

National Meeting of Experts to Review PAS Framework, PAS Project

Presentations and Discussions

Ahmedabad, September 18, 2009



Note: This meeting report is written by Prof. Meera Mehta and Prof. Dinesh Mehta with inputs from Mona Iyer, Sharvari Joshi, Anitha Emmanuel, Maitree Patel, Niraj Naik, Dhruv Bhavsar and Jaladhi Vavaliya.



CEPT University, Ahmedabad.

National Meeting of Experts to Review PAS Framework, PAS Project Presentations and Discussions

Ahmedabad, September 18, 2009

A national meeting of experts on Performance Assessment Systems for urban water supply and sanitation was held in Ahmedabad in September 2009. This report summarises the presentations made at the meeting. The main objective of the meeting was to share the work undertaken under the Performance Assessment System (PAS) Project by the CEPT University with its partners Urban Management Centre (UMC) and All India Institute of Local Self Government (AIILSG). Particular focus was on the Performance Measurement Framework developed under this project as well as initial findings from the pilot studies. The participants deliberated on the role of performance assessment, process mapping, GIS-linked mapping systems as well as preliminary ideas on developing performance improvement plans. The discussions also included incentives for local and state agencies to undertake performance measurement and improvement, the need to draw on and share information across different agencies and to involve besides the urban local governments, the local non-state actors in the PAS process.

Executive Summary

A national meeting on Performance Assessment Systems for urban water supply and sanitation was held in Ahmedabad in September 2009 with an objective to share the work undertaken by the CEPT University with its partners Urban Management Centre (UMC) and All India Institute of Local Self Government (AIILSG) under the Performance Assessment System (PAS) Project. The meeting was attended by experts and partners of CEPT University for the PAS Project.

Particular focus of this meeting was on the Performance Measurement Framework developed under this project as well as initial findings from pilot studies. The participants deliberated on the role of performance assessment, process mapping, GIS-linked mapping systems as well as preliminary ideas on developing performance improvement plans. The discussions included incentives for local and state agencies to undertake performance measurement and improvement, the need to draw on and share information across different agencies and to involve besides the urban local governments, the local non-state actors in the PAS process.

The presentation and deliberations at the meeting helped create a greater awareness of the scope of work under the PAS Project. While in general, the overall approach and rationale of the project were validated, the deliberations provided good feedback on the work. Some new dimensions were also suggested to improve effectiveness and sustainability. The key messages from the meeting were:

Strong Need for Performance Information

- There was a general agreement of a strong need to measure performance of water and sanitation as this is critical for allocation of public resources, improving efficiency of service delivery and increasing access for the urban poor communities.

PAS Approach and Performance Measurement Framework

- The overall approach of the PAS Project that includes performance measurement, monitoring and improvement with an emphasis on mainstreaming was well received. It was highlighted that this is a first-ever state-wide approach of this nature in India.
- The approach of Goal-Reforms-Local actions to performance measurement was appreciated. Main areas for feedback on analysis and use of this framework included:
 - the need to evolve a sensitive approach to comparative peer-to-peer benchmarking with a focus on learning from good practices rather than name-and-shame approach;
 - need to refine reliability assessment to link it to specific actions to improve reliability;
 - the need to assess performance of different urban local bodies (ULBs) in context of their resource potential and ecological and social vulnerability;
 - need for careful design of performance-linked finance and monitoring mechanisms for creating incentives and to ensure sustainability;
 - sustainability requires integration of PAS with local ULB level planning and operational processes as well as ULB empowerment, that is captured by the special indicators related to local action; and
 - To ensure integration with government systems and long term sustainability, it is essential to collaborate with other institutions with public information and to link with other programs that aim to create performance assessment systems and e-governance.

Lessons from Pilot Study Results

- Pilot studies to test the PAS Performance Framework and data checklist developed have been completed in nearly 14 cities in Gujarat and are ongoing in 18 cities in Maharashtra.
- Results from pilot studies in Gujarat highlighted the need to streamline the data checklist by refining the reliability assessments and its redesign to reduce information overload in the first year. It was suggested that in subsequent years, ULBs can build on the initial database.

- Pilot results also highlight the need to resolve key data issues (particularly for quantity of water supplied and consumed, and services in slum settlements). To resolve these gaps, appropriate modalities of participation of other actors in the private, NGO and community sector may need to be evolved. This may be done in parallel to collecting information through checklist.
- At times the issues also relate to a lack of proper information processing of a large volume of data actually collected by the ULBs. This will require standardisation of key processes as has been done for property tax and accounting in for municipalities in Gujarat. Such an effort is also required for spatial organization of data which lacks any standardisation.
- There is a need to integrate PAS checklist with routine information collected by state governments for various types of monitoring including for Government of India's Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and other programs.

Approach to Performance Improvement for Access to Improved Services for the Poor

- PAS work on improving access for the poor has focused on developing a comprehensive framework that focuses on: a) information base on the poor and slum settlements in the city, b) related policies, programs and processes at city and state levels, and c) need for incentives and capacity of local service delivery institutions. This is also being used in assisting Ahmedabad Municipal Corporation developing a citywide strategy for full coverage of individual household level water and sanitation services across all slum settlements in the city.
- Deliberations at the meeting suggest the need for a comprehensive citywide framework backed by reliable and updated information are essential for improving access of the poor to water and sanitation services.

Process Mapping to Improve Performance Assessment

- To sustain the performance measurement and monitoring systems through their mainstreaming at the ULB and state levels it is essential to understand current processes of information generation and their use in decision-making. Under the PAS Project, studies have been carried out in two cities to carry out process mapping for key processes that affect ULB's water supply and sanitation (WSS) performance.
- Deliberations at the meeting suggest that further work on process mapping should include discussion of process re-engineering with a wider group within the ULB including measures to improve internal accountability mechanisms. Actions could include actions such as: altering current formats for information recording at various levels, and identifying nature of analysis, monitoring and review to be done at each level for improved service delivery.

Mapping and GIS to Support Monitoring and Performance Improvement Plans

- An important component of PAS has been to develop base maps with selected information related to the urban water supply and sanitation (UWSS) sector for all the ULBs in Gujarat and Maharashtra. The work so far suggests the lack of availability of maps for smaller cities even though these were considered to be important during various consultations.
- Deliberations at the meeting suggest that development of good base maps for all ULBs using a GIS platform should be done in the first two years. These can then be developed further by cities themselves in subsequent years to add specific WSS information. Their use for both presentation and analysis of spatial information can contribute to dissemination and preparation of performance improvement plans.

PAS Web Portal to Support Measurement, Monitoring and Dissemination

- Objective of the proposed PAS web portal is to enable performance measurement, analysis, monitoring and performance improvement by ULBs and state government agencies in both states. The web portal is also expected to support dissemination of studies and results to a wider audience, as well as making it possible for their participation through IT-based techniques.

- Meeting participants appreciated the need for such a web portal and suggested that it should link with other ongoing efforts at e-governance under JNNURM and other programmes.

National Meeting of Experts to Review PAS Framework, PAS Project 18 September 2009

Meeting Background

The CEPT University organised a meeting of national experts in water, sanitation, governance and urban development under the auspices of the Performance Assessment System (PAS) Project in Ahmedabad on 18 September 2009 with support from its partners the Urban Management Centre (UMC) and All India Institute of Local Self Government (AIILSG).

The main aim of the meeting was to get feedback on the work being carried out under the PAS Project. The meeting discussed the Performance Measurement Framework developed by CEPT and the results from pilot studies in Gujarat and Maharashtra.

The meeting brought together experts from a number of different agencies in India involved with urban water supply and sanitation as well as urban governance issues. The experts were drawn from state government agencies, academia and research institutions, private consultants and NGOs. The PAS team included staff from CEPT University as well as its partners UMC and AIILSG.

The meeting programme was articulated around three themes:

- a) performance measurement framework developed under the PAS Project and preliminary results from pilot tests in 12 cities in Gujarat and 15 cities in Maharashtra,
- b) preliminary ideas on improving access to water supply and sanitation for the urban poor, and
- c) results from other exercises for process mapping of local government activities, GIS-maps being developed for all urban local bodies (ULBs) under the PAS Project, and preliminary design considerations for the PAS web portal.



The participants discussed the outputs and lessons from pilot studies and preliminary work under the PAS Project. The deliberations were rich and helped to validate the approach and framework developed so far as well as provided feedback and suggested some new dimensions to the work under the PAS Project. The key presentations and discussions at the meeting are described below.

A Strong Need for Performance Assessment System

There was a general agreement among participants of a strong need to measure performance of water and sanitation on key indicators. According to official information, 90 per cent of households in urban India have “access” to water and 70 per cent households have “access” to sanitation.¹ However, there is no reliable information on quality and level of services. It is also not known whether the urban poor households have adequate water supply and sanitation (WSS) coverage. Some studies² suggest that in slum settlements both the access and quality of service are very low, especially for sanitation. Information on intra-city distribution of services, quality of water, non-revenue water, costs of service

¹ WHO/UNICEF Joint Monitoring Programme, 2004. “Meeting the MDG drinking water and sanitation target: a mid-term assessment of progress.” WHO and United Nations Children’s Fund.

² See for example analysis using information from the Census of India and NSS in Mehta S 2008 “Poverty in Urban Slums of Gujarat.”. Presentation at CEPT. Mimeo.

provision, service level and functionality of metering, etc. is also not available on a regular basis. Such information is critical for allocation of public resources, improving efficiency of service delivery and increasing access for the urban poor communities.

Participants agreed that lack of reliable and updated information on water and sanitation service levels can lead to misallocation of resources.³ This information gap on service performance has resulted in an undue focus on building new infrastructure without adequate returns in terms of improvements in service quality.⁴ New investments are often made, without improving the level and quality of service. For example, nearly 60 percent of investments under the \$12 billion Jawaharlal Nehru National Urban Renewal Mission (JNNURM) Programme of Government of India are for water and sanitation projects⁵, yet little is known about how this investment will improve service levels. It is for these reasons that the performance indicators need to be aligned with the JNNURM monitoring process.

The urban water supply and sanitation services are not financially sustainable with a large number of cities failing to even recover their operating costs through tariffs.⁶ The JNNURM requires participating cities to achieve 80 per cent recovery of O&M costs. The “Low tariff→ low operating surplus for investments→ low services→ low tariff” syndrome inhibits service improvements. One of the ways to break this cycle is to have a reliable information base that is regularly updated, whose findings are shared in a transparent manner with consumers and used effectively in decision-making at local and state government level.

Deliberations also highlighted the need to develop a better understanding on resource, ecological and socio-economic potential of cities. It was pointed out that the nationally set standards will need to be assessed in relation to such potentials and vulnerabilities. This would help focus resources on more vulnerable cities that require greater assistance for performance improvement.

PAS Project Overview

The meeting provided an overview of the PAS Project. Participants were informed that the project aims to build an information system for all urban local governments in two States of India (Maharashtra and Gujarat). It will work with state and local governments to develop a reliable and sustainable **Performance Assessment System (PAS)** for urban water and sanitation services. It includes: **Performance Measurement, Performance Monitoring, and Performance Improvement.**

Performance measurement refers to development and implementation of measurement metrics. The measurement metrics relate to development of indicators for performance on service goals and reforms measures. *Performance monitoring* includes setting up appropriate systems at state level for annual and real-time information, and detailed analysis of indicators, developing benchmarks, and documenting good practices. Comparative analysis will be made available to compare performance with peers. The performance monitoring will be also linked to performance linked grants, monitoring

³ See for example World Bank 2006 op.cit.

⁴ See for example World Bank. 2006. “India: Water Supply and sanitation: Bridging the Gap between Infrastructure and Service.”

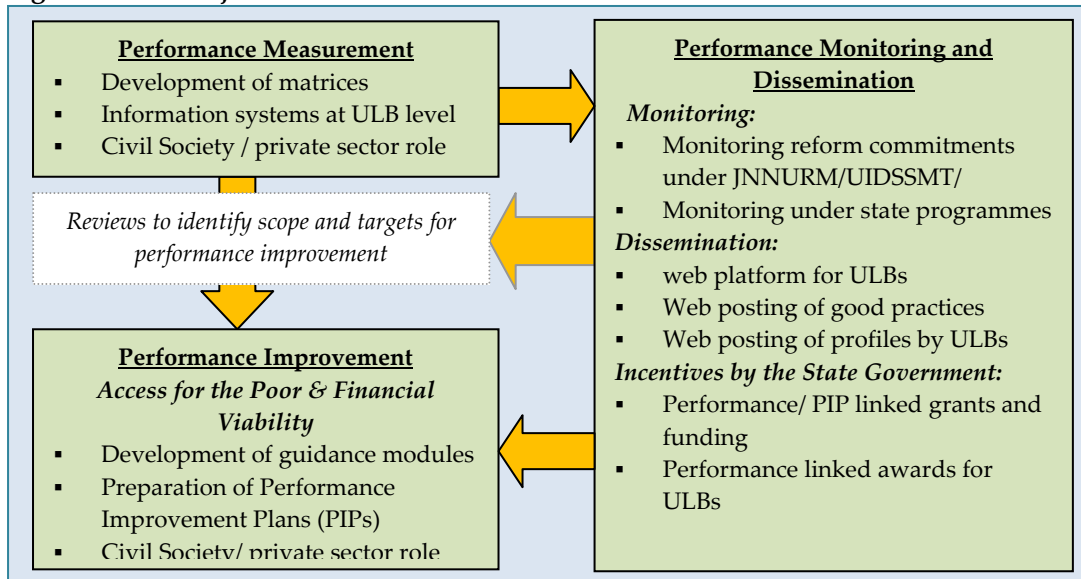
⁵ The Jawaharlal Nehru National Urban Renewal Mission (JNNURM) is a national urban infrastructure programme. Under the JNNURM, the GoI will provide \$12 billion (to be leveraged to \$36 billion) for urban infrastructure. It aims at sector reforms and fast track planned development of cities. In the WSS the focus is on promoting efficiency in urban infrastructure and service delivery mechanisms, and ensuring financial sustainability by full cost recovery of operational costs through user charges.

⁶ See for example CRISIL. 2007. “Benchmarking Urban Water and sanitation – Phase II.” Report for the water and Sanitation Program; and Ministry of Urban Development and Asian Development Bank. 2007. “2007 Benchmarking and Data Book on Water Utilities in India.”

performance on reform commitments under the JNNURM and rewards for better performing local governments. *Performance improvement* relates to use of information to improve service performance. The Project will provide support to local governments to develop performance improvement plans for reaching the poor and unserved, and increasing financial viability.

The mainstreaming of PAS in state and local government administration would require aligning the information collection to the current processes followed in each state. It is seen that ULBs are required to provide a range of information to the state government, as a part of their monitoring process. The project would examine the current process of information collection, analysis and its use and examine

Figure 1: PAS Project Overview



how the PAS information could be integrated with this process. Sustainability of the Project would depend on getting PAS to be used by ULB and state government systems, and through ‘self-assessment’ of performance measurement. Use of PAS by private sector and civil society groups will be encouraged. Efforts to design PAS to be replicable and applied to other states were applauded, but for sustainability, it will have to be adapted within existing ULB monitoring system by each state government. The information is planned to be integrated within international utility benchmarking frameworks (e.g. IB-NET) to raise the quality of urban utility benchmarking. Participants suggested that in the initial period, this integration with IB-NET should be done carefully.

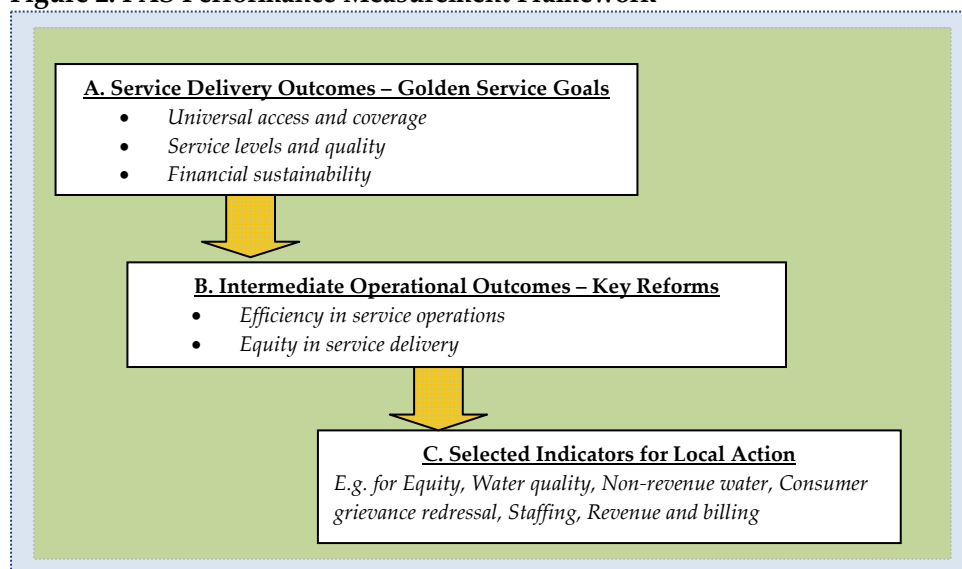
PAS Performance Measurement Framework

The focus of the Project during the initial phase has been on development and pilot testing of a Performance Measurement Framework. A detailed note on the Framework was made available to the participants. The PAS Performance Measurement Framework (PMF) is developed for urban water supply and sanitation, where sanitation includes management of excreta, waste water and municipal solid waste including collection and disposal.

Goals-Reforms-Local Actions: Figure 2 outlines the approach to performance measurement framework for the PAS Project. This draws on the approach adopted in the new programs of the Government of India (as for JNNURM) and the two state governments (as for the MSNA and SGG). These programmes provide infrastructure funding linked to adoption of mandated and optional reforms to ensure equity and sustainability in service delivery.

The key performance indicators (KPIs) are distinguished for *service delivery outcomes* (or main goals of public services) and *intermediate operational outcomes* that reflect the plans and reforms needed to achieve the service delivery goals. This enables distinct identification of reforms needed to achieve these goals. In the PAS Performance Framework additional indicators have also been identified for local government actions to improve performance on selected key reform areas such as equity, non-revenue water, water quality and cost recovery. While goals and reforms will be monitored by both higher levels and local governments themselves, the local action indicators are more suitable for local monitoring and for performance improvement planning.

Figure 2: PAS Performance Measurement Framework



Tables 1 and 2 list the proposed KPIs under the PAS Framework and the related benchmarks. The benchmarks have been listed at this stage based on the prevailing national and state policies. Over time, these benchmarks will need to be reviewed on the basis of more reliable information on the prevailing situation across different towns and cities. As more information becomes available, alternative benchmarks for each class of cities based on peer group comparison may be developed

Table 1: Golden Service Goals: Key Performance Indicators and Benchmarks

	Water supply	Waste water	Solid waste management (SWM)
Universal Access and coverage	1. 100% of households with individual connections to water supply network*	1. 100% of households with access to individual toilets 2. 100% of households with individual connections to sewerage network	1. 100% of households and establishments covered by municipal daily door-to-door SWM services
Service levels and quality	2. Per capita supply of water (172 lpcd for metro cities, 155 lpcd for other cities with sewerage and 80 lpcd without sewerage – including 15% UFW)	3. 100% collection of waste water generated where sewerage/underground drainage exists	2. 100% collection of solid waste generated in the city
	3. Continuity of water supply: i) short term: daily supply at regular hours, ii) 24*7 over time	4. Capacity to treat 100% of waste water collected through sewerage/ open drains to required standards	3. 100% of waste at disposal/treatment point segregated and scientifically disposed
	4. Quality of water supplied: 100% of samples at WTP and		4. At least 80% of solid waste recycled or processed

	consumer end meeting the required standards		
Financial Sustainability	5. 100% recovery of O&M costs for water supply through ULB level taxes and charges	5. 100% recovery of O&M costs for waste water through ULB level taxes and charges	5. 100% recovery of O&M costs for SWM through ULB level taxes and charges

Note: All the golden indicators in this table are also covered under GOI's SSLB Initiative, though some benchmarks have been adjusted to the situation at state level.

Table 2: Key Performance Indicators and Benchmarks to Monitor Reforms

	Performance Indicator	Benchmark
	Equity in Service Delivery	
1	Coefficient of variation (standard deviation divided by mean) of zonal values of indicator denoting % of households with individual household level connection/ service for water supply, waste water and solid waste collection**	0
2	Coefficient of variation (standard deviation divided by mean) of zonal per capita supply of water	0
3	% of slum households with: a) individual water connections, b) individual toilets and sewerage connections, and c) and door-to-door SWM collection	100%
	Efficiency in Service Operations	
4	% of non-revenue water (NRW) to total water supply*	<25%*
5	% of waste water treated to required standards to total intake in sewage treatment plant	100%*
6	% of waste water reused for billed or unbilled uses*	>20%*
7	% efficiency in consumer grievance redressal as per service charter for all three sub-sectors*	100%*
8	% of staff recruited to total sanctioned staff strength as per type of ULB	100%
9	% of total water supply connections with functional meters*	100%*
10	Ratio of unit cost of electricity to state average for similar type of ULBs	<1.0
11	% collections to current billed demand for all three sub-sectors*	>90%*

Note: * - Indicators with asterisks (*) are covered under the GOI's SSLB Initiative; ** - The coefficient of variation (CV) or "relative variability" equals the standard deviation divided by the mean. It is expressed as a ratio.

Reliability assessments for data quality: Reliability assessment of key performance indicators is important when a comparison is made across cities and different service providers. The Standardised Service Level Benchmarking (SSLB) initiative of Government of India (GoI) provides reliability estimates through a series of objective measures. The pilot studies have alluded to major issues of data availability and approximations made by ULBs to provide some key information. The SSLB approach provides clear directions on assigning reliability levels. An additional advantage of using this approach is that it eliminates subjective assessment of reliability estimates. Under the PAS Project, the reliability scales have been adapted largely from SSLB. Table 3 explains the reliability scales for the indicator of per capita supply of water. Four scales of reliability are used: A being the highest reliability and D being the lowest. Similar scales have been developed for all key indicators. This approach enables a transparent and consistent comparison across all ULBs. It also facilitates ULBs to ascertain the quality of their existing data systems, and to identify the systems required to improve them to higher reliabilities.

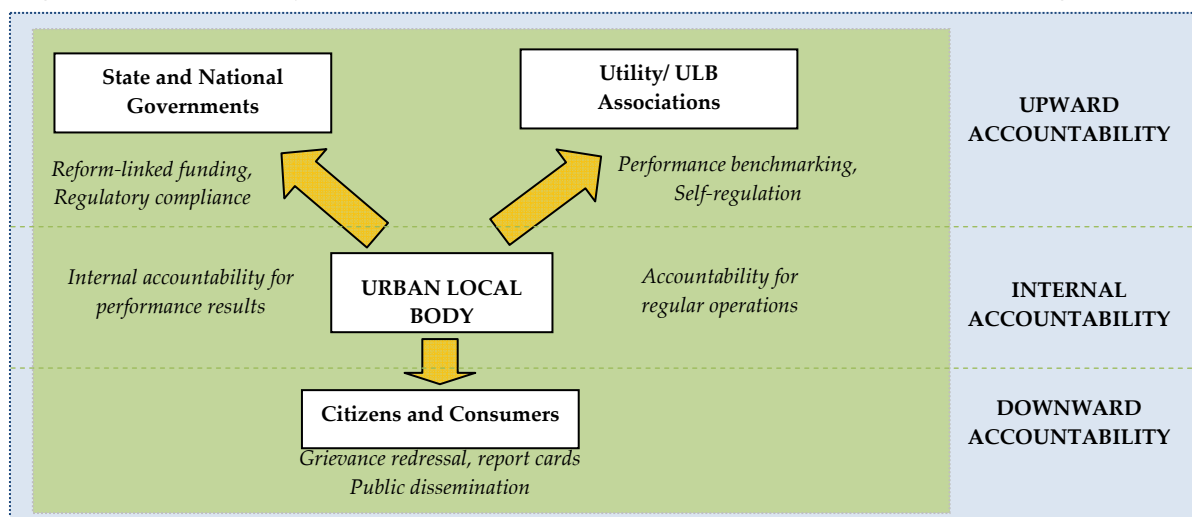
Table 3: Approach to Reliability Assessment

Coverage of individual water supply connections (%)				
Definition	Total households connected to the water supply network with a private (not shared) service connection, as percentage of total households/properties in the ULB jurisdiction			
Description	Coverage = (a/b)*100 Where a is the total number of households with individual water connection (no.), b is the total number of households in the ULB (no.)			
Parameters	Reliability A	Reliability B	Reliability C	Reliability D
No of HHs/ properties with individual connections	Number of HHs with individual connections as maintained in property tax records/ water bills.	Information on average number of HHs per type of domestic connection through surveys and number of domestic connections.	Number of domestic connections assumed as HHs with connections.	Estimated households as reported by the ULB
Total no of HHs in the ULB	Number of HHs as projected from census.	Number of HHs as projected from census.	Number of HHs as projected from census.	Number of HHs as projected from census.

Note: This approach has been adapted from the GOI's SSLB Initiative.

Incentives through accountability: A key question emerging from the meeting was on incentivising the ULBs for PAS. At present, there is no 'rewards and punishment' system for ULB in the two states. Drawing on the national and international experiences in such benchmarking, it is realised that effective use of performance indicators is essential to ensure its sustainability. The Performance Measurement Framework has thus been developed with an idea of creating the necessary institutional incentives at both state and local levels to use the performance measurement system and work towards improving performance. These institutional incentives result from the accountability faced by the ULBs. Three types of accountability are illustrated in Figure 3:

Figure 3: Accountability and Incentives for Performance Measurement and Monitoring



- Upward accountability** is of two types: mandatory requirements generally to higher levels of government (e.g. state and/or national governments), or where relevant to a regulator; and voluntary requirements to associations of ULBs which are often engaged in benchmarking across their members. For example, under JNNURM, every participating city is required to provide a quarterly report on a set of reform agenda indicators. Similarly, the state level programme – Nirmal Gujarat in Maharashtra and the Maharashtra Sujal Nirmal Abhiyan (MSNA) require periodic information from ULBs. A key 'incentive' for the ULB and state government to use PAS will be to systematize the information system at ULB and state level.

A few cities have JNNURM cells that monitor project implementation but do not have information on all aspects of the reform agenda. PAS framework provides a basis for ULBs and state government to have an online and real time data to meet its upward accountability requirements.

In Maharashtra, ULBs have incentive to submit informations on WSS for the Sant Gadge Baba Awards. Participating ULBs have to demonstrate improvements in WSS through performance indicators. The meeting participants were informed that the City Managers Association of Gujarat (CMAG) has attempted to collect information on key performance in a few cities.

- **Internal accountability** Each ULB has its internal processes of accountability. Many of these processes are linked to information flows. Such accountability measures include some performance results for the ULB (for example under the JNNURM reform commitments for cost recovery or access for the poor) or simply accountability in regular operations that are defined by internal processes and job descriptions of various staff dealing with water and sanitation. Key performance results for internal accountability on financial management and project management are routinely collected. PAS Project intends to make a difference by including some key performance indicators related to water (e.g. cost reduction in supply, access to poor). For accountability in regular operations, the PAS Project will map a few key processes at local level (see the description below on process mapping), and examine improvements in the process to improve internal accountability.

Meeting deliberations also focused briefly on the possible link of internal accountability to institutional structure in service delivery. The global experience suggests a preference for operational autonomy in WSS planning and service operations, through autonomous utilities. However, in India, and particularly in the two states of Gujarat and Maharashtra, such separation of operations is not practiced and the local governments provide services directly through their own staff. It may be useful to explore and assess options for incentives to local staff for performance improvement. .

- **Downward accountability** is to the citizens or customers in terms of services provided often articulated through an effective consumer grievance redressal system and through a transparent sharing of information through effective dissemination mechanisms. In both states, ULBs are required to have a citizen charter that lists the obligations of the ULB towards citizens and also identifies response time in addressing citizen grievances. While the consumer grievance system exists in most ULBs, its effective functioning has been a major issue with citizens. Citizen charters are not being followed in all the ULBs. Even for those ULBs that have a system for recording citizen grievances, a detailed analysis of nature of complaints and response time is not undertaken.

E-governance (i.e. use of web sites, and internet) for citizen interaction has made ULBs more open and transparent, but its use by citizen is limited. The PAS web portal intends to make a difference in increasing ULB-citizen interaction in provision of water and sanitation services. It will also enable citizen to become well informed about the performance of ULBs on water and sanitation. In addition to the better dissemination, a few cities may be supported to assess citizen response on ULB performance through 'citizen report cards'.

Results for Pilot Studies for Performance Measurement



The framework of Performance Measurement described above was pilot tested in both states across 32 cities in the two states. Preliminary results for Gujarat were presented at the meeting. The discussions focused more on the process of data collection and key issues in data availability and reliability.

Development of a data checklist: The first step in pilot testing was to develop a data checklist to generate the key performance indicators as per the performance framework.

The process of developing the data checklist was iterative. The CEPT team initiated the process by identification of required information for assessing the KPIs as well as their reliability levels. To develop a standardized, comparable and consistent reliability assessment across all ULBs, careful identification of data was necessary. A preliminary checklist was developed by CEPT in consultation with the PAS partners, UMC and AILSG, and a few other stakeholders. The data checklist was pre-tested on field and further improvements were made. The process of development of this checklist and its pre-testing took nearly three months.

The checklist used in the pilot tests in 32 cities was designed to collect information on Water Supply, Sanitation and Solid Waste as detailed in Annex A. Information related to assets and operations in the three sub-sectors (water supply, waste water and sanitation, and solid waste management) was organized for each sub-sector, whereas other information related to demographics, finance, consumer grievance redressal, staffing and services in slum areas were common across all sub-sectors. This responds to the way information or data recording systems are organized by departments within ULBs.⁷ An effort was made to capture information on spatial variations in provision of services. The checklist for pilot tests was also developed as a spreadsheet with inbuilt links to generate all key performance indicators and their reliability scores. Based on the results and lessons from pilot tests as well as feedback from the Expert Group meeting, the PAS data checklist will be finalized for the state level roll out.⁸

Pilot tests in two states: The data checklist developed through this rather long and iterative process was then field tested through pilot studies in 14 ULBs in Gujarat and 18 ULBs in Maharashtra. Selection of ULBs was done in consultation with the respective state governments. It was ensured that the selected pilot phase ULBs included each category of municipal types as well as both large and small ULBs. Some of these pilot cities are included in the GoI's SSLB project and in the CEPT study of process mapping.

⁷ Annexes A and B provides an overview of the ULB departments and organization of PAS data checklist.

⁸ The final checklist is currently being revised and is expected to be finalized by mid-November.

Table 4: Pilot cities selected in Gujarat and Maharashtra

Class	Gujarat	Maharashtra
Municipal Corporation	1. Ahmedabad	1. Nagpur
	2. Bhavnagar	2. Bhiwandi-Nizampur
		3. Rajkot
Class A	4. Kalol	4. Nasik
	5. Morbi	5. Kolhapur
	6. Nadiad	6. Nanded
		7. Bhusawal
		8. Barshi
		9. Latur
Class B	10. Wardha	10. Wardha
	11. Yavatmal	11. Yavatmal
	12. Panvel	12. Panvel
Class C	13. Baramati	13. Baramati
	14. Shirpur-Warwade	14. Shirpur-Warwade
	15. Sawantwadi	15. Sawantwadi
Class D	16. Tuljapur	16. Tuljapur
	17. Satana	17. Satana
	18. Mahabaleshwar	18. Mahabaleshwar
	12. Chanasma	
13. Dhrol		
14. Kutiyana		



After the initial selection of pilot cities in each state, a PAS launch workshop was organised with representatives of the selected pilot cities and state government officials in each state. These workshops explained the purpose of the PAS Project, the selection process, and the data checklist requirements. All the ULBs were enthusiastic and eager to participate in the pilot phase of the Project. There was an overwhelming response and support for such an exercise that would enable them to assess their performance. They were pro-active in sharing information and organising site visits of PAS team. In some cities ULB staff was also involved in collection of information and compiling it in the PAS checklist formats.

Efforts were also made to collect information available from other sources especially when they provided reliable information for a large number of cities. For example, in Gujarat, information on ULB finances and properties was available readily due to the Municipal Accounting Reforms Project and the Property Tax computerisation project implemented by the Government of Gujarat in all ULBs. While such efforts have not been carried out in Maharashtra, all ULBs submit a detailed 'Inspection Report' every year to the Urban Development Department which also includes information on water supply and sanitation. Similarly, a large number of ULBs submit WSS information for their application for the Sant Gadge Baba Awards every year. This information is currently available in hard copies only. PAS team in Maharashtra is making an effort to compile data files of this information for each ULB. It will, thus, provide a baseline for the PAS work in Maharashtra.

Key issues in data collection: The approach to pilot tests of performance framework and the related data checklist as well as preliminary results from Gujarat were presented in the meeting. The results highlighted the current situation in terms of data availability and reliability. The meeting deliberations focused on issues related to data capture and reliability and lessons for the roll out in the entire state. The key issues and feedback include:

- **Issues in data availability and information processing:** The first issue concerned the lack of readily available information at the ULB level. The pilot study results provided some key lessons for the study. First, it was somewhat of a surprise to the PAS team to discover that basic information on key aspects of water and sanitation assets and maintenance were not readily available, while new investments in water and drainage were being made in several cities using the funds under JNNURM as well as various state schemes. On the other hand, while ULBs did have a large volume of data generated on routine operations, these were not analysed and used adequately to monitor system performance.

For example, information related to water supply assets and production, though available with the ULBs, was not always organised in a systematic manner. Information on WSS assets required considerable efforts. This was compounded by the fact, that many ULBs, particularly the small ones, have very limited technical staff (often just one person), who manage several functions in addition to water supply and sanitation. Thus, it becomes difficult for them to keep track of information or analyze available information in their records. This suggests that identification of processes by which WSS data is generated, analyzed and monitored at ULB level is essential. Such process mapping would help improve data availability and reliability, and its processing and use at the local level.⁹

- **Issues in spatial organization of information:** The ULBs have different spatial units identified for different operations. The electoral wards, water zones, solid waste zones, administrative zones etc are often different and each department within ULB maintains information for their respective boundaries. It was difficult to reconcile these boundaries and collate the information pertaining to each of these zones. Decision was taken to collect information as available from ULBs and then transfer them on a GIS based map (see section on mapping).
- **Issues in data availability, capture and reliability:** Data gaps and reliability issues were discussed for a number of data items including a few key ones such as:
 - **Water production and consumption:** information on quantity of water supplied in most ULBs is usually not an accurate volumetric measurement through flow meters, but is based on the pump operations hours. Attempting to estimate flow through this information was problematic as the ULBs did not have information on pump efficiency and age of pumps. Data on consumption or use of municipal water supply was even more difficult as most cities do not have consumer meters.
 - **Services in slum areas:** Information on slum households was difficult to obtain as many small ULBs did not keep any record. Field researchers had to walk around the ULBs to get information on slums. In large ULBs, where some information was available, it required updating (See section on PIP for poor in Ahmedabad). While information on services in slums is not readily available with WSS departments, in some ULBs in Gujarat, the health department maintains information for sanitation. However, in most ULBs, a proper assessment of WSS services across all slum areas is generally not readily available. This was identified as a crucial area of support for PAS Project. The PAS Project can support ULBs to develop a data base on access to services among the poor and ensure that it is regularly updated.¹⁰
 - **Sewerage and household level sanitation:** Information on sanitation was generally absent as many ULBs do not have sewerage system. Even in cities that have sewerage system, information on toilets and drainage connections is often not collected. Most

⁹ Refer also to the discussion on process mapping below which provides the results of such a study in two ULBs.

¹⁰ Refer the discussion below for similar support being provided to Ahmedabad Municipal Corporation under the PAS Project.

of the information related to toilets and household level sewerage connection had to rely on the assumptions made by knowledgeable ULB officials

- Solid waste management: Reliable information related to door to door collection of MSW was difficult to obtain, as these records were not maintained in most cities. Quantities of collected and treated/ disposed were mostly estimated on the basis of trips by vehicles carrying wastes to the treatment/ disposal sites.
 - Population: Information on current population and number of households had to be estimated on the basis of past growth rates, as the last population census information was of 2001.
 - Water and Sewerage connections: Though reliable information on number of connections was available, information of households (or persons) covered by each connection was difficult to assess as such records are not maintained by cities. (In Gujarat, number of properties with water and sewerage connections was assessed through property tax records).
- ***Participation of local institutions with data collection and assessment process***: The meeting deliberations also highlighted the need to involve local institutions such as local colleges, NGOs and state level associations in supporting data collection as well as regular updating, monitoring and use. Three areas were suggested for further perusal:
- Water audit through market mechanisms: First, to address the issues of weak reliability of information on water production and consumption, it was suggested to develop capacities among local small private firms to carry out water audit for ULBs. This would require developing capacities of firms to use appropriate and cost-effective approaches for water audits. PAS can support some initial efforts that can demonstrate the need for water audit. These efforts can be scaled up through government support and market mechanisms.
 - Regular updating of services in slums through CBOs: The second important information gap is for service levels in slum settlements. This information is often missing, or even when available tends to be outdated. Appropriate mechanisms need to be identified and developed to involve local organizations in this process. Use of appropriate technology such as the mobile to web transfers should also be explored for this purpose.
- ***Data for assessing KPI reliability***: Another key lesson related to assessment of reliability of KPIs. The format suggested by GoI's SSLB Initiative for reliability assessment required detailed information.

However, as the meeting discussion highlighted GoI's checklist for SSLB expects the reliability estimation to be done by the enumerator, rather than calculate it from questions in the checklist. While this approach is feasible for a sample of ULBs, a statewide performance assessment needs to capture reliability assessments through direct qualitative questions on records and documentation. Therefore, the meeting deliberations suggested the need to refine quantitative aspects of reliability scales for each KPI and include appropriate questions for these in the checklist.

Improving Access of the Poor to WSS Services

Improving the access to improved services is one of the key components of the PAS Project. The work under this component has been initiated through two activities: One focuses on a framework for developing a performance improvement plan (PIP) to provide access of the poor. This exercise will be supported by documentation of good practices from India and Asia. The second exercise is to support

a few cities in Gujarat and Maharashtra that have shown interest in improving access to services for the poor.

Evolving a framework for PIP for poor: At the meeting, preliminary work on a framework for PIP was shared. It highlighted issues and good practices in three broad areas: a) Need for a good information base on the poor and slum settlements in the city, their location and current level of services, and use of this information to ensure good targeting, b) policies, programs and processes related to getting affordable water connections and toilets, and related costs and tariffs for the poor, and c) need for incentives and capacity of local service delivery institutions in improving the access for the poor. Table 5 summarizes some of the key issues and good practices that were presented and discussed.

Support for citywide slum strategy in Ahmedabad: Presentations for the PIP component under the PAS Project also included the ongoing support to Ahmedabad Municipal Corporation (AMC) in developing a citywide strategy for full coverage of house level water and sanitation services. Ahmedabad is one of the few cities in India that has on its own initiated a number of innovative measures to improve access for the poor including its slum networking project that provides full infrastructure in slum settlements. While the access to individual services in slum settlements seems to be on the increase, detailed information is not readily available. A number of different programs and measures have been undertaken, but these have not been replicated at citywide scale. In this context, PAS Project support to AMC includes: a) developing a detailed and integrated information base on slum settlements on a GIS platform, b) develop options for development of infrastructure services for different categories of slum settlements, and c) assist AMC to develop a citywide strategy for universal access to individual water and sanitation services particularly with a focus on appropriate financing and implementation mechanisms.

Table 5: Framework for PIP for Improving Access for the Poor

	Description and Key Issues
Information base on access to services for the poor and in slum settlements	
Definition of poor in context of access to services	Two main parameters used are: BPL (below-poverty-line) cards issues by ULBs and listed slum settlements
Identification of the poor/ slum areas, number and location and access to services	Slum surveys are often done but there is a lack of consistency across sources of information and lack of regular updating; under JNNURM full census of slums with biometric cards for all residents is proposed; need to also identify slum locations using GIS technology for ease in planning ; need to ensure participation of CBOs/NGOs in updating information
Policies, programs and processes to improve access for the poor	
Determining service standards and related charges/ fees	Focus is increasingly on house level connections for water supply and individual toilets; issues related to tenure (cut-off dates in Maharashtra) that deny services
	Affordable access to connections needed; need to assess current pattern of water charges and tariff that often provide higher level of subsidies to the non-poor
Process of getting connections, subsidies	Need to map these processes and identify key blockages that increase time and costs for the poor, or create blockages; need to identify and regularize illegal / unauthorized connections;
Incentives and local capacity to serve the poor	
Financial strength and local capacity in serving the poor	Financial strength of the ULB to meet subsidy requirements in a citywide program; capacity to manage complex implementation issues including those related to tenure, social mobilization; capacity of local NGOs and private contractors
Appropriate incentives for the ULB and local officials	Policy mandates and financial support from national/ state governments; JNNURM requirement of internal earmarking of funds; demand pressures through organized CBOs or NGOs for improved services in slum settlements

In Ahmedabad, the work done so far by PAS team suggests that while information on slums is available from different departments, a common and integrated database is not yet available. Also, there is no regular updating of this information. AMC is using the services of a private survey company to conduct a census of all slum settlements along with details for each household. This exercise is likely to take a while to cover all slum households. In the meantime, support under the PAS Project is provided to streamline the existing data base and put this on a GIS platform for potential use in infrastructure layout and planning at slum level. Considerable inter-departmental coordination is required to collate information from various sources about access to the poor. Over time, AMC may need to develop a strategy to involve local community-base organizations or urban resource centres (URCs) that operate in some of the slum settlements¹¹. Mapping of slum settlements through a GIS platform is also useful to locate slums for updating information in subsequent years.

A number of potential options were presented for service improvements in slum settlements in Ahmedabad. For example, using the GIS-based analysis, settlements with higher land value have been identified for potential public-private partnerships, whereas for other slum settlements a community-based approach is being developed. A key aspect in improving access is provision of settlement level internal infrastructure networks for water and drainage. Preliminary analysis suggests that AMC, through its budgetary allocations, would be able to meet the costs of partial subsidies of a programme to provide house level access to all slum settlements. However, a key constraint seems to be the implementation capacity both of NGOs who will be needed for social mobilization and local contractors who will need to implement the physical infrastructure works. There are very few contractors willing to work in slum settlements. More efforts may be needed to

¹¹ The URCs are presently run by SAATH, an NGO in Ahmedabad. Their role is to ensure that service providers have improved efficiency in delivery of services and end users, through community participation, have better choices for quality and timely services. URCs currently work in four wards of Ahmedabad through various CBOs.

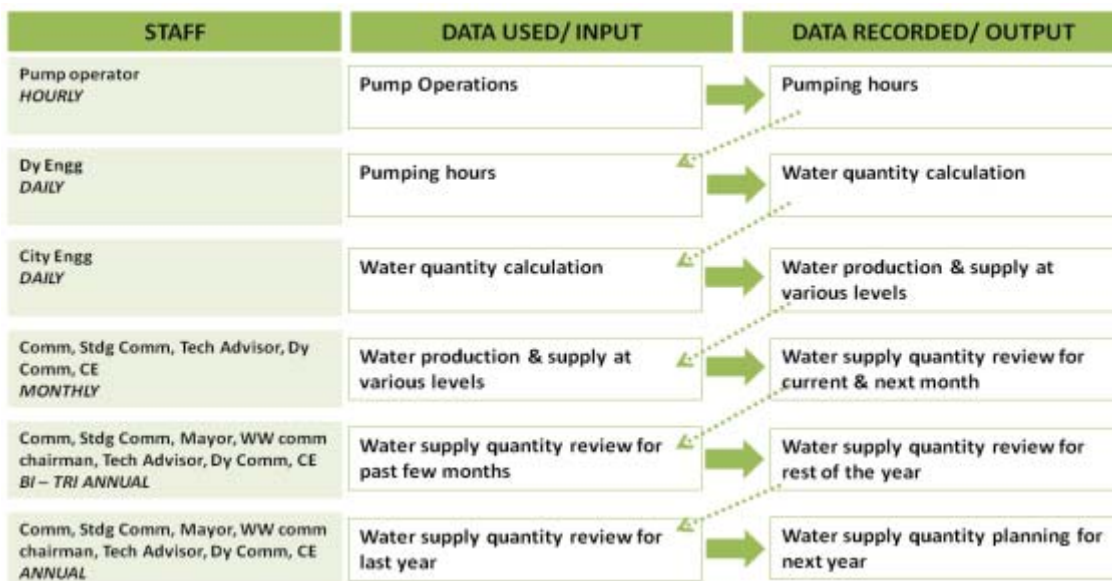
build capacity of contractors to work in slum settlements along with other organisations for social mobilisation.

Process Mapping to Improve Performance Assessment

One of the aims of the project is to mainstream the performance measurement and monitoring systems at the ULB and state levels. A key to such mainstreaming is to understand current processes of information generation and their use in decision-making. The objective of the exercise would be to structure key processes to achieve efficient decision making at all levels. The ongoing work related to process mapping in two sample cities of different sizes in Gujarat was presented at the meeting. This included processes related to information collection, flow and review; decision making based on this information and measures to strengthen local processes for improved services.

Process of information collection, flow and review: An analysis of data capture envisaged in PAS checklist and the data sets in different departments of a ULB was made. (refer to Annex B). From this analysis, key data sets available with various departments were identified. For example, in the Water Works Department, processes related to water production, water quality monitoring, new connections, consumer complaints emerged as important data sets. These processes were tracked on the field in two case study cities (Nadiad and Rajkot) in Gujarat. Process mapping exercise began with an analysis of institutional structure (organogram) of the ULB to identify roles and responsibilities of the staff members at each stage of a process. Information generated at each stage of bureaucracy becomes a base for monitoring at the next stage. Often information is used to make decisions at different levels. For example, Figure 4 illustrates flow of data for water production related processes.

Figure 4: Flow of data in water production process in Rajkot



Process of decision making based on information: Key processes were analysed with the help of flowcharts prepared in Business Process Mapping Notation (BPMN) to identify six stages of a properly structured process: Planning, Notification, Field execution, Data records, Monitoring and Review. Figure 5 shows an example of Water Production Monitoring process. As per the availability of resources and demand, every year ULB undertakes planning for the coming year. The decisions taken at this level are generally policy related and involve political decision-makers. The related action points are notified to concerned staff members of all levels. These administrative orders provide the basis for regular operations and maintenance of services. For water production, as illustrated for Rajkot in Figure 5, base data is compiled manually by the lowest cadre of staff. This data is then collated for monitoring in the ULB main office from all field areas. At present, this information flows and decision-making processes are not linked.

Figure 5: Flowchart of Water Production Monitoring in BPMN

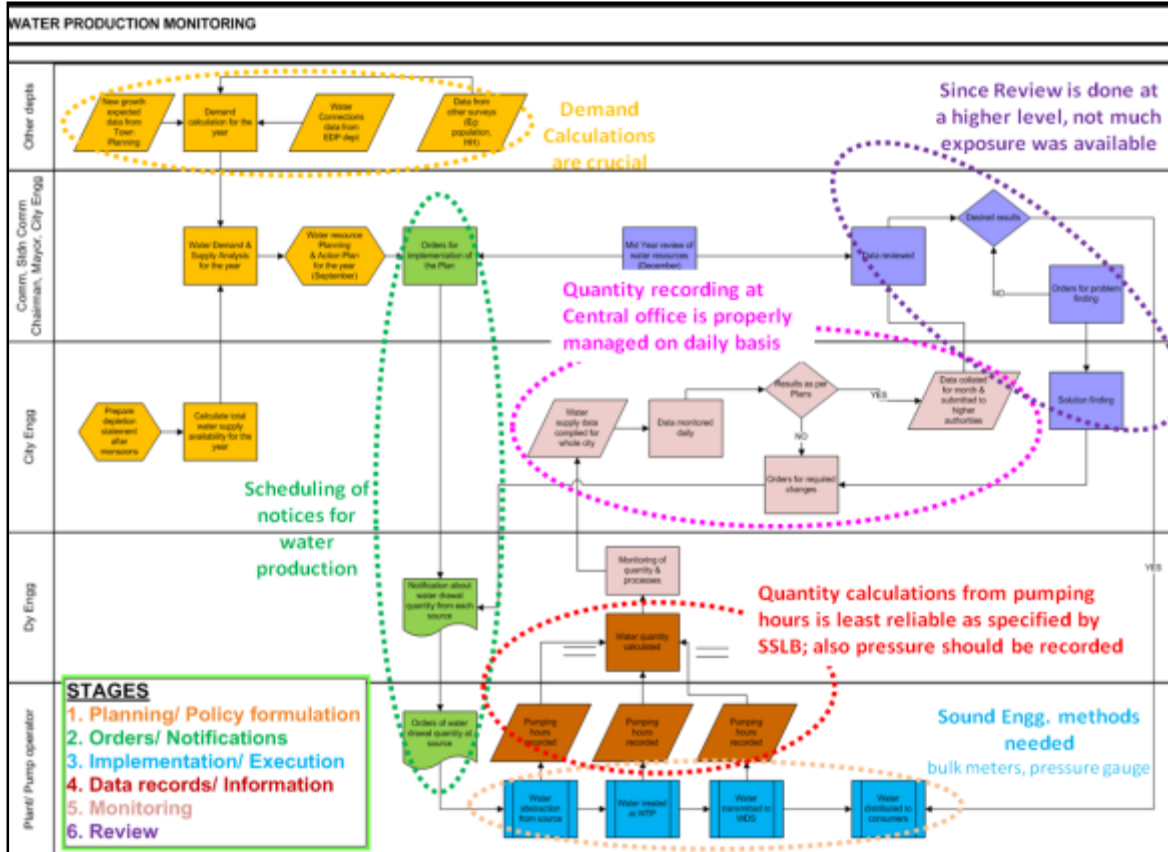
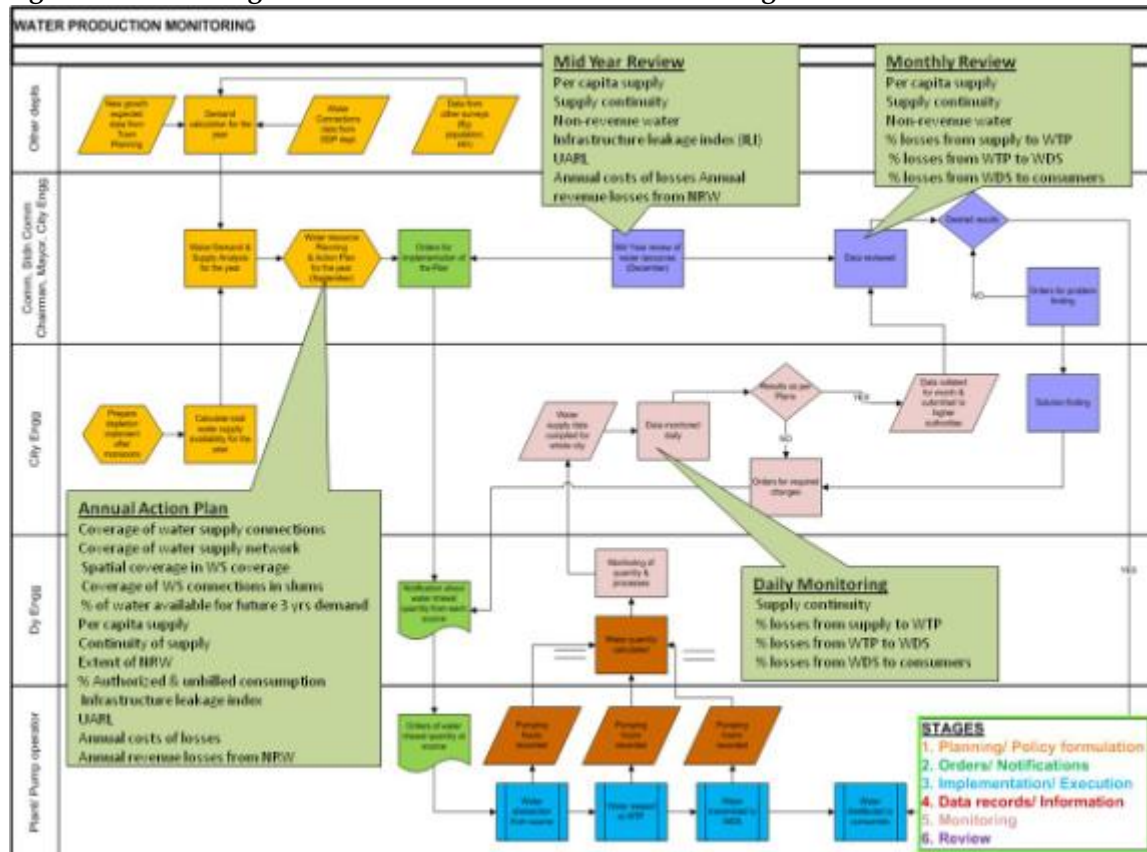


Figure 6: Introducing the Use of Production related KPIs in Regular Process



Strengthening local processes for improved service: Successful implementation of a process lies in identifying performance indicators at each stage using the PAS checklist. The data flow as seen in figure 4 combined with more analytical indicators as shown in Figure 6 would give the respective staff member, a better and holistic view of service delivered. These indicators when injected in regular functioning can bring in better internal accountability and decision making. Such monitoring reviews at ULB level will be explored further under the PAS Project.

Process mapping in Rajkot for all KPIs helped to identify key issues in information flows, analysis and reporting. It was also possible through this exercise to identify good practices. For example, the process of consumer grievance redressal in Rajkot was excellent and there was little re-engineering required to improve the process. On estimation of quantity of water supplied the process would require more accurate measurements through flow-meters to improve quality of information and reliability. Given the fact that Rajkot Municipal Corporation (RMC) is able to supply water only for 20 minutes every day, (yet it manages to supply 107 litres per capita per day), it is critical for RMC to closely monitor quantity of its water supplied.

Further work on process mapping will include discussion of the process re-engineering for improving reliability of key performance indicators and for improving internal accountability. These discussions will be held with a wider group within the ULB and with wider stakeholder group. Actions could include altering the current formats for information capture at various levels, identifying nature of analysis to be done at each level for improved service delivery, identifying key decision areas linked to KPIs etc.

Meeting participants applauded this effort as a pioneering effort to look at the processes within a ULB for water delivery. While the Project will not be able to do this in every city of Gujarat and Maharashtra, it was agreed that based on a few case studies, a module on BPM for water supply at ULB level may be developed.

Mapping and GIS to Support Monitoring and Performance Improvement Plans

An important component of PAS has been to develop GIS based maps for all ULBs in Gujarat and Maharashtra. These maps will be used to show select KPIs for all the ULBs. The PAS team presented the work done by them for digitisation, updating and converting them on a GIS platform.




Developing ULB maps on a GIS platform: The process of developing GIS maps has been initiated in Gujarat and will be carried out in Maharashtra as well. The phase-wise process for Gujarat included: a) collection of 'hard' and 'soft' copies of the maps from various sources, b) converting all maps to a standard format, and updating maps by field visits, c) digitisation of base maps in Autocad, d) converting the Autocad maps to GIS based on Google Earth, and e) updating of maps from Google Earth.

Results from a few pilot cities were presented on GIS maps at the meeting. Discussions revolved around difficulties in getting maps for cities and various sources that had to be used to procure base maps with attributes related to municipal boundary, ward boundary, main roads, and key landmarks and features. Interestingly, only a few cities in Gujarat had copies of digitised maps. State level agencies such as the Town Planning Department were able to at least provide Development Plans which provided a base map. For nearly a third of smaller Class C and D municipalities no maps are available.

The quality and level of details of maps collected for various ULBs varied a great deal. For several cities, maps were very old, not drawn to scale, or loaded with too much information that could not be deciphered easily due to the poor quality of maps. The PAS team has used the available maps to

generate fresh base maps for each ULB. These were digitised and put on the GIS platform. In addition, verification and updating of maps was done by overlaying these on live images using Google maps. The base maps for each ULB was used during the data collection and for pilot cities the information has been added as GIS layers.

Figure 7: Types of Maps and Related Issues

		
Old, not to scale maps	Inconsistent labelling of information on maps	Too much information on single map

Potential uses of maps for monitoring and planning: The ULB level maps can be used for a variety of purposes by the ULB. The PAS team has demonstrated some of these uses. The PAS team worked with the AMC to identify areas that are unserved by water supply distribution network and correlate these with AMC's expansion plans. It also supports AMC in developing a GIS layer for all slum settlements in the city. Such information is then correlated with other layers such as land price, availability of distribution network, plot boundaries and road network. This information is being used for identification of sites for slum improvement and planning for infrastructure.

Figure 8: Use of Maps for Planning and Spatial Analysis

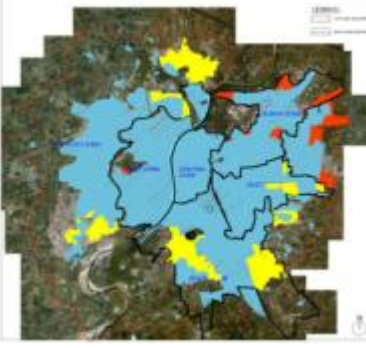

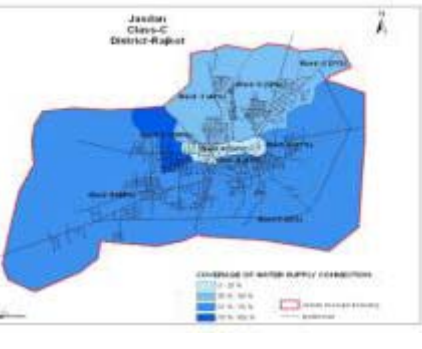
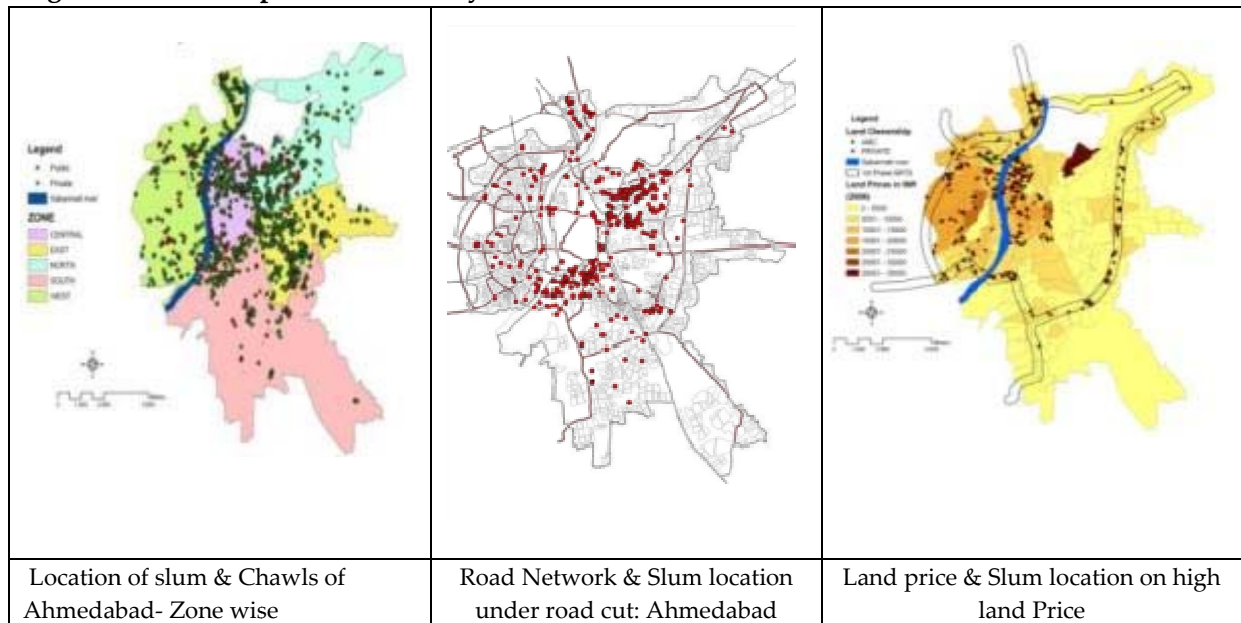
		
Identification of un-served areas within the city	Ward level coverage of water supply connections, overlaid with the water supply distribution network	

Figure 9: Use of Maps for Slum Analysis



The Project intends to leave a significant legacy behind for each ULB in Gujarat and Maharashtra in terms of a GIS based map that can be used by ULBs for a variety of purposes, including planning for WSS. The specific support that ULBs may need to use the GIS maps will be identified after the first round of performance measurement is done. The ULB level performance indicators will be used to promote map based analysis of identification of active leakages, identification of potential illegal connections, extent of coverage of water connections in slum settlements, identification of disaster prone areas, and management of potential drinking water sources for the city.

Apart from the analysis for performance measurement, mapping is also useful for the development of indices related to social and ecological potential or vulnerability. Maps will be used to highlight spatial variations in performance and vulnerability across wards. In terms of the ecological vulnerability, maps will be used to identify ULBs that are dependent of ground water, areas prone to draughts and floods, etc.

PAS Web Portal to Support Measurement, Monitoring and Dissemination

The proposed PAS web portal intends to provide a platform for all PAS partners to share the work related to performance measurement, analysis, monitoring and performance improvement. The web portal is also expected to support dissemination of studies and results to a wider audience, as well as making it possible for stakeholder participation through the web.

CEPT has initiated discussions with the Tata Consultancy Services (TCS). Based on preliminary interactions with PAS team, TCS has developed a concept design, which was presented at the meeting. Key aspects of the concept include: a module for data capture, analysis to generate key performance indicators and reports, pages for dash-boards for each ULB and various state agencies, differential level of access to partners and general public. Collaborative workspace will also be created for discussion forum for ULB staff and external users.

The concept of data entry module developed by TCS would lead to a design of an online (which can also work in off-line mode) data capture system that would enable all ULBs to enter their basic data as per the PAS data checklist to generate the KPIs. The checklist has been developed as an excel file at this stage with the necessary formula links to generate all indicators along with reliability scores. TCS would convert this in a suitable data entry module with built-in options for qualitative entries and

error checks for quantitative data. Each ULB will have provision to attach its base map showing its boundary, wards, main roads and landmarks to be used for representation of spatial analysis (e.g. coverage, services by slum locations, etc.). Over the second and third years, WSS assets will be added on a GIS platform. It is envisaged that a standard profile will be generated for all ULBs and users will also be able to generate reports generated to compare ULBs across various class-sizes and other appropriate peer categories.

TCS proposed to carry out the work in a phase wise manner starting with identification of core committees and procurement of IT infrastructure to implementation and customization of PAS. They will also provide hand-holding support and training. Based on their past experience, they also highlighted a few challenges that will need to be addressed in implementation: training to ensure adequate computer literacy for use of web portal by ULB staff, need to demonstrate the ease is use to overcome initial resistance and mindset, ensuring LAN connectivity for users with appropriate IT infrastructure, and starting with top management focus and ownership. Post implementation support and development and customization of bespoke applications may be done as appropriate.

TCS also showed samples of their past and ongoing work on e-governance at city and state level. Discussions in the meeting pointed out similar attempts are being made in Karnataka state and other cities. It was suggested that the PAS Project would benefit from interacting with these agencies. Further, under JNNURM and other state or Government of India schemes, e-governance support is being provided to state governments and selected ULBs. It was also suggested that as appropriate and possible, the PAS web portal design should align with these efforts.

Annex A: Major heads covered in the ULB questionnaire

	Major heads	Description	Remarks
1	Water Supply		
1.1	Asset related information	Trunk Infrastructure	
		Water Treatment Plant	
		Water Distribution Station	
		Transmission and Distribution Network	
1.2	Production and supply related information	At source: quantity	As in most ULBs', metering is not undertaken at these levels, quantity estimations would be approximate, based on details like pumping operations. Spatial variation is difficult to quantify as disaggregated data at ward level would not be available in most ULBs.
		At WTP: quantity	
		At WDS: quantity, duration, population served	
1.3	Quality monitoring	At WTP, ESR, Consumer level	Most ULBs' conduct tests regularly for Residual Chlorine; biological and chemical tests are conducted randomly (after monsoons generally), and sampling regimes are not followed.
2	Waste water and Sanitation		
2.1	Asset related information	Network infrastructure: Rising Main, Branch lines, etc	
		Waste water treatment plant	
2.2	Collection of waste water		
2.3	Quality monitoring	At Waste Water Treatment Plant	Tests for BOD, COD, etc are generally not carried out by ULB; however, CPCB conducts tests for the same at certain intervals in a year. Also percentage of waste water recycled/ reused is negligible in most ULBs'.
		At outlets of waste water disposal	
3	Storm Water Drainage		
3.1	Asset related information	Network infrastructure	
4	Solid Waste Management		
4.1	Asset related information	Transfer stations	Segregation of waste is not carried out in most ULBs'.
		Treatment plants	
		Engineered landfills	
		Disposal sites	
4.2	Collection related information	Primary, Secondary collection	
4.3	Quality monitoring	At Solid Waste Treatment Plant/ Engineered landfill/ Disposal site	
5	Slum information		
5.1	Service related information	Water supply, Sanitation, SWM collection systems	
6	Consumer service		
6.1	Complaint redressal systems	Complaints received, redressed, service standards specified in citizen charter	ULBs' do not generally maintain records of consumer redressal. Hence data on these would be estimations.
7	Staffing of ULB		
7.1	Staff related information	Permanent staff, temporary, IT infrastructure for the services	
8	Finance related information		
8.1	Revenue & Expenditure		
8.2	Tariff related information		

Annex B: Linkages between ULB Information Systems and PAS Data Checklist

