance – key performance indicators of assets
        - Service performance – for customers
   ii. Institutional Aspects of Existing Service Provider
      - Sector structure
      - Organizational structure of provider – including staff numbers and grades, ages, and organogram
      - Existing systems and procedures, including MIS
      - Existing HR procedures for employment
      - Customer orientation
   iii. Overall Assessment of existing service provider

3. **Water and Sanitation Improvement Program**
   iv. Statement of vision, mission and goals *(where does the utility want to be?)*
      - Vision, Mission, Core values, Corporate strategic goals
   v. Service performance improvement objectives, targets and timeframe
      - State objectives, performance indicators, standards and targets, along with any assumptions
   vi. Service performance improvement strategies *(how might the utility get there?)*
      - Human resources management
        - Training and capacity building
        - Change Management Plan
      - Management information systems
      - Customer services managements
      - Operations and maintenance
• Service quality improvement strategy and action plan (water quality and reliability (24x7); waste water effluent quality improvement)

vii. Investment Needs (CAPEX)
The following assessments need to be carried out for CAPEX requirements to achieve desired levels of service:
• Water resource availability
• Hydraulic modeling for water and wastewater
• Assessment of treatment processes
• Investment optimization with links between investment and impact on service
• Water and energy audits
• NRW assessment and options for Active Leakage Control
• Energy efficiency program
• Financial and Commercial Operations:
  • Development of financial model
  • Preparation of financial projections for 10 years including sensitivity and scenario analyses
• Commercial performance improvement strategy and actions
• NRW reduction strategy and action plan
• Financing Plan for Tariffs
• Current and future schedules
• Current and future estimated levels
• Financing Plan for meeting at least the cost of OPEX and depreciation of assets

viii. Training and Capacity Building:
• Training Program: What needs to be done, by whom and at what cost
• Approach to change management

4. Institutional Development Program:
• Institutional option (including PPP/Service Provider; Utility/Regional Utility models)
• What needs to be done, by whom and at what cost

5. Implementation Program and Arrangements
• Key activities, their interrelationship, and critical path items
• Profile for Improvements in customer service
• How will the program be implemented – within the service provider?
• How will progress be monitored
• Performance monitoring and evaluation

6. Customer/Citizen Communication and Outreach Program

7. Annexures to SIP
• City Sanitation Plans
• MoUD Service Level Benchmarks
• Detailed Implementation Plan for each performance improvement strategy under SIP
Annex 7: Stakeholder Consultations

A series of stakeholder consultations were organized in the three States for the preparation of the Urban WSS Business Plans. The main workshops and consultations are presented below.

**Maharashtra**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Participants</th>
<th>Topics for Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2008 to</td>
<td>Discussions with WSSD Officials and visits to 9-10 representative ULBs. Meetings with ULB officials, NGOs and citizen representatives.</td>
<td>Series of discussions and consultations on the sector program and reform agenda. ULB level information gathered on sector performance and data for preparation of the investment program.</td>
</tr>
<tr>
<td>December 2008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>February 2009</td>
<td>WSSD Officials, MJP Officials, and representative ULBs.</td>
<td>Presentation of the key outputs from the draft business plan and feedback from participants.</td>
</tr>
<tr>
<td>March 2009</td>
<td>Mr. A. K. Jain, Secretary, WSSD, GoM; Mr, Manu Srivastava, Secretary, Urban Development; officers from WSSD and MJP; officers from representative ULBs. in Maharashtra and MUINFRA</td>
<td>Presentation and discussion of revised business plan and details of the MSNA program. Discussion on ULB level institutional models.</td>
</tr>
<tr>
<td>April 9, 2009</td>
<td>Workshop with WSSD Officials and 9-10 representative ULBs.</td>
<td>Sector Reform Program including policies and institutional development program at the State and ULB level. Discussions on setting up of a Change Management Unit to manage ULB level reforms and capacity building.</td>
</tr>
<tr>
<td>May 2009 to</td>
<td>Visits and consultations with representative ULBs and WSSD Officials. Meetings with Ms. Malini Shankar, WSSD Secretary, GoM.</td>
<td>Discussions on key elements of sector reform program and implementation of MSNA program. Consultants hired for setting-up the Change Management Unit.</td>
</tr>
<tr>
<td>December 2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>January 2010</td>
<td>Mr. Ramachandran, Secretary, MoUD, other key officials of MoUD, and World Bank.</td>
<td>Discussion on sector program, funding, institutional and policy issues, along with a clear road map for long term direction.</td>
</tr>
<tr>
<td>March 2010 to</td>
<td>Five workshops with representative ULBs.</td>
<td>Discussions to finalize WSS Business Plan, including investment plan, policies and institutional models.</td>
</tr>
<tr>
<td>December 2010</td>
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<tr>
<td>January 2011</td>
<td>Workshop chaired by Ms. Malini Shankar, WSSD Secretary, with WSSD Officials and 5-6 representative ULBs</td>
<td>Feed-back on revised WSS Business Plan. Comments incorporated and document finalized.</td>
</tr>
<tr>
<td>March 2011</td>
<td>Govt. of Maharashtra Round Table Meeting of Secretaries, chaired by Chief Minister.</td>
<td>Key elements of MSNA program presented and discussed. Chief Minister appreciated the reform program and requested further work on the Incentive Program, as a separate piece of sector work.</td>
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### Rajasthan

<table>
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<tr>
<th>Date</th>
<th>Participants</th>
<th>Discussions</th>
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<tbody>
<tr>
<td>February to May 2008</td>
<td>Visits and consultations with 4-5 representative towns, NGOs and citizen representatives.</td>
<td>Discussions on sector program and reform agenda.</td>
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<tr>
<td>May 2008, June 2008, July 2008, September 2008</td>
<td>Powertec meetings with Mr. Ram Lubhaya, Principal Secretary, PHED, Mr. G. S. Sandhu, Principal Secretary, Urban Development, Mr. Agam Mathur, Chief Engineer, (CE SP&amp; EAP), PHED Jaipur, Mr. Devesh Bhardawaj, Chief Engineer, Urban Water Supply, PHED, MR. D. C. Bhardawaj, Chief Engineer (HQ), PHED, Jaipur, Mr. M. K. M. Joshi, Chief Engineer, Rural, PHED, Jaipur, Mr. M. L. Chabbra, FA&amp; CAO, RWSSMB, Jaipur.</td>
<td>Presentations and discussion on the Draft Business Plans at 5 Consultative Workshops/Meetings</td>
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<td>January 2009</td>
<td>Mr. M. Ramachandran, Secretary, MoUD, Urban Development, Mr. Vinod Kapoor, Secretary, PHED, Mr. Devesh Bhardawaj, Chief Engineer, Urban Water Supply</td>
<td>Discussions on the future strategy for the sector program and implementation plan.</td>
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<tr>
<td>September 2009 December 2010</td>
<td>Five Workshops and several meetings with Principal Secretary, GoR, Senior PHED Officials, and ULB representatives. Detailed discussions with Mr. Sandhu, Principal Secretary Urban Development and Mr. Agam Mathur, Chief Engineer, PHED.</td>
<td>Discussions held and draft Business Plan revised to incorporate the current sector vision and strategy of the State Government.</td>
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### Haryana

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<tr>
<td>March 2008</td>
<td>PwC met with Mr. Sameer Mathur (Commissioner and Secretary, WSSD, Govt of Haryana) and his team of department officials, including the Engineer-In-Chief and Chief Engineer</td>
<td>Discussions on the preparation of the WSS Business Plan. It was agreed that the magnitude of investments along with policy and institutional aspects will be analyzed.</td>
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<tr>
<td>Between March and August 2008</td>
<td>PwC met WSSD officials and ULB representatives in 8 representative towns of Haryana.</td>
<td>Discussions mainly focused on deciding various aspects of policy interventions, institutional development and investment requirement program related to UWSS Sector. ULB level data was gathered for preparing the investment program.</td>
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<tr>
<td>September 2008</td>
<td>PwC discussed draft report with Mr. Roshan Lal (Commissioner and Secretary, WSSD, Govt of Haryana) along with key officials from WSSD.</td>
<td>Discussions to finalize the most feasible and workable institutional option (in order to move towards 74th Amendment) for the UWSS sector in Haryana.</td>
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### Improving Urban Water Supply and Sanitation Service Provision

January 2009
- Workshop conducted at MoUD, New Delhi, chaired by Mr. M. Ramachandran (Secretary to MoUD).
- Discussions on draft report. It was proposed to conduct a workshop with representatives from state government, WSSD as well as representative ULBs to understand their views regarding the institutional change proposed under 74th Amendment.

March 2009
- PwC met with Mr. Roshan Lal, WSSD Officials, and representative ULB officials.
- Discussions to get feedback on draft report and institutional options at ULB level. It was decided that another workshop be organized with WSSD and ULBs for a wider discussion on the draft report and recommendations.

April 2009
- Workshop organized at Kurukshetra, Haryana which was attended by key officials of WSSD and 9-10 representative ULBs.
- Discussions on draft report and the future direction of reforms in the UWSS sector in Haryana.

May 2009 to May 2010
- Visits and consultations with 8-10 representative ULBs.
- Discussions on sector program and reform agenda.

July 2010
- Workshop in Chandigarh to discuss draft report with WSSD and representative ULBs.
- Revised report presented and finalized.

### Ministry of Urban Development

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<tr>
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<tr>
<td>October 28, 2010</td>
<td>Discussion with Secretaries of Maharashtra, Rajasthan, Haryana, Andhra Pradesh, Tamil Nadu, Madhya Pradesh, W. Bengal, Punjab, Karnataka, and Uttar Pradesh. Meeting chaired by Mr. Ramachandran, Secretary MoUD.</td>
<td>Discussion on findings from the Draft Business Plan Reports and key agenda for WSS sector reforms: (i) WSS reform program, including policies and institutional development program for improving WSS services based on the three Business Plans. (ii) Elements of the Advisory Note for WSS service delivery improvements. (iii) Possible ‘incentive linked finance program’ for cost effective WSS improvements.</td>
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<tr>
<td>December 2010 to February 2011</td>
<td>Mr. Mehta, Jt. Secretary, MoUD and Ms. Nivedita, Director, MoUD, along with other MoUD Officials. Discussion with Mr. Navin Kumar, Secretary MoUD.</td>
<td>Discussion on the main recommendations of the Business Plan Reports. Agreement on MoUD Advisory Note, based on the recommendations of the Business Plan Reports</td>
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<tr>
<td>March 2011</td>
<td>MoUD Officials and Mr. Navin Kumar, Secretary MoUD.</td>
<td>Final MoUD Advisory Note prepared.</td>
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