## A Review in Bangladesh, India, and Pakistan

# Benchmarking for Performance Improvement in Urban Utilities


wsp water and sanitation program

The Water and Sanitation Program (www.wsp.org) is a multi-donor partnership administered by the World Bank to support poor people in obtaining affordable, safe, and sustainable access to water and sanitation services

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**Report**

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# Benchmarking for Performance Improvement in Urban Utilities

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South Asian Utilities Participating in Performance Benchmarking, 2005–07

# Abbreviations

| | |
|---|---|
| **CIB** | Continuous Improvement and Benchmarking |
| **DFID** | Department for International Development (UK) |
| **GTZ** | Deutsche Gesellschaft für Technische Zusammenarbeit (German Agency for Technical Cooperation) |
| **HUD&PHED** | Housing, Urban Development, and Public Health Engineering Department (Punjab) |
| **IBNET** | International Benchmarking Network for Water and Sanitation Utilities |
| **JICA** | Japanese International Cooperation Agency |
| **JNNURM** | Jawaharlal Nehru National Urban Renewal Mission |
| **JUSCO** | Jamshedpur Utilities and Services Company |
| **Lpcd** | Liters per capita per day |
| **MDGs** | Millennium Development Goals |
| **MLGRD&C** | Ministry of Local Government, Rural Development, and Cooperatives (Bangladesh) |
| **MoUD** | Ministry of Urban Development (India) |
| **NRW** | Nonrevenue water |
| **PIP** | Performance improvement planning |
| **PROOF** | Public Record of Operations and Finance |
| **RMC** | Rajkot Municipal Corporation |
| **SAWUN** | South Asian Water Utility Network |
| **SOP** | Standard Operating Procedures |
| **SEAWUN** | South East Asian Water Utility Network |
| **ULB** | Urban local body (India) |
| **WASA** | Water and Sanitation Agency (Punjab, Pakistan) |
| **WASA** | Water and Sewerage Authority (Bangladesh) |
| **WSP** | Water and Sanitation Program |
| **WSP-SA** | Water and Sanitation Program–South Asia |
| **WSS** | Water supply and sanitation |

# Executive Summary

Performance benchmarking is a powerful tool to make service providers more accountable, and to measure progress while improving performance. This review examines the introduction of performance benchmarking in over 30 urban water utilities across Bangladesh, India, and Pakistan since 2003, with the support of their respective governments and the Water and Sanitation Program–South Asia. It focuses on the process of building systems for performance measurement, monitoring and analysis, and institutionalizing benchmarking as an integral part of operational practice in utilities and government, to support broader sector reforms.

The findings reveal that most utilities are performing poorly, and just how dire the state of service provision really is across the towns and cities of South Asia:

- No water utility in Bangladesh, India or Pakistan provides its customers with continuous water; the average is five hours a day.
- Water utilities do not serve at least a third of urban residents.
- High nonrevenue water—frequently estimated above 40 percent—means a large volume of water is being lost through leaks, instead of being available to improve and extend supply; billions are lost each year through unbilled consumption and revenue mismanagement. Citizens are carrying these costs, and receiving very poor services in return.
- Operating expenditure far exceeds income in many utilities, and tariffs bear no relation to costs. Most utilities rely on subsidies and ad hoc grants from government.

With some exceptions, the quality of the performance data reported by the utilities does not yet support robust analysis beyond indications of broad trends. Consequently, comparative assessment of the utilities' performance indicators is not the main focus of this review.

The data reveal the wide scope that exists to implement internal system improvements. It is spurring the

participating utilities to respond to performance gaps revealed by the data. Many of the performance improvement plans being developed and implemented focus on reducing nonrevenue water and improving their billing systems, to mitigate chronic under-funding of their operations.

Significant capital investment will be needed to extend coverage, upgrade decaying networks, and develop wastewater treatment capacity on a large scale. But many performance weaknesses will not be remedied through flagship capital projects alone. Greater attention is also to be given to maintenance and revenue management systems, and aligning service outcomes with the needs of citizens. This requires effective accountability mechanisms and governance systems.

In Bangladesh, the initiative has made headway at utility level. Sixteen utilities serving from medium size towns (pourashavas) to mega cities (Water and Sewerage Authorities) have institutionalized the concept of performance benchmarking. The data have been used to develop performance improvement planning (PIP), and there is systematic improvement in access and collection efficiency areas in utilities.

In India, the Ministry of Urban Development (MoUD), of the central government, is driving implementation of service level benchmarking in 26 cities through the Jawaharlal Nehru National Urban Renewal Mission. The MoUD, recognizing the importance of performance benchmarking, has linked access of funds to states/cities with their commitment to reveal their performance, plan and implement improvement, and become more accountable through disclosure of their performance against annual targets in four service delivery domains, that is, water; sanitation and sewerage; storm water; and solid waste management.

In Pakistan the initiative which started in five large utilities of Punjab has been scaled in two other provinces. Out of the total nine classified urban utilities of the country, eight are in various stages of implementation of the performance benchmarking initiative. In Punjab the utilities have moved from data generation to PIP development and implementation. Three utilities of Pakistan have been linked through the regional utilities network to performing utilities of East Asia. In Karachi the utility has institutionalized the initiative by establishing a dedicated cell.

Comprehensive change will take time, but benchmarking is already contributing decisively to a new era in service delivery across South Asia, based on performance measurement and monitoring. This is laying the basis for improved sector governance, regulation, and reform.

# Introduction

Water and sanitation utilities are the essential vehicles for delivering the services needed to enable and sustain economic growth, and, in turn, meet the Millennium Development Goals and support South Asia's fast-growing towns. But there is widespread evidence of poor performance.

Until recently, the evidence was largely anecdotal. New data from regional performance benchmarking initiatives are now providing quantitative information on the state of water services, across a range of parameters. It reveals the performance of a cross section of utilities, and is enabling comparison with others of similar size and structure.

No water utility in the region provides its customers with continuous water. The supply is intermittent and generally of poor quality, contributing to illnesses. High nonrevenue water—frequently above 40 percent—means a large volume of water is going to waste, instead of being available to improve and extend supply; billions of Rupees and Taka,[1] vital for improving and sustaining the quality of service delivery, are lost each year through unbilled consumption and poor revenue management. Citizens are carrying these costs, and receiving poor services in return.

The analysis of this data is shaping performance improvement planning and decision making, and contributing powerfully to sector reform initiatives which emphasize institutional realignment, transparency, and accountability. Such reform initiatives would become more effective and reliable if the data become increasingly sophisticated. For example, in India, the grading of data adds an important dimension to make benchmarking increasingly reliable. Benchmarking is highlighting where improvement is needed—not just in big infrastructure development programs, but in lower

[1] US$1 = Bangladeshi Taka 69; US$1 = Indian Rs. 46; and US$1 = Pakistani Rs. 85 (approximately, as of February 2010). Conversion rates are from www.coinmill.com; all conversions in the text are approximations.

profile interventions which drive decisive service improvements. This includes household surveys to upgrade utilities' customer databases and improve their knowledge of who they are serving, and how effectively; systems to track response times and loss reduction; comprehensive metering to pinpoint losses and strengthen sustainability; and so on.

Benchmarking is also revealing opportunities for quick wins. Better management of billing and collection, for example, generates more income to do a better job of service delivery. This review examines the introduction of performance benchmarking in over 30 water utilities across Bangladesh, India, and Pakistan since 2003, with the support of their respective governments and the Water and Sanitation Program–South Asia. It focuses on the process of building systems for performance measurement, monitoring and analysis, and institutionalizing benchmarking as an integral part of operational practice in utilities and government, to support broader sector reforms.

**Box 1: Utility benchmarking: A tool for performance improvement and decision making**

Benchmarking involves assessment of performance, and comparison with others to identify key areas for improvement.

There are two main types of benchmarking; they complement each other. Both are being used by South Asian water utilities.

**Metric Benchmarking: Establishing Different Levels of Performance**

A range of methods is used to quantify the performance of a utility, and compare its performance to others. The approaches described in this review rely on simple analysis of the ratio of inputs to outputs—cost per cubic meter, number of staff per 1,000 water connections, and so on.

As the quality and reliability of the qualitative data improves, more sophisticated techniques can be used, such as regression analysis. This type of analysis takes account of external variables that are outside the control of management, and allows for better comparison across different operating environments. For example, the cost per cubic meter is determined by a range of variables—including the nature of the water source, the total volume supplied, the cost of electricity, and so on; regression analysis enables these factors to be taken into account when assessing performance across very different operating environments (Kingdom, 1996).

Metric benchmarking provides information for utilities to identify performance gaps, but does not usually reveal the reasons for them. The key is to understand the reasons behind the performance gaps.

**Process Benchmarking: Assessing How to Improve Performance**

Having established a need for performance improvement in a particular function, process benchmarking highlights how to change the way things are done. Processes associated with the targeted function are analyzed closely, step by step, and compared against those in 'best in class' organizations. Rigorous assessment of internal processes, enhanced through comparative assessment, can achieve significant improvements through more effective, streamlined, and efficient approaches.

To date, most benchmarking activity in the South Asian water sector has focused on quantifying performance. A growing number of utilities are adopting process benchmarking approaches to fine-tune performance improvements.

# Benchmarking in the Global Perspective

How does the performance of different utilities compare? Why do some do better than others, and what is it that they are doing differently? Globally, organizations are using benchmarking to seek answers to these questions and drive improvements.

'Benchmarking' can be used in different ways for different purposes:

- **For competitive advantage:** Benchmarking emerged in the private sector in the early 1980s when the U.S. company, Xerox, sought to strengthen its competitive advantage by assessing its performance in relation to its rivals, learning from the best achievers, and adapting best practices to enhance its own performance (Cabrera, 2008). The approach is now used widely by many of the world's most successful companies and organizations.
- **To promote efficiency in a context of monopoly supply by water utilities:** In the United Kingdom, the national economic regulator for water utilities, OFWAT, uses mandatory benchmarking—or 'yardstick competition'—by water utilities to generate information on appropriate water pricing and performance norms (Dassler, Park, and Saal, 2006). Colombia's regulator uses a similar approach. In the Philippines, benchmarking is being used to compare the performance of the two water concessionaires serving different parts of the city of Manila.
- **To support sector assessment and programming:** China, Vietnam, and a growing number of other Asian countries have used one-off benchmarking assessments of utility performance to determine performance across the water services sector and refine national level planning and policy development.
- **To identify and share best practice:** Regional networks such as the South East Asian Water Utility Network (SEAWUN), the South Asian Water Utility Network (SAWUN), and the Water Operators Partnerships program for Africa (WOP–Africa) promote benchmarking to drive comparative assessment and continuous improvement in service provision and utility performance. These networks promote the collection, analysis, and comparison of key performance data between water utilities in a country, a region, and worldwide, and then support knowledge sharing, twinning partnerships, and training workshops to promote adoption of good practice.
- **To drive service improvements through linking funding support to performance monitoring and improvement planning:** Funders—within government and beyond—increasingly want evidence that capital investments are yielding better service performance outcomes. Benchmarking can show how effectively public funds are being utilized, and where new investments should be prioritized. There is a growing move in India and Pakistan for government to link capital funding to performance improvement plans which address deficiencies revealed through benchmarking. In India the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), a Rs. 16,500 crore program of national governments, is in the offing under which the fiscal transfers to the utilities linked to performance. In Pakistan the provincial government of Punjab is exploring the option to link the flow of funds, over and above the regular transfers under a finance commission formula, to performance. Utilities in Africa, particularly in Ethiopia and South Africa, are eligible to receive the funds from higher tiers of government on the production of credible data showing improvement in service delivery.

Benchmarking of water supply utilities is now common practice worldwide, across developed and developing economies from Europe to Latin America and Africa.

### Involving Staff to Make the Most of Benchmarking

The value of benchmarking as a practical management and decision-making tool is being recognized beyond government and utility managers. In the Philippines, for example, representatives of the Alliance of Government Workers in the Water Sector, working with the Public Services International Research Unit (PSIRU) and other agencies, believe that management-labor cooperation can be mobilized to support the shared goal of safe, affordable, reliable, and sufficient water for all. In October 2008, a six-month capacity-building program on performance benchmarking and database management was launched, targeting worker representatives from public water utilities across the Philippines. The objective is to strengthen decision making for improved water services by drawing on the knowledge and information of operational-level employees (Corral, 2008).

A valuable source of information on global utility performance benchmarks from over 2,000 utilities in 85 countries can be found at the website of the International Benchmarking Network for Water and Sanitation Utilities (IBNET), at www.ib-net.org.

# Introducing Benchmarking in South Asia

The introduction of benchmarking in South Asia under a well designed regional program was pioneered in India, beginning in 2003. Bangladesh and Pakistan followed soon after, from 2005, and were able to draw on the lessons of India's experience. From the start, these benchmarking initiatives have looked beyond comparative assessment, to using benchmarking to focus performance improvement planning (PIP) and monitor its impacts.

In each country, the Water and Sanitation Program–South Asia (WSP-SA) has played a pivotal role in initiating and supporting benchmarking, using tools developed by the International Benchmarking Network for Water and Sanitation Utilities (IBNET). A common approach has been pursued, which is adapted to align with country-specific needs and dynamics. It has three main phases:

- Phase 1: Initiation;
- Phase 2: Institutionalization and Consolidation; and
- Phase 3: Strengthening Performance Assessment and Improvement.

The next section describes the process of introducing benchmarking in the different contexts of Bangladesh, India, and Pakistan, before moving onto an assessment of key findings.

## Phase 1: Initiation

### Bangladesh

In Bangladesh, the local government division of the Ministry of Local Government, Rural Development, and Cooperatives (MLGRD&C) introduced benchmarking in 11 cities and towns in 2005, with the support of the WSP-SA.

This followed the development of a 2005 Water Sector Development Plan, which aimed to guide comprehensive reforms, with an emphasis on promoting greater autonomy and professionalism for water utilities. This heralded a major shift from the status quo, where institutions are fragmented and investment decisions occur at a different level from operations and maintenance. The national Department of Public Health Engineering is responsible for planning and developing infrastructure in most areas, and city corporations and local municipalities charged with operating and maintaining the infrastructure and providing services. Semi-autonomous Water and Sewerage Authorities (WASAs) provide services in the two largest cities, Dhaka and Chittagong. Overall planning is fragmented, utilities are inappropriately staffed, and revenue falls far short of what good service provision requires.

The sector faces enormous challenges, in part arising from rapid urbanization and increasingly dense settlements. The population of Dhaka, for example, is expected to surge from 12 million now to over 21 million by 2025.

Nationally, there is limited monitoring, resulting in widespread bacteriological contamination of groundwater at shallow depth, the country's primary water source. Compounding this is arsenic contamination in a quarter of the country's tubewells and increasing salinity in the coastal belts. The water table is falling steadily because of high abstraction rates. Very low river flows, seasonal shortages, and frequent power cuts add to water supply problems. The potential for using

*Phase 1: Activities*

surface water is constrained by declining flows in the rivers from India, and the cost of treatment to overcome severe contamination. Climate change will impact particularly harshly on Bangladesh's people, accelerating urbanization and worsening water deficiencies.

Highly capable and professional water utilities are needed to overcome these challenges and provide effective and sustainable water and sanitation services. Government regards performance benchmarking as a valuable tool for improving water utility management and business planning, through revealing what kinds of inputs and improvement strategies are needed to strengthen utility performance.

The first phase, beginning in 2005, focused on introducing the concept to 11 utilities; the participants included the Dhaka and Chittagong WASAs, a city corporation and eight smaller urban local authorities known locally as pourashavas. As in India, the WSP-SA worked closely with the local government division of the MLGRD&C to introduce key IBNET performance indicators and data collection methodologies to utility managers, and gain the support of city and town mayors and pourashava chairs. The focus then shifted to providing hands-on support to work teams within each utility, to assist them in collecting and assessing the data.

The findings from this first phase provided the most comprehensive assessment to date of the state of urban water services in Bangladesh.

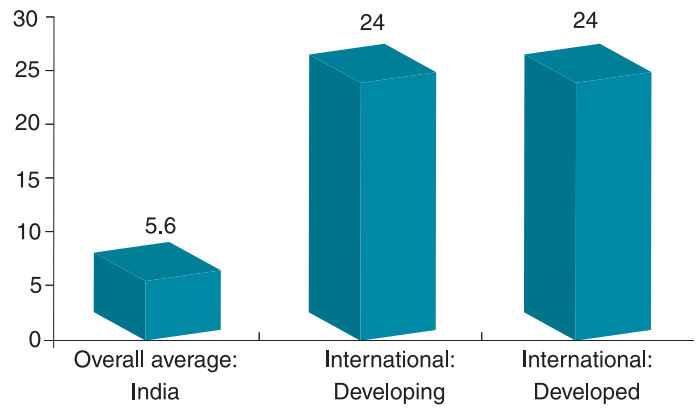
## India

The way Phase 1 was structured and implemented in India illustrates the approach used across the region. The catalyst for benchmarking in India was the Ministry of Urban Development's (MoUD) need for baseline data on the state of the urban water sector, in order to assess how best to direct reform initiatives. With the support of the WSP-SA, the Ministry initiated a project in 2003 to collect and analyze performance data from 13 water supply and sanitation utilities. Project partners included state governments and the Indian Water Works Association (IWWA).

The term 'water supply and sanitation (WSS) utilities' covers a wide range of service providers, ranging from state-level departments, authorities and agencies, to city-level water supply and sewerage boards, technical service departments within municipal corporations, and companies owned by the private sector. Representatives of a wide range of public sector entities were approached to provide insights into the different organizational capacities and their implications for collecting data. Between them, the 13 utilities covered 23 cities and towns across India, ranging in size from less than 50,000 connections to more than 250,000.

From the start, the WSP-SA adopted a participatory, networked approach to benchmarking. The emphasis was on first helping the utilities and local and state governments to appreciate the concept and its benefits—both internally, within each utility as a management tool, and externally, to support comparative assessment. The focus then shifted to developing the methodology, using indicators and definitions developed by the IB-NET. The WSP-SA helped to set up, train, and support work teams within each utility, who were then tasked with collecting, checking, and assessing the data. Key findings were analyzed in detail across the different utilities to reveal performance trends, and the

**Figure 1: Average availability of water in India, compared to international norms**




*Source:* WSP (1996).

**Box 2: Gaining a 'whole organization perspective' through benchmarking**

Data gathering is not new to most utilities. But the benchmarking indicators integrate this information across different functional areas, and reveal performance in a whole new way—daily per capita consumption, unit production cost, staffing per connection, working ratio, and so on. The process of data collection also reveals significant gaps in the management information systems of most utilities.

Dhaka WASA in Bangladesh has always collected data, but through assembling indicators for benchmarking, it gained a 'whole organization perspective' for the very first time. The WASA formed a high-powered Benchmarking Committee comprising top management and the section heads of Finance, Revenue, Operations, and Development. For the first time, section heads said they could see the links between leaks and revenue. This integrated perspective is drawing attention to performance gaps, and shifting organizational perspectives beyond management of supply, to a customer orientation which looks at service outcomes.

Other utilities in South Asia echo this. Senior managers in Faisalabad WASA, in Pakistan, say the process of assembling data for benchmarking is helping the different directorates within the WASA understand how performance in one area impacts on another. The WASA has always collected data on service coverage, but analyzing consumption against the number of connections was new. A comprehensive revamp of the customer database, assessed against connections on the ground, revealed just how prevalent unauthorized connections were; 31,000 illegal connections have since been regularized. The revised, more accurate data now show that consumption per capita was lower than previously believed.

sample average was compared with international benchmarks.

Despite limitations in the reliability of the data, the results were sobering. Comparison with benchmarking results with norms elsewhere showed clearly that the performance of the participating Indian utilities compared poorly with that in other developing countries. Perhaps the most striking finding was that no utility is able to provide a continuous supply of safe drinking water; two provide water for less than two hours a day. More comprehensive findings are described in later sections of the report.

## Pakistan

In Pakistan's Punjab province, water services in the five largest cities—Lahore, Faisalabad, Gujranwala, Multan, and Rawalpindi—are provided by five publicly-owned Water and Sanitation Agencies (WASAs). WASAs are accountable to both local- and provincial-level authorities, but there is little oversight of their performance.

In late 2005, the WSP-SA launched performance benchmarking in these five WASAs at the request of the Housing, Urban Development and Public Health Engineering Department (HUD&PHED). A World Bank study in eight Punjab cities had identified the lack of proper water and sanitation services as a major impediment holding back their economic potential. The HUD&PHED wanted to use benchmarking to improve the performance of the WASAs, and thereby achieve the service improvements needed to support economic growth and development.

In 2006 the Government of Punjab's new Urban Unit drew up a roadmap for reforming urban water and sanitation services in the province. It outlined a program of institutional reforms, culminating in the formation of more autonomous, professionalized water utilities, operating within a regulatory framework that emphasized greater accountability. One of the provincial government's first steps in implementing the roadmap was to appoint new high-caliber managing directors for WASAs, recruited on merit from the private sector, to drive the process of sector reform at the utility level. The provincial government signed a performance contract with each director.

The starting point for benchmarking was for the WSP in late 2006 to bring on board the top management of the key provincial government departments responsible for driving infrastructure development and service delivery, including the HUD&PHED, the WASAs' parent department. The HUD&PHED nominated a senior official as the provincial focal person, and each WASA established a benchmarking team with a team leader. Following a similar approach to that used in India and Bangladesh, the first phase focused on building awareness of the concept, localizing the IBNET indicators. The data was collected by WASAs' teams and analyzed by the WSP-SA, to show trends over the previous three to five years. It was

a steep learning curve for the utilities, particularly when analysis of the data by the WSP-SA revealed substantial performance gaps.

## Phase 2: Institutionalization and Consolidation

The findings from Phase 1 revealed a number of shortcomings in the quality of the data reported. Phase 2 aimed to strengthen performance reporting through embedding measurement, monitoring, and reporting systems in each utility. Concurrently, the WSP worked with the relevant ministry or department in each country to build a platform in government to drive, coordinate, and support benchmarking in utilities.

## Bangladesh

Phase 2 in Bangladesh focused on strengthening data collection, and using the findings to address performance gaps identified through benchmarking. A second round of benchmarking data were collected for 2006–07, and the findings were subsequently collated into a comprehensive data book for wider dissemination.

The WSP-SA worked closely with each utility to help them use their findings to develop performance improvement plans. They target a wide range of issues from increased metering of production and consumption, to revenue management, tariff revision, and improved energy efficiency. Utilities' experiences in developing and implementing performance improvement plans have been shared and discussed in detail at a series of national workshops, where ministry representatives have participated.

Bangladesh utilities are hoping that the findings from benchmarking will alert municipalities to the quantum of funding needed to improve service delivery. They also hope to motivate them to raise funds through the Municipal Development Fund for sector improvements ranging from rehabilitation of water treatment works to renewal of networks and investment in bulk and consumption meters.

A change of government in December 2008 affected plans to institutionalize benchmarking in the ministry responsible for local government. Benchmarking in Bangladesh continues to rely on impetus provided by WSP support.

## India

A second phase of benchmarking was launched in 2005, involving 16 utilities approached by the MoUD. Again, IB-NET indicators and definitions were used, but this time there was greater emphasis on understanding the internal systems used to collect data on the different indicators, and grading the reliability of the information submitted. Following an approach developed by the IB-NET, each data item and indicator was graded on a four-point scale, A to D, with A having the highest and D the lowest reliability. This grading approach was necessary to assess whether the data supported credible comparison between utilities, and helped utilities to identify problems in the reliability of the data they collected.

Within each utility, data were refined over two collection cycles. The first was for initial data gathering, learning, and error checking; this was followed by further data collection and refinements. From the original list of 16 participating utilities, only 10 were able to provide adequate data for performance measurement and analysis. Key findings are shown in Table 2 (see page 20).

The value of the data being generated through benchmarking was now very evident. After the release of the Phase 2 results, in late 2007 the MoUD took benchmarking to a new level in India when it decided that service level benchmarking should be institutionalized across government as an integral part of improving service delivery and public accountability in the context of urban renewal. Water supply is being devolved to urban local bodies (ULBs), who are overseen by state-level authorities. The strategy of the MoUD in central government is to work with state-level authorities to promote the adoption of benchmarking at ULB level.

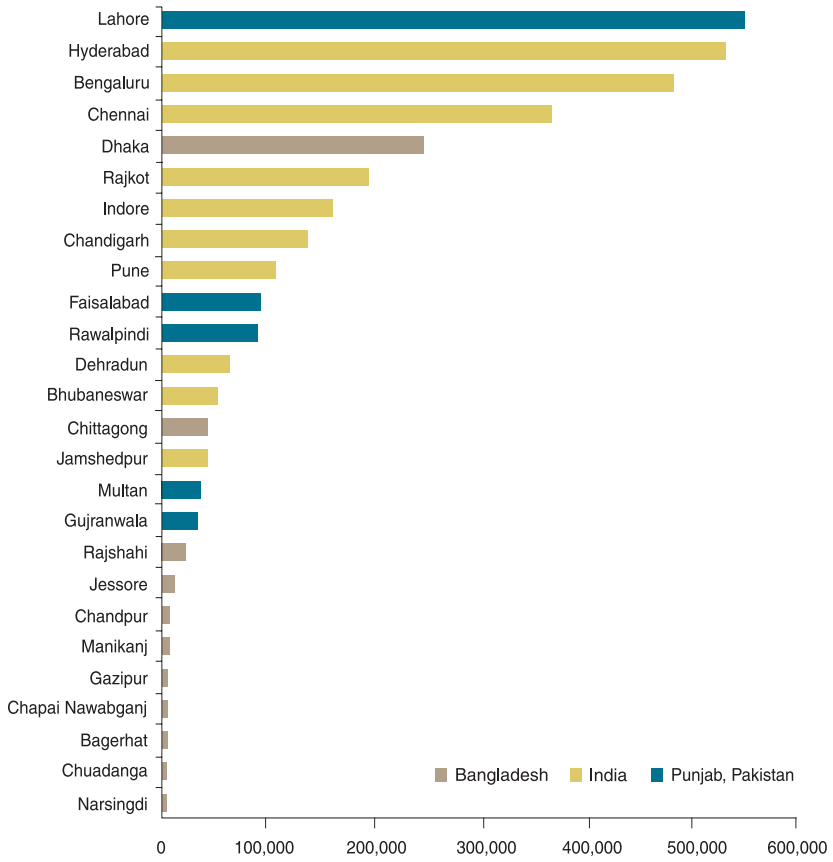
*Phase 2: Activities*

# Pakistan

Benchmarking gathered momentum in Pakistan in 2007. Participants at a major benchmarking workshop in Lahore in June 2007 noted the importance of institutionalizing benchmarking, within WASAs and in government, to make the collation and analysis of benchmarking data an integral part of organizational management and sector practice, rather than a one-off event. After reviewing various options, it was evident that the HUD&PHED, the provincial government department responsible for the urban water supply sector in the Province of Punjab, was the most appropriate institutional home for the Punjab benchmarking program.

In late 2007 the Department made a commitment to establish a Provincial Benchmarking Data Cell. The HUD&PHED would drive coordination and institutionalization, setting up systems to collect, collate, and respond to the data. The Urban Unit, established within the Department of Planning and Development to drive urban sector reforms, would provide further coordination and technical support. The WSP-SA would provide technical support, including data analysis, performance improvement planning, and capacity building.

**Figure 2: Profile of utilities participating in Phase 2: South Asian benchmarking, by size**




The Department sent a formal instruction to each WASA through an official notification in late 2007 to collect and submit data on defined performance areas every six months to the provincial government, with a standardized datasheet and definitions for each indicator. A remaining challenge is, however, to mobilize the resources needed to establish a Provincial Benchmarking Data Cell that would have the capacity to drive the process across utilities.

Within the five WASAs, meanwhile, considerable attention was given to detailed performance improvement planning to address gaps identified through metric benchmarking.

Utilities focused on developing and implementing PIPs, improving revenue management through collecting arrears and regularizing unauthorized connections, reducing nonrevenue water, upgrading water and sewer networks, and so on. As benchmarking data became available, milestones have been improved and monitoring strengthened.

# Phase 3: Strengthening Performance Assessment and Improvement

Phase 3 activities have focused on strengthening benchmarking practices within utilities, and building the systems needed to entrench performance measurement, monitoring, and improvement to achieve better service delivery outcomes.

## Bangladesh

In Bangladesh, 11 urban water utilities (two WASAs, eight pourashavas, and one city corporation) have developed baseline datasets, managed their benchmarking data, and prepared PIPs for improved service delivery. This included a revision of the rules for services to the low-income communities in the World Bank-funded Water Supply and Sanitation Project in Dhaka. A recent analysis reveals that access to piped water supply in the 11 utilities increased by 30 percent, and average revenue collection period reduced by 35 percent, from 2004 to 2008.

Eleven utilities have come together to form an urban utility network to promote knowledge sharing, with more utilities expressing an interest in joining the network. The network regularly convenes to address key issues such as the impact of climate change, tariff setting, billing and collection, water losses, and so on. The number of network members has increased to 18, and it is anticipated that a further 19 pourashavas from the World Bank-funded Bangladesh Water Supply and Sanitation Program (BWSSP) will join the urban utility after the completion of the project. WSP has been supporting the scaling up and institutionalizing of the utility network.

**Box 3: Required performance levels for water and sanitation defined by the Ministry of Urban Development**

**Water**

- 100 percent households have direct water connections
- Minimum supply of 135 lpcd
- 24x7 water supply
- 100 percent consumption metering
- 20 percent nonrevenue water
- 80 percent of customer complaints addressed within 24 hours
- 100 percent compliance with standards specified for potable water
- 100 percent cost recovery, where total operating revenue is expressed as a percentage of total operating expenses incurred in the corresponding time period
- 90 percent collection efficiency

**Sanitation and Sewerage**

- 100 percent toilet coverage
- 100 percent coverage by sewerage networks
- 100 percent collection and treatment of sewage
- 100 percent capacity available to treat sewage
- 100 percent compliance with specified secondary sewage treatment standards
- 20 percent of treated effluent reused
- 100 percent recovery of costs for sewerage management
- 80 percent of customer complaints addressed within 24 hours
- 90 percent efficiency in collection of sewerage charge

## India

The MoUD is now using benchmarking to drive improvements in urban service delivery through a pilot program in 26 Indian cities, and aims to expand this coverage comprehensively.

During 2008 a core team working with the ministry defined aspirational benchmarks for service performance across four services: water supply, sewerage, solid waste management, and storm water drainage.

*Phase 3: Activities*

The MoUD identified key performance indicators, defined the requirements for supporting data and—extending the learning from Phase 2—specified criteria to grade the reliability of performance data. Following wide consultations, the resulting national framework was formalized in a *Handbook on Service Level Benchmarking,* and issued to all state governments in September 2008. It provides a uniform framework of 28 performance indicators across the four services, enabling a systematic approach to performance monitoring and inter-city comparisons. In February 2009, the MoUD launched a pilot Service Level Benchmarking program, with WSP support, to build awareness of the new framework, demonstrate its value, and learn by doing. The response of cities and state governments has been positive; the number of participating cities has grown swiftly from the initial 10 to 26, drawn from 14 states and one union territory. The cities range in size from those with a population of 100,000 to those with over 12 million people.

The pilot program is leveraging funding for swift roll-out through existing donor-funded governance-strengthening programs at state level, and the ministry has indicated its willingness to provide funding support for implementation of plans to improve utilities' performance and data reliability. Apart from the WSP, other development agencies partnering in the initiative are Japanese International Cooperation Agency (JICA), Department for International Development (DFID), Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), Gates Foundation, and Public Record of Operations and Finance (PROOF). The pilot initiative has lent momentum to existing initiatives in other states, for instance, Karnataka, Gujarat, Maharashtra, and Madhya Pradesh, where efforts are under way for initiating performance assessments at a wider level.

Going forward, the MoUD is committed to using its already existing major national urban renewal program for the largest 63 cities, the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), as the vehicle for embedding benchmarking at state and city levels. Sixteen of the participating pilot cities are covered under the JNNURM. The MoUD is keen to assess the improvements in service provision as a result of the vast investments being made. The aim is to shift the focus of sector practitioners from asset creation to service outcomes. Cities wanting to access the JNNURM's funding through the MoUD will need to commit to collecting data against defined service performance indicators, and commit to achieving improvements in their service delivery performance. A similar approach is being implemented for other urban funding programs of the MoUD.

## Pakistan

In Pakistan, four rounds of benchmarking data have been collected to date, and the findings are being used to track performance improvements and inform debate on priorities for sector reform. More systematic engagement by the provincial government with the findings is needed to sustain momentum and provide the support and institutional reforms the WASAs need to operate more effectively—in particular, a clearer separation between authority and operator roles. Performance improvement planning has been boosted with the introduction of CIB, or Continuous Improvement and Benchmarking, in two WASAs. With support from the South Asian Utility Network and Asian Development Bank, benchmarking representatives from Rawalpindi and Faisalabad WASAs underwent a detailed training and mentoring program on process benchmarking. The approach entails a close analysis of the causes of problems or inefficiencies in a given area, and a rigorous assessment of ways to streamline and enhance operating procedures. Rawalpindi has focused on leak detection and repair, as a means to achieving its broader goals of better water quality and lower nonrevenue water. Faisalabad has pursued revenue improvement through strengthening its billing and collection systems.

An important component of the benchmarking initiative has been the emphasis on information sharing and networking. In practice, the comparative assessment dimension of benchmarking has proved to be less about competition than about learning from the experience of others. Under a planned phased approach, the learning from Punjab was used to scale up this initiative in the utilities of two more provinces (Sindh and the NWFP) and in the federal capital (Islamabad). As a first step, the officials from the utilities of Sindh, the NWFP, and Islamabad were invited in sector workshops to learn and interact with Punjab WASAs. By end 2008, the initiative was formally launched in the Karachi Water and Sewerage Board (KWSB) and in 2009 in the Peshawar Development Authority (in the NWFP). In 2009 the KWSB institutionalized the initiative by establishing a dedicated cell in the utility with dedicated staff and funds. The cell has been tasked not only with collecting and analyzing supply side data (benchmarking) but also carrying out its validation through demand side tools (CRC and consumer perception survey). Growing interaction with SAWUN/ADB, the South Asia Water Utility Network funded by Asian Development Bank, is promoting wider knowledge sharing and learning from good practices elsewhere.

**Table 1: Summary of benchmarking developments (across Bangladesh, India, and Pakistan)**

| Category | Bangladesh | India | Pakistan |
|---|---|---|---|
| Benchmarking initiated | 2005 | 2003 | 2005 |
| Driver in government | Ministry of Local Government, Rural Development, and Cooperatives | Ministry of Urban Development (MoUD) | Housing, Urban Development, and Public Health Engineering Department (HUD&PHED), Government of Punjab, and the Urban Development Unit |
| Number of current participants | 11 utilities across Bangladesh | 26 cities in 14 states and one Union Territory | Five WASAs in Punjab; one each in Karachi, Peshawar, and Islamabad |
| Key achievements | • Two rounds of benchmarking data collected, for 2005–06 and 2006–07<br>• Benchmarking performance indicators are informing the development of the first year performance agreement between Dhaka WASA and government<br>• Formation of an Urban Utility Network to promote knowledge sharing<br>• At least three further utilities are keen to participate in benchmarking from 2009 | • Two rounds of benchmarking data collected, for 2003–04 and 2005–06<br>• MoUD aims to embed benchmarking into the way towns and cities monitor and report on their performance nationally, using nationally-sponsored urban renewal initiatives to pilot implementation. Growing engagement by state governments<br>• National Benchmarking Cell established in the MoUD to coordinate and support state- and city-level benchmarking<br>• Strong emphasis on improving data quality | • Four rounds of benchmarking data collected to date: for 2003–06, 2003–08, June to December 2007, and January to June 2008<br>• In principle, agreement of Government of Punjab to establish a benchmarking cell in HUD&PHED<br>• Learning from Punjab scaled up in three utilities—serving Karachi, Islamabad, and Peshawar—in 2008 and 2009<br>• Punjab data hosted on IB-NET website<br>• Performance benchmarking/CRC cell established in Karachi<br>• PIPs developed and implemented with WSP-SA and SAWUN/ADB assistance |
| | *Across all three countries:*<br>• Development of a range of performance improvement plans | | |
| Key benchmarking challenges | • Limited funding to implement improvements<br>• Little progress towards institutionalizing benchmarking in government | | • Limited engagement by government with benchmarking data |
| | *Across all three countries:*<br>• Limited metering, which compromises the reliability of key indicators<br>• Poor data reliability<br>• Benchmarking largely externally driven rather than internally motivated<br>• An organizational culture which is often slow to accept performance measurement, accountability to customers and to government, and improved service outcomes<br>• Development of capacity within government to drive benchmarking, and use the findings to shape and drive sector reforms<br>• No strong incentives for water supply and sanitation service providers to improve performance | | |

# Benchmarking Findings

The data generated through these regional benchmarking initiatives provides valuable information on certain areas: the state of service provision in the region; and on the quality of data that may support comparison of performance.

## The Reliability of Benchmarking Data

The findings on the utilities' performance cannot be assessed without an awareness of the limitations of the reported data. The next section highlights some limitations in the data, before reviewing the performance findings.

Rigorous assessment of benchmarking data indicates a number of problems which currently compromise their value for comparing performance between utilities or over time.

First, data collection and management systems are poorly developed in most utilities, and often data collected by different sections within a utility cannot be reconciled. This reflects the low priority that is given to performance measurement and monitoring within many utilities and the challenges that are faced by governments' attempts to improve monitoring.

Second, many utilities simply do not have the data requested; much of the data submitted was based on estimates without measurable verification. This is evident from data from Phase 2 benchmarking in India, where utilities graded the reliability of their data on each indicator on a scale from D (estimate) to A (based on robust auditable data).

**Table 2: Reliability grading of data from Phase 2 benchmarking (in India, 2005–06)**

| Utilities in participating cities | | Water coverage (%) | Production (lpcd) | Daily supply (hours per day) | Metering (% of total connections) | Operating ratio (operating expenses/ revenue) | Nonrevenue water (%) | Staff per 1,000 connections |
|---|---|---|---|---|---|---|---|---|
| India, 2005–06 | Bengaluru | 91 | 143 | 2.5 | 90 | 1.1 | 48.63 | 5.42 |
| | Bhubaneswar | 45 | 269 | 3 | 1 | 3.3 | 59.78 | 11.7 |
| | Chandigarh | 100 | 290 | 12 | 71 | 1.3 | 24.85 | 10.6 |
| | Chennai | 98 | 107 | 3 | 4 | 1.4 | 15.81 | 12.6 |
| | Dehradun | 80 | 149 | 4 | 8 | 1.4 | 26.76 | 6.3 |
| | Hyderabad | 95 | 192 | 1 | 93 | 1.1 | 49.55 | 9.9 |
| | Indore | 54 | 102 | 0.75 | 0 | 5.4 | 49.99 | 8.8 |
| | Jamshedpur | 79 | 608 | 6 | 1 | 0.9 | 9.36 | 6.9 |
| | Pune | 88 | 274 | 7 | 16 | 0.80 | 40 | 16.6 |
| | Rajkot | 98 | 126 | 0.33 | 0.40 | 6.6 | 12 | 1.62 |

*Source:* WSP (2008).

Explanation of color coding: Graded from A to D, where A has the highest reliability — A | B | C | D

This grading system provides a useful tool as it indicates the greater or lesser reliability of the reported data. Even so, the validity of some of the grades assigned remains open to debate. For example, it may well be premature to assign an 'A' grade for reliability on indicators such as water production and consumption per capita per day, given incomplete customer databases and limited production and consumption measurement.

Information provided by utilities in Pakistan and Bangladesh reveals similar problems with the reliability of reported data, with the added challenge that the reported data does not differentiate between estimates and auditable records. Introducing similar grading of data may be an important next step in Bangladesh and Pakistan.

Third, because measurement remains largely inadequate or even absent, comparative benchmarking is not necessarily accurate. For example, the International Benchmarking Network for Water and Sanitation Utilities (IBNET) indicators used for benchmarking in

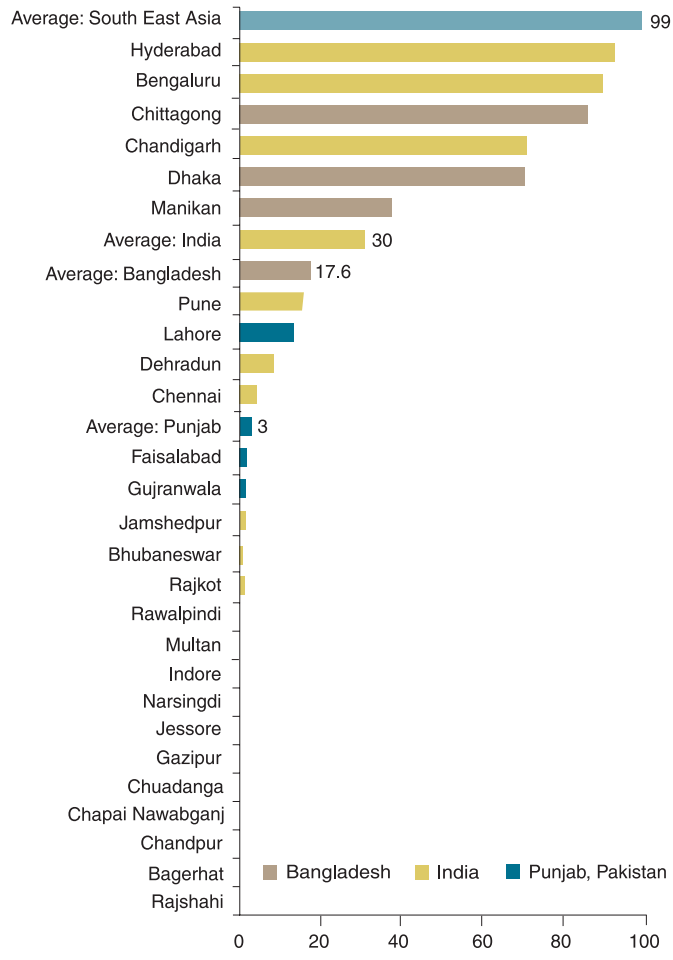
the vast majority of connections across the region is not metered. The average across the Indian benchmarking participants was 30 percent, and far lower in Bangladesh and Pakistan; just 3 percent of connections in Punjab WASAs have functioning meters and are being read. Compare this with almost universal consumption metering—an average of 99.4 percent—across 40 South East Asian utilities surveyed in 2005 (SEAWUN/ADB, 2007).

South Asia assume that each utility measures water production and consumption comprehensively. The data are then used to derive the indicators for production and consumption per capita, nonrevenue water (NRW), unit cost of water produced and sold, and so on.

However, measurement of production and consumption is inadequate across the region. Widespread reliance on tubewells across the region compounds the challenge of measuring flows at source. Lahore Water and Sanitation Agency (WASA), for example, reported in August 2008 that it had 373 tubewells with no bulk flow meters at all, and just 44 of the meters installed in the remaining 172 tubewells were functional (HUD&PHED/WSP/SAWUN, 2008). Given this reality, Punjab WASAs estimate production on the basis of the rated capacity of aging pumps, multiplied by the hours of pumping; actual flows and pumping rates are seldom measured.

Benchmarking indicators for meter coverage show that consumption in

**Figure 3: Metered domestic connections (in percent)**



**Phase 2 Benchmarking Findings on the Extent of Consumption Metering in South Asian Utilities**

Meter coverage is improving. However, even where bulk and consumption meters have been installed, many malfunction and give incorrect readings because an intermittent water supply affects the performance of meters. Few utilities test the performance of their meters regularly. Because of faulty meters, at least one Punjab WASA derives data on the total volume of metered consumption from an estimate of nonmetered consumption.

Most utilities use estimating techniques and their best judgment to quantify the volumes of water supplied and consumed. Without comprehensive measurement of flows and metering of consumption, however, utilities cannot reliably calculate consumption per connection and per capita, the actual volumes of water they sell on a flat rate, unit costs, or how much water is lost through leaks and bursts, or the extent of nonrevenue water. Without comprehensive and up-to-date customer databases, utilities can only estimate how many people they serve, what their aggregated demand is, and how effectively they are billing and collecting payments from them.

Estimates, over-estimates, and faulty data compromise the overall data-set, with implications for internal performance assessment and comparison with other utilities. Weak data skew the average and the median across several utilities, and distort performance reporting.

Despite these limitations, the data reveal some performance gaps and highlights areas where improvements are needed urgently. Within utilities, the need to provide credible data for benchmarking is spurring efforts to strengthen performance measurement and data management systems. It seems practical for utilities to try and work towards improvement even within the limitations of the available data, to help target and track service improvements. To become more effective in the longer term requires that reliability remains a priority and that current data are not just simply accepted as the basis for planning without systematically improving data itself. Introducing volumetric measures is essential.

# The State of Service Provision in the Region

## Overview

The benchmarking findings confirm the dire state of service provision and utility management across Bangladesh, India, and Pakistan:

- No water utility in Bangladesh, India or Pakistan is able to provide continuous water.
- A significant percentage of citizens do not receive services from their local water utility, and spend many resources to cope with this failure in service. Reported water service coverage ranges from 30 percent to 100 percent, with a simple average across 26 utilities in the region of 66 percent.
- Relatively little water is being metered, which makes costing, cost recovery, and effective planning impossible.
- Utilities are losing vast amounts of revenue from water losses in the network and unbilled consumption. The reported nonrevenue water figures are all based on estimates; real losses are likely to be substantially higher than the average of about 30 percent that was reported. This figure would be even higher if the systems were pressurized 24 hours per day.
- Very little wastewater is treated before it is discharged into the region's water courses. This is

causing severe water contamination on a large scale, in a context of growing water scarcity and rising demand.

- Tariffs lag far behind the real cost of water supply, and expenditure far exceeds revenue in most utilities. The average collection period for service payments is generally well over one year.

The service performance of utilities in these countries lags far behind the average performance across 40 South East Asian water utilities, as assessed in 2005.

## Findings against Specific Indicators

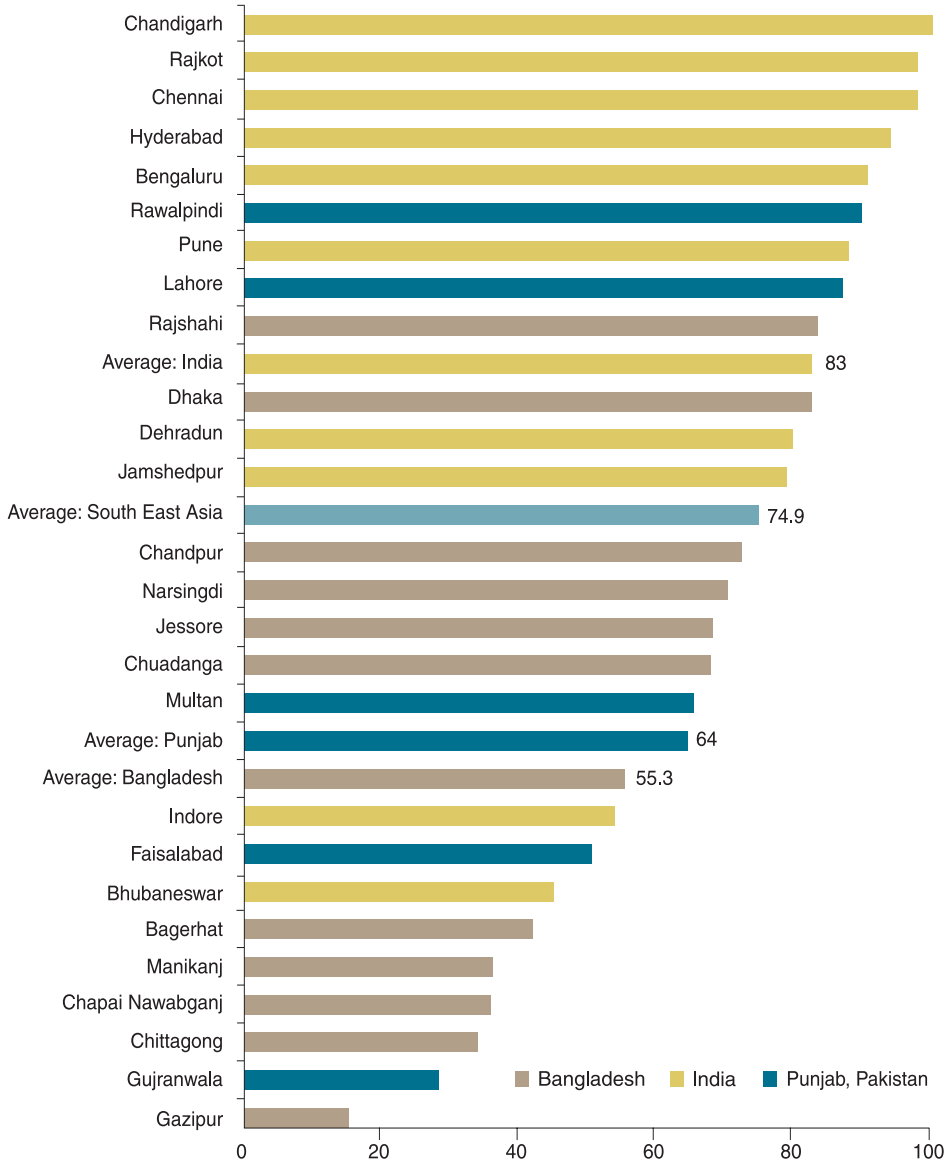
Selected benchmarking findings are reported below for Bangladesh (2005–06), India (2005–06), and Pakistan (2007–08), and are color-coded by country. Data from Bangladesh were not available or sound across all indicators. Wherever possible, a comparative benchmark is provided from a survey of 40 South East Asian utilities in 2005 (SEAWUN/ ADB, 2007).

### Coverage: Water

Self-assessed coverage levels range from 15 percent to 100 percent, with average coverage markedly higher in India. No consistent approach was used to assess coverage, however. Some estimated the population serviced by the geographical coverage of their water and sewerage networks; others used the length of the water supply pipeline network as a percentage of the road network. More advanced efforts are emerging such as to reflect the number of properties provided with a direct service connection, as a percentage of the total number of properties, and make provision for buildings with multiple dwellings.

Even where water coverage is relatively high, access is compromised by intermittent supply.

**Figure 4: Water coverage (in percent)**



### Water Availability

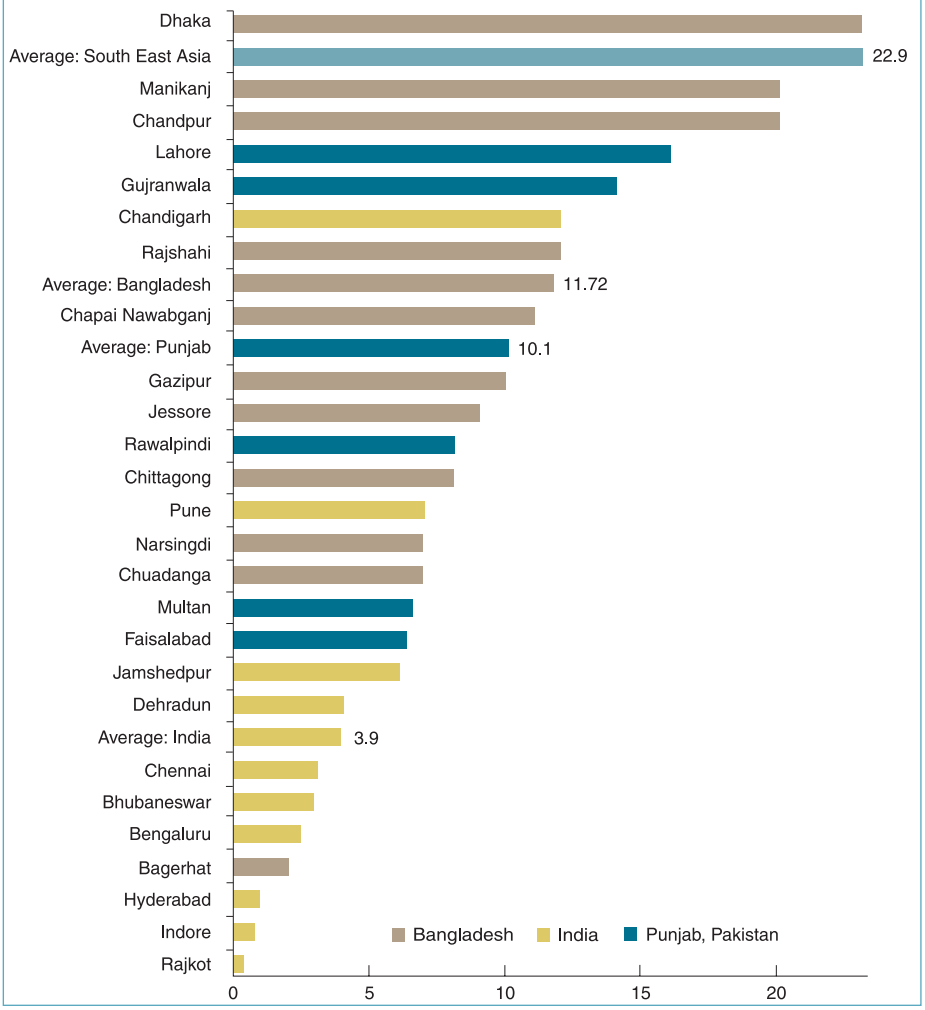
No water utility in Bangladesh, India or Pakistan is able to provide continuous water to all customers. Reported water availability ranges from 23 hours to less than half-an-hour a day, with the hours of water supplied particularly low in India.[2] This compares poorly with the average 22.9 hours daily reported across South East Asia in 2005.

Intermittent supply is both a cause and a symptom of dysfunction, and one of the simplest and most important benchmarking indicators. The absence of benchmarking in the past has meant that this problem has not been highlighted. One of the benefits of introducing benchmarking could, therefore, be that simply by recording how many hours water is available each day, attention is focused on the problem, and on what is inhibiting more continuous water availability. By tracking performance year on year, increasing availability may begin to receive higher priority. It is important that it does, because intermittent supply has many serious social, economic, and financial costs, such as:

- Poor water quality. It is almost impossible to provide water that is safe for drinking with an interrupted supply, because of secondary contamination in the network linked to no or negative pressure when the flow of water stops.
- High maintenance costs. A high incidence of pipe bursts, with further interruptions to supply and water wastage, as a result of frequent pressure changes; this in turn increases the maintenance burden and staffing costs.
- High infrastructure development costs. Networks must be designed with larger pipes to accommodate continuous peak flows during limited hours of supply.
- Users have to pay coping costs related to inconvenience, storage, disease, and so on.

Once essential rehabilitation has been achieved, providing continuous water supply need not cost utilities more. With intermittent supply, the utility is simply forced to supply the same quantity of water in fewer hours, effectively providing peak flows at all times (Yepes et al, 2000). With continuous water supply, a range of demand management and water conservation measures becomes possible to reduce losses and make more efficient use of the water that is available in a context of rising demand.

**Figure 5: Availability: Hours of water supply per day**




[2] The above data have been supplied by the utilities. They are not used to compare the performance of utilities within a country or region. The level of understanding of indicators and their definitions vary within utility and country.

### Nonrevenue Water

Without up-to-date customer databases to ensure that all users are being billed correctly, and without comprehensive measurement of production and consumption, data on NRW are, at best, indicative.

Where there is no consumption metering, customers pay a fixed tariff, and there is no relationship between the prices customers pay for water and the volume they consume. Without comprehensive metering, utilities' efforts to track NRW and minimize losses are compromised. These NRW losses are costing utilities literally billions in foregone revenue; equally, NRW represents the loss of substantial volumes of water, in a context of growing water scarcity.

Weak data on physical water losses also makes forward planning for supply augmentation difficult, as it is difficult to assess whether sufficient supply gains can be achieved through loss reduction, or whether new source development is needed to meet demand.

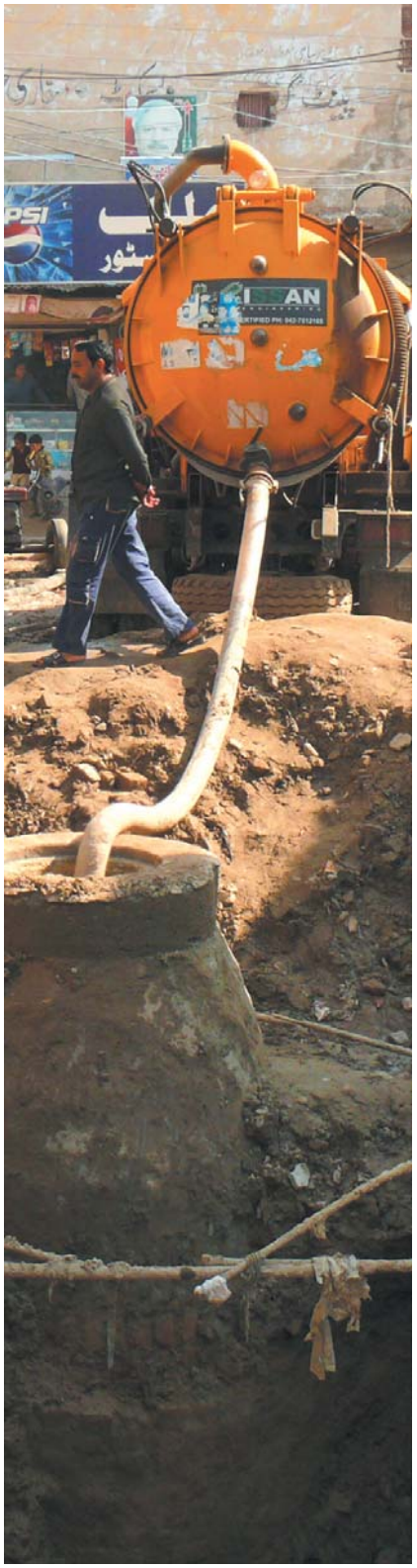
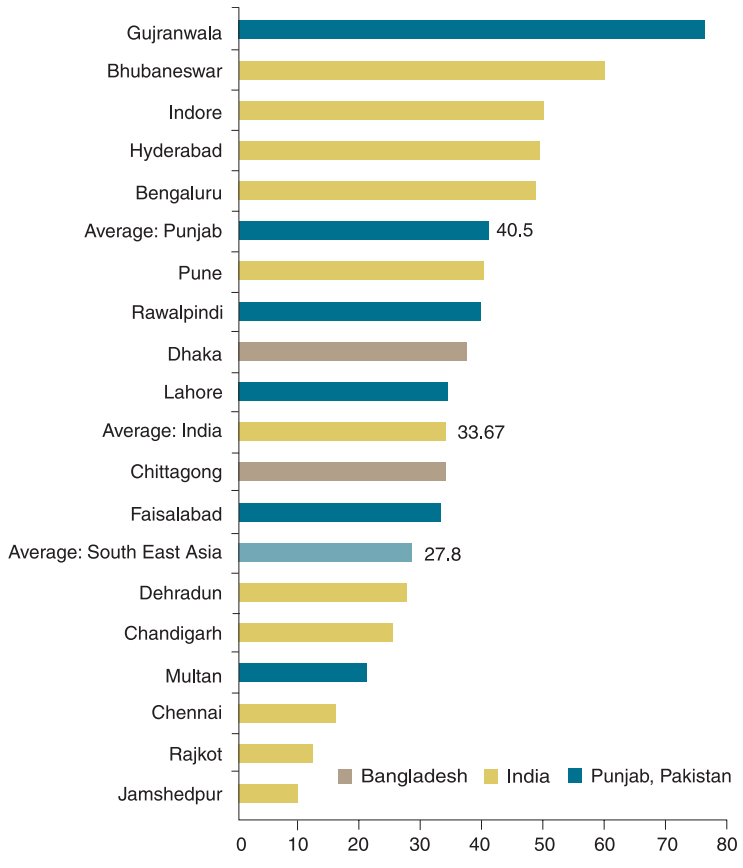


**Figure 6: Nonrevenue water (in percent)**




*Note:* The 2007–08 data from Punjab WASAs of Pakistan revealed an annual loss of Rs. 2.0 billion on account of nonrevenue water.

### Coverage: Sewerage

Sewer coverage is harder to quantify than water supply, as connections are less visible.

Using a simple average, Figure 7 shows that sewer coverage is higher in the five Pakistani cities than the 10 Indian cities; Bangladeshi utilities did not report on this indicator, and sewering is known to be severely inadequate in that country. In India, water coverage is higher than sewer coverage. In Pakistan, there is higher sewer coverage than water coverage; this is because of widespread reliance on private boreholes for water in those cities.

### Wastewater Treatment

The reported data reveal the extent to which the participating utilities are discharging untreated sewage back into water sources.

**Figure 8: Secondary wastewater treatment (in percent)**

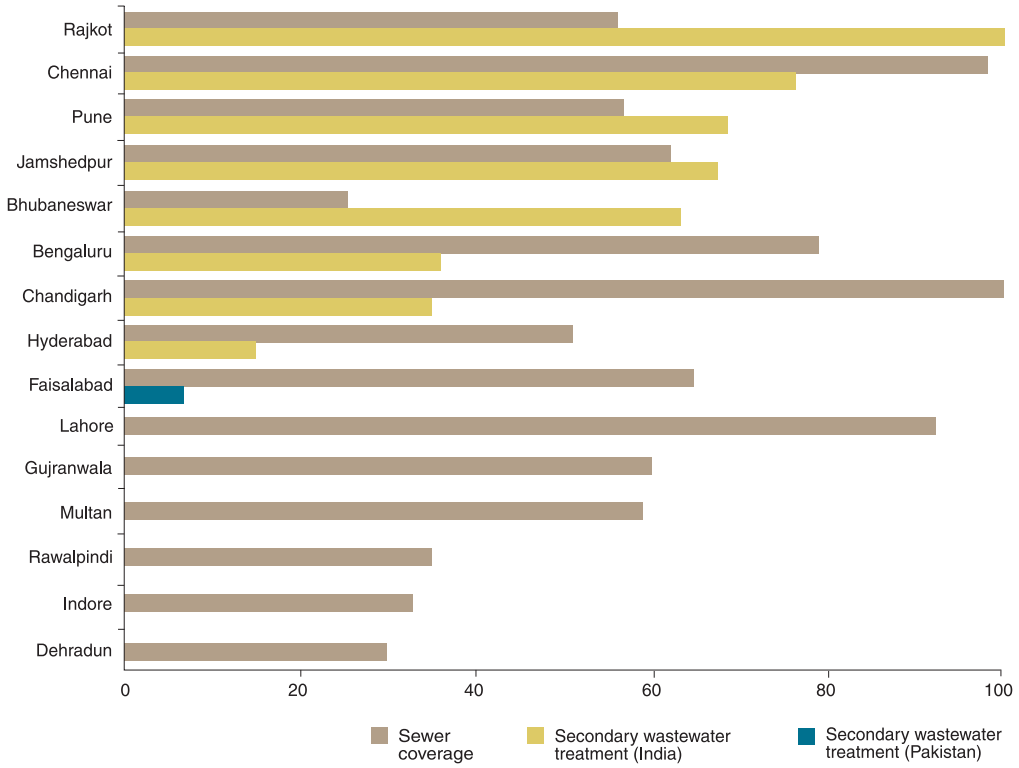
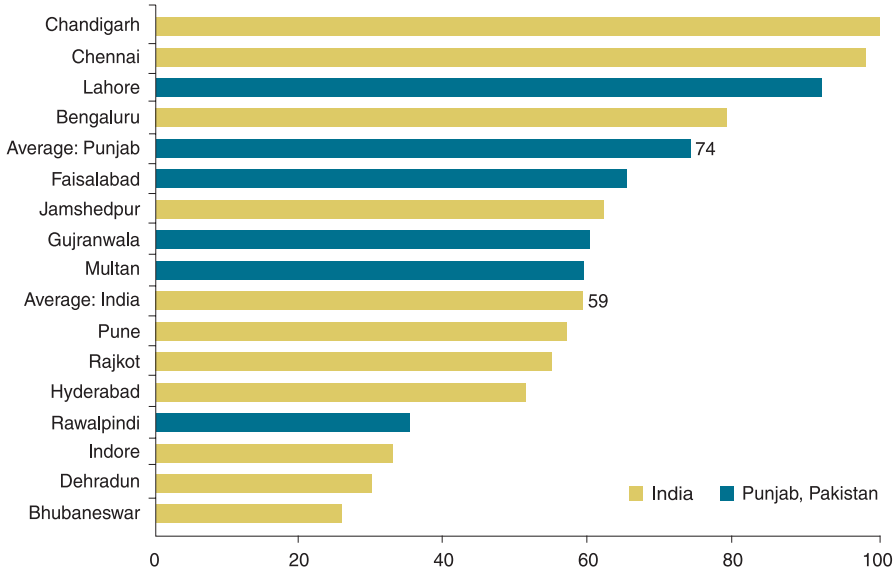


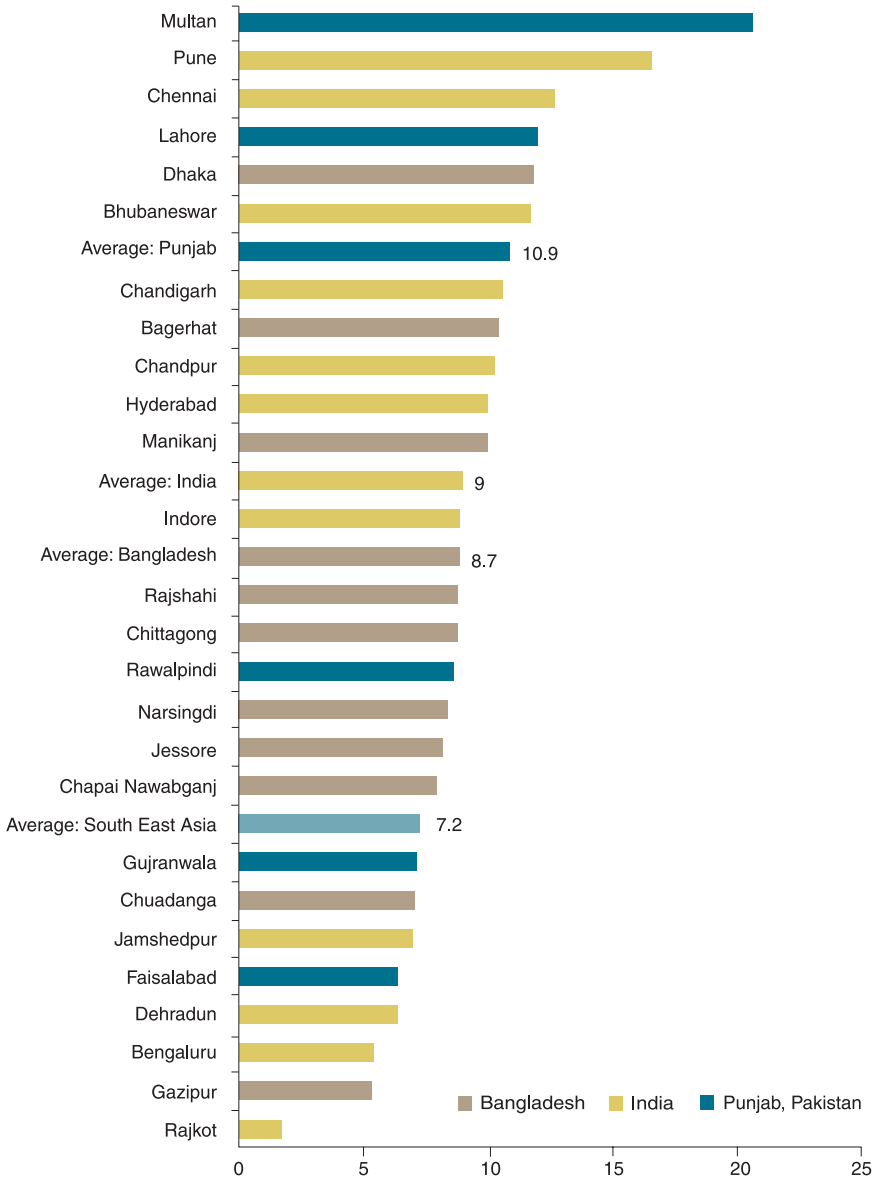

**Figure 7: Sewerage coverage (in percent)**




Sewer coverage is inadequate, even by the reported data. This means that a significant amount of wastewater is not collected. Of the wastewater that is collected, a significant proportion is not treated at all before it is discharged.

This situation is particularly severe in Pakistan, where just 7 percent of the wastewater collected in Faisalabad receives secondary treatment; none of the other four WASAs treat their wastewater at all before discharge. The result is severe contamination of ground and surface water sources (with particularly worrying implications for those who draw their water directly from tubewells and rivers), higher water treatment costs, and wide-ranging negative environmental impacts.

**Figure 9: Staff per 1,000 water connections**




## Staffing

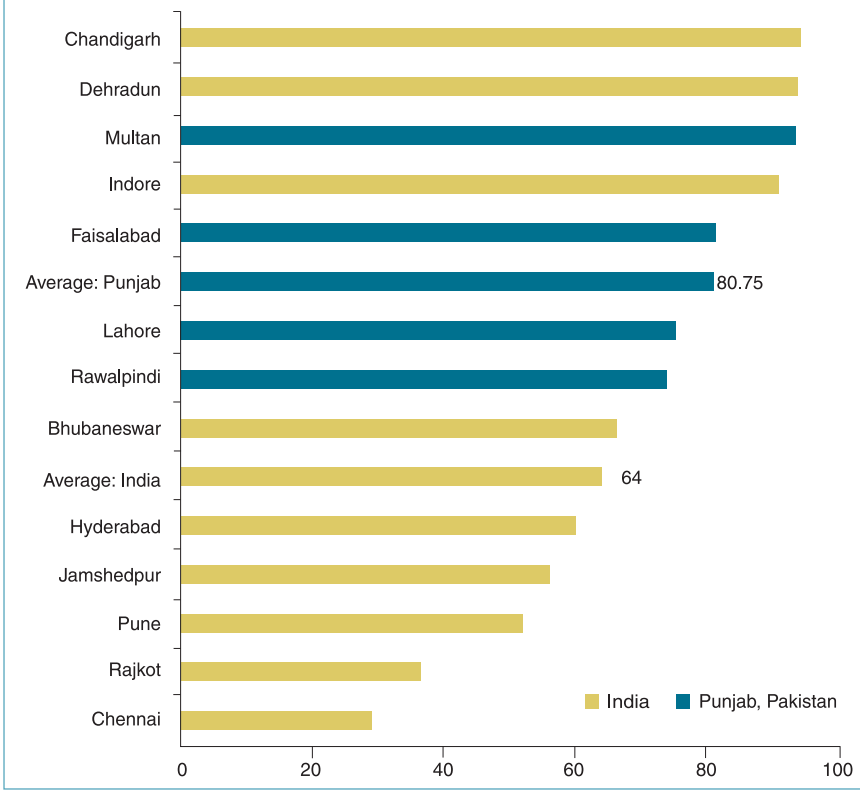
Official staffing levels in most utilities are high when compared with international averages, which are below five per 1,000 connections. Again, it should be emphasized that the methods of recording staffing level vary, and at least becoming more consistent with a benchmark practice should be an area of follow-up work as part of performance improvement planning. Compounding this inefficiency is the fact that too few of the staff employed have the competencies or customer service orientation required for effective performance. At least three constraints are evident: civil service staffing policies constrain utility managers from hiring the staff they require; they cannot incentivize them appropriately; and on-the-job training seems to be limited by most accounts.

### Operational Expenditure

A significant number of Indian and Pakistani utilities are spending a very high proportion of their total operating expenditure on salaries and energy costs. This leaves very little for the essential maintenance needed to prevent a further deterioration of service quality, let alone service improvements.

The high staffing levels raise the salary bill. Energy costs form another major cost element, and in several cities are driven upwards due to the high reliance on tubewells and associated pumping costs. There are indicators that pumps are not suited to the particular conditions and drive up the pumping costs. As a consequence of this high expenditure, relatively little is being spent on preventative maintenance and good asset management. In a vicious cycle, decaying infrastructure raises the maintenance burden and operating costs.

**Figure 10: Salaries and electricity as a percent of total operational expenditure**

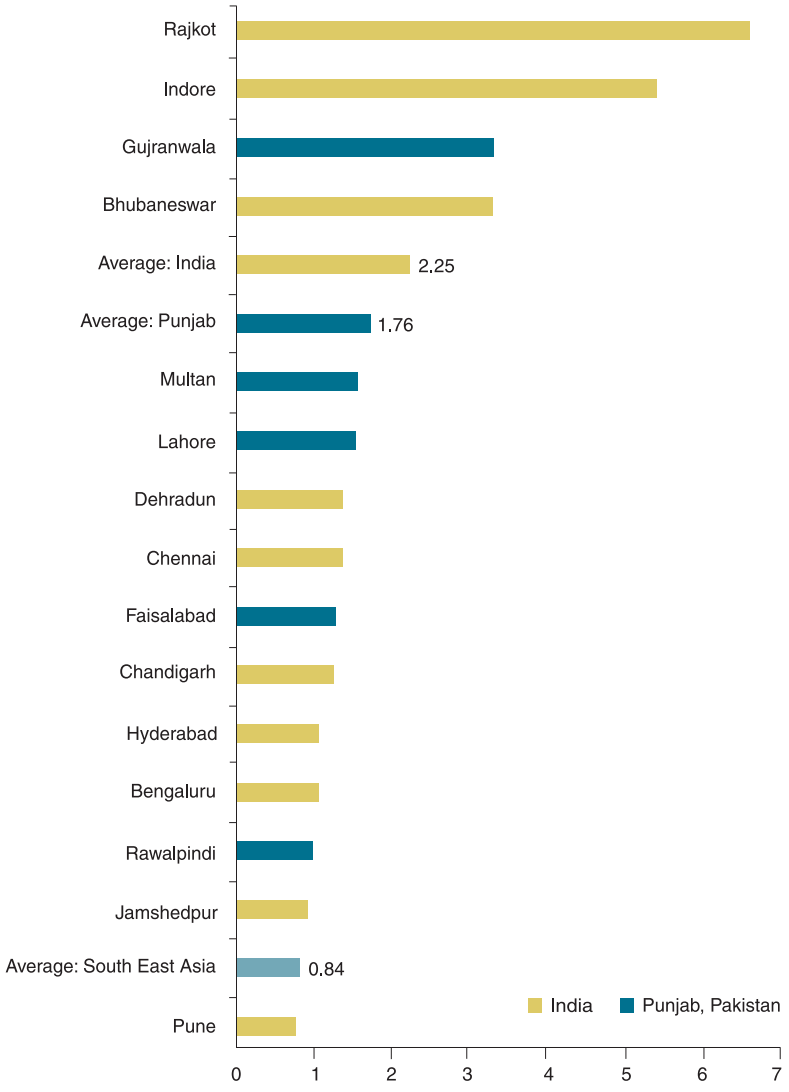



### Operating Ratio

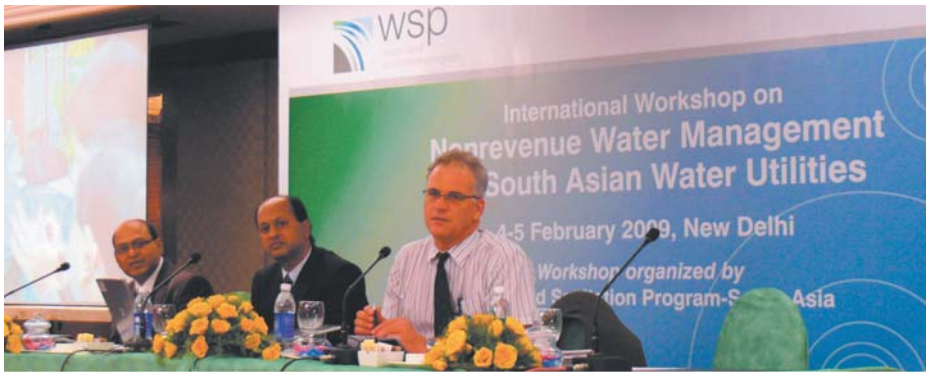
This indicator shows the ratio of expenditure to income. Ideally, it should be around 0.68, to fund a surplus for good asset management, network expansion, and renewal. Even with inadequate spending on operation and maintenance, it is evident that expenditure far exceeds income in most utilities.

The combination of subeconomic tariffs, inadequate customer account data, and poor collection efficiency means that utilities depend on

**Figure 11: Operating ratio**




municipal or government subsidies to close their funding gaps (and some default on their electricity bills as well). Many subsidies are generally ad hoc so that it is more difficult for utilities to do forward budgeting or medium-term planning. As a result, many utilities are engaged in reactive 'fire-fighting', responding to the symptoms of under-funded operations and asset decay. The reliance on subsidies also makes managers of the service providers accountable and responsive mainly to the municipal governments and politicians at a very operational level rather than to their customers.




## Assessment

These findings show just how poorly citizens are being served, across Bangladesh, India, and Pakistan, and highlight the unsustainability of urban water services across the region in a context of rapid urbanization. They underscore the urgency of wide-ranging reforms in the water sector.

In each country, the findings have been presented at benchmarking workshops attended by government, utilities, and civil society representatives.

The discussions emphasized that benchmarking should not be a goal in its own right, but that its value is best extracted if it forms part of wider performance improvement planning and monitoring. With this in mind, utilities can define a clearer focus to address improvements. The next section describes some of these performance improvement initiatives, before assessing the broader scope of the reforms needed across the sector.

# Performance Improvement Planning

In the light of the findings reported through benchmarking, it is evident that metric benchmarking cannot be regarded as an end in itself. The objective is to improve performance, within each utility and across the sector. A strong feature of the Water and Sanitation Program–South Asia (WSP-SA)-supported benchmarking initiatives across Bangladesh, India, and Pakistan is the emphasis on using the findings from benchmarking assessments to drive performance improvement planning. With support from a range of initiatives from government, regional networks, and funding partners, action plans are being developed and implemented to remedy identified gaps and weaknesses.

The data suggest that many performance weaknesses will not be remedied only through capital investment projects. Within utilities, the development of more effective internal performance management systems is needed just as much as is infrastructure development. Upgraded customer databases, improved billing and collections, and more metering will improve financial performance, and fund some service improvements—before citizens are asked to pay more for services.

**Box 4: Examples of areas which utilities are targeting for performance improvement**

- Increase water coverage.
- Build overhead reservoirs to increase continuity of water supply.
- Update and upgrade customer database.
- Conduct customer surveys.
- Establish a customer call center.
- Mitigate arsenic contamination through developing alternative sources of supply.
- Develop surface water sources to reduce reliance on declining groundwater sources.
- Improve leak detection and repair.
- Relocate pipelines running alongside sewer lines or through drains.
- Rehabilitate decayed pipelines.
- Extend metering and replace dysfunctional meters.
- Implement comprehensive nonrevenue water reduction strategy.
- Optimize power consumption through auditing electricity consumption and resizing pumps.
- Improve delivery of bills.
- Increase the number of pay-points.
- Reduce the collection period.
- Decrease staff per 1,000 connections.
- Revise organogram and fill critical posts.
- Improve communications with nongovernmental and community-based organizations.

Support initiatives are giving particular attention to reducing nonrevenue water (NRW), because it makes more water and revenue available to support better service delivery. In May 2007, for example, the WSP-SA hosted a 'Customized Clinic on Billing and Collection' for revenue officials from six water utilities and municipal water departments in Bangladesh, India, and Pakistan. The Clinic, which took place in Bangkok and Singapore, exposed participants to revenue management best practices at the water supply agencies operating in those cities. The Clinic required participants to develop implementation plans to address specific aspects of their billing and collection systems that required attention. Two years later, examples of some of the improvements were presented at a follow-up workshop in New Delhi, showing some results achieved by participating utilities and reflecting on challenges in taking this work forward.

### Box 5: Rawalpindi WASA: Improving services through better revenue management

Recognizing that low payment levels reflected customers' dissatisfaction with the quality of services, Rawalpindi Water and Sanitation Agency (WASA) developed a comprehensive strategy to deliver service improvements. Under the leadership of its Managing Director, since 2006, the organization developed a multifaceted performance improvement strategy.

In early 2007, with technical assistance from the Water and Sanitation Program–South Asia, the WASA began a comprehensive survey of all domestic and commercial customers to establish precisely who its customers were, whether their account information was captured correctly on the WASA's database, their billing status, whether they had outstanding payments and the reasons for this, how many were metered, how many people were served per connection, average daily water consumption, and so on.

Equipped with this enhanced understanding of its customers, the WASA was able to upgrade its database from around 78,000 to around 124,000 accountholders, regularize unauthorized connections, pursue collection of arrears, and steadily improve revenue collection rates. The WASA is now financially self-sustaining for all operational expenditure, and is able to pay all staff salaries and electricity bills from its own funds. These measures have enhanced revenue recovery from the previous 53 percent to 86 percent now. This improved revenue is providing funding for new service improvement strategies.

A top priority is to improve water quality through reducing contamination. Most Punjab WASAs have been reluctant to include water quality among their benchmarks—because they know there are severe problems but are not necessarily equipped to fix them. Rawalpindi WASA, however, is tackling this head-on. Testing of water quality at source showed that while 36 percent of samples were unfit for drinking, the quality of water deteriorated significantly in the network. After treatment, the water that reached consumers was contaminated in 64 percent of samples. Aging, leaking water lines were passing through sewage drains, and with intermittent water supply, contaminants were entering the network.

Over the course of one year, the WASA reduced the number of samples failing water quality tests at the point of consumption from 64 percent to 26 percent. This was achieved by relocating distribution lines out of common service channels and gutters, and rehabilitating water treatment plants so that they are no longer a source of contamination.

Water quality improvements are being taken further, using Continuous Improvement and Benchmarking approaches to improve the integrity of the water network. Leak detection and repair operations are being process-mapped, to identify ways of streamlining and strengthening operational management as well as developing standard operating procedures to institutionalize improvements.

The increase in annual collection of water charges by Rs. 30 million since 2006 has reduced its dependence on state subsidies, and is enabling the organization to implement service improvements—including network extensions—without having to rely solely on external funding. Furthermore, with improved data quality, the Rajkot Municipal Corporation has revised its reported nonrevenue water figure from 12 percent in 2006 to 30 percent in 2009. These results illustrate several important points with wider relevance for using performance data:

- Reporting on ratios (for example, billing versus collection) can obscure real performance improvements if seen in isolation from other indicators. Despite a huge increase in revenue, the collection rate has declined because overall billing has increased faster than payments.
- Performance improvements include the increased reliability of data, and may result in an apparent deterioration in reported performance. In the Rajkot example,

### Box 6: Rajkot: Acting on benchmarking findings to refine performance

The Rajkot Municipal Corporation (RMC), in the west Indian state of Gujarat, was an active participant in the Water and Sanitation Program–South Asia's (WSP-SA's) Phase 2 benchmarking initiative in 2005–06. Findings from the benchmarking process helped inform a range of service delivery improvements.

In 2006 the RMC reported nonrevenue water of 12 percent, but with just 1 percent of connections metered, it acknowledged that this was purely an estimate. It set up a work team to improve billing and collection performance. It developed improvement plans tackling five areas: data cleansing, regularization of illegal connections, outsourcing of collection, improved collection rates, and the establishment of a call center.

The results, achieved over three years, have been impressive:

- Customers can now engage with the Corporation more easily through a 24x7 call center. Software was developed in-house to manage complaints received by phone, fax or face-to-face at a zonal office. There was some initial resistance from staff when poor performance was revealed by the new response tracking system, but this has been overcome.
- Over 20,000 unauthorized connections have been regularized; citizen resistance was addressed through information campaigns in the local media.
- Payment has been made easier by providing pay-points within a radius of 3 km from customer residences, and allowing payments through the Post Office. The RMC is now planning to make provision for web-based payments. Considerable effort was put into publicizing the new ways of paying service charges.

The improvements achieved are summarized in Table 3.

the revision of reported NRW figures from 12 percent to 30 percent reflects far more credible data.

- Public education and awareness campaigns are needed to build understanding of what performance data actually show to prevent possible misinterpretation.

In some instances, benchmarking is helping to focus and refine existing support strategies. Dhaka Water and Sewerage Authority, for example, is receiving assistance from the Government of Bangladesh and the World Bank through a five-year integrated performance improvement plan focused on improving its financial and operating efficiency. Data collation and assessment for performance benchmarking was undertaken while the performance improvement plan (PIP) was being developed; the performance gaps revealed through benchmarking strengthened the PIP significantly, by highlighting specific performance parameters needing attention and making the plan more systematic and strategic. Similarly, a Bangladesh government water supply program is using benchmarking data from five pourashavas to plan and fund service expansion. In Punjab, Pakistan, two World Bank-funded projects in the pipeline—Punjab Large Cities Project and Punjab Water Supply and

**Table 3: Rajkot Municipal Corporation: Performance improvement in water billing and collection**

| Year | Water billing | Water collections | % increase in billing | % increase in collections | Collection rate | No. of payers | No. of new connections |
|---|---|---|---|---|---|---|---|
| 2005–06 | 81,660,410 | 62,191,965 | | | 76% | 83,196 | 3,345 |
| 2008–09 | 209,273,305 | 92,465,813 | 48% | 31% | 44% | 87,446 | 11,087 |

**Box 7: Some performance improvements require funding**

Chapai Nawabganj, a small town in Bangladesh, is severely affected by arsenic contamination. Two-thirds of the pourashava's (that is, municipality's) 21 wells have been taken out of production because of severe contamination, resulting in a supply of 35 liters per person per day. Benchmarking, meanwhile, has revealed other performance weaknesses—notably the extent of the gap between the cost of service provision and income, as a result of poor collections and low tariffs.

In response, the town's Mayor worked hard to persuade citizens to accept a tariff increase, arguing that service improvements were not possible without increased revenue. He succeeded in getting their approval, and tariffs were raised. In parallel, the pourashava set up a water bill collection and maintenance committee, comprising the Water Super and four ward councilors, to track complaints handling and go from house to house motivating people to pay their bills. The combination of their efforts and those of the pourashava's billing and collections staff saw collection efficiency rise from 53 percent in 2006 to 82 percent two years later.

However, the Mayor faces growing dissatisfaction from the people, because despite the best efforts and a tariff increase, the pourashava has not been able to deliver the improvements it promised as funding anticipated from the arsenic mitigation program failed to materialize. Chapai Nawabganj's plight echoes the experience of several Bangladeshi benchmarking participants where lack of capital funds is holding back the implementation of a number of urgently needed investments for service delivery improvements.

Sanitation Project—are also utilizing the information generated through performance benchmarking and might be financing some of the PIPs developed so far.

## Using Process Benchmarking to Drive Improvements

Benchmarking does not explain the causes of the gaps exposed, but it does reveal areas that are contributing to weak performance—poor collection inefficiency, unrealistically low tariffs, limited metering, and so on.

A growing number of utilities are using process benchmarking approaches to identify process inefficiencies and correct them. Where metric, or quantitative, benchmarking reveals areas of comparative strength and weakness, process benchmarking explores the underlying drivers of performance.

A work team assesses in detail the sequence of activities in a specific functional area—for example, complaints handling or leak detection—to map the existing process flow and identify opportunities for streamlining or strengthening performance. Effective, efficient ways of getting the job done can then be formalized through standard operating procedures (SOPs) so that good practice becomes institutionalized, and does not rest on the ideas and experiences of individuals who may leave. Performance on the basis of these SOPs can be measured and monitored regularly, and benchmarked against other organizations, to drive continuous improvement.

In Punjab, Pakistan, the analysis of data has identified gaps and a few WASAs have developed PIP to plug the performance gaps. The Rawalpindi and Faisalabad Water and Sanitation Agencies (WASAs) are two utilities who are benefiting from a rigorous training and mentoring program in process benchmarking provided by the Asian Development Bank and SAWUN/ADB. Rawalpindi WASA is using Continuous Improvement and Benchmarking methodologies to analyze its work flows to improve leak detection and repair, towards its goal of better water quality and lower NRW, while Faisalabad is working to strengthen its billing and collection systems to improve revenue.

Process benchmarking is an integral part of the business approach of Jamshedpur Utilities and Services Company, a private company formed in 2003 to drive service improvements in Jamshedpur. Its approach is described in Box 8.

### Box 8: JUSCO: A private sector approach to performance measurement and benchmarking

Jamshedpur Utilities and Services Company (JUSCO) emerged as one of the strongest performers in the 2005–06 Phase 2 benchmarking initiative supported by the Ministry of Urban Development and the Water and Sanitation Program–South Asia (WSP-SA). In August 2009, its achievements were recognized with a National Urban Water Award for Citizen Services and Governance.

Jamshedpur is an industrial town of 700,000 people in eastern India's Jharkhand province, which was created in 1905 to serve the Tata Iron and Steel Works. Municipal and power services were built, operated, and maintained by Tata Steel's Town Division until 2003, when the Town Division was converted into a wholly-owned subsidiary. This new company, JUSCO, is the only corporate private sector provider of civic and municipal services in India, including water and wastewater services.

In 2003, shortly before JUSCO was established, Tata Steel brought in an international water services company, Veolia Water, to help improve the management of drinking water supply and wastewater services. With Veolia Water's assistance, the new company addressed a range of performance areas—customer management, metering, nonrevenue water management, detailed mapping of its operations to streamline processes and enhance efficiencies, laboratory upgrading to improve water and wastewater quality monitoring, asset mapping with geographic information systems, and so on. Implementation of the new performance improvement strategies was then monitored closely.

Performance measurement, benchmarking, and continuous performance improvement are fundamental to the corporate culture of the Tata group of companies, and JUSCO is no exception. Like every Tata company, JUSCO identifies strategic challenges, strategic objectives, short- and long-term plans, and performance indicators to track progress in achieving its goals. A detailed Balanced Scorecard is used to spell out its annual and medium-term year objectives and targets in four dimensions: financial management; customer-related service delivery (customer satisfaction, service coverage, water quality, complaints handling, and so on); internal business processes (operational management, performance efficiency, and so on); and community-oriented initiatives such as water conservation through rainwater harvesting.

Targets are set, with close monthly monitoring, and managers are made personally responsible for performance—with rewards for achieving targets and penalties if they do not. This is an important feature that differentiates JUSCO from its public sector peers.

Continuous improvement in JUSCO is achieved by involving all levels of employees in assessing performance and process. Each business process is mapped in detail, scrutinized, and discussed, and small group improvement discussions involve staff at all levels to build a sense of common purpose and involvement.

Operations are divided into small functional areas, called circles. Each circle analyzes its performance to identify shortcomings and ways of performing better, and formulates an action plan with clear time-based targets and monitoring indicators. Performance against targets is monitored monthly to understand the impact of the actions, and refine the performance improvement plan further. Managers are held personally accountable for achieving set targets.

Performances on internal and outcome-based indicators are then compared to regional and international benchmarks. It was on this basis that JUSCO participated in the WSP-SA's 2005–06 benchmarking initiative. However, a JUSCO spokesperson maintains that while comparison with other utilities is valuable, JUSCO's main goal is to out-do its own performance: "We are competing against ourselves, not anyone else."

Each year, JUSCO's reported performance against each target on its Balanced Scorecard is assessed rigorously by specialized Tata performance auditors, who assign the company a grading out of 1,000. Achieving a high score in this assessment is the chairman and executive officer's first priority.

# Strengthening Benchmarking to Drive Sector Reforms

## Institutionalizing Benchmarking in Government

The introduction of benchmarking represents an attempt to build awareness of the value of good information management, to reveal performance, and track progress towards defined performance improvement goals. Governments have a critical role to play in incentivizing utilities to report their performance, and introducing disincentives for poor quality data and poor performance.

The main reason for the poor quality of much of the data reported by the benchmarking participants is that, to date, public utilities have not been incentivized to collect credible data. Unlike private sector entities, which are held to account by their shareholders, and whose performance affects their market share and survival, public sector utilities are seldom required to report to government—at any level—on their performance, and are not required to account for dismal performance. This is perhaps related to the fact that public reporting reflects on the action or inaction of local or national government (Kingdom & Jagannathan, 2001). Consequently, public utilities have had few incentives to change their performance, or develop the performance measurement systems needed to demonstrate improvements. It is evident that decisive government intervention is needed to drive performance improvements.

Institutionalization of benchmarking in government is essential to enable it to track and shape sector performance. In Pakistan and Bangladesh, benchmarking by Water and Sanitation Agencies/Water and Sewerage Authorities will lose impetus if government does not set up its own systems to drive and coordinate data collection, and if it does not dedicate resources to engage with the reported findings, interrogate them, and act on them. Utilities need both monitoring and support.

The proposed establishment of a Performance Benchmarking Data Cell in the Punjab's Housing, Urban Development and Public Health Engineering Department is hoped to enable regular data collection and assessment. Dissemination of key

data and analysis in a user-friendly format is equally important to support public debate and decision making in provincial and city district government, and inform targeted interventions.

In the absence of other sector regulatory mechanisms, utility benchmarking represents one of the few sources of information available to government to track and assess sector performance and inform decision makers about strategic priorities and funding needs. Currently, there are few consequences for utilities that submit poor data or perform poorly. Until utilities are incentivized and enabled to function more effectively, there will be limited improvement in the quality of their data or the caliber of their performance.

In India, the leadership of the Ministry of Urban Development (MoUD) has engaged closely with the benchmarking process and findings since its inception, culminating in the launch in 2009 of the Service Level Benchmarking pilot program. Working in tandem with state governments, the ministry aims to institutionalize benchmarking across government as an integral part of improving service delivery and public accountability.

The MoUD is incentivizing benchmarking by linking access to central government funds for urban renewal to a commitment from individual urban local bodies (ULBs) to report their performance—and those of service delivery agencies in their areas—against defined service level benchmarks. It requires each ULB to grade the reliability of its each reported indicator, and to prepare an information management improvement plan in addition to a service quality improvement plan. It envisages data verification by independent third party agencies to cross-check the validity of the data that ULBs report.

More information on the MoUD approach is provided in Box 9.

## Box 9: Linking Service Level Benchmarking to national funding programs

In India, the national Ministry of Urban Development (MoUD) is seeking to embed benchmarking into the way towns and cities monitor and report on their performance nationally, using the US$10 billion Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and other nationally sponsored schemes to pilot implementation. Rapid urbanization and the scale of urban growth calls for a thorough overhaul of service delivery and reform to enhance local government accountability for service delivery. The government sees benchmarking as an important mechanism for supporting this, especially through public disclosure of commitments, performance against targets, and links to Performance Improvement Plans.

Building on the lessons of benchmarking experience in India and elsewhere, the ministry has led the development of a *Handbook for Service Level Benchmarks*. The *Handbook* identifies nine key performance indicators for water supply, nine for sewerage management, eight for solid waste management, and two for storm water drainage. It provides detailed information on what information is required and how to report it.

Each participating city is advised to collect and submit data to reveal its performance against each of the listed indicators—annually to state and central governments, and more frequently at local level. A report card format has been developed to capture performance objectives and data.

An example of how each Service Level Benchmark indicator will be reported in a performance report card is presented below.

### Service Level Benchmark: Coverage of water supply connections

| Time period | Performance achieved | Performance targeted | Data reliability | Action plan for achieving the target |
|---|---|---|---|---|
| FY 07–08 (baseline) | 71 | | B | |
| FY 08–09 | | 75 | | All backlog applications for new connections will be cleared within 12 months |
| FY 09–10 | | 85 | | Major source augmentation and transmission project will be completed<br>Regularization of all illegal connections in north of the city |
| FY 10–11 | | 90 | | Distribution improvement project will commence<br>Standposts will be replaced in wards 13 and 17<br>Regularization of all illegal connections in south of the city |
| FY 11–12 | | 95 | | Standposts will be replaced in wards 19–23 |

In due course, the report cards are expected to be made public, and used by governments and other stakeholders to hold utilities to account against their improvement targets and action plans (MoUD, 2008).

### Strengthening Information Systems

Reporting on performance is meaningless unless the data used for performance measurement are reliable. To ensure consistency in reporting and comparability of the performance data within and between cities, the requirements for each indicator are specified in detail. Each indicator is defined clearly, with a practical explanation of what data to collect, how to calculate the indicator, and how frequently it must be measured. To monitor service delivery differences within and across a given city, the *Handbook* defines the geographical area for which the indicator must be measured—water distribution zone, ward, urban local body or city. The reliability of measurement for each data input must be specified, on a scale from A to D, in line with defined reliability criteria for each.

National Technical Advisors have been appointed, with the Water and Sanitation Program's support, to provide guidance on data gathering methodologies, indicator definitions, and later to advise cities and consultants on the preparation of performance improvement plans. Regional and national benchmarking workshops will be convened to share information and reflect on the lessons of experience. Beyond the first 12-month period, each city's performance will be reviewed against its action plans for improving service delivery and information management.

### Scaling up

Based on implementation experience in the pilot cities, the MoUD will encourage state governments to prepare a benchmarking scale-up plan. This would include arrangements for the creation of a state-level Benchmarking Cell to coordinate and drive benchmarking in the state; extension of the benchmarking program to other cities in the state; and, crucially, identification of how to integrate benchmarking information into state government decision-making processes. In this way, the national government aims to promote the use of benchmarking data to inform policy development, funding transfers to states and cities, evaluation of personnel involved in service delivery, and so on.

# Moving beyond Utility Benchmarking Data

Third party auditing and verification of reported benchmarking data is essential to establish the integrity of what utilities report—even if only on a random basis; this is particularly important where government offers financial incentives to evidence of performance improvement. But if the aim of benchmarking is to improve utility performance and service delivery, it is essential that benchmarking moves beyond a utility supply-side perspective. The views, needs, and experience of local citizens are needed to shape assessment of service delivery, and validate (or not) a utility's reported performance. Demand-side data are essential to enable utilities and government to understand improvement priorities from the perspective of citizens and users. This approach is being used productively in Manila to complement and strengthen supply-side benchmarking.

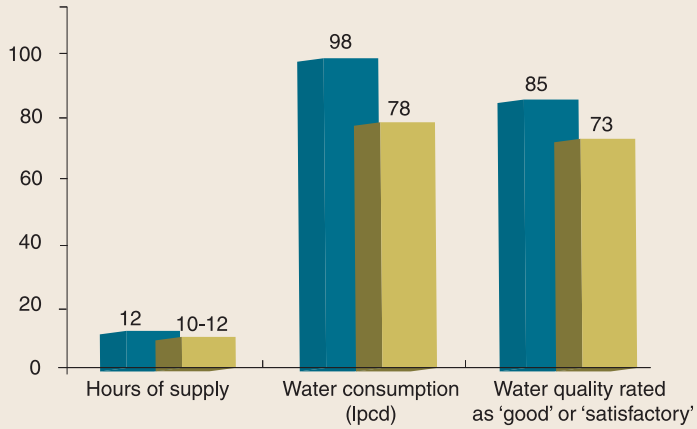
House-to-house surveys by a utility to collect information on the number of connections, people served per connection, hours of supply, and so on, are an important starting point. Even more valuable are efforts to engage citizens about their service needs, and their experience of service delivery by the utilities. Utilities are generally wary of engaging with their customers where services are poor, but experiences with citizen engagement initiatives in Bengaluru (India) and Karachi (Pakistan) show that dialog can build understanding of the respective needs and challenges of citizens and utilities.

**Box 10: Rajshahi: Comparing supply-side with demand-side data**

In Rajshahi, Bangladesh, the Water and Sanitation Program–South Asia (WSP-SA) worked with the City Corporation and the local NGO Forum on Drinking Water Supply Sanitation in 2008 to pilot a customer satisfaction survey. The aim was to compare supply-side data from service utilities with demand-side data from users. A survey questionnaire was drafted and plans prepared for the survey, working in conjunction with representatives of the City Corporation, NGO Forum, and Department of Public Health Engineering. The survey was conducted by nongovernmental organization volunteers in five of the city's 30 wards, with 200 people surveyed in each ward.

Three key findings stood out:

- Residents rated the quality of the drinking water lower than the utility had, with less than half of respondents using the water directly from the tap without boiling or filtering it; 27 percent rated the water quality as poor, against the City's assessment that just 15 percent failed to meet quality standards.
- Most users spend eight times more on electricity than they do on water.
- Average daily water consumption was far lower than the utility assumed. Instead of 98 liters per capita per day (lpcd), the customer survey showed that the average was 78—but this varied sharply by income group. Well-off consumers used on average 99 lpcd, while poor and hard core poor consumers used 43 and 28 lpcd, respectively. Volumetric data would clearly have helped to highlight differences across a town or city move effectively.



# Key Lessons from Regional Benchmarking Experience

**Simply measuring performance and sharing information within and between utilities is a significant performance driver**

Performance data are being increasingly recognized as a critical driver of strategic planning, performance management, and improved sector accountability, by the participating utilities of the WSP-SA and higher tiers of government in the three countries. Poor performance, and the reasons for poor performance, are obscured when performance is not measured and monitored regularly. Through revealing how service provision by one utility compares with another, benchmarking is drawing attention to the good practices of the strong performers, and sending signals to the poor performers of the need for corrective action.

Through quantifying performance across a range of operational and service parameters, management can set improvement targets and start to identify what is getting in the way of achieving performance goals. Through stimulating the development of systems for collecting and assessing performance data, benchmarking is laying the basis for improved sector governance and regulation.

**Institutionalize benchmarking to optimize the benefits of utility benchmarking for sector reform**

Benchmarking can be onerous and compromising for utilities who are not accustomed to revealing their performance. Utilities need to know that government will scrutinize the data they submit, ask questions, and engage with its implications.

Government gains real insight into service delivery gaps, utilities' real challenges, and the sector's reform needs when it puts in place systems at state and national level to drive, coordinate, collect, and assess benchmarking data. The insights it gains are invaluable for driving policy development for service delivery reform, and shaping the governance frameworks that the sector needs.

**Benchmarking requires clearly-defined performance indicators and consistent data sources**

Benchmarking is premised on comparative assessment, and comparison is not feasible unless a standardized approach to collecting and analyzing data is used.

Where a utility is required to provide data for an indicator which it does not normally measure, it is likely to provide ad hoc information. Most utilities will need support and guidance in setting up consistent performance measurement systems and robust information management systems. Without this it is not possible to track trends or monitor improvements over time.

Wherever possible, utilities should indicate the reliability of the data on which each indicator is based. One option is to use the International Benchmarking Network for Water and Water Utilities' data reliability grading system, and to reward a utility for each reported indicator that progresses from a low towards a higher reliability grading.

Third party verification should be introduced to validate the data which utilities report.

**Keep performance improvement planning pragmatic**

Utilities are responding to the findings of their benchmarking results with bold improvement plans across a range of performance areas. But 'less' can be 'more': too many objectives can mean a loss of focus and effectiveness, and without clear time-based targets and secured funding, improvement plans may well lose momentum.

**Networks between the utilities that do benchmarking allow success stories to be shared and promote adoption of good practice**

Mutual support and knowledge sharing between utilities is one of the most valuable outcomes of regional benchmarking initiatives. It shifts the focus beyond comparative performance assessment to recognition of successes and discussion on how to improve performance and implement good practices in a different context.

# Next Steps

The value of water utility benchmarking is increasingly recognized in Bangladesh, India, and Pakistan, and programs across the region are being scaled up.

In Pakistan, the country's biggest water utility, Karachi Water and Sewerage Board, as well as the Peshawar Development Authority in the North West Frontier Province and Islamabad Capital Development Authority are gearing up to begin benchmarking.

In Bangladesh, at least three more utilities will join the benchmarking initiative in 2009.

In India, the 26-city Service Level Benchmarking pilot initiative aims to stimulate the adoption and institutionalization of benchmarking nationally as a key part of service delivery reform.

Key priorities moving forward include:

- Improve the reliability and comparability of benchmarking data, by incentivizing and assisting utilities to strengthen their management information systems.
- Broaden the scope of performance assessment so that it should include customer perspectives.
- Widen dissemination of benchmarking data to citizens' groups, and promote dialog about how best to use the findings to support improved service delivery.
- Build government's capacity to drive benchmarking, and use the results to shape sector reforms and provide investment support.

Following on from the introduction of benchmarking over three phases, as described at the beginning of this review, the fourth phase of benchmarking in Bangladesh, India, and Pakistan might look like the figure given here.

*Phase 4: The way forward*

# Conclusions

The introduction of performance benchmarking is driving a new recognition of the importance of measurement as a management tool. It is exposing performance gaps, and highlighting the value of integrated information systems to support decision making and track progress towards defined targets. The information has critical importance for performance improvement planning, and for shaping the evolution of government policy and institutional frameworks. It enables development partners to target their assistance more effectively.

Given the absence of formal monitoring systems to track the performance of water utilities, the institutionalization of benchmarking represents a major step forward to building the necessary systems, procedures, and structures needed for sector oversight. A key finding from benchmarking across South Asia is that performance tracking systems are poorly developed in most water utilities. Without reliable quantitative data, managers are operating largely in the dark, unable to identify trends or track the impact of their decisions. Equally, the lack of credible performance information makes it difficult for government or citizens to hold service providers to account, and contributes to ongoing poor service delivery across the region.

By tracking performance outputs and outcomes, benchmarking supports a reorientation in the way utilities assess their performance—beyond infrastructure development to network management and customer service. This, in turn, paves the way for a new era in service provision, where comparative performance data are made public and provides a basis for dialog between government, citizens, and service providers around how best to achieve the service improvements the region needs.

The benchmarking data also highlight the limits of what internal utility reforms can achieve, and the need for wider-ranging sector reforms—to clarify and streamline the lines of accountability, provide a clearer separation between the role of authority and provider, and incentivize a greater customer and commercial orientation. Performance improvements will be limited as long as utilities are structured as technical service departments of government, but required to perform like commercial utilities.

The emergence of an organizational culture that strives for continuous performance improvement—with the associated data generation, performance management, and benchmarking systems that go with it—is unlikely as long as all the current disincentives to real change prevail. Benchmarking lays a basis for stronger governance systems and accountability across the sector.

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# Appendix

**South Asian utilities participating in performance benchmarking, 2005–07**

| Country | Town or city | Utility name | Indicative size: Number of water connections |
|---|---|---|---|
| **Bangladesh** | Dhaka | Dhaka Water Supply and Sewerage Authority (WASA) | 243,000 |
| | Chittagong | Chittagong Water Supply and Sewerage Authority | 43,810 |
| | Rajshahi | Rajshahi City Corporation | 22,650 |
| | Bagerhat | Bagerhat Pourashava | 3,200 |
| | Chandpur | Chandpur Pourashava | 4,620 |
| | Chapai Nawabganj | Chapai Nawabganj Pourashava | 3,750 |
| | Chuadanga | Chuadanga Pourashava | 2,250 |
| | Gazipur | Gazipur Pourashava | 4,010 |
| | Jessore | Jessore Pourashava | 8,950 |
| | Manikanj | Manikanj Pourashava | 4,500 |
| | Narsingdi | Narsingdi Pourashava | 2,060 |
| **India** | Bengaluru | Bangalore Water Supply and Sewerage Board (BWSSB) | 479,720 |
| | Bhubaneswar | Public Health Engineering Organization | 52,210 |
| | Chandigarh | Municipal Corporation of Chandigarh | 137,409 |
| | Chennai | Chennai Metropolitan Water Supply and Sewerage Board | 365,680 |

**South Asian utilities participating in performance benchmarking, 2005–07**

| Country | Town or city | Utility name | Indicative size: Number of water connections |
|---|---|---|---|
| | Dehradun | Uttarakhand Jal Sansthan | 62,370 |
| | Hyderabad | Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB) | 526,870 |
| | Indore | Indore Municipal Corporation | 158,920 |
| | Jamshedpur | Jamshedpur Utility Services Company Limited (JUSCO) | 42,000 |
| | Pune | Pune Municipal Corporation | 106,500 |
| | Rajkot | Rajkot Municipal Corporation | 192,000 |
| **Punjab, Pakistan** | Faisalabad | Faisalabad Water and Sanitation Agency (F-WASA) | 93,000 |
| | Gujranwala | Gujranwala Water and Sanitation Agency (G-WASA) | 31,413 |
| | Lahore | Lahore Water and Sanitation Agency (L-WASA) | 570,000 |
| | Multan | Multan Water and Sanitation Agency (M-WASA) | 34,347 |
| | Rawalpindi | Rawalpindi Water and Sanitation Agency (R-WASA) | 124,000 |


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