





# Improving Urban Water Supply & Sanitation Services

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**Advisory Note**

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**July 2012**



**Ministry of Urban Development  
Government of India**



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Secretary

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## Foreword

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This Advisory Note on Improving Urban Water Supply and Sanitation Services (WSS) in India is an effort to provide guidance to States and Cities in adopting specific policies and governance structures for improving service delivery to the customers. 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 note seeks to address key policy, institutional, financial and professional issues for formulating a Comprehensive Sector Development Plan at the State and the Local Body (LB) level. The Advisory further delineates how cities could undertake the formulation of Service Improvement Plans (SIPs), focusing on outcomes rather than outputs and ensuring efficiency of capital investments. 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 LBs adopting the proposed framework for progressively achieving improved, customer oriented, and accountable services.

The Advisory draws on the experience gained in implementation of large number of water supply projects as well as Urban WSS Business Plans for select States, supported through Technical Assistance by the World Bank during 2008-11. States are advised to prepare detailed action plan for the next ten years for the Urban WSS sector.



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July 2012



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## Preface

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The main objective of the Urban Water Supply and Sanitation Advisory Note is to help States and Cities in developing their State-wide/City-wide programs for improving Urban WSS service delivery and accountability. There is a growing realization that ‘increasing access to infrastructure is not usually the solution’, and ‘creating infrastructure and not addressing management of Urban WSS services does not lead to sustainable services’. In this context, certain key areas have been identified as critical for improving the sector performance. These are: Clarifying the Mandates of Urban WSS Service Providers, Improving the Governance of Urban WSS Service Providers, Ensuring Predictable and Cost Effective Financing of Urban WSS Operations and Infrastructure Development Program, Regulating the Urban WSS Services, Building Capacity, Developing Procedures and Professionalizing the Urban WSS Sector, including procedures for Community Participation.

These areas comprise the key policy, institutional, financial and professional measures that are needed to develop a comprehensive WSS Sector Development Program, describing where a State/City wishes its Urban WSS Sector to be in, say, 5-10 years from now. Although there is no “one-size-fits-all” solution, the Urban WSS Sector Development Program could build on national and international experiences for achieving what is usually accepted as good practice. States need to prepare a detailed sector program, taking into consideration the capacities of the LBs and what can be realistically achieved over the next ten years.

July 2012



**Ashok Singhvi**



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# I. Urban Water Supply & Sanitation (WSS) Sector Background

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## Sector Challenges

A massive urban transformation is accompanying India's rapid economic growth, posing unprecedented challenges to India's growing cities and towns, particularly in the provision of infrastructure such as water, sanitation and sewerage for meeting the needs of a future urban population of 600 million people by 2031. This growth needs massive capital and operations and maintenance (O&M) investment in urban infrastructure, as highlighted by various Finance Commissions and expert bodies. The High Powered Expert Committee (HPEC) Report on Indian Urban Infrastructure and Services estimates the per capita investment needed for capital infrastructure in the water, sewerage and storm-water sector at Rs 13,329 and another Rs 840 annually for operations and maintenance at 2009-10 prices. The total investment needed during 2012-2031 according to this estimation is Rs 7,54,627 crore for capital and Rs 8,17,671 crore for O&M. Thus, the water supply, sewerage and storm water drainage investments amount to about 24% of all urban sector requirements for capital and 41% for O&M respectively. In this situation, enhancing capital and operational efficiency is clearly a priority for using funds efficiently and effectively to deliver maximum benefit from investments.

The quality of service currently delivered is very poor with no city having access to a 24/7 water supply. Whilst the investment noted above will be needed to overcome service quality issues, it will not be sufficient on its own without significant change in the current governance arrangements. The investments in urban WSS need to be accompanied by actions to enhance the autonomy, accountability and customer orientation of service providers, improve incentives and support sector professionalization.

Rapid urbanization is also having a detrimental effect on water resources – both in terms of quality due to pollution of rivers and groundwater, and quantity as conflicting/competing demands for water increase. Thus even greater attention is now needed to collect and treat wastewater, and to manage finite water resources, both surface and ground water, more effectively.

The various Plan documents, including X and XI Five Year Plans and the Approach for XII Plan highlight the need to address these issues in a way that achieves environmental and financial sustainability, along with equitable service provision, especially to the urban poor. These documents emphasize the need for establishing appropriate institutional structures and building capacity of the State Departments and the Local Bodies (LBs) for improving accountability. The Report of the Working Group on Urban WSS for XII Plan has the following key recommendations:

- Scale of investment needed in the WSS sector is substantial. A careful assessment of the total cost of water and sewage sector is required to ensure the projects are planned for affordability and sustainability. It is important to choose the correct technology in order to prevent wasteful expenditure.
- Public-Private Partnerships (PPP) need to be conceptualized for contributing to capital investments. Private sector already plays a role in water and waste services as a contractor to the public utility to build and even operate key components of the system. This role must be recognized and encouraged. However, this partnership must be planned carefully and with full knowledge of the associated costs and benefits.
- Water and sewage services must be paid for in order to recover costs.
- More, and urgent, attention needs to be given to the issue of sustainability of the resource.
- Future investment in water supply should include elements of demand management (reducing water usage) and distribution system leakage management to help reduce intra-city inequity of the quantity and quality of water supplied.
- Attention should be given to building, renewing and replenishing local water sources, including groundwater, to cut the costs of water supply through investments in sewerage (to stop pollution of waterways), and in increased reuse and recycling of waste waters.
- Capacity should be built at all levels, including exploring institutional and management options for water and sanitation in cities.

In addition to the above recommendations, the XII Plan Working Group identifies the following key institutional reforms if the sector is to evolve in a manner that can address the many challenges it now faces (Annex 1):

- Utility reforms needed for improving sector governance and performance might include:
  - Urban Local Body as the service provider and creator of capital assets.
  - City-level parastatal as the service provider and creator of capital assets.
  - State-level parastatal as the service provider and creator of capital assets.
- Government support to be given to LBs in a phased manner during their transition to sustainable services. This phased approach could comprise:
  - *Phase I* – Immediate: Ring fencing of the WSS operations is the bare minimum that needs to be enforced. In the transition period, the LBs will be expected to improve their governance, service levels and cost recovery.
  - *Phase II* – Three years from launch of reform process: A time-frame needs to be given to the utilities for improving governance, service levels and sustainability of operations under a ring-fenced framework. If there is no significant improvement, the state

governments through their powers should transfer the entire WSS operations to a separate entity under the LB.

- *Phase III*: Five years from launch of reform process: Continued shortfalls in governance or performance can result in the state government recommending appropriate steps including the option of transfer of WSS operations to a third party arrangement (PPP).

The Report of the XII Plan Working Group also presents the emerging PPP practices in the WSS sector in India (Annex 2)

## Measures for Addressing the Sector Challenges

The MoUD has initiated a number of programs and activities to address the sector challenges:

- Reforms under JNNURM including transfer of Urban WSS functions to the Urban Local Bodies (LBs) as per 74<sup>th</sup> Constitution (Amendment) Act.
- Service Level Benchmarks (SLBs -Annex 3) to improve efficiency in the functioning of Urban WSS systems, including governance, finance, institutional capacity etc. Also, the XIII Finance Commission recommends that general performance grant could be drawn by States only if they meet the nine conditions laid down in para 10.161<sup>1</sup> of the report. One of the conditions is related to the notification by the LBs (Municipalities and Municipal Corporations) regarding the SLBs, and their commitment for improvements. Following recommendations of the XIII Finance Commission, about 1493 cities/towns have already notified their WSS SLBs (Annex 4). Results further reinforce the need for immediate improvement in the service levels in the WSS sector.
- National Urban Sanitation Policy (NUSP 2008) covering all aspects of urban sanitation. The City Sanitation Rating exercise has been initiated under the NUSP to create mass awareness and mainstreaming of sanitation related activities.
- National Urban Water Awards for recognizing best efforts in improving water supply services.

## Areas of Concern

While the transfer of the Urban WSS functions to the LBs addresses the issue of governance and decentralization of responsibilities, there is a concern regarding the institutional capacity of LBs in managing the functions proficiently. While the larger LBs may be able to develop

<sup>1</sup> 10.161 For the years 2011-2012, 2012-13, 2013-14 and 2014-15, a State Government will be eligible to draw down its share of the general performance grant recommended by XIII FC for the succeeding fiscal year only if it complies with the following nine conditions to be met by the end of a fiscal year (31 March). The conditions are: (1) publish budget of the LBs, its supplements and the accounting system; (2) carry-out audits of LB accounts; (3) establish independent local body ombudsmen; (4) implement electronic transfer of local body grants provided by XIII FC; (5) publish qualifications of persons eligible for appointment as members of the SFC; (6) levy property tax; (7) establish State level Property Tax Board; (8) implement standards for delivery of all essential services provided by the local bodies; and (9) prepare fire hazard response and mitigation plan of LBs.

adequate institutional capacity in the short term, the smaller LBs may take a longer time. Therefore, it may be necessary to retain the State Level WSS Departments as knowledge repositories, providing technical support or facilitating operational services to the LBs, with a dedicated WSS Service Provider at the LB level, if the LB so desires. However, to achieve decentralized service delivery responsibilities with improved accountability, it is important to define the relationship between the State Level Organization, the LB and the dedicated WSS Service Provider.

## Principles of Service Delivery

The key principles for service delivery responsibilities, supported by the MoUD are:

- **State Policy for Water Supply and Sanitation:** The State WSS Departments will be responsible for setting out the charter of policies governing the Urban WSS sector, including service provision, regulation, institutions, financing, professional development, performance management, monitoring and evaluation.
- **Governance Structures:** The governance and institutions need to be geared towards improving the quality and efficiency of service delivery. This requires improving the financial and managerial autonomy of the LB/WSS Service Provider as applicable, along with incentives for improving customer orientation and service efficiency, for which different models can be explored. As a minimum this would include ring fencing the assets, staff and accounts of the WSS activities within the LB. Beyond that, establishing independent utilities, including corporatization of public sector service providers would be basic prerequisites for promoting a virtuous cycle of efficiency and sustainability of services, including the achievement of Service Level Benchmarks.
- **Asset Ownership and Responsibility for Service Provision:** The LBs should be the owners of the WSS assets and fully responsible for provision of WSS services in their jurisdiction, including asset creation and management. They should also be responsible for ensuring operations and maintenance, including tariff setting, billing and collection. They can choose to provide services using their own staff or contracting to others, or a mix of the two, with clearly defined roles and responsibility of the WSS Service Provider, as applicable. Ministry has been advocating partnering with the private sector, where appropriate, to bring improved technical and managerial know how into the water supply and sanitation sector. A range of PPP models, successful internationally, could be considered in the Indian context. However, until the legislation and regulation in the sector becomes better defined, the LBs and State Government agencies may adopt limited privatization, including management contracts (to operate and maintain systems), service contracts (to provide focused services such as pump station maintenance, or bill generation), performance contracts (to reduce leakages from networks), and design, build, operate contracts (for entire water supply operations including source, treatment, distribution, wastewater treatment plant, etc). Lessons can be learnt from the emerging PPP models in India (Annex 2).

- **Unbundling and/or Regional WSS Entities:** While Service Providers at the LB level are envisaged as “self contained” entities (responsible for source works, transmission, distribution, collection and treatment), there could be cases wherein multi municipal cooperation may provide most appropriate solution for service delivery, particularly for provision of bulk water supply, or centralized wastewater treatment facilities. Regional service provider models could be explored, including creation of a Special Purpose Vehicle (SPV) for bulk supply. State WSS Department could also play this role if so desired by LBs, where appropriate, especially for bulk water supply. Also, cost effective services could be achieved through aggregation of a number of adjacent LBs into a single, regional, service provider model. In addition, a regional WSS scheme for urban and rural areas can be explored covering en-route villages, taking into consideration the sustainability of the source and the cost effectiveness of the scheme.
- **Regulation:** The States need to set up regulatory mechanisms through an independent agency for setting standards, monitoring performance, adjusting tariffs, etc. In the short term this could be limited to performance standards and monitoring by the regulator, but in the longer term it may evolve into a regulatory mechanism which the states may like to establish, including responsibility for granting and renewing licenses and clearly articulating the rights and obligations of the various entities on service provision. Although a few states e.g. Maharashtra has set up the Water Regulatory Authority, its primary focus lies in water resource allocation and not service delivery.
- **Financing WSS Services:** In the short term, the service providers will move towards immediate recovery of O&M cost, whereas the finances for capital investments may continue to be granted by the States or the Centre. However, in the medium term, the goal is 100% sustainability in both O&M and capital investments. The Ministry has also been advocating reforms in municipal accounting, including double entry book-keeping for improving transparency and financial management systems.
- **Restructuring Tariff:** The LBs shall be given due autonomy in implementing their own tariff structure, based on transparent accounting and auditing of their financial statements. The Detailed Project Reports (DPRs) for schemes should lay down the specific components of O&M cost, including staff, structures, power and consumables. It should also specify the suggested rates for user charges, which should lead to regular recovery of O&M expenses and recovery of CAPEX through installments, leading to full recovery of the capital investment (including major repairs) over the project period. The Regulatory Authorities, if set up, may also provide guidance on the structure for water tariffs. As the urban water supply and sanitation services are becoming energy intensive, the tariff regime should include a component of energy surcharge, linked to the power tariffs, with automatic adjustments for any hikes in tariff imposed by the power distribution companies.
- **Building a Modern and Professional Sector – the Role of State Level Organization:** The evolution from a “State Centric” to a “LB Centric” model of service provision requires both the LB and the State Level Organization (SLO) to adjust to their evolving roles

and responsibilities. As noted above, the LB service delivery model needs to focus on improving services, increasing financial sustainability, and becoming more accountable with greater customer orientation. The SLO should evolve as an organization with technical resources to advise the LB on WSS policy aspects, designing, construction and supervision of new assets, O&M of assets, along with capacity building for improving professional competence and monitoring and evaluation of the sector program. The State Government agencies should be able to depute staff to the LBs. Alternatively, the SLO could be contracted by the LB to provide technical services and operate and maintain systems. To improve overall sector management and professionalization, the SLO can issue guidelines on standard designs and specifications, schedule of rates, recruitment and staff training programs, etc.

Based on the above, and considering the on-going efforts of the Ministry and the State Governments, there is need to further develop the Urban WSS reform program. This Advisory Note presents the identified areas of improvement and the actionable points for consideration and adoption by the State Governments and the LBs responsible for the Urban WSS Sector.

## II. Key Areas for Improving Urban Water Supply and Sanitation in India

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Improving Urban Water Supply and Sanitation Services (WSS) services is one of the major concerns in urban areas. This Advisory Note draws on the experience gained in the Urban WSS sector under various initiatives. The following five key areas have been identified as critical for improving the sector performance:

- A. Clarifying the Mandates of Water Supply and Sanitation Service Providers
- B. Improving the Governance of Water Supply and Sanitation Service Providers
- C. Financing Water Supply and Sanitation Operations and Infrastructure Development
- D. Regulating the Urban Water Supply and Sanitation Service
- E. Building Capacity, Developing Procedures and Professionalizing Actors of the Water Supply and Sanitation Sector.
- F. Developing Procedures for Community Participation

These areas comprise the key policy, institutional, financial and professional reforms that are needed to develop a comprehensive WSS Sector Development 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, the WSS Sector Development Program could build on national and international experiences for achieving what is usually accepted as good practice. The key elements of the WSS Sector Development Program could be captured in a Policy Statement. Annex 5 gives an example Policy Statement. The practical vehicle for turning Policy Statements into reality at the LB level is the Service Improvement Plan (SIP-Annex 6). The SIP should set out the improvements in institutional and service delivery aspects, including commercial, financial and technical performance, that will enable the LB and the Service Provider in achieving the articulated Policy Statement. As such, the SIP should be seen as a Performance Agreement between the Service Provider and the LB.

Achieving the Policy Statement will require the roles and responsibilities of the various actors in the sector to be better defined, focusing on processes that will deliver sustainable, efficient, quality and affordable services to the customers. While the LBs / WSS Service Providers will be on the “front line” in improving service delivery, the State WSS Departments will be responsible for developing and implementing the new sector program and policies, assisting all actors in operationalizing their redefined roles, securing adequate resources, monitoring implementation performance and supporting the establishment of the new functions including the regulatory framework.

## A. Clarifying the Mandates of Water Supply and Sanitation Service Providers

- **Decentralization:** State Departments responsible for urban WSS will prepare and implement a sector program, including policies and institutional development program, to enable LBs to take full responsibility for the provision of urban WSS services in their jurisdiction.
- **Improving Autonomy and Accountability:** As a minimum, the WSS assets, staffing, costs and revenues should be ring fenced within the LB. International good practice shows that further deepening of this ring fencing activity, particularly with regard to governance structures, is likely to lead to improved outcomes. Creation of LB owned WSS entities under company law, or under statutes, tend to deliver improved performance. This can be seen in the various Water Boards, and the Corporatized Power Distribution Companies in India. LB could incorporate autonomous WSS service providers according to standard procedures defined by the State Government (see below).
- **Clarifying Responsibilities of Service Providers:** The State, having overall responsibility for the sector, should set out the minimum operating requirements/ standards for WSS Service Provision including the establishment of the Independent Regulatory Authority. Guidance notes may be issued in this regard.
- **Operation and Maintenance:** The LBs (individually or as a cluster) should 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 Service Providers (private contractors) or others, including State Level Organization under a service contract.
- **Customer Service:** The Service Provider should provide the WSS services to customers according to a standard performance based Customer Contract, or Citizen Charter, derived from the SLB framework and appended to their contract with the LB.
- **Infrastructure Development:** The LB should be fully responsible for developing its WSS infrastructure. In case of lack of capacity, it could outsource project identification, preparation and implementation to the SLOs / specialized engineering consultants, with specific agreed contracts. The State Government should develop procedures to be followed to employ such consultants. The LBs should follow the check-list developed by MoUD, including SLBs, for scrutiny of Detailed Project Reports - DPRs (<http://urbanindia.nic.in/programme/uwss/dprs-checklists>). Regional WSS scheme for urban and rural areas, covering en-route villages, should be considered. Such schemes should take into consideration the sustainability of the source and the cost effectiveness of the regional scheme.
- **Emphasis on Sanitation and Waste Water Management.** The State/LB should lay emphasis on sanitation, particularly focusing on better planning, service

improvement, sewerage tariff collection, use of appropriate and sustainable technologies especially for collection, treatment and recycling, awareness creation, citizen involvement, and institutional reform for improved service delivery.

- **Financing of WSS Operations and Infrastructure Development:** The LB/Service Provider should finance their operation, maintenance and capital cost from a mix of cash generation, subsidies and grants and public and commercial debt.
- **Reporting Requirements:** Every Service Provider should publish an annual report on their performance for public disclosure and also submit the report to an independent Regulatory Authority when established, or the State department in the meantime.

## B. Improving the Governance of Water Supply and Sanitation Service Providers

- **Autonomy:** The LBs could incorporate autonomous WSS Service Providers according to standard procedures defined by the State Governments. LBs within the same geographical area could be encouraged to regroup their urban WSS operations to reach a minimum size for achieving economies of scale. Performance of the Service Provider needs to be evaluated as per the SLBs. Deeper forms of autonomy, including corporatization are encouraged, for which the bylaws could clarify:
  - a. The composition, roles and responsibilities, appointment criteria, compensation and code of conduct of the members of Board of Directors of the Service Provider;
  - b. Conditions under which key managers and staff will be recruited and compensated and their performance evaluated;
  - c. The initial funding of the Service Provider, conditions for establishing the Service Provider, opening balance sheet, preparing financial statements and auditing them.
- **Accountability to LB.** The Service Provider and the LB (or grouping of LBs, in case of aggregated WSS operation) should enter into short-term memoranda of understanding (MOU) to clarify short term commitments and obligations of both parties regarding infrastructure development, improvement of service quality, and operating performance, in compliance with the SIP. The key features of these memoranda should be disclosed to the public.
- **Accountability to Customers.** The LB/Service Provider should improve information made available to, consultation with, and participation of, Customers in their decisions. The Service Provider should also improve recourse and redress procedures available to Customers in accordance with the Service Level Benchmarks. The key features should be disclosed to the public under PDL/RTI.
- **Improving Internal Procedures.** The LB/Service Provider should be encouraged to improve their internal procedures by:

- a. Formulating “mission statement” and ensuring that managers and staff comply with the policies;
  - 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, LB/Service Provider should be encouraged to outsource part or the entirety of the WSS services to private contractors and operators. State Governments should identify appropriate PPP models and prepare procedures to be followed for identifying risks, mitigation arrangements, including consultations with stakeholders, drafting contracts, selecting private partners and implementing the PPP models. Recent studies show that further attention needs to be paid to project preparation, structuring, and risk-sharing. Cities lack the capacity to design, implement and monitor PPPs. There is a need for hand-holding cities in the design and implementation of PPPs and to build their capacity in the long term.

## C. Financing Water Supply and Sanitation Operations and Infrastructure Development

- **Financing Sources.** In the short term LB/Service Provider should accelerate their movement towards financing their operations and maintenance costs from user fees. This can be achieved through a combination of: (a) improving customer data-base; (b) computerized billing and collection; (c) metering of water supply; (d) reducing Non Revenue Water (NRW) and (e) adopting volumetric tariffs. Water audits and energy audits are critical for reducing inefficiencies. Other options, including development charges can also be explored for WSS financing. In the long term LB/Service Provider should finance their operating and maintenance costs and capital expenditure programs (CAPEX) through a mix of cash generated from operations, subsidies and grants and long term debt extended by public or commercial lenders.
- **Application for Public Financing.** The LB/Service Provider following double entry book-keeping and audit procedures, with ring-fenced service provision, may be allowed to apply for public financing. The State Governments could set a reasonable deadline for enabling LBs to incorporate the Service Provider, and for the Service Provider to apply for a Performance Contract/License.
  - a. LB/Service Provider should support all requests for public financing with medium-term forecasts of their financial statements (income and cash flow statements, balance sheet);

- b. Financial forecasts should include a realistic program for tariff increases, for phasing out O&M subsidies and moving towards 100% O&M cost recovery through user charges.
  - c. Departments in charge of WSS and the Regulatory Authority should develop standard formats for presenting financial forecasts;
  - d. LB/Service Provider should be encouraged to use specialized consultants to prepare financial forecasts.
- **Phasing out of Operating Subsidies.** State Government should set a reasonable deadline in short/medium term for phasing out operating subsidies in WSS operations and cause LB/Service Provider to recover their cash operating costs through user charges . However, a reasonable subsidy for minimum lifeline consumption maybe built in the tariff structure, if needed, along with cross subsidies from other customers. Usually the minimum lifeline consumption is taken as 0-6KL/month/household.
  - **Targeting Development Grants.** While in the short and medium term, the State Government can continue providing capital development grants, in the long term it can incentivise the LB/Service Provider to start financing the development of their remaining infrastructure on their own through appropriate instruments such as long term debt etc.
  - **Developing Public Lending Capacities.** As a long term objective, the State Government could encourage the financing of WSS capital expenditure programs through 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, the State Governments could consider use of public lending agencies to extend loans directly to creditworthy LBs/Service Providers. This would also require:
    - a. Public lending agencies could develop, together with Departments in charge of WSS and Regulatory Authorities, meaningful project appraisal and supervision procedures;
    - b. State Government could investigate the need for providing guarantees to public lenders on soften lending terms;
    - c. Ring fenced LB WSS service providers could prepare independently audited financial statements.
  - **Accessing Commercial Financing.** The State Department in charge of Finance should set rules for LBs/Service Providers to access 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 LB/Service Provider, including interim risk sharing guarantee arrangements, as necessary.

- **Financial Recovery Plans.** Since most LBs/Service Providers may initially operate under tariff and operating performance constraints likely to translate into operating losses, the financial forecasts for the next ten year period could help identify:
  - a. Realistic financial recovery plan aimed at 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. LB/Service Provider to ensure that data input in financial forecasts are credible and supported by adequate analysis and assumptions.

## D. Regulating the Urban Water Supply and Sanitation Service

- **Regulatory Functions:** By strengthening the regulatory functions, the State Governments could limit the risk of monopoly abuse by the LB/Service Provider of poor quality service or high tariffs covering the cost of inefficiencies. The regulatory functions should cover service delivery standards for the Service Provider, monitoring of the compliance, periodic resetting of tariffs, etc.
- **Regulatory Act:** The State Governments should pass a Regulatory Act to:
  - a. Clarify the objectives of 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 should 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 LB/Service Provider.
- **Performance Contract of Service Provider.** The Service Provider should apply for a Performance Contract (similar to a license) or in case of State Service Providers, enter into a MoU according to procedures clarified by the State Department/Regulatory Authority. The Performance Contract/ MoU should specify:
  - a. Conditions under which the WSS infrastructure should be operated and maintained and the service provided to Customers;
  - b. Minimum technical, commercial and financial performance to be achieved by the Service Provider to maintain its contract, and penalties that should apply in terms of non-compliance;

- c. Tariffs and other user charges the Service Provider should be allowed to apply as well as procedures for periodically resetting tariffs; and
- d. Reporting obligations of the Service Provider.
- **Monitoring the Quality of the WSS Service.**
  - a. The Service Providers should report on their technical, commercial and financial performance according to formats developed by the Regulatory Authority / State Department; the Regulatory Authority should employ independent experts and auditors, as necessary, to validate reports submitted by the Service Provider;
  - b. For water resource critical areas, the State Departments and the Service Providers should report on: (i) usage of groundwater vs. availability; (ii) measures for addressing depletion of groundwater; (iii) measures for wastewater recycling and reuse.
  - c. The Regulatory Authority should create incentives to ensure the Service Providers comply with their contract. Contracts should be revoked for non-compliance.
- **Resetting and Adjusting Tariffs.**
  - a. WSS tariffs and other user fees should be periodically reset, at the request of either the LB/Service Provider or the Regulatory Authority, to meet objectives spelt out in the Regulatory Act, according to transparent and predictable principles and rules;
  - b. Between resetting, tariffs should be automatically adjusted to protect revenues of the LB/Service Provider against inflation and any rise in energy/power costs.
- **Resolving Disputes between Service Provider, Customers and other Parties.**

The Regulatory Authority should investigate and mediate customer complaints and provide a mechanism for resolving disputes between the LB, Service Provider, Customers and other parties, including the State Level Organizations.
- **Monitoring the Provision of Substitutes to piped WSS.** The Regulatory Authority should 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 require the resetting of 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 LB/Service Providers.

- c. The Regulatory Authority should subject its staff to strict conflict of interest rules.
  - d. The decisions of the Regulatory Authority should 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 to a review mechanism within the Regulatory Authority, having representation of the Regulator, State Government and Representative of LBs' Association
- **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.
  - **Integrated Water Resource Management:** The State Department should adopt an integrated approach to water resource management, taking into consideration the resource requirements for competing uses for agriculture, industry, and domestic use. Also, appropriate linkages should be made to other Departments and other Regulatory Agencies for assessing the existing use of groundwater and the need for regulation of groundwater. Availability of surface and groundwater sources need to be carefully identified and managed for future WSS projects.

## E. Building Capacity, Developing Procedures, and Professionalizing Actors of the Water Supply and Sanitation Sector

- **Building the Capacity** of State officials, LBs, Service Providers, Regulatory Authorities, Customer Associations, NGOs and the media is critical for understanding the rationale of new procedures and applying them through a combination of classroom and on-the-job training, networking between professionals, twinning with well performing Service Providers within and outside India, and public-private partnerships. This massive effort needs to be coordinated by the State Departments in charge of WSS.

In many State Govts, the water supply and sanitation projects are implemented by the Parastatal organisations and on completion, the schemes are handed over to the LBs for further operation and maintenance. In general, the LBs are reluctant to take over the schemes for further maintenance due to their poor financial resources and lack of skilled manpower. Even if some of these schemes are taken over by the LBs, they suffer due to lack of capacity with the LBs. Therefore, proper training and capacity building of the LB staff is essential for effective maintenance of the newly implemented schemes. It must be ensured that all water supply and sanitation

projects should include an action plan for capacity building program of the LB and adequate provision should be made in the projects which are posed for funding various schemes. It is suggested that the DPR shall make a provision of 0.5% of the project cost towards training and capacity building of the staff of the concerned Local Bodies for effective O&M of the project.

- **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 practices, an identification of gaps with stated objectives and the development of new procedures and processes, along with training of relevant Actors in accordance with their new roles and responsibilities. State Departments in charge of WSS should be responsible for this effort and for ensuring consistency of the various outputs.
- **Establishing an Independent Certification** of Service Providers, including Management and Operational Staff should guarantee the required competence and understanding of procedures and ensure transparency of recruitment. This should include certification of the Service Provider as an entity (e.g. ISO certification).

## F. Developing Procedures for Community Participation

- State Departments, LBs and Regulatory Authority need to develop systems and platforms for community participation during the planning, implementation and operations and maintenance phases of the WSS schemes.
- State Departments, LBs, and Regulatory Authority need to develop instruments and tools, including social audits, for involving community in the evaluation of their WSS Systems.

### III. Action Plan for Improving Urban Water Supply and Sanitation Services

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The States are advised to prepare a detailed sector program for the next ten year period, covering Plans XII and XIII:

- (i) WSS business plan covering the following activities:
  - WSS Policies and Institutional Development Program for State Departments and LBs;
  - WSS Regulation Program;
  - WSS Infrastructure Development Program; and
  - WSS Capacity Building Program.
- (ii) Operations and Maintenance cost recovery and CAPEX recovery program.
- (iii) Detailed guidelines for: (i) DPRs and (ii) PPPs.

An outline example of the Maharashtra WSS sector program is presented in Annex 7.

## Annex 1:

### XII Plan Working Group Recommendations for Urban WSS Institutions

Sr. No.	Institutional Structure	Remarks
1	ULB Model	<ul style="list-style-type: none"> <li>• A legally empowered mechanism to ensure greater transparency, bottom up participation and accountability in the working of LB needs to be ensured as a first step. Local communities and other independent groups and citizens must have effective say in achieving this in an institutional way.</li> <li>• Some LBs may have a separate budget for water supply and sewerage (WSS) operations but they are not ring fenced.               <ul style="list-style-type: none"> <li>– <i>There is a need to ring-fence the WSS budget.</i></li> </ul> </li> <li>• Staff for WSS operations may not always be dedicated or if dedicated transferable to other departments.               <ul style="list-style-type: none"> <li>– <i>There is a need to have dedicated staff with requisite skills and training to manage WSS operations.</i></li> <li>– <i>A step-forward is to have an autonomous entity under the control of the LB dedicated to WSS operation.</i></li> </ul> </li> </ul>
2	UA-level model	<ul style="list-style-type: none"> <li>• A legally empowered mechanism to ensure greater transparency, bottom up participation and accountability in the working of LB needs to be ensured as a first step. Local communities and other independent groups and citizens must have effective say in achieving this in an institutional way.</li> <li>• The budgets are ring-fenced; as WSS operations are the only responsibilities of the city-level parastatal.</li> <li>• Staff is dedicated for WSS operations and has requisite skills.</li> </ul>
3	State-level model	<ul style="list-style-type: none"> <li>• A legally empowered mechanism to ensure greater transparency, bottom up participation and accountability in the working of LB needs to be ensured as a first step. Local communities and other independent groups and citizens must have effective say in achieving this in an institutional way.</li> <li>• Budgets are ring-fenced at the state level; city level ring-fencing is absent.               <ul style="list-style-type: none"> <li>– <i>City-level ring fencing on accounts is essential</i></li> </ul> </li> <li>• Separation of O&amp;M and capital works functions creates distortion in asset creation and service level requirements.               <ul style="list-style-type: none"> <li>– <i>O&amp;M and capital work responsibility to be housed in a single agency which is dedicated to a particular city.</i></li> </ul> </li> </ul>

## Annex 2: Emerging Private Sector Participation in WSS Sector in India

	City Value	Operator	Scope	Private Investment	Status (as of June 2011)
1.	Tirupur (1993) Rs. 1000 Crore	IL&FS	To build, operate and charge for water supply	Yes. Rs. 1000 Crore	Operational
2.	Salt Lake, Kolkata (2010) Rs. 60 Crore	Jusco-Voltas	30 year contract for management of water supply and sewerage distribution contract	Yes. Rs. 60 Crore	Under Implementation
3.	Chennai (2006) Rs. 473 Crore	IVRCL	100 mld desalination plant- bulk supply on fixed rates	Yes. Rs. 473 Crore	Operational
4.	Nagpur (2007)	Veolia	7 year contract for 24x7 distribution system, rehabilitation, augmentation and bulk supply	No. Management Contract	Under Implementation
5.	Hyderabad		Non-revenue water reduction and performance improvement	No. Management Contract	Being tendered
6.	Hubli-Dharwad, Belgaum-Gulbarga (2005)	Veolia	4 year contract to increase connections, supply 24 x7 water –distribution- contract- in pilot areas	No. Management Contract	Operational
7.	Latur, Maharashtra (2008)	Subhash Projects	10 year contract for distribution	No. Management Contract	Work suspended as disputes arose on terms of contract and delays
8.	Mysore Rs. 160 Crore**	JUSCO	24 x 7- over million people and 150,000 connections	No. Management contract	Under implementation but may require renegotiation as final contract underestimate work and money
9.	Haldia** Rs. 100 Crore	JUSCO	25 years contract for design, development, operation and maintenance of Water Supply in Haldia on lease (of existing assets and BOT of new assets	Lease cum BOT	Under implementation

	<b>City Value</b>	<b>Operator</b>	<b>Scope</b>	<b>Private Investment</b>	<b>Status (as of June 2011)</b>
10.	Dewas (2006) Rs. 60 Crore	MSK projects	Bulk water supply to industries	Yes. BOT	Ongoing but is facing problems as industries are reluctant to take water at agreed rates; domestic supply is irregular and theft from pipeline is common
11.	Khandwa (2009) Rs. 115.23 Crore	Vishwa Infrastructure, Hyderabad	Conveyance of Narmada water over 52 km and ensure 24x7 water supply	BOT (90% public financing of Rs. 96 crore); concessionaire to invest rest and pay for O & M; base price Rs. 12/ KL	Under implementation but long-term viability of project is questionable
12.	Shivpuri (2010) Rs. 60 Crore	Doshion-Veolia, Ahmedabad	Conveyance of Narmada Water over 52 Km and ensure 24 x 7 water supply	BOT (90% public financing of Rs. 54 crore); concessionaire to invest rest and pay for O & M; base price of water set at 15.40/KL	Under implementation
13.	Naya Raipur (2009) Rs. 156 Crore	Jindal Water Infrastructure	Wells on Mahanadi, pipeline to city, treatment distribution and billing for 52 mld	BOT	Under implementation
14.	Kolhapur (2010) Rs. 75 Crore	Vishwa	76 mld sewage treatment plant	BOT (70%- Rs. 52 crore public financing and to pay for fixed and variable cost of treated sewage	Under implementation

Source: ICRA 2008, *Presentation on Financing Experience in Water Sector*, ICRA Ltd (an associate of Moody's investors service, USA), Bangalore

\*\* JUSCO 2011, *24x7 Urban Water Supply at Jamshedpur, Experience on PPP in Urban Water Supply and Sanitation Sector*, presentation to Working Group on Urban and Industrial Water Supply for 12th Five Year Plan, April, mimeo \*\*\*\* GOI 2011. Information from PPP database website, provided by Planning Commission, May 2011.

## Annex 3:

### Service Level Benchmarks for Urban WSS Sector

S.No.	Indicator	Benchmark
<b>Water Supply</b>		
1	Coverage of WS connections (Population)	100%
2	Per capita availability of WS at consumer end	135 Lpcd
3	Extent of metering of WS connections	100%
4	Extent of Non-Revenue Water	20%
5	Continuity of Water Supply	24x7
6	Efficiency of redressal of Customer Complaints	80%
7	Quality of Water Supplied	100%
8	Cost recovery of in Water Supply Services	100%
9	Efficiency in collection of Water Supply Charges	90%
<b>Sewerage</b>		
1	Coverage of Wastewater network services	100%
2	Collection efficiency of Wastewater network	100%
3	Adequacy of Wastewater treatment capacity	100%
4	Quality of Wastewater treatment	100%
5	Extent of reuse & recycling of treated Wastewater	20%
6	Extent of cost recovery in Wastewater management	100%
7	Efficiency of redressal of Customer Complaints	80%
8	Efficiency in collection of sewerage charges	90%
9	Coverage of Toilets	100%
<b>Solid Waste Management</b>		
1	Household level Coverage of Solid Waste Management services	100%
2	Efficiency of Collection of Municipal Solid Waste	100%
3	Extent of segregation of Municipal Solid Waste	100%
4	Extent of Municipal Solid Waste recovered / recycled	80%
5	Extent of scientific disposal of Municipal Solid Waste	100%
6	Extent of cost recovery in Solid Waste Management services	100%
7	Efficiency of redressal of Customer Complaints	80%
8	Efficiency in collection of user charges	90%
<b>Storm Water Drainage</b>		
1	Coverage of Storm Water Drainage network	100%
2	Incidence of water logging / flooding	0

## Annex 4:

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

WATER SUPPLY									
Category	Coverage connections (%)	Per capita supply (lpcd)	Metering of connections (%)	Non-revenue water (NRW) (%)	Continuity of supply (hrs. per day)	Quality & Treatment (%)	Redressal of customer complaints (%)	Cost recovery (%)	Efficiency in collection charges (%)
National	53.3	70.0	0.0	30.0	2.0	95.0	76.0	33.0	65.0
IA	64.5	109.0	48.0	30.5	1.8	67.5	75.0	96.0	78.5
IB	71.0	112.0	0.0	31.3	3.0	96.2	82.0	50.0	80.0
IC	46.1	75.0	0.0	32.0	2.0	95.0	78.0	36.0	60.0
II	45.7	70.0	0.0	30.0	2.0	95.0	78.0	33.0	66.0
III	53.0	70.0	0.0	30.0	1.5	95.3	76.0	33.6	65.0
IV	65.0	71.9	0.0	30.0	2.0	93.5	75.0	23.7	70.0

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

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

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

## Annex 5:

### Example of Policy Statement for an Urban Water Supply and Sanitation Sector

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By 2025, the State Government should have established an urban water supply and sanitation sector that should have to following characteristics:

The Water Supply and Sanitation Service (fully aligned with SLBs where applicable)

- 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 m<sup>3</sup>/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 to 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 Local Bodies or groups of Local Bodies. They are responsible for providing the water supply and

sanitation service in the area specified in their operating terms /conditions. The operating terms clarify 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 and shall employ managers and staff recruited competitively.

#### The Functions of the Water Supply and Sanitation Service

- viii. **Service Provision:** Water supply and sanitation service providers operate the service and maintain the fixed assets as specified in their operating terms /conditions. 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 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 the service delivery standards for public and private water supply and sanitation service providers and monitors the compliance of their performance with the benchmarks and other indicators as applicable 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 WSS Service Improvement Plan (SIP)

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#### 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

- i. Statement of vision, mission and goals (*where does the utility want to be?*)
  - Vision, Mission, Core values, Corporate strategic goals
- ii. Service performance improvement objectives, targets and timeframe
  - State objectives, performance indicators, standards and targets, along with any assumptions
- iii. 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)
- iv. Investment Needs (CAPEX)
- v. Assessment of OPEX for lifecycle of project as well as planning horizon
- vi. Identification of sources to meet CAPEX and OPEX

The following assessments need to be carried out for achieving 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
- 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)
- Roles and responsibilities: 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 indicators.

**6. Customer/Citizen Communication and Outreach Program**

- Especially designed Communications and Outreach Program regarding WSS improvements, reaching out to the communities at all levels.

**7. Framework for Community Participation**

- Participation of community in the planning of water supply & sewerage Systems
- Participation of community in the implementation, operation and maintenance of WSS Systems
- Participation of community, including social audits, in the evaluation of WSS Systems and ensuring benefits are enjoyed by the full community
- Generating awareness about sanitation and its linkages with public and environmental health amongst communities and institutions
- Promoting mechanisms to bring about and sustain behavioral changes aimed at adoption of healthy sanitation practices

## Annex 7:

### Maharashtra WSS Reform Program – Sujal Nirmal Abhiyan<sup>2</sup>

#### Maharashtra Sujal Nirmal Abhiyan: Incentive Based Reform Program

Level I	Level II	Level III
WSS Customer Survey Bulk Water Metering Water + Energy Audits WSS GIS Mapping Ring-fencing WSS operations Selection of ULB Institutional Option WSS Computerized Billing WSS Collection efficiency 80% City Sanitation Plan WSS Public Disclosure	Hydraulic Modeling and 24x7 WSS pilots Sustainable sources for Water Supply Household Metering 80% On-site Sanitation/Sewerage system ULB level WSS institution established MIS established Tariff Policy and Guidelines Solid Waste Management ODF cities	24x7 WSS System Metering 100% Collection efficiency (100%) Sewerage including STP Regulatory System established
<b>Focus on NRW Reduction</b>	<b>Focus on improving efficiency of assets and sustainable services</b>	<b>Moving towards world class WSS services</b>

<sup>2</sup> Reference: India - Improving Urban Water Supply and Sanitation Service Provision. Lessons from Business Plans for Maharashtra, Rajasthan, Haryana and International Good Practices. World Bank 2012

## Annex 8: References

### MoUD Policies, Guidance Notes and Programmes etc.

S No	Title
1	Recent Trends in Technologies in Sewerage System (MoUD- March 2012)
2	Guidance Note on Municipal Solid Waste Management on Regional Basis (MoUD-2010)
3	National Urban Sanitation Policy (MoUD 2008)
4	Technology Options for Urban Sanitation in India – A Guide to Decision Making (MoUD- September 2008)
5	Guidance Notes for Continuous Water Supply (24-7 Supply) – A Guide to Project Preparation, Implementation and Appraisal (MoUD- 2008)
6	Draft Advisory on Septage Management in Indian Cities (March 2011)
7	Policy Paper on Septage Management in India (MoUD-CSE May 2011)
8	Scheme and Guidelines for India Infrastructure Project Development Fund (DEA, Ministry of Finance 2007-08)
9	Guidelines for Sector Reform and Successful Public-Private-Partnership (MoUD- 2004)
10	Toolkit for Public Private Partnership frameworks in Municipal Solid Waste Management(MoUD- DEA, MoF-ADB, 2009-10)
11	Service Level Benchmarking – Hand book on (MoUD- 2008)
12	Capacity Building Scheme for Urban Local Bodies (CBULB-2009-10)
13	Report of the Working Group on Capacity Building for the formulation of the Twelfth Five Year Plan ( for 2012-2017)
14	Draft Report for the Project on User Charges for Water-TERI (2010) New Delhi.

Available at Ministry's Website [www.urbanindia.nic.in/programme/uwss](http://www.urbanindia.nic.in/programme/uwss)

### CPHEEO Check-lists for Technical Appraisal of Detailed Project Reports (DPRs) seeking Central Assistance from MoUD:

S No	Title
1	Checklist for submission and scrutiny of DPR (Water Supply).
2	Checklist for submission and scrutiny of DPR (Sewerage and Sewage Treatment).
3	Checklist for submission and scrutiny of DPR (Municipal Solid Waste Management)
4	Checklist for submission and scrutiny of DPR (Storm Water Drainage)

Available at Ministry's Website [www.urbanindia.nic.in/programme/uwss](http://www.urbanindia.nic.in/programme/uwss)

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