Performance Assessment System for Urban Water Supply and Sanitation

January 2018
Acknowledgements

This work, on the evolution of the Performance Assessment System (PAS) report, was carried out by Saswati Beliappa with support from Shreya Pillai. This report is based on review of various project documents and detailed discussions with team members. The report has benefited greatly from the insights provided by the PAS team and partners’ institutions, Urban Management Centre, and All India Institute of Local Self Government. We also acknowledge valuable suggestions made by Mr D.M. Suk坦kar, IAS, Retd Chief Secretary, Government of Maharashtra, and Mr C.K. Koshy, IAS, Retd Additional Chief Secretary, Government of Gujarat.

This report documents development of the PAS Project between 2008 and 2017. The report charts the Project’s journey and identifies future directions for its sustainability.

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Introduction

Access to water and sanitation services in urban India is widespread, but little is known about service levels and quality, and about service coverage for poor households. The lack of reliable and updated information on these services often leads to misallocation of resources. Such information gaps on service performance often results in an undue focus on building new infrastructure without adequate service quality improvements. New investments often fail to improve the level and quality of service. For example, despite US$7 billion investment in water and sanitation under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) of the Government of India, little is known about how this investment improved service levels. It was in response to this situation that, in July 2008, CEPT University (Ahmedabad), set up a Performance Assessment System (PAS) for urban water supply and sanitation (UWSS) in two states of India: Maharashtra and Gujarat. It was noted that despite widespread access to water and sanitation service in urban India, there is a lack of adequate and reliable information on service levels. It was also noted that for new investments in the sector to be effective, it would be important to assess the performance of the existing system and ensure its sustainability and reach for the poor and underserved.

The PAS Project proposal covered all urban local governments in the two states. The PAS Project worked with state and local governments to develop a reliable and sustainable PAS for urban water and sanitation services. The components in the project included: Performance measurement; Performance monitoring; and Performance improvement.

Performance measurement was defined as development and implementation of measurement framework. The indicators for performance measurement were developed through studies and stakeholder consultations at state level. The performance monitoring included setting up appropriate systems at state level, with annual and real-time information, detailed analysis of indicators, along with developing benchmarks and documenting good practices. The PAS measures service delivery in terms of improved equity, efficiency and financial sustainability.

A dedicated web platform was created to host this information. It enabled urban local bodies (ULBs) to track their performance and compare it with peers. Performance monitoring was linked to the performance-linked grants of the 13th and 14th Finance Commissions, monitoring of reform commitments under the JNNURM and possible rewards for better performing local governments. Performance improvement aimed to use performance indicators to prepare improvement plans to improve service levels, reach the poor and unserved, and increase financial viability.
The PAS was envisaged to be mainstreamed in the state and local government administration by aligning information collection, analysis and use with the ULB and state government systems, and through ‘self-assessment’ in later years of the project. The PAS was conceived as replicable, with its roll out in more states after implementation in Gujarat and Maharashtra. Results and lessons were to be disseminated nationally.

CEPT University received research grants from the Bill and Melinda Gates Foundation (BMGF). The project was implemented by CEPT University (CEPT), with the Urban Management Centre (UMC) and the All India Institute of Local Self Governments (AILSG) as its partners in Gujarat and Maharashtra, respectively.

At the start of the project, the anticipated outcomes of the PAS were to have a well-functioning and sustainable performance measurement and monitoring system for UWSS that is used at the state and local levels. The project envisaged continuous development of the framework in the Indian context, and to replicate the initial efforts in Gujarat and Maharashtra to at least two other states in India. As this summary report demonstrates, the PAS has achieved much more.

**Figure 1: Performance Assessment System approach: Moving to a virtuous cycle**
The project also aimed to promote the use of performance measures for improvement of service delivery at a local level and development of related tools to support such planning. It sought to influence actions at the local and state levels through the use of a performance system. In addition, it envisaged the use of this information and tools by a wide range of actors, ranging from the governments themselves to others such as students, researchers, regulators, finance institutions, consultants and civil society organisations. Unlike previous limited and one-time efforts at performance benchmarking of the water and sanitation sector in India, the PAS project aimed to achieve scale and sustainability. It was initiated across all urban local governments in two states covering over 400 cities and a population of about 65 million. The aim was to sustain this effort over time and scale it up to two other states in India.

The PAS project has now completed eight years. A report taking stock of its journey and documenting its outcomes and achievements has been prepared. Based on this report, this summary paper documents outcomes and achievements of the PAS in: (a) continuous development of framework and data systems; (b) scale and sustainability of the PAS; and (c) use of PAS information and tools. It also identifies key achievements, lessons learnt and suggests the way forward to ensure sustainability and further strengthening the use of PAS data and resources by stakeholders.

Continuous Development of Framework and Data Systems

The performance measurement framework of the PAS has been constantly adapted, evolved and improved over time. Its initial design was based on an extensive review of previous benchmarking efforts, both global and Indian. The initial PAS framework was tested in 14 ULBs in Gujarat and 18 ULBs in Maharashtra in Year 1 of the project (2009). A revised framework was subsequently used for a state-wide roll-out in 166 ULBs in Gujarat and 248 ULBs in Maharashtra. It was aligned with the Government of India’s (GoI) service level benchmarks (SLBs) initiative. In addition, it captures aspects of equity, on-site sanitation system and drill down indicators (local action indicators).

The identification and definition of the SAN Benchmarks to capture performance of on-site sanitation systems was a significant milestone in the PAS journey. It enabled the project to assess sanitation beyond only sewerage projects. The performance measurement framework has seen a continuous development and its relevance to the Indian/developing economy context is being increasingly acknowledged.
Evolution of the performance measurement framework is intrinsically linked to development, implementation and improvement in the online SLB-PAS module at state and city levels. In the first two years, data collection was conducted through paper-based questionnaires through field visits or regional workshops. From 2011, an online system for the collection and analysis of UWSS data was deployed on the PAS portal, www.pas.org.in. The online system is available in local languages (Hindi, Gujarati and Marathi). A comprehensive set of guidelines was prepared and a series of capacity building workshops held. This has resulted in a significant reduction in the time taken for annual performance assessment, as ULBs are now able to fill in the information from their own offices. The development and maintenance of this online portal is under an industry-academic partnership with Tata Consultancy Services (TCS), the premier information technology company with operations across India and globally.

The online SLB-PAS module enables data entry, validation, state and city analysis reports and provides citizens access to results. It was endorsed by the Ministry of Urban Development, Government of India, in 2014.

The PAS web portal was fully operational by 2012. It provides open access to performance information and generates dashboards that enable state and ULB governments to review performance indicators at state and local levels. The SLB-PAS module serves as an online performance measurement and monitoring system (through the portal, www.pas.org.in). This is now used by 900-plus cities in six states, and includes continuous nine-year data for the 400-plus cities in Gujarat and Maharashtra. The PAS website also hosts three years of information on SLB indicators for over 1,800 cities covering 18 states. The portal offers a web-based platform for data storage and processing. It enables data entry, validation, state and city analysis reports and provides citizens access to results. The online SLB-PAS tool comprises data entry modules for both performance indicators and targets. The PAS website also hosts a range of outputs and essential information related to...
benchmarking, sector reports, good practices and improvement initiatives.

**Analysis of indicators by interactive dashboards is enabled through the portal,** with interactive data visualisation that provides valuable insight, allows drilling down from indicators, charts and maps to read data better, allows combination of multiple data sources to keep track of performance, and indicates points of action or decisions required.

**Figure 3: Timeline of performance measurement and monitoring activities**

![Timeline of performance measurement and monitoring activities](image)

**The online performance measurement and monitoring system:** It is currently being used by over 900 cities in six Indian states – Gujarat, Maharashtra, Chhattisgarh, Telangana, Jharkhand and Assam – as a self-assessment tool and helps track their performance level annually. This tool was endorsed in 2014 by the Ministry of Urban Development (MoUD), GoI. It recommended other state governments to use this online module for benchmarking UWSS. Through various regional capacity building workshops, CEPT has shared knowledge, tools and experiences with other states planning to initiate or continue service level benchmarking in UWSS. Since then, Chhattisgarh in 2014, as well as Telangana, Jharkhand and Assam in 2015, have adopted the SLB-PAS online tool for monitoring performance of the UWSS sectors. The 13th and 14th Central Finance Commissions of the GoI have mandated publication of SLB as one of the conditions for eligibility for a performance-based grant. As of 2017, the indicators for cities in Gujarat, Maharashtra, Chhattisgarh, Telangana and Jharkhand have been updated. It helps cities analyse and monitor trends, make comparisons with their peers and track progress towards targets.

**Capacity building:** The project has conducted large-scale capacity building of state and local government staff for benchmarking. Several courses and training modules have been developed, for which course outlines and resources are available online. SLB workshops were conducted in different states where the PAS Project is being rolled out.
PAS e-newsletters and social media (Facebook page and Twitter) are some of the means adopted for project information dissemination and advocacy. The PAS leaves behind a significant legacy in terms of a fairly large body of research work and publications.

**Figure 4: Spread of online SLB-PAS across Indian states**

The online SLB-PAS module is being used by over 900 cities in six Indian states to track their performance level annually.

**Measures to strengthen data reliability:** The PAS web-based system for performance monitoring at city and state level now includes inbuilt data validation and verification process. Over the years, efforts have been made to build capacity of state/ULB officials on benchmarking through a series of workshops and interactions. To address the issue of the lack of reliable information, the online performance assessment module includes data elements for a standardised reliability assessment for each KPI. Four levels of reliability of data are specified with the highest reliability grade for updated records, manual or computerised for each data element and the lowest for no records maintained.

A number of studies were undertaken to improve data reliability and data systems such as linking with e-governance systems, carrying out water audit studies, preparation of information plans for a few cities, introducing standard data recording formats, etc.
Efforts to institutionalise the PAS in existing government systems:
The project’s approach has been to help state governments set up state-level SLB-PAS Cells, which are given the responsibility of supporting ULBs to follow the process of service level benchmarking as envisaged by MoUD, thereby enabling them to meet the requirements of the 13th and 14th Finance Commissions related to performance grants. A formal process of setting up SLB Cells was adopted in each state of the PAS’ operation. Government Resolutions were issued by the respective state governments regarding the formation of the SLB Cells, and their terms of reference and responsibilities defined. The calendar of activities of the SLB Cell was defined, with timelines for activities like online data entry by ULBs, SLB data analysis and dissemination, capacity building, and support for ULB level improvement plan (city level consultations, preparation of ISIPs and PIPs).

Based on the Gujarat and Maharashtra experience, the project influenced the MoUD for the formation of SLB Cells at state level to operationalise the SLB framework in all India. As a result, many state governments followed similar paths, creating state SLB Cells through Government Resolutions.

Scale and Sustainability of the PAS

The PAS Project aimed to achieve scale and sustainability, right from the project concept stage. It was designed to be implemented at scale – at the state level, covering all ULBs in Gujarat and Maharashtra. The concept was unique at that time, as all previous benchmarking efforts in India had been in the nature of pilots, covering a few cities, and were one-time exercises. The PAS, on the other hand, was there to stay. It was also designed to be replicable. Initially planned to be executed over five years, the PAS Project has supported performance monitoring continuously, year-on-year, over the past eight years in Gujarat and Maharashtra. The system has now been replicated in four other states in India. The PAS Project has now completed eight years. In the course of its progress thus far, significant achievements have been made, including online availability of service levels of 900+ cities across six states, Government of India’s acceptance of online SLB-PAS module in implementing the SLB framework, establishing SLB Cells at state level, and in some cases at city level, etc. The online system and all its resources will be available on the PAS portal.

Some of the key elements that led to the successful, state-wide implementation of PAS in Gujarat and Maharashtra include government ownership, project partners, advisory committee, an enabling policy ecosystem, project design and large scale capacity building activities.

Discussions with the states and buy-in very early in the project cycle, at the time of proposal/concept note preparation; continued government ownership and involvement through regular reviews, through the project period have been key to sustaining the PAS. Identification of project
partners in the two states with the required experience and credibility as well as their acceptance by the state and local governments, was also helpful. An Advisory Committee comprising eminent resource persons and strategic partners, to provide guidance to project design and management, guided the PAS team.

Establishment of SLB Cells by the two state governments: The PAS Project and its partners (AIILSG and UMC) provided initial support to these cells. Institutionalisation of the PAS within the governance system was done through appropriate Government Resolutions. An enabling policy ecosystem of inclusion of SLBs as one of the criteria for ULBs to access performance-based grants from the 13th and 14th Finance Commissions served to promote the use and sustainability of the PAS in the two states, while providing an opportunity to replicate the system in other states. The PAS' ability to support implementation and monitoring of central and state level UWSS programmes and policies in the two states accounted for its continued demand, use and sustainability.

Project design that is relevant to context, rooted in local realities, and serves the needs of planners and policy makers – all of this helped the PAS gain acceptance at the state and local levels. Large-scale training, capacity building and awareness generation at the state and local levels promoted its use.

Performance linked grants by 13th and 14th Finance Commissions: The project’s policy advocacy efforts and actions found resonance in the 13th and 14th Finance Commission reports and helped sustain and replicate the system. The project’s contribution to the SLB initiative of the MoUD, has been recognised by Ministry, which made CEPT its technical partner for scaling up of SLBs across the country. Much has been achieved, and further efforts to ensure sustainability are also required.

Sustaining the activities beyond the project period has been thought of in two ways. At CEPT, the PAS legacy will continue through a Centre for Water and Sanitation to house the learnings of the PAS Project and continue research and dissemination work. During the course of next two years, the PAS team will also aim to establish and strengthen SLB cells at state levels that can carry on the work currently supported by the PAS team.

The PAS Project has helped create a culture of performance assessment. The recommendations of the 14th Finance Commission on use of performance indicators and recognition from the MoUD of the PAS framework, has helped spread PAS experience beyond Gujarat and Maharashtra. Further efforts are needed to improve quality of data and information systems with ULBs. This will require exploring links with e-governance systems that are being developed in several cities.
Use of PAS Information and Tools

PAS information is used for policy interventions at national and state levels, and for the preparation of improvement plans at city level. PAS Project has developed a number of tools to support benchmarking and performance improvement. The information has been used by academicians, students and other agencies, and PAS experience and outputs have been disseminated nationally and globally. Various tools have been created to facilitate preparation of improvement/investment plans at state and city levels. These have been widely disseminated in various national and international workshops.

The largest UWSS database in India: The PAS portal is the largest UWSS database in India and the repository of service level indicators for over 1,800 cities covering 18 states over a period of three years.

The PAS portal: The portal pas.org.in serves as a forum for dissemination of PAS information and resources. It is also an online performance assessment tool. The PAS information covers four sectors: water supply; waste water management; solid waste management; and storm water drainage. Performance Indicators (time series data) on all four sectors are available on the PAS web portal. The website hosts over 400 reports/presentations and a range of tools. The portal receives around 300,000 viewers every year. Besides India, the portal has received visits from various countries, the United States, the United Kingdom, Brazil, China and South Korea being the top five countries. On an average, a visitor spends about 17 minutes on the portal.

A range of users have used the PAS portal for varied purposes, including government agencies at national, state and local levels, regulators, multi-lateral financing institutions, researchers, consultants, etc. Cities have used the portal for performance measurement, reporting on performance indicators, performance improvement planning and investment decision-making. Government agencies, at national, state and local levels have used PAS data for various policy interventions, programme monitoring, impact assessment and service improvement actions. Regulators such as the Comptroller and Auditor General of India (CAG) have used PAS information to conduct performance audits for three basic services for selected ULBs in Maharashtra and assess their regulatory compliance. Multi-lateral financing institutions such as the Asian Development Bank and the World Bank have used PAS data for project identification, selection, and formulation. Researchers, including academicians and students of planning and technology colleges, comprise the largest body of users. Consulting firms and individual consultants have used PAS data to prepare various consulting assignments such as vision document, city development plans, city sanitation plans, etc.

State Finance Commissions in most states lack access to information on ULBs. Central Finance Commission reports typically lament the lack of information on municipal governments. The PAS has now provided...
year-on-year information required by the State Finance Commissions (SFC). The SFC in Gujarat used PAS information in its discussions on devolution of funds to ULBs. In the memorandum to the 14th Finance Commission submitted by the Government of Maharashtra (GoM), the support provided by PAS Project to the state on SLBs is recognised.

**PAS publications prepared for state government**: The PAS operates at state and local levels. It provides insights into challenges and improvements necessary in urban water and sanitation system. The PAS team has developed a number of policy guidelines and standard operating procedures for improving UWSS services. At national level, the PAS made contributions in developing SAN-Benchmark that incorporates on-site sanitation. This stems from the fact that while the SLBs of the GoI focus on sewered networks, only one-fifth of cities have sewerage networks. Most cities have on-site sanitation systems that are not captured by SLBs. The PAS also prepared various standard operating procedures (SoPs) for faecal sludge management (FSM), water quality surveillance, customer grievance redressal, and waste stabilisation ponds. The SOP for FSM was included in a Government Regulation issued by the Government of Gujarat (GoG) for making cities open defecation free.

**PAS tools**: The PAS team has developed a number of decision-support tools to assist state and local governments in improving the effectiveness of UWSS service delivery. These tools include performance improvement tools such as Sani Plan, Target Setting Model and the Tariff Setting Model. PAS information and tools have been extensively used by a wide range of stakeholders, and not only in the states where PAS has been rolled out.

**Dissemination of project information**: The PAS e-News disseminates information about project activities to over 1,800 persons and institutions. Newsletters and Urban News, prepared by the AIILSG for Maharashtra and by the UMC for Gujarat are also distributed widely to all ULBs and other stakeholders. The newsletters serve to encourage readers to use the PAS website through links that offer more detailed information.

The project’s outputs and lessons are disseminated to many global entities and/or activities such as UNESCO-IHE (Netherlands) Pro-poor Benchmarking (PROBE) programme, the UN Post 2015 and SDG discussions. Details of the PAS Project are also posted on the Sustainable Sanitation Alliance (SuSanA) Forum. PAS information, outputs and lessons have been used for a number of capacity building efforts for sector stakeholders throughout India and in South Asia.

**PAS partners**: The project successfully engaged its partner organisations such as the AIILSG and UMC in working at state and local levels. The partners brought in their own people, honed their own organisational capabilities related to performance assessment systems in water and sanitation and built the capacity of individuals associated with them. The project also resulted in specialised learning and capacity
building of several independent researchers and consultants who were associated with it. It has successfully nurtured a large number of young professionals and scholars, fostered successful industry-academic partnerships, and built national, state and global networks of institutions working on similar issues. The project’s learnings were disseminated to a large community of young planners and professionals and did not remain confined to academia.

Summary

To sum up, the PAS has created a user interface that enables governments, researchers and consumers to look closely at the quality of water and sanitation service delivery, providing a fairly accurate measurement of various parameters/indicators. It provides a tool to state and local governments to guide investment decisions in water and sanitation and has proved a valuable index of how good planning has been and whether investments have helped achieve desired outcomes. The time series information provides a unique opportunity to senior government officials, municipal officers and planners to review the status of water and sanitation services, discuss investment programmes and activities of interest. The funding provided by the BMGF, coupled with the hard work put in by the project team and partners, engagement with the states and penetration to the town level, were some of the factors that aided project implementation. The project has straddled action research and policy advocacy with equal ease, produced high quality research work and shaped the opinion and actions of policy-makers and decision-makers.

Continuous reflection, introspection, coupled with academic rigour, a healthy competition among project partner organisations, cross-learnings and experience sharing among the project partners, cities, states and other stakeholders including international organisations involved in similar work, and continuous research and documentation of learnings, made for the design and execution of a meaningful and replicable project, rooted in local realities and global in outlook.

Project Directors of the PAS Project have been recognised and rewarded at international forums. The 2013 IWA Development Solutions Award was won by Professor Dinesh Mehta, PAS Project Director in recognition of an outstanding innovation or contribution to research which has led to demonstrable uptake, impact or influence at national, regional or international levels in low and middle income countries. In 2016, Professor Meera Mehta, PAS Project Director, was listed as one of the top five influencers in sanitation in India as per digital landscape overview by MSL group. In 2017, CEPT University and PAS Project efforts leading to the achievement of open defecation free urban Maharashtra were recognised, and the Project Directors of PAS honoured and awarded by the President of India.
Stakeholders including officials from the GoG, GoM, and the MoUD (GoI), and ULB officials have recognised the outstanding work and contribution of the PAS Project.

The idea of SLB-PAS has become national – Gujarat and Maharashtra, and more recently, Chhattisgarh, Telangana and Jharkhand are the states that have consistently reported on SLBs, and Assam has initiated the process by adopting SLB-PAS. The successful roll-out of SLB-PAS to states other than Gujarat and Maharashtra stands testimony to its replicability. Further efforts are required: (a) to spread information on the uses and benefits of the PAS to state and local governments in India and national governments of Low and Middle-Income Countries, where it is eminently applicable and can be replicated; and (b) to institutionalise the PAS at each level of government.

As the PAS Project nears a decade long journey in 2018, its key distinguishing features or outstanding characteristics can be summed up as: its conceptualisation at scale; philosophy of long-term involvement; emphasis on implementation rather than planning alone; ability to adapt to changing policy contexts and the varying needs of different levels of government, enabling it to stay relevant; ability to plough back its field research findings into the design of meaningful and implementable policy that is rooted to context; and ability to foster innovation and embrace continuous change.

The project’s continuous evolution, its exploration and questioning of prevailing methodologies and paradigms in UWSS, and benchmarking in particular, and its rootedness/relevance to context have enabled it to find solutions and have lasting, transformational impact in its states of operation, and influence policy at national and state levels.

The key lessons learnt from the project include:

- **Scale is very important** to demonstrate the importance of performance assessment systems and their impact. The PAS Project operated at a state level and covered all the ULBs in the state. **Working with all levels of governments** (national, state and local), **ownership and regular reviews are essential** to influence policies and implementation. **Patience and adequate time** (five to seven years) is required to mainstream in government systems. **Government ownership and regular reviews** are essential for successful implementation. Once fully set up, the PAS can be used for both **outcome monitoring and rational investment decisions**. **Linking performance measurement to service improvement** is necessary to sustain the interest of local governments. The benchmarking exercise needs to be linked to performance-based funding. Potential hurdles due to change in governments/transfer of officials can be avoided/overcome by ensuring that robust systems and processes are in place, and objectives and methodologies are internalised by users.
Way Forward

Based on its work under the PAS Project, CEPT University created the Centre for Water and Sanitation (C-WAS) in 2017 as a repository of PAS Project resources and to carry forward the work undertaken under the PAS. The Centre carries out various activities – action research, training, advocacy to enable state and local governments to improve delivery of water and sanitation services. Some of the key challenges before C-WAS are:

**Keeping the PAS legacy alive through the portal:** The PAS/C-WAS portal has a wide reach, with over 280,000 users from Asia, Europe, North and South America, Australia and Africa. The portal captures all the work done under the project thus far, in one place. It is proposed to be active for at least the next five years and will continue to provide access to PAS resources. Improvement of the portal, for example, in terms of search options that are more refined, provision of differential access to information to different categories of users, are possible areas that the C-WAS could focus on.

**Dissemination of PAS information and image-building of the C-WAS:** The PAS information is currently disseminated through an e-newsletter, which is mailed to over 1,800 person and institutions, as well as through social media and at workshops and meetings. Greater efforts are required to disseminate PAS Project work to governments and institutionalise it. The PAS team can extend its outreach by publishing an annual international journal of urban water and sanitation, use national/local media to host/participate in talk shows and generate awareness and create an image for the C-WAS as a thought leader. Further efforts are required to improve the use of PAS information and tools by different stakeholders. Redesign of the PAS web portal and PAS e-News incorporating a better content strategy and making it more user friendly, is the first step, and is under way. Other measures proposed to increase usage of PAS information include development of outreach strategies to promote the use of performance assessment data. Efforts are also required to analyse “before and after” performance indicators for cities where PAS information and tools have been used to achieve improved service delivery. Showcasing of success stories and transformative changes through the use of PAS information at various forums is likely to promote the use of PAS information.

**Mainstreaming of PAS and promoting its use at ULB level for service improvement:** The first critical step in mainstreaming of the PAS or SLB-PAS has been the creation of special State SLB Cells. The challenge now is to mainstream and promote greater use of the PAS at the ULB level. CEPT has initiated several steps in this regard and needs to follow-through, particularly in the areas of: (a) progressive SLBs to enable disadvantaged and smaller ULBs to record phased progress and improved service delivery performance over time; and (b) **e-governance**:
to make SLB PAS a part of the regular monitoring activities of ULBs rather than a stand-alone annual activity.

**Towards scaling up and greater sustainability of the C-WAS:** The C-WAS has to focus its efforts on scaling up of PAS: (a) across states in India; and (b) across South Asia, where government systems and processes are similar and where it should be easy to replicate. It may also explore the possibility of expansion to Low and Middle-Income Countries in South East Asia and Africa. In order to ensure greater sustainability, the C-WAS needs to charge for services rendered: (a) for helping states/countries set up PAS systems; (b) for training and capacity building programmes; (c) for conducting professional development events for municipal staff, planners and urban practitioners; and (d) for consultancy/advisory services on specific aspects of water and sanitation service delivery to states and ULBs. It could also consider a differential fee-based access to different categories of users, and for use of the PAS online module by ULBs across India, to enable them to access 14th Finance Commission Performance Based Grant. Tie-ups with shared digital libraries that provide subscription based access and are used by scholars across the world, with possible arrangements for sharing of user fees, could also be explored by the project to promote the use of PAS information by planning practitioners, academicians and researchers.

**Continue to link professional lessons to academic programmes:** The C-WAS has designed courses for CEPT University and trained its students on the use of various planning tools developed by the PAS Project. Such efforts are also needed at partner institutions across the world. Tie-ups with state training institutes in India for training of government officials need to be explored. Online training courses with C-WAS staff as mentors could also be introduced.

The PAS team has participated in the UN Post 2015 discussions and contributed to sanitation indicators in a meeting organised by the special rapporteur on the human rights to safe drinking and sanitation. PAS also participated in meetings of the IWA specialist group for Performance Indicators and Benchmarking to influence global benchmarking efforts. Dissemination of the PAS was undertaken at various international forums. The C-WAS needs to build upon these established links and continue to strengthen them through constant exchange.

**Advocacy and capacity building:** Further efforts in advocacy and capacity building are required to: (a) create a culture of continuous performance improvement using data; and (b) improve and accelerate the effective use of SLB-PAS data for decision-making at the state and ULB levels, and enabling them to leverage data to their benefit.
List of PAS References


Published Paper/Article


C-WAS
The Center for Water and Sanitation (C-WAS) at CEPT University carries out various activities – action research, training and advocacy to enable state and local governments improve delivery of services. In recent years C-WAS has focused its work on urban sanitation.

PAS Project
The Performance Assessment System is a programme initiated by the CEPT University, Ahmedabad, with funding from the Bill and Melinda Gates Foundation. Since 2009, PAS has supported development of tools, methods and processes for performance assessment and improvement in delivery of urban water and sanitation services. The PAS online performance assessment system has been implemented in six states of India, covering more than 900 cities.