

Accompanying Volume to the
'Guidance Notes on Services for the Urban Poor'

Global Experiences on Expanding Water and Sanitation Services to the Urban Poor



ACKNOWLEDGMENTS:

This document has been peer reviewed by Catherine Revels, Chris Heymans, Ravikumar Joseph, Dennis Mwanza, Glenn Pearce-Oroz, and Rosemary Rop, (WSP); Anup Wadhawan (formerly WSP); Genevieve Connors, Mario Alejandro Suardi, Raghu Kesavan, and Robin Rajack (World Bank); Prof. Sohail Khan (Water, Engineering and Development Centre, Loughborough University, UK); Ashna Mathema and Arnab Roy (Kolkata Urban Services to the Poor Program); and Jeremy Colin (Water Sector Specialist).

This document has been edited by Meenakshi Shedde and Anjali Sen Gupta.
Page design is by Write Media, and printing by PS Press Services Pvt. Ltd.

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In 2006–07, the Water and Sanitation Program (WSP) initiated research to identify barriers to service delivery for the urban poor. The findings of the research have been presented in the Guidance Notes on *Improving Water Supply and Sanitation Services to the Urban Poor in India*. The Urban Global Practice Team of WSP decided to expand the ambit of this research to a global context as the learnings were relevant to experiences across Africa, Latin America, and East Asia and the Pacific. The Guidance Notes are based on an in-depth research of various initiatives from across the world (including South Asian, African, Latin American, and East Asian and the Pacific countries) and consultations with urban poor communities. The present volume is a documentation of this research and supports the *Guidance Notes on Services for the Urban Poor*.

This volume is an extended version of a previous WSP publication, *Global Experiences on Expanding Services to the Urban Poor*.



■ CASE STUDIES



Section

1

Case Studies on
Improving Water Supply
and Sanitation Services
for the Urban Poor

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CASE STUDY 1

Ahmedabad, India Parivartan: Slum Networking Project

Context and Background (City and Service Provider)

Ahmedabad, with a population of 3.51 million,¹ is the seventh-largest city in India and the largest in the state of Gujarat. Population growth coupled with a rising proportion of working population in the informal sector has led to the mushrooming of slums and *chawls*.² The 2001 Census estimates that approximately 1.6 million people, that is, 46 percent of the city's

Table 1: Ahmedabad at a Glance

City	Ahmedabad, Gujarat, India
Total population	3.51 million (2001 Census)
Slum population (% of total population)	1.6 million people (46 percent)
Service provider and status	Ahmedabad Municipal Corporation, local government

population, reside in informal settlements.³ Most of these settlements lack adequate access to basic services—the majority of the households have shared water supply, limited or no access to sanitation facilities, inadequate storm water

drainage and access or internal roads in poor condition. There has been a lack of comprehensive response from the local government for ensuring that the urban poor have access to adequate basic services.

The Ahmedabad Municipal Corporation (AMC)⁴ is believed to be one of the better administered and financially sound⁵ urban local bodies (ULBs) in the country. Its main functions⁶ include providing protected water supply, sewerage and storm water drainage, construction and maintenance of

¹ Source: Census, 2001.

² A *chawl* is a low-income informal settlement.

³ A total of 1,668 settlements including 710 slums and 958 *chawls*.

⁴ The AMC was constituted in 1950 under the Bombay Provincial Municipal Corporation Act, 1949.

⁵ The AMC recorded a closing cash surplus of Rs 2,142 million (US\$46 million) in March 1996. Prior to 1993-94, the AMC was a loss-making urban local body, resulting in accumulated cash losses of Rs 350 million (US\$7 million). Source: Valdiya, Chetan, and Brad Johnson. 2001. 'Ahmedabad Municipal Bonds—Lessons and Pointers.' *Economic and Political Weekly*, July 28, 2001. (US\$1 = INR 46, approximately, as of September 28, 2008. Conversion rates are from <http://coinmill.com>; all conversions in the text are approximations.)

⁶ As defined under the Bombay Provisional Municipal Corporation Act, 1949.

roads, street-lighting, disease prevention and monitoring, conservancy (solid and liquid waste disposal), public transport, and maintaining parks and gardens.⁷ The area under the Corporation's jurisdiction is divided into five zones under which fall 43 wards.

In the mid-1990s, the Corporation initiated a set of fiscal (including

Box 1: What is Parivartan?

Parivartan (literally, transformation) is an ongoing slum upgrading initiative in Ahmedabad, which has made significant progress in enhancing access of poor communities to basic infrastructure and social services and in mainstreaming informal or slum settlements with the city level systems. Parivartan has demonstrated the value of enabling policy and regulatory frameworks, multistakeholder partnerships, presence of champions of change, and community participation for initiating and scaling up pro-poor service delivery initiatives. However, the program had a slow pace of execution due to (a) unclearly programmed and ill-timed funding; (b) absence of, or nonfunctional, links between political decisionmakers and utility managers and those between management and frontline staff; and (c) the lack of capacity at the local level to implement a large program.

improved revenue collection of octroi and property tax) and management reforms (including modernization of the accounting system and upgrading the Corporation's workforce).

Improvements in its financial situation allowed the ULB to undertake several innovative development projects such as the redevelopment of C.G. Road, completion of Kotarpur water treatment plant, 'Green Partnership' for greening the city, and Parivartan, a slum upgrading initiative.

Key Program and Initiative Highlights

Program Design

Parivartan, meaning transformation, is an ongoing slum upgrading initiative in Ahmedabad. The initiative aims at ensuring access for urban poor or informal communities to basic infrastructure and social services in an affordable and sustainable manner. Departing from the conventional approach, the initiative concentrates on improvements to infrastructure services (rather than on housing)

provided at an individual household level and mainstreamed with the city-level systems.

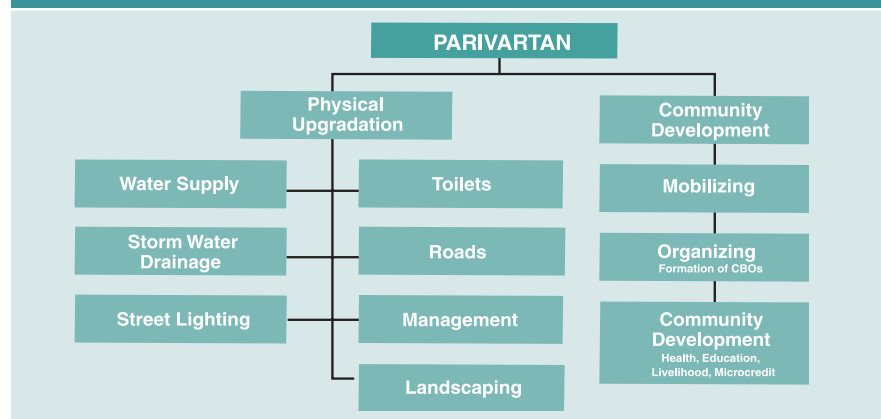
The initiative has two components: physical upgradation and community development.

Physical upgradation, which implies extending a bundle of services including individual water supply, underground sewerage, individual toilets, storm water drainage, paved internal roads and bylanes, street lighting, solid waste management, and landscaping.

Community development, including formation of community-based organizations (CBOs), women's and youth groups, mobilizing community contributions toward infrastructure development and operation and maintenance (O&M) costs, ensuring access to health and education facilities, livelihood opportunities, and microcredit.

An assurance was provided by the Corporation that participating slums would not be evicted for the next 10 years. Even though the assurance had no legal binding, it provided the slum dwellers a sense of security that facilitated their participation and

Figure 1: Parivartan's Components



⁷ Under the conformity legislation of the 74th Constitutional Amendment Act, economic and social planning as well as poverty alleviation have been added as obligatory functions of the Corporation.

ensured their readiness to contribute toward capital costs and community-level O&M funds.

Institutional Arrangements

Parivartan has a **multistakeholder partnership framework** whereby the roles and responsibilities of the partners—including target communities, ULBs, nongovernmental organizations (NGOs), and the private sector—have been fixed in accordance with their strengths and abilities to deliver.

The AMC led the initiative by taking principal responsibility for financing the program; ensuring linkages with city-level networks; undertaking operation and maintenance of services through its zonal offices; and ensuring convergence with other schemes and programs. NGOs are responsible for community mobilization; formation and capacity-building of community-based organizations; collection of community contributions; and undertaking community development programs. Since 2002, NGOs have also been involved in undertaking physical development work in slums or informal settlements. Slum communities have contributed in the form of financial contributions toward capital and operation and maintenance costs, and have undertaken supervisory responsibilities during the construction phase. The initiative also aimed at eliciting private sector participation in project financing and implementation.

Project Cost and Financing Details

The cost of infrastructure development was estimated at Rs 15,800⁸ (US\$340) per household. Of this cost, while the Corporation's contribution is 70 percent

Table 2: Project Costs and Contributions (in Rs)

Component	Total cost per family	Contributions			
		AMC	Community	Industry, social institution	Nongovernmental organization
Infrastructure development	15,800	11,500	2,000	2,000	300
Physical development	6,000	2,000	2,000	2,000	
Individual toilet cost	5,800	4,500			
Linkages with city infrastructure	3,000	3,000			
Community development	1,000	700			300
Project design costs	480	380	0	100	0
Community fund for maintenance of infrastructure	100		100		

(Rs 11,500, or US\$250), the slum community and private sector contribute 14 percent (Rs 2,000, or US\$43) each. The NGOs' contribution is Rs 300 (US\$6) per household and is used for community development works. The project's design costs were estimated at Rs 480 (US\$10) per household, these are borne by both the Corporation (Rs 380, or US\$8) and private sector (Rs 100, or US\$2). The community also contributes Rs 100 per household towards a corpus fund for the operation and maintenance of services within the community or settlement.

⁸ In 2004, the cost was revised from Rs 14,500 to Rs 15,800 (US\$340-315); the cost of the component of individual toilets was increased from Rs 4,500 to Rs 5,800 (US\$97-126).

Once a slum or informal settlement is covered under the program, the households become liable to pay property tax, which is a composite tax including water and sewerage charges as a preassigned allocation. Property tax is calculated on the basis of the rateable value of property; since a majority of slum or informal households have an area of less than 30 square meters, they fall within the lowest slab and are required to pay property tax of Rs 264 (US\$5) per year.

Program Evolution and Progress So Far

Parivartan was conceived when Arvind Mills, a leading industrial house, approached the AMC with the intention of contributing up to Rs 10 million

(US\$200,000) for improving the living conditions in a few informal settlements located in the mill's neighborhood.

The initiative was launched with a pilot project in Sanjay Nagar, a slum with 181 households (total population: 1,200). The project was launched on August 5, 1996, and completed within eight months (August 1996–April 1997) at a total cost of Rs 2.1 million (US\$45,000). The ULB, NGOs, private sector, and slum community were partners in the pilot. While two-thirds of the households were able to pay the upfront contributions toward capital costs (Rs 2,000, or US\$43), the remaining one-third took a loan from SEWA Bank. A local CBO, Sanjay Nagar Residents' Association, was formed—it supported the NGOs in collecting community contributions, monitoring infrastructure development, and subsequent maintenance⁹ of on-site infrastructure. The initiative was recognized as one of the 'Global Best Practices' at the Habitat II Conference, Istanbul (1996).

The project has since been completed in 34 slums covering approximately 11,500 households. Work is currently going on in another 13 settlements. To further scale up the initiative, a proposal to cover 120 slums has been included in the City Development Plan

of Ahmedabad under the Government of India's Jawaharlal Nehru National Urban Renewal Mission (JNNURM).¹⁰

Key Outcomes

How the Poor Benefited

A major impact of Parivartan has been in ensuring access of urban poor or informal settlements to basic services at an individual level, mainstreamed to the city-level networks. Improved access, provisions at individual household level, and adequate maintenance systems have had many spin-off results,¹¹ including improvements in environmental sanitation conditions, better health for slum dwellers, decrease in the expenditure on health,¹² and substantial reduction in absence from work due to illness.¹³

The initiatives have also propelled certain indirect changes at the household and city levels, including shelter consolidation,¹⁴ increase in income,¹⁵ and enhancement in property values.¹⁶

Lessons Learned

Enabling Factors

The design and implementation of Parivartan was facilitated by the presence of the following enabling factors.

Enabling legislations and policies:

An Amendment to the Bombay Municipal Corporation Act, 1949, made it obligatory for the Municipal Corporation to spend at least 10 percent of its own account revenue for improving basic services in slums and *chawls*. This created incentives for the urban local body to undertake innovative development initiatives, such as Parivartan, to address issues facing the urban poor.

Financial health of the ULB:

Improvements in the financial position of the ULB following fiscal and management reforms—and the fact that it has a high level of autonomy regarding the use of its funds due to very little dependence on state government funds¹⁷—has enabled the ULB to take up several innovative development projects.

Presence of a 'champion': The reforms and development initiatives (including Parivartan) undertaken by the ULB were facilitated considerably by the leadership of some key champions. In the initial period (1994–97), the municipal commissioner of the Corporation identified strongly with these ideas and helped ensure that the project got on track. Its existing sustainability is partly assisted by an additional chief engineer, who has championed the cause of the initiative and the pro-poor agenda considerably.

Security of land tenure: An assurance given by the Corporation, that it would not evict or remove participating slum pockets for the next 10 years, has gone a long way in ensuring the readiness of slum communities to participate and contribute toward the capital cost of infrastructure development and toward a community-level corpus fund for O&M.

⁹ The skills of local community members who worked as laborers, masons, carpenters, and so on were utilized.

¹⁰ The primary objective of the JNNURM is to create economically productive, efficient, equitable, and responsive cities with a specific objective of 'universalization of urban services' to ensure their availability to the urban poor and for institutionalizing transparency and accountability in urban service delivery and management. The JNNURM is the single largest Gol initiative in the urban sector with two sub-missions: one on Urban Infrastructure and Development and the other on Basic Services to the Urban Poor. This seven-year program is currently supporting 63 cities on urban renewal and offers great potential for ensuring access of urban poor to basic services.

¹¹ As documented in a study 'Wealth and Well-Being Impacts of Slum Upgrading and Improved Service Delivery to the Poor—A Case of Slum Networking Project, Ahmedabad' undertaken by the Centre for Environment Planning and Technology (CEPT), Ahmedabad.

¹² Eighty-two percent of households recorded a decrease in the expenditure on health and medicines. (Source: *ibid.*)

¹³ Seventy-seven percent of the households shared that they did not miss a single day of work due to illness after the implementation of the program.

¹⁴ A little over one-third of the households in Parivartan slums have undertaken home improvements. The amounts spent by families for home improvements have ranged from Rs 500 to Rs 300,000, or US\$10–6,500 (average: Rs 31,086, or US\$675). The majority of the home improvements were to do with the addition of one floor, subdivision of a room, improvements in roofs, floors, and walls.

¹⁵ Approximately 58 percent of the households reported that there had been an increase in their income levels following the implementation of the initiative.

¹⁶ There has been an increase in the property values in slums covered under Parivartan: the increase has been approximately 67 percent (from Rs 55,899 to Rs 93,788, or US\$1,200–2,000).

¹⁷ The Ahmedabad Municipal Corporation depends on the state government for only 10 percent of its total revenue in the form of a grant for primary education.

Access to microfinance: Access to microcredit was critical for ensuring community financing for the physical development component of the capital cost. NGOs and CBOs are responsible for collecting contributions, which are maintained in individual accounts with SEWA Bank and are handed over to the Corporation at the initiation of work on-site. However, this was the case only in time-bound projects, including the pilot project at Sanjay Nagar, the first settlement in the scale-up phase (Sinheshwari Nagar), and in the slum electrification program.

In other projects, since the project implementation took so long, slum households were able to pay in easy installments.

Constraints

While the slow pace of execution can be attributed to many factors, the most pertinent being the **lack of institutionalization of the initiative within the ULB**, the result has been that the program's fate has been decided by whether it coincides with the vision and ideology of the senior municipal management or not. In large part because a former commissioner expressed a personal interest in the program, the management cadre and the frontline staff were keen to push the program forward.

The experience has been that subsequent municipal commissioners have not been able to sustain the pace of the initiative. The other factors that have led to the tardy progress include the bureaucratic routine due to which the project approval and release of funds took very long, and delays in mobilizing and organizing the community in cases of heterogeneous social structures.

Financial resources—mere allocations: While there appears to be no shortage of funds with budgetary allocations made for Parivartan each financial year, the funds were not well programmed. The financial planning exercise is ad hoc in nature; budgetary allocations are usually inflated and do not take into account anticipated revenue flows or project implementation plans. The result is that while huge budgetary allocations are made, funds are allocated on the basis of available revenue flows. Since Parivartan was not seen as a priority initiative, the allocated funds were spent on other projects perceived to be more important for the city's development.

Inadequate human resources: The Parivartan Slum Networking Program (SNP) cell in the Corporation is grossly understaffed. A number of positions are vacant, with the highest numbers of

vacancies in the Engineering Wing. Further, many officials have been transferred from the SNP cell to other departments without replacements and senior SNP cell officials have multiple responsibilities.

Weak management links between the organization and frontline staff:

Subsequent to the implementation of Parivartan, the slum is handed over to the ward office for the operation and maintenance of services. The frontline staff at the ward offices has a poor reputation regarding customer responsiveness, and has been particularly reluctant to provide postconstruction support to Parivartan communities. Their resistance can be attributed to the fact that they were not involved in the project design or implementation phase and because of a lack of any incentives for recognizing good performance (or penalties for





poor performance). For their part, ward office staff justify their reluctance to service infrastructure in Parivartan communities by citing improper designs, poor construction, and nonadherence to prescribed norms.

Nonalignment with political wings (elected representatives): The urban poor provide an enormous vote bank, and the Parivartan initiative can be viewed as undermining the influence of elected officials. While there is very little overt resistance to the program from the city's elected officials, a majority of the councilors use funds allocated to them from numerous state and federal government welfare and poverty alleviation programs for infrastructure upgrading in slums and *chawls*. The value of political grants for infrastructure investments disbursed in Ahmedabad in 1999–2000 was 11.3 times the SNP's actual expenditure. By reducing the obligations of residents to participate in infrastructure projects funded by these grants (for example, requiring no cash contributions as does the SNP), politicians have undermined the scaling up of Parivartan, despite their public expressions of support for the program.

Resistance from the state government: A principal obstacle to upscaling Parivartan is the state government's unwillingness to cooperate with the ULB's innovative approach to land tenure issues. The state government has declined to provide clearance (no objection certificates) for implementing the initiative in informal settlements located on its land.

Protracted project approval process: The project approval process is lengthy, cumbersome, and time consuming. As it involves approvals from various officials at different levels in the ULB, the central

Corporation, the SNP cell, and zonal offices, it results in inordinate delays. Discussions with NGO partners revealed that, typically, the project approval process takes anywhere between three to six months.

Lack of partners: While the initiative aimed at inducing private sector participation in project financing and implementation, this was possible only in the pilot phase. In the subsequent scaling-up phase, very few private sector companies have partnered with the initiative; their participation has been limited to financial contributions toward capital costs in a few slum pockets. Despite a large and robust voluntary sector, only three NGOs have been associated with the initiative. The

primary reason for this is that Parivartan requires participating NGOs to have skills and experience in community development as well as infrastructure development, a combination that is not readily available.

Implementation difficulties due to nonflexible program design: A very small percentage (less than 2 percent) of households covered under the program had access to any of the eight services offered. This situation prompted the Corporation to design a 'bundle of services'. However, the situation in a majority of informal settlements in the city was quite different, where access to water and sanitation services has been obtained through a combination of

political sponsorship, informal markets, and the Corporation's ward offices.

Offering bundled services is one important explanation for Parivartan's slow rate of expansion. While the project rules include a set of credits that are applied to reduce the financial contribution required from any household that has already obtained one or more of the eight services, this reduction applies only to services that have been obtained legally.

The Corporation officials see little need to adjust the suite of services offered, or to create opportunities for residents to select subsets of the services according to their needs and preferences.

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CASE STUDY 2

Mumbai, India

The Slum Sanitation Program: Reaching the Poor through Sustainable Partnerships

Context and Background (City, Slums, and Access to Services)

The city of Mumbai (formerly known as Bombay), spread over 438 square kilometers, is home to about 14 million people. Mumbai is India's financial capital; main industrial and economic activities have metamorphosed over the years, yet the city has continued its unabated growth, challenging the availability of adequate housing for its workforce. As a result, more than half of its population (about 55 percent, as

estimated in May 2001) lives in slums and squatter colonies that occupy 8 percent of the city's land. This is believed to be the largest proportion and absolute number of slum dwellers in the world. These densely populated slums lack satisfactory basic services, principally, access to adequate sanitation facilities.

Water: Of the various water supply arrangements in Mumbai's slums, the most common (in approximately 50 percent slums) are shared connections, which cater to groups of five households or more. In a third of the slums, there are mixed arrangements, comprising individual and shared connections. Only 5 percent of the slums have individual

household connections. Contamination, low pressure, supply at odd hours, and high access costs are problems frequently encountered in slum settlements. In slums where there is no supply, there is total dependence on purchasing water from informal water vendors, or on obtaining water from long distances.

Sanitation: Sanitation poses the greatest challenges in the city's slum areas. While the city's wastewater collection is well developed, it does not cater to Mumbai's slums. Very high housing densities, coupled with narrow and winding lanes, pose formidable impediments to the planning and provision of wastewater collection systems. Slum populations have been

Box 2: Benefiting Mumbai's Slums

The BrihanMumbai Municipal Corporation (BMC) implemented the World Bank-assisted Slum Sanitation Program (SSP) as a part of the Mumbai Sewage Disposal Project (MSDP). The SSP was aimed at 'improving the health and environmental conditions in Greater Mumbai, including [those of] the slum dwellers'. It was targeted at about 1 million slum dwellers (approximately 20 percent of Mumbai's slum population) living on municipal land, at about 10 percent of the MSDP project cost (approximately Rs 13.2 billion, or US\$286 million). Implemented over 1996–2005, 330 community toilet blocks with more than 5,100 toilet seats were constructed and handed over to community groups to use and maintain. This program is estimated to have benefited about 400,000 people in Mumbai's slums.

The program was unique in (a) fostering a participatory and demand-led approach in a complex metropolitan environment; (b) supporting partnerships between the local government (BMC), nongovernmental organizations, private construction agencies, and slum community groups; (c) initiating innovations and incentives; (d) providing superior technical specifications that helped ensure improved service quality standards; and (e) responding creatively to an emerging market for operation and maintenance.

The experience will be instructive for the formulation of state or national urban sanitation policy, and for the design and replication of community sanitation projects in other cities and states.

forced to depend on public toilets to meet their sanitation needs; approximately, 9,700 public toilet blocks (77,550 seats) dot the slums. Even assuming that all public toilet blocks are in usable condition (surveys show that up to 80 percent of them are not functioning), they meet hardly 50 percent of the total demand. In a few locations, mainly large sites and services settlements, a sewerage network has been laid. In a limited number of cases, individual household latrines have been connected to septic tanks or are discharged into open drains. Overall, the city has not been able to cope with the existing sanitation needs of slum communities, posing serious public health and environmental risks for the entire city.

Key Program or Initiative Highlights

Background: Mumbai Sewage Disposal Project and Slum Sanitation Program

The World Bank-financed Mumbai Sewage Disposal Project (MSDP), approved in 1995, was primarily targeted at undertaking large specialized sewerage works in Mumbai and strengthening the capacity of the BrihanMumbai Municipal Corporation (BMC) to provide sewerage services. The MSDP involved a project cost of approximately Rs 13.2 billion (US\$286 million), which was financed in part by a

Bank loan of approximately Rs 8.6 billion (US\$186 million). The Slum Sanitation Program (SSP) was a component added to the MSDP with the aim of 'improving the health and environmental conditions in Greater Mumbai including [those of] slum dwellers'. It was targeted at about 1 million slum dwellers (approximately 20 percent of Mumbai's slum population) living on municipal land, at about 10 percent of the total MSDP cost.

Slum Sanitation Program: Design Elements

The SSP defines sanitation for slums as a complex service, that is, a package of 'hardware and software' components designed to guarantee the uninterrupted use and usability of the service.

The design of the SSP was unique in the following ways:

- Demand-responsive participatory approach to provision of community toilet blocks.
- Incentives for private contractors, nongovernmental organizations and community-based organizations to work together to jointly deliver community toilet blocks in a flexible framework (including NGO-led partnership with the contractor, and contractor-led partnership with the NGO).
- Contracting innovations, such as simple contract milestones and 100 percent contract variation.
- High technical standards of construction and high-quality service levels, including 24-hour water and electricity, and other amenities, including toilets for

disabled persons, urinals, children's toilets, and a room for the caretaker.

- Initial community mobilization and CBO registration, eliciting household contribution for membership.
- Entire operation and maintenance responsibility handed over to a CBO, which is required to sign a Memorandum of Understanding (MoU) with the Municipal Corporation. This MoU spells out the roles and responsibilities of the CBOs and also of the Municipal Corporation.
- Operation and maintenance management: The CBO collects monthly pass charges (members) and per use user charges (other visitors).

Key Strategies

Participatory and demand-responsive approach:

The SSP stipulated that in slums where toilets are to be built, communities should be engaged in a consultation process, during which the project and their role would be discussed. A key feature was the involvement of slum communities in project implementation right from the planning stage. Communities became eligible for the program's benefits by making an initial financial contribution toward membership. They would take an active part in planning (including site selection and toilet block design), provide assistance, and oversee the construction process. NGOs were expected to facilitate the community mobilization and participation processes. The program specified that the choice of technologies and their locations needed to reflect the collective views of the community as documented in the minutes of meetings.

Box 3: Unique Features of the Slum Sanitation Program's Community Toilet Blocks

- Community toilet blocks have an average of 16 to 20 seats clearly separated between the men's, women's, and children's sections.
- Toilets are never overused, since there is a cap of 50 users per seat, and community-based organizations in charge of management monitors the number of users.
- The layout of the block is not standardized, but is designed to fit the available space. If the space is limited the block is developed in height, with the men's section generally on the ground floor, women's and children's sections on the first floor, and caretaker's room with water tank on the second floor.
- Community toilet blocks always come with two key essential services: 24-hour water and electricity supply.
- Other standard features include bathing cubicles, urinals, and squatting platform for children. The latter is designed at a child-scale, with a degree of openness to allow for adult supervision, and is often equipped with special handles for balance.
- A community toilet block guarantees safe disposal of generated sewage by providing connection to the municipal sewerage network. When this is not possible, due to a difficult location, alternative *in-situ* methods are used, making sure that local capacities are built within the community for the maintenance of the system.

Integrated or 'compact' contracts:

Initially, the SSP design envisaged a four-step process that involved (a) raising awareness about the program; (b) choice of location and type of toilet by a team of engineers and community workers; followed by (c) construction of facilities by a contractor; leading to (d) use and maintenance of the facilities by community groups. This project met with considerable political opposition and institutional reluctance in the early stages. The design also did not receive a favorable response from NGOs and contractors, and little progress was made. These initial difficulties led to considerable rethinking about the strategy; the four-step approach was

replaced by an integrated 'compact' contract, led either by an NGO or a contractor.

The revised roles were as follows: The Municipal Corporation was to create an enabling environment that would bring the NGO and private sectors to facilitate the participation of slum households, and provide the capital investment for toilet block construction. NGOs were to be responsible for mobilizing slum communities; facilitating formation of CBOs; providing hygiene education and training on operation and maintenance and CBO functioning; and serving as the main catalyst in

encouraging a partnership between the community and groups, and the Corporation. Private construction companies were to carry out toilet construction in partnership with NGOs.

Alternatively, in an NGO-led consortium, they were responsible for community mobilization and CBO formation as well as for construction. The latter were to help enable local community processes, supervise construction, and take full charge of operation and maintenance management of local sanitation services and assets.

Creating an enabling environment and partnerships: An enabling policy framework emerged, embracing different stakeholders who were provided with incentives to participate. The goal was to respond to user households' demands and to the preferences for which they were willing to pay. At first, this approach encountered resistance from politicians because of the presence of competing, supply-driven free service facilities. Delivering such a sanitation package is a complex task; the Municipal Corporation could accomplish it only

through strategic partnerships with other key stakeholders, each contributing with their comparative advantage to the process.

Implementation Process

The bidding process: The Municipal Corporation would initiate the implementation process by opening a competitive bid for sanitation services in selected wards. The bidding qualifications and mechanisms were flexible enough to facilitate NGO participation, either in association with private construction firms or alone, if experienced in construction. Rather than contracting out each of the individual components separately, the Municipal Corporation followed an integrated approach and focused on the final output (the sanitation package). This entailed setting parameters for implementation (for instance, a checklist with triggers to move from one step to the next, minimum specifications, and so on), leaving to the contractors and the CBOs the details of how to operationalize them in each slum; contracting out a bundle of activities (that is, program publicity, health and

hygiene education, community mobilization and participation, planning and design of sanitation facilities, construction, training of CBOs).

Implementation on the ground: The contractor's first task was to carry out a general program information campaign in all slums in the assigned ward and to assess willingness and readiness of the communities to participate in the program. After this first screening process, communities were mobilized around the issue of sanitation and CBOs created, if not already existing and active. In each slum settlement such an organization was registered as a Trust or a Society (under the Bombay Public Trust Act) to obtain the legal status, which allowed them to manage the community sanitation block (that is, obtain water, sewerage and electricity connections, sign an MoU with the Municipal Corporation, open and maintain a bank account to deposit the maintenance fund and earnings, pay utility bills, and so on). The registration process of CBOs was mainstreamed to reduce waiting time to a minimum.

In order to express its 'demand', each family in the slum area was asked to



pay a contribution of Rs 100 (US\$2.1) per adult (up to a maximum of Rs 500, or US\$10) per family) as membership fee. The amount was deposited in a joint bank account of the CBO and the Municipal Corporation. Construction work began after this process was completed. After the toilet block was constructed, the CBO was required to certify its satisfactory completion. It also had to sign an MoU with the BMC. The MoU, which specified that the former would operate and maintain the toilet blocks and that the latter had the prerogative to evaluate the performance of the organization and replace it in case of poor performance against the standards and agreed parameters (measured in terms of cleanliness, hygiene, transparency and accountability to members, inclusiveness, maintenance of the asset, and so on). The decision of how to operate the service is left entirely to the CBO and the community of users (from direct involvement of users in all the activities, to outsourcing of management to private service agencies, a whole range of options has been adopted by different CBOs).

Key Outcomes

Under the SSP, 330 community toilet blocks with more than 5,100 toilet seats were constructed and handed over to community groups to use and maintain. Implemented over 1996–2005, this program is estimated to have benefited about 400,000 people in the slums of Mumbai.

A review commissioned by the Water and Sanitation Program and the World Bank in 2005 showed that SSP toilets have demonstrated significant *improvement in levels of maintenance and cleanliness* compared to the existing Maharashtra Housing and Area Development Authority and older Corporation toilets.

Challenges

The implementation of a participatory and demand-responsive approach in a complex environment such as Mumbai was not without its challenges. The city faces a number of policy and programming issues that need to be addressed if the SSP approach is to be scaled up.

Policy and Strategic Challenges

- **Land mobilization and notification of slums:** The majority of the slums are located on lands with private, mixed, and Government of India agency ownership. This poses a key challenge since community toilets in the future will need to be provided in these areas and not only on Municipal Corporation or state government lands. The state needs to get land-owning agencies to agree to the construction of toilets in slums located on their lands.
- **Compliance of agencies to Government of Maharashtra policy:** The SSP has triggered a movement towards a new, more sustainable urban sanitation policy for Maharashtra through greater collaborative effort locally. However, compliance to these policy guidelines in the past, from agencies such as Maharashtra Housing and Area Development Authority (MHADA), was not forthcoming due to organizational constraints. Orientation and capacities need to be instilled in these agencies so that they can follow a common approach, leading to a sustainable CBO-managed community toilet program.
- **Corporation to accord priority to sanitation:** Sanitation services are currently divided across the solid waste management department (for public sanitation complexes), ward offices (operation and maintenance of Corporation and MHADA toilets), and the SSP.



A Strategic Sanitation Department with adequate human and financial resources is required to be created within the Corporation to take this approach forward.

Programming Challenges

- **CBO mobilization, management, and sustainability:** One of the limitations of the SSP has been spreading resources thin and the resultant inadequate attention to community mobilization in some cases. This needs close attention and monitoring since this is a key to ensuring sustainability for the program's participatory and demand-responsive community-managed approach.

In addition, CBOs need strengthening in a number of areas that constitute their core management tasks (including mechanisms for viability, tariff-setting, accounting and disclosure, social inclusion and representation, and improved formal contracting for delegated management accountable to users).

- **Greater technical options and better quality delivery:** The SSP has demonstrated the feasibility of a number of technical choices and specifications although only a few were implemented. A large set of such technical options will further become necessary for scaling up. Construction weaknesses in some areas need to be accorded greater attention; quality assurance systems need to be institutionalized into the management structure and capacities of NGOs and contractors. The use of the

community as subcontractors was a positive step and a key innovation but effective capacity development of subcontractors and quality assurance of supervisors will be necessary to leverage this into an effective, larger program in future.

- **More NGOs and contractors:** The initial stages of the SSP provided a valuable opportunity for experimentation and learning for NGOs and contractors, although only a few participated—there is a strong case for involving larger numbers to participate competitively in the program. The later stages of the SSP seem to have generated stronger interest. However, building their capacities and institutionalizing organizational and program management processes will be key for a scaled-up initiative.
- **Better monitoring:** While the SSP was implemented using a reasonably good progress monitoring system, a number of improvements are possible in this area, including improved third party concurrent monitoring of technical quality, and community-level monitoring of program progress.

Lessons Learned

Although the community sanitation challenge in Mumbai is far from being addressed, the SSP experience provides a good roadmap for the future development of sustainable programs:

- The Mumbai experience emphasizes that key constraints to effective delivery of sustainable sanitation systems for poor people are rooted in government *slum, housing, and land policies*. Reforming these laws and policies is

essential for long-term success. A highly skewed land market, and control regime controlled by powerful vested interests underlie these policies in Mumbai. With respect to slums, while there is evidence of some reform movement in Mumbai, the pace of required change is too gradual to give hope of seriously addressing the challenge. Limitations of space and insecure land tenure further obstruct meaningful reform efforts. Thus, provision of good quality and well-maintained community toilet blocks becomes the *only way* of ensuring access to sanitation for slum residents.

- One of the earliest obstacles of the SSP was to win political support for the program. The supply-driven provision approach was popular when the SSP was launched. Apart from municipal councilors, other political leaders—including slum leaders, members of the state legislative assembly, and the national parliament—had to be convinced that such an approach could potentially deliver good results for communities if the arrangements were devolved to them. This took a lot of time and effort. The SSP's implementation experience also shows that apart from gaining entry for demonstration, there was a need to prove the concept in actual practice. Properly functioning and sustainable community toilets have now come to be regarded as a notable example of effective collaborative effort at the community level.
- The SSP demonstrated the successful impact of a participatory,

demand-responsive approach whereby community members were willing to contribute to upfront membership fees, pay fully for and carry out routine operation and maintenance, with major repairs and replacements being done by the Corporation. Ensuring that local communities take charge of management is key to the sustainability of any sanitation program. This implies that communities participate in the program from the very beginning as equal partners. The experience also demonstrates that when slums do not have a tradition of community participation (social capital), the successful mobilization for a sanitation program through a demand-led and participatory approach can work as a catalyst to create active groups for the provision of other basic environmental services.

- The SSP showcased the successful partnering of contractors, NGOs, and CBOs, selected competitively, in delivering quality sanitation infrastructure facilities, with the Municipal Corporation playing the role of facilitator. The SSP depended upon allocation of responsibilities based on the comparative advantages of each project partner as part of contracts and MoUs, with suitable degrees of flexibility.
- Superior technical quality and service levels attracted people even if this meant higher capital (borne by the Municipal Corporation) and operation and maintenance (borne by registered CBOs made up of slum households) costs. Households were also encouraged to express their demand by making

an upfront membership contribution that would become a part of its operation and maintenance resources for later use. Thus, the SSP demonstrated the effectiveness of constructing a high quality asset with arrangements for 24-hour water, power, and safe waste disposal, and with a long potential service life. It also demonstrated that sanitation quickly turns into an entry point for a more integrated approach to the provision of a wider set of environmental services, for instance, solid waste disposal, improved drainage, and clean water.

- The SSP revealed latent entrepreneurship capacity in the city that was ready and able to provide toilet management operator services to CBOs in the city. The SSP has thus provided a solid foundation for what could be a new paradigm in the provision of sustainable sanitation services in Mumbai—a shift of focus away from a supply and capital-intensive toilet

construction approach to one that attempts to provide incentives to multiple stakeholders acting collaboratively for a more durable operation and maintenance regime to help ensure improved access and quality services.

- The policy of contracting out the whole sanitation package, integrating community organization, planning, design, and implementation under a single contract, worked well in the case of Mumbai. The municipality adopted an output-focused approach, setting minimum specifications and parameters for operation, but leaving to the contractors (NGO-construction agency) and CBOs the freedom to decide how to operate locally. This increased local sense of ownership and accountability to the users, while reducing the burden for the municipality to deal with micromanagement during implementation and future service management.

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CASE STUDY 3

Brazil

PROSANEAR: Combining Community Participation and Low-Cost Technology

Context and Background (Country Scenario)

Brazil's growth in the last half century has been characterized by rapid urbanization; between 1950 and 1991, the urban population increased from 36 percent to 75 percent, that is, from less than 20 million people to over 110 million. While this trend has resulted in a mushrooming and swelling of Brazil's low-income urban

neighborhoods, investments in urban services in these neighborhoods have not kept pace. The government's efforts to increase water and sanitation coverage were largely concentrated on neighborhoods where users were able to pay. Attempts at connecting more people to water and sanitation systems had little impact on the urban poor. Approximately 21 million people lived without access to safe water and another 44 million without access to sewerage networks or septic tanks.

With no access to formal water and sanitation systems, the urban poor rely

on private water dealers who collect water from illegal hook-ups at the municipal system or from unsafe sources such as open wells.

Urban poor customers were being charged up to 10 times more than the public network water fee. For sanitation, there was no alternative to a formal system and poor residents were living with sewage flowing openly in the communities. The lack of adequate water and sanitation posed grave public health risks, often fatal, especially among young children.

Key Program and Initiative Highlights

In 1982, Brazil launched a small pilot program called PROSANEAR (a Portuguese acronym for the Water and Sanitation Program for Low-Income Urban Population). The Ministry of Interior managed the program, which was financed from federal funds. The program experimented with different types of low-cost technology to extend water and sanitation services to the urban poor. The program faced various technical and financial difficulties and had to be shut down by the late 1980s.

At about the same time, the World Bank and Caixa Econômica Federal (CEF, a Brazilian government development bank) reviewed the experiences of PROSANEAR and found some valuable lessons, which they thought could be replicated when combined with some innovative new approaches. In 1992, Brazil launched PROSANEAR I with the help of a US\$100¹⁸ million loan and technical assistance from the World Bank.

Program Design

PROSANEAR I was designed to maintain the same experimental approach as the pilot initiative. The objective was to test new ways of

Box 4: Testing Innovative Strategies

PROSANEAR (a Portuguese acronym for the Water and Sanitation Program for Low-Income Urban Population), a program aimed at testing innovative ways of delivering water and sanitation services to urban poor neighborhoods, was launched in 1992 by the Brazilian government. The program with its flexible approach has successfully encouraged learning and innovation at every level, including technologies, institutional arrangements, community involvement, cost recovery, and financial arrangements.

This experimental program clearly demonstrates the power of combining community participation and low-cost technology to facilitate provision of basic services to urban poor residents. Through PROSANEAR, residents of urban poor neighborhoods learnt that they could work to improve their own communities, water companies learned that urban poor make good customers, and governments learned that innovative solutions can work.

PROSANEAR delivered the benefits of water and sanitation services to one million *favela* (urban poor neighborhood) dwellers. It also delivered harder-to-measure benefits, such as a heightened sense of citizenship among residents, better relations between urban poor neighborhoods and local governments, and stronger communities and local leaders. These water and sewerage projects were starting points for much broader individual and community development.

Box 5: The Five Principles of PROSANEAR I

- **Community participation.** Every project had to be tailored to the specific needs of the community and was to be designed with active community participation.
- **Appropriate technology at low cost.** To give engineers the incentive to consider alternative technologies, PROSANEAR I established a ceiling on the per capita cost for both water and sewerage investments.
- **Environmental protection.** All projects that provided water were required to provide sewage collection and disposal as well.
- **Cost recovery.** On the premise that customers will take better care of systems for which they have paid, users were charged for installation, water use, and sewage collection.
- **House connections.** PROSANEAR I financed water and sanitation connections for each individual household.

delivering water and sanitation services to urban poor neighborhoods (called *favelas*). PROSANEAR I had an adaptable approach that encouraged learning and innovation at every level, including technologies, institutional arrangements, community involvement, cost recovery, and financial arrangements. PROSANEAR I laid out a set of basic principles that guided project planners while designing site-specific plans.

¹⁸ US\$1 = BRL 1.19 (as of October 1, 2008). BRL stands for Brazilian Real. Conversion rates are from www.coinmill.com

Project Eligibility: Project planners developed three main criteria for selecting communities:

- Priority was given to *favelas* in cities of more than 50,000 people.
- All participating families whose earnings were less than US\$300 a month (three minimum salaries), of which at least 40 percent should be earning less than US\$100 a month.
- Recipients had to agree to pay for the water and sewerage in accordance with tariff schedules maintained by the water utilities.

The following criteria were used to approve individual project designs:

- The projects conformed to the most appropriate technical and environmental standards for the neighborhood, and represented the cheapest alternative for providing water, sewerage, drainage, or sanitation services.
- Water projects had a per capita construction cost of less than US\$98, and sewerage projects had a per capita cost of less than US\$140 (1988 dollars).
- Total investments for bathrooms, drainage, and solid waste disposal could not exceed 10 percent of the project's total cost.

Geographical spread: Using the above-stated criteria, PROSANEAR I set out to establish projects in a variety of different conditions to test how the approach would work in different regions (in different city sizes and geographical situations); with a variety of institutional arrangements (executed by municipalities, state water companies, or other organizations), and in different types of communities (organized, less organized, migrant populations). PROSANEAR I projects operated in more than 100 communities across 17 cities.

What PROSANEAR I financed:

PROSANEAR I financed investments in water supply, sewage collection, sewage treatment, as well as complementary investments such as bathrooms and in-house connections. The program also financed community mobilization and participation efforts, technical assistance, and studies to evaluate how well the many innovative methods of the initiative really worked. The projects were jointly financed by the World Bank (50 percent), local water companies, state or municipal government (25 percent), and the CEF (25 percent). The World Bank loan was made to the CEF, which in turn lent those funds along with its own funds to the water companies or state and municipal sub-borrowers.

Management or institutional arrangements:

PROSANEAR I was not a single project, it consisted of many separate projects in different communities. Each project was the product of neighborhood residents working with engineers, consultants, and officials of the local water agency. PROSANEAR I was implemented by local executing agencies, with assistance and oversight from regional and national coordinating units.

State water companies, state governments, and municipalities—whoever provided water services in the area—were the official ‘executing agencies’. These agencies identified and assessed candidate communities. They were responsible for community mobilization; development of technical options; construction, operation and maintenance; training; and monitoring. Each agency was required to establish a multidisciplinary execution team consisting of engineers, community specialists (social scientists, and so on), and administrators. The executing agencies coordinated all aspects of the project implementation at the local level.

Regional offices made up of CEF staff, including at least one engineer and one social worker, were set up in CEF's regional offices to facilitate, supervise, and monitor the local projects under way in that region. During the early preparation of the local projects, the CEF's regional offices helped the executing agencies prepare project designs and bidding documents. The regional offices also helped with community participation. During the construction stage, CEF's regional staff periodically visited project sites to monitor progress and identify problems.

A central project coordination unit was set up in Brasília, staffed by CEF engineers, community participation specialists, procurement officers, and contract administrators. This group was responsible for program planning, monitoring, and supervision of the overall program advancements. They also provided training and technical assistance to the different project implementation teams. The central unit also served as an information clearing house, exchanging best practices and technological innovations between states.

A Typical Project Cycle

A PROSANEAR project began by informing local water agencies that funds were available for water projects in *favelas*, and that the participating agencies would be required to include the communities in the planning and building of the projects.

Project development had six stages, namely, (a) project identification; (b) community mobilization; (c) development of technical options and presentation to the community; (d) construction of facilities; (e) operation and maintenance; and (f) monitoring and follow-up. Community participation was a key ingredient at every stage.

Project identification: When a request for assistance came in, PROSANEAR I first had to determine whether the community and the project in question fit the program's criteria. Teams collected baseline data on site conditions, socioeconomic status of residents, sanitation and health conditions, community resources, active entities (public, private, and nongovernmental), and the level of community organization.

Community specialists met with the community leaders—both formal and informal—to start the dialog about the project. The broader community was informed about the project through various community resources (vehicle-mounted loudspeakers, newspapers, community radio programs, religious organizations, and so on).

The main objective at this stage was to determine the communities' own development priorities and whether water supply and sanitation services were high enough on that list to ensure local support for the project.

Community mobilization: The second step was to mobilize the community to be involved in the project and participate in project decisions. Community specialists went into the neighborhood to identify the groups that could help.

Women's groups were often the most effective allies for working in the community, and the women themselves were frequently key to getting the projects under way (in the *favelas*, women are more likely to be the head of the household and a permanent part of the community).

At neighborhood meetings, residents heard presentations on the technical options available, the maintenance of the systems, and the importance of proper hygiene.

Box 6: Two Distinct Approaches to Community Participation

Each PROSANEAR project approached community participation differently, depending on the unique characteristics of each settlement and the type of water supply and sanitation system residents selected. Each of the projects fell into one of two basic approaches to community involvement.

Participation with a project focus: When communities were relatively well organized, and community members were fairly clear about their priorities, PROSANEAR I teams were not required to put much effort into basic community organization and mobilization. Instead, the focus was on more technical aspects of the project itself, for example, choosing designs and selecting locations for the various systems. This project-centered approach required a smaller team, which meant lower costs for the overall project. Projects were completed sooner and local water agencies needed less assistance to carry them out.

Participation with a focus on community development: The project-centered approach worked where the *favelas* were newly-created communities without strong organizations. These communities were less likely to have a set of clearly identified priorities, and some basic community development work was needed before the project could even be introduced. Only after communities were more organized and their priorities established was the PROSANEAR I concept presented to the communities.

In this community development-centered approach, meetings were likely to address many things besides water and sanitation services. Often residents were eager to talk of other problems, such as their need to find new sources of revenue. Once the discussion turned to the importance of water and sanitation, residents were more prepared to hear about how PROSANEAR could work for them. If water and sanitation were simply not a priority, the PROSANEAR teams helped the communities contact other government organizations that could better address their needs.

This community development-centered approach was comprehensive and helped the community beyond the narrow project objectives—a benefit in settlements with low levels of informal organization. However, this approach required a large field team at all stages of the project, making project costs substantially higher. Reaching group consensus was often slow. The project became more complex if it went beyond simple water and sanitation and involved the local government and other agencies. There is the risk that community priorities will go beyond what the project can finance. Another risk is that if the project was spread too thin, it would not achieve its fundamental goals.

Drawing up plans: Project engineers would undertake a reconnaissance survey of the topography of the *favelas*, and draw up a list of technical options that would deliver the desired services in an affordable, environmentally sound manner. While engineers presented the options at

community meetings, community specialists worked to facilitate the decisionmaking process. Once the community had settled on a plan, each household signed a letter of agreement (*termo de adesão*), promising to pay for the service and maintain the systems.

Constructing facilities: After the community picked its plan, the PROSANEAR team submitted the final proposal for CEF's approval. The construction firm was contracted and materials were purchased. Where communities chose to undertake the construction themselves, the PROSANEAR team provided technical assistance and supervised the work. Meanwhile, the engineers held operation and maintenance training sessions for selected community representatives. When construction was completed, the contractor conducted system testing for a brief period.

Operating and maintaining the systems: For six months after the systems became operational, the field teams remained in the area to reinforce hygiene education, review the general operation and maintenance of the constructed systems, and help the neighborhoods develop new ways to earn income (some became active artisans). For the long term, the project team trained selected residents to perform simple maintenance activities, such as unclogging pipes or repairing cracked pipes. In other areas the operation and maintenance duties were contracted out to private firms.

Monitoring and evaluation: Monitoring took place continuously during the projects at two levels: public evaluation—the community residents themselves systematically evaluated project performance with the help of a multidisciplinary project team; and technical evaluation—the project team evaluated the procedures followed, and verified whether the construction activities were in accordance with community wishes. PROSANEAR teams visited the project sites after a certain period of time (six months to one year), to verify that the systems were functioning. Many of the PROSANEAR teams hired independent consultants to carry out a participatory assessment to measure community satisfaction.

Cost-Effective Technology Options

The second key to PROSANEAR I's success—in combination with community participation—was low cost, appropriate technology. PROSANEAR engineers tapped a range of cost-effective water and sewerage innovations developed recently in Brazil. In water supply, for example, costs were kept down in some places simply by reducing the

per capita design allocation of water quantity from 150 liters per person per day to 120 liters. And there were significant variations in the sewage disposal systems, ranging from on-site systems such as absorption pit tanks (Campo Grande) to condominial sewerage (Fortaleza, Recife, Rio de Janeiro, and Angra dos Reis). Not only did the systems work, they cost far less than planned—below the investment ceilings established by the project—between US\$12 and US\$50 per capita for water supply and between US\$15 and US\$123 for sanitation.

Key Outcomes


PROSANEAR delivered the benefits of water and sanitation services to 1 million *favela* dwellers. It also delivered harder-to-measure benefits, such as a heightened sense of citizenship among residents, better relations between urban poor neighborhoods and local governments, and stronger communities and local leaders. In many ways, these water and sewerage projects were starting points for much broader individual and community development.

Access to water and sanitation services: PROSANEAR I brought water and sewerage connections to about 1 million people in 60 low-income settlements across 17 cities. PROSANEAR I connected more people than originally targeted¹⁹ because the project costs could be kept low due to the innovative use of cost-effective technologies. The application of creative technical designs helped push actual costs to US\$84 for water and US\$104 for sewerage as compared to the per capita investment ceilings of US\$98 and US\$140, respectively.

Box 7: Choosing Appropriate Strategies

PROSANEAR I did not have an overall cost recovery strategy. Instead, individual projects adopted appropriate strategies. In Rio de Janeiro, the team organized tours for communities to water treatment plants, making them aware that producing water costs money. Before the construction started, communities signed an agreement with the water company endorsing the water supply plans, and agreeing to pay for them. In Campo Grande and Ceará, the communities were given the choice to contribute their own labor in exchange for lower (or no) connection fees. In many cases, materials were provided by the water companies for which they collected monthly fees from the communities, in addition to monthly tariffs. Some communities collected money and bought the materials themselves. In such cases, water companies provided technical assistance, and taught the communities how to build the systems or bathrooms.

¹⁹The number of people obtaining water connections (900,000) was more than four times the original target of 200,000 people. The number of people obtaining sanitation services (1,000,000) was 43 percent more than the original estimate of 700,000.



The communities played a key role in keeping costs low; aware that they would be largely responsible for paying for the new systems, residents systematically chose the lowest-cost alternatives.

Women's empowerment:

Infrastructure improvements, particularly, benefited women. Having safe water piped directly into the house and sewage safely removed made it possible for women to spend more time on income-generating activities or leisure. Women were active in community meetings; they made decisions, and often led various community activities.

Improved environmental sanitation and hygiene:

PROSANEAR I communities reported a decline in the population of disease-spreading vectors such as mosquitoes, rats, cockroaches, and fleas. The hygiene education component of the projects improved people's hygiene standards and made them aware of the linkages between hygiene and health.

Community mobilization and organization:

PROSANEAR I teams worked with neighborhood groups and organized them in areas where they did not exist. These groups provided community members with a means of getting their ideas across to project teams, and vice versa. Informal groups often became stronger as a result of their involvement in project's outreach efforts, allowing them to evolve into proper civic organizations. There was a heightened sense of community identity; people who previously conceived their needs as individual problems learned that they could more effectively solve their problems as a community.

By paying for the services and by participating in all stages of planning, building, and operating the new systems—communities achieved a

strong sense of ownership that led to long-term care and maintenance of infrastructure. Beneficiaries interpreted PROSANEAR I as a signal that public institutions recognized and served them as citizens and consumers. Additionally, the initiative showed *favela* residents the importance of using their own initiative in demanding, designing, and managing their own services. Communities felt empowered to obtain further urban services such as street pavement, electricity, garbage collection, day care centers, and health posts from local, state, and national agencies.

Community enterprise: The associations created or strengthened by the project's participation process also played a role in helping the *favelas* find new ways to generate revenue. Many associations and women's groups that had worked on the water and sewerage projects went on to organize income-generating activities. Construction of the water and sanitation systems created temporary jobs for residents by involving them in building systems as a way of lowering investment costs. As a result, people gained a temporary additional revenue source, in some cases new skills, and a few permanent jobs in maintenance.

Housing upgradation: Once the water and sewerage systems were constructed, people used their own savings to improve their houses. They built individual bathrooms, installed kitchen sinks, replaced tin and wood panels with brick walls, and other home improvements.

More effective state water and construction companies: PROSANEAR I projects developed a whole new business area for Brazilian water companies: low-income settlements. The experience in PROSANEAR I made state water companies realize the benefits of combining community participation and

low-cost technology. They accepted that when fully informed and involved, poor people were willing to pay reasonable fees for water and sewerage services. PROSANEAR I also demonstrated that although low-cost systems require more on-site maintenance than conventional ones, they can be sustainable at an acceptable maintenance cost, provided the community shares the responsibility of basic on-site maintenance. Most water companies adopted the principles of PROSANEAR I as the best way to work in low-income areas. Construction firms also changed their approach on the basis of their work with PROSANEAR I projects. Most contractors hired community participation professionals on a permanent basis or worked closely with the community participation consultants.

Lessons Learned

PROSANEAR I's 'learn by doing' approach produced many innovative ideas and best practices, as well as a number of lessons. The main lessons were:

Community participation must start at the very beginning of project preparation: In the initial stages of PROSANEAR I, the community was consulted only after the technology was selected and the blueprints were drawn. This resulted in substantial delays and cost overruns as final project designs had to be reworked to fit the communities' real demand.

Cost recovery and subsidy rules must be set in a clear and transparent manner: Although PROSANEAR I promoted cost recovery through tariffs and connection fees, it did not indicate how much of the cost the communities should pay, and how much should be borne by water companies or local governments. Further, although water companies charged monthly tariffs

for the water and sewerage services, these weren't high enough to cover the real cost of building, operating, and maintaining the new systems. PROSANEAR I tariffs were often set lower than the subsidized tariff already charged to poor users of conventional water and sewerage systems. Since the previous tariff had been set too low, the subsequent PROSANEAR tariff was also too low for full cost recovery and sustainability of the new services. In these cases, three solutions were tried: cross subsidizing the PROSANEAR tariff from other customers; subsidizing directly from local governments; or thoroughly reviewing the existing tariff structure. The first two solutions were the most common, but these solutions in general lacked transparency. The third option was beyond the scope of the project, and rarely took place.

Formal, long-term arrangements for operating and maintaining the systems must be an integral part of the design:

Low-cost sanitation systems require more maintenance efforts than conventional systems, because they use smaller diameter pipes that are more shallowly laid. Communities need to share responsibility of maintaining the system on-site while local water companies or other agencies must carry out periodic maintenance work.

All feasible technical options and their costs must be discussed with the communities:

Many of the PROSANEAR I projects did not explain the whole range of technical options available to the communities. This happened in part because certain options were ruled out for technical reasons or because some of the options were still being developed and tested. And in some cases, maintenance arrangements were not explained to the communities. In other cases, the cost

implications for each of the options were not well explained and communities were often surprised by the amount they had to pay.

The projects should coordinate with the local government's urban development plan:

Many PROSANEAR I projects needed to work closely with local government institutions to be fully effective. Sewerage systems, for example, won't work for long unless local governments provide rainwater drainage and solid waste collection. Future PROSANEAR projects must systematically encourage this coordination from the beginning.

The local government must have a strong commitment to poverty alleviation and pro-poor service delivery:

Local governments played a key role in several stages of the PROSANEAR projects, from identifying communities, promoting the project, to mobilizing local government agencies. Thus, the local government's understanding of the project's basic concepts was important in gaining its support and making the project viable and more sustainable.

Scaling Up and Replication

Encouraged by PROSANEAR I's success, the World Bank in 2000 initiated another phase of PROSANEAR

through a second International Bank for Reconstruction and Development loan of US\$30.3 million. PROSANEAR II is a technical assistance project that builds on the lessons learned from the first phase, principally the preparation of participatory integrated water supply and sanitation engineering designs that contemplate complementary infrastructure interventions. The project is also supporting training and awareness-raising for municipal, beneficiary community, and federal stakeholders in the undertaking of these participatory designs, as well as analyses of best-practice approaches to rolling out water supply and sanitation and related services to slum communities, and the preparation of manuals consolidating these approaches. This ongoing project is expected to benefit low-income communities in 35 municipalities throughout the country.

PROSANEAR has also caught the attention of governments in other parts of the world, including in South Africa, Indonesia, Bolivia, and the Philippines. The challenge is to tailor the PROSANEAR approach to national and local conditions that may be very different from those in Brazil. In the Philippines, for example, it is still widely believed that existing storm water drainage systems alone can handle household sewage. Also, utility engineers there have had very little exposure to innovations around the world and are, therefore, reluctant to experiment with new technologies.

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CASE STUDY 4

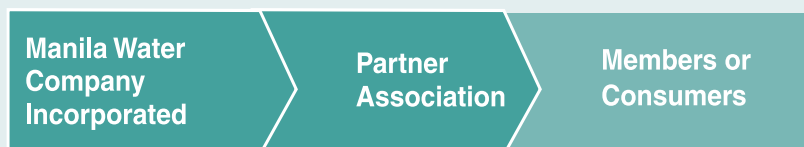
Manila, the Philippines Federation of Water Associations: Giving the Poor a Voice

Key Program and Initiative Highlights

To relieve Manggahan Floodway residents from the burden of buying costly water from vendors,²⁰ in 2001 various associations requested Manila Water Company Incorporated (MWCI) for piped water supply.²¹ Following a series of consultations between the association leaders and the water company, a system for water supply was developed, which involved the company selling water in bulk to the association. A mother or main meter was installed by the water company in every community. The partner

²⁰At the rate of 900 pesos a month for 6 m³.
²¹Average water bill: 100 pesos for 20 m³.

Figure 2: Flow of Benefits



association was responsible for administration of the local system, including construction of distribution network and connections, maintenance, billing, and collection. The partner association was also responsible for paying for the main meter. The cost for the main meter and the internal installation costs were passed on to the local consumers. This scheme was implemented in the west bank in 2002.

Soon after its implementation, a number of problems started surfacing, including (a) a conflict of interest as elected association officers became water administrators and their tenure become coterminous with the bulk selling scheme where there was no need for periodic elections; (b) water administrators started engaging in profiteering by placing unrealistically higher tariffs on consumers than the bulk tariff paid to the water company;



(c) the water administrators started using substandard materials and poor installation for water reticulation in order to cut costs; and (d) the vulnerabilities of the poorest among the poor were exposed as the residents who could not afford the high connection fee and tariffs were at the mercy of those better off.

In 2004, when it was time for the scheme to be extended to the east bank of the Floodway, several associations came forward and complained to the regulator—the Metropolitan Waterworks and Sewerage System (MWSS) Regulatory Office—that the services provided by the water company were not pro-poor. In December 2003, the entire East Manggahan Floodway decided to form a federation of associations that would cater to the best interests of the residents. Thus was formed the League of United People's Organization Network (LUPON), which consists of 21 registered associations²² comprising 8,814 households, that is, approximately 45,000 people.

LUPON decided to conduct an awareness program for the residents, to make them aware of different options for water supply systems (including bulk selling, public faucets, group taps, and individual taps) and to ascertain community perceptions on the appropriate scheme of distribution for their communities. The majority of the residents showed their willingness for

²² PFCI (437 households), Lakas ng Mahihirap (45 households), PUNAI (37 households), UNEFAI (900 households), KABISIG NAI Proper (1,260 households), KABISIG NAI Lower (400 households), PAPCI 1 (836 households), PAPCI 1 Lower (150 households), SITIO KABABAN (154 households), KAPIT-BISIG (600 households), GENESIS (1,122 households), DIMAGTA (168 households), Tanglawng Pangarap (50 households), KAMPI 1 (50 households), KAMPI 2 (50 households), APNEI Exodus (900 households), SAMAGTA (642 households), SAMASA (98 households), KAPIT-KAMAY (400 households), and KAABAY (50 households).

individual household connections. However, following dialog with MWSS Regulatory Office, the water company, and LUPON, it was decided that the water supply system would include bulk selling from the water company with street or cluster metering where each street or cluster has a street meter placed at either end (as opposed to the mother meter scheme in the west bank). The water company would read the consumption from the street meter, and divide it by the number of active connections to determine the charges for each household. The computation would be based on the approved tariff of MWSS. The water company supervised the installation of the reticulation system in the area, which resulted in standard installation throughout. Every street or cluster was to have a leader, chosen by the residents, who would serve as the point of contact between the water company and the residents. A water committee has been established for every street or block, headed by the street leader. This committee is responsible for meter reading, billing, collection, and payments, as well as repair and maintenance. The system provided for a staggered payment of connection fee ranging from 12 months to 36 months.

Key Outcomes and Limitations

Both schemes have ensured that the poor have access to a reliable and sustainable piped water supply system.

The process of forming community organizations (or associations), federating has provided strength to the voices of the poor and has ensured that they are able to negotiate proactively with the private utility for ensuring access to basic services.

LUPON is currently helping its members to get involved in other development initiatives. The poor in Manila have benefited from LUPON's actions—part of the impact has been that the MWSS Regulatory Office has issued *Policy Guidelines on Providing Water Services to Customers in Open Communities and Depressed Areas*.

While the bulk selling with street or cluster metering scheme, which was implemented in the east bank (guided by LUPON), was a marked improvement over the previous scheme implemented in the west bank, it still has some limitations, including the following:



Figure 3: Network Responsibility

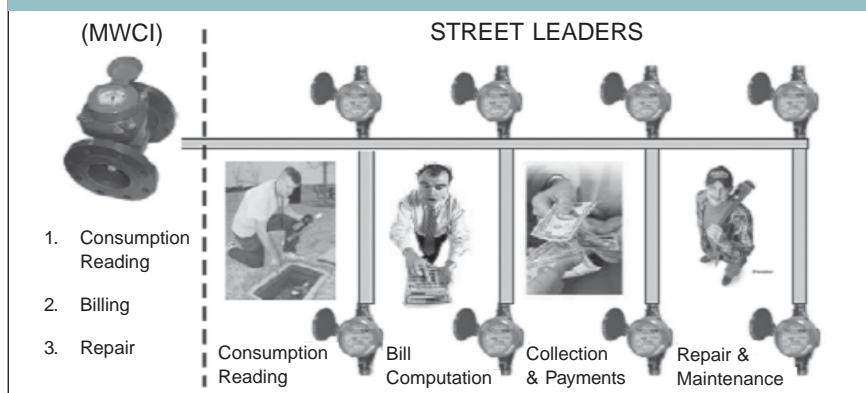


Table 3: Comparative Analysis of West and East Floodway Projects

	West Floodway	East Floodway (LUPON-guided)
Scheme	Large scale bulk selling; mother meter scheme.	Bulk selling with street or cluster metering.
Authority	The association officials were responsible for administering the water system. Officers were coterminous with the existence of bulk selling. There were no elections.	A leader chosen by the residents of a particular street or cluster to act as water administrator. The street or cluster leader becomes the link between the water company and the residents.
System	The entire association is connected through a mother meter. A scheme called 'socialized pricing' was used by the water company to determine consumption charges.	Each street or block has a street meter placed at either end. The water company reads the consumption from the street meter, and divides it according to the number of active connections to determine the charges for each household.
Tariff and computation	The tariff was determined by the association managing the water system. Associations started placing higher tariffs on consumers than the bulk tariff paid to the water company.	Computation is based on the approved tariff of Metropolitan Waterworks and Sewerage System Regulatory Office. Consumers are charged based on actual average residential consumption.
Physical connections, installation or distribution	The association is in charge of placing the reticulation system in the area. Resulted in substandard installation.	The water company supervised the installation of reticulation system in the area. Standard installation.
Administration (billing, collection, and payment)	The association handles the meter reading, billing, collection, and payments. It sometimes hires personnel to do the tasks, which adds up cost in operating expenses which, in turn, are passed on to consumers.	A water committee is established per street or block. This committee, headed by the street leader, is responsible for meter reading, billing, collection, and payments, as well as repair and maintenance.
Regulation	Unregulated tariff. Water administrators started engaging in profiteering by placing higher tariffs on consumers than the bulk tariff paid to the water company.	Regulated tariff. Street leaders convene first before adjusting tariff rates. An internal control is placed to safeguard both street or cluster leaders and customers. The League of United People's Organization Network ensures that checks and balances are observed for transparency and integrity of records.
Service connection and payment terms	Outright payment. No cash, no connection.	Staggered payment ranging from 12 months to 36 months.

- The bulk selling scheme through street management was good for associations that had less than 500 household members. For associations with more than 500 household members, there was a

high risk of mismanagement and conflict of interest.

- The street-managed scheme did not totally address the problem of mismanagement.

It only minimized the scope and effect.

- Many poor households who were not capable of paying the service connection fees were still left out.



- Households still insist on individual connections. The water company should shoulder the cost of connection and later assume recovery through increasing tariff rates. This will ensure more connections, and less risk from mismanagement since the payments go

directly to the Manila Water Company Inc.

- The private sector is interested in only making money, not assisting the urban poor get piped water. The Regulatory Office had to exert its muscle to change the way the company had decided to do business.

A major learning from this case has been that the investments (that is, time and resources) in alternative approaches for service delivery have resulted in better access to services for the poor and have also resulted in the water utility reaching customers who are ready to pay for the services provided.

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CASE STUDY 5

Karachi, Pakistan

Orangi Pilot Project: The Poor Invest in Their Future

Context and Background (Settlement, Urban Poor, and Access to Services)

Orangi, Karachi's²³ largest *katchi abadi* (squatter settlement) is situated in the Orangi hills, on the western periphery of the city. People began inhabiting this area in 1965, and after 1972 the settlement grew rapidly.

Orangi covers an area of approximately 8,000 acres and has a population of about 1.2 million living across 7,289 lanes spread over 113 smaller settlements.²⁴ The township was created through the illegal occupation and subdivision of state land.²⁵ The population is drawn from a wide range of immigrant groups from India and Bangladesh; and Punjab province and northern areas of Pakistan. Most find employment as laborers, skilled workers, artisans, shopkeepers or clerks; average earning per household is estimated to be PKR 1,650 (US\$21)²⁶ per month against an average

household income of PKR 2,100 (US\$26) in Karachi.

Government agencies or service providers have provided a few facilities including main roads, water lines, and electricity, along with schools and hospitals. Bucket latrines or soak pits were the main means of disposing of human excreta and open sewers were used for the disposal of wastewater. The streets were full of filth due to lack, or inadequate disposal, of waste. The result was poor health; typhoid, malaria, diarrhea, and dysentery were common among the local population. Poor sanitation and waste disposal systems reduced property values further. Although the residents were aware of the problems and knew the consequences of poor environmental sanitation on their health and property, they had limited capacity to take any action.

²³ Karachi is the capital of Pakistan; it is a port city and commercial center of Pakistan.

²⁴ Source: <http://www.opinstitutions.org/athespprogram.htm>

²⁵ Land is purchased from a middle man (the land supplier, a resourceful person having links with politicians, government departments, and the private operators) who subdivides government and some private land and sells it to the poor; in the process, paying bribes of cash and choice plots to the government functionaries. People build their houses incrementally, building component manufacturing yards in the settlement provide building materials and components on credit. Initially the land supplier arranges the supply of water (through water tankers) and transportation but as the settlement expanded, need for water supply, sewage disposal, schools, and clinics arose.

²⁶ US\$1 = PKR 78 (as of September 30, 2008). Conversion rates are from www.exchange-rates.org/history/PKR/USD/T; all conversions in the text are approximations.

Box 8: Citizens Tackle Their Problems

In Karachi, the capital of Pakistan, there is one low-income neighborhood, Orangi, where a group of citizens has been tackling the problem of sanitation and sewerage systems.

The Orangi Pilot Project programs have demonstrated that urban poor communities can finance and manage infrastructure facilities such as sanitation, sewerage, water supply, solid waste disposal, and so on. It has also reinforced the need for local governments to complement the peoples' work by providing the required infrastructure such as trunk sewers and treatment plants, water mains and water, colleges or universities, hospitals, main solid waste disposals, and landfill sites. The component-sharing concept clearly shows that where the government partners with the people, sustainable development can be managed through local resources.

can be integrated into the existing government planning mechanisms as the scale of the problem is too large to be tackled without effective government participation and to also ensure government accountability in service provision.

Since its inception, the OPP has either directly, or indirectly, assisted about 1 million people to upgrade their sanitation systems.

Since 1988, following the success of its models, the OPP has expanded into four autonomous institutions. The OPP Society is responsible for the allocation of funds to the three other institutions—

It was in this background that Aga Hasan Abidi, President, Bank of Commerce and Credit International Foundation, approached Dr. Akhtar Hameed Khan, the renowned Pakistani social scientist, to undertake a research project aimed at understanding and developing viable action plans for ameliorating the problems of Orangi. Thus was created the Orangi Pilot Project (OPP).

The OPP has been working in Orangi since 1980. During this time, it has developed programs in sanitation, health, housing technology, education, credit, and income generation. The OPP's objective is to analyze outstanding problems in urban poor settlements and then, through prolonged research, develop viable solutions. The OPP promotes community organization and cooperative action, and provides technical support; thus overcoming most of the constraints governments face in upgrading low-income settlements. The OPP operates from the premise that the role of nongovernmental organizations and pilot projects in slum upgradation programs is to develop strategies that

Box 9: Programs Implemented by the Orangi Pilot Project

The Orangi Pilot Project implements the following programs:

- A **low-cost sanitation program**, which enables low-income households to construct and maintain modern sanitation (pour-flush latrines in their own homes and underground sewerage pipelines in the lanes) with their own funds and under their own management.
- A **low-cost housing program** upgrades the *thalla* (block-makers yards) by introducing stronger machine-made concrete blocks, battens, and tile roofing, which is cheaper than reinforced concrete. The program also upgrades the skills of local masons by introducing proper construction techniques.
- A **health and family planning program** for illiterate or semi-literate low-income women.
- **Credit for small family enterprises.**
- A **school program**, which assists in the upgrading of physical and academic standards in private schools.
- A **women's work center program**, which organizes tailors and other garment workers into family units dealing directly with exports and wholesalers.
- A **rural development program**, which provides credit and technical guidelines to support entrepreneurs.

Orangi Pilot Project, OPP Research and Training Institute, and Orangi Charitable Trust. The Secretary of the Society is Dr. Akhtar Hameed Khan, the founder of the OPP. There are three implementing institutions, each with an independent board: the Orangi Pilot Project Research and Training Institute that manages sanitation, housing, and social forestry programs in Orangi and the replication and associated training for all its programs; the Orangi Charitable Trust that manages the credit programs; and Karachi Health and Social Development Association that manages the health program.

The Karachi Water and Sewerage Board (KWSB) is the government agency responsible for sewerage or water infrastructure development and maintenance in the city. However, it is able to cater to only 30 percent of the city; the rest is taken care of by other government agencies and communities.²⁷

Key Program and Initiative Highlights

A Low-Cost Sanitation Program

In response to the sanitation and sewerage crisis, a local foundation—the Bank of Commerce and Credit International—set up the OPP. The first priority of Orangi residents was the development of an underground sewerage system. However, they felt that this was the responsibility of the urban local bodies (ULBs) and should be provided free of cost. The communities were informed about lack

of funds and capacity of local bodies to undertake the required infrastructure development work. International loans were available to finance the '*Katchi Abadi* Improvement and Regularization Program', where the cost was to be recovered from consumers through lease and development charges.

The cost of such a system was estimated to be 25 times the actual cost of labor and materials due to high overheads. The OPP researchers rejected solutions based on foreign aid, as local residents could not afford to repay the large costs involved.

Research also showed that recovery of money from the poor for development projects had been very poor in the past. But an underground sanitation system was devised, requiring only labor and material cost to be paid for by Orangi squatters themselves, if they were involved.

Initial inquiries showed that residents were aware not only of the sanitation and drainage problems, but their consequences on health and property as well. However, they were unable to take any action due to four barriers:

- **Psychological barriers:** Residents believed that it was the responsibility of government agencies to build sewerage lines and to provide these free of charge.
- **Economic barriers:** Households could not afford the cost of conventional sanitary latrines and underground sewerage.
- **Technical barriers:** Although the people could build their own houses, neither they nor the local builders possessed the technical

Box 10: Two Levels of a Modern Sanitation System

1. Internal development, which comprises:
 - Inside the house—sanitary latrine.
 - In the lane—underground sewerage line.
 - Secondary or collector sewerage.
2. External development comprising trunk sewer or natural *nala* (open drain) development, and treatment plant. This remains the responsibility of the government.

skills required for the construction of underground sewerage lines.

- **Sociological barriers:** The construction of the underground lines required a high level of community organization for collective action, which did not exist.

The program strategy involved systematically overcoming these barriers.

An analysis of the sanitation problem resulted in the identification of four levels of infrastructure—inside the house, in the lane, secondary or collector drains, and the main drains and treatment plant. The house owners were willing to take responsibility for the infrastructure inside the house, in the lane, and for the secondary or collector drains, but were not prepared to be responsible for the main drains and treatment plant, which they wanted the local government to shoulder.

²⁷ Source: <http://www.oppinstitutions.org/revolutionofsp.htm>

The OPP developed a low-cost sanitation program, which enabled low-income households in Orangi to construct and maintain modern sanitation, such as pour-flush latrines in their own homes and underground sewerage pipelines in the lanes, with their own funds and under their own management. The OPP simplified sanitation designs to make them affordable and technically viable so that they could be implemented locally. Research into an affordable system took about a year. Through simplifying design and developing steel molds for sanitary latrines and manholes, the cost was reduced to one-quarter that of contractor rates. The elimination of contractor's profiteering reduced labor rates by a further one-quarter. The cost of the final proposed system was approximately PKR 1,000 (US\$13), of which about 50 percent was the investment required inside

the house and the remainder for the lane sanitation.

Once the economic barrier had been overcome, OPP social organizers began talking to households to convince them to stop believing in government provision of services. Once households realized that they could address both their health problems and low value of property for such a small investment, the psychological barrier was also overcome.

The next step was the creation of community organizations. A lane, which in Orangi consists of 20 to 30 houses, was made the unit of organization. The OPP social organizers developed lane organizations, explaining the program to the people. Each lane then chose its own lane manager, who formally applied to the OPP for assistance. Following that, the OPP surveyed the

lane, prepared plans and estimates and handed this data to the lane manager, who then collected money from the people. He was also responsible for resolving disputes and supervising construction work. From the outset, while OPP staff assisted with technical advice and support to social organization processes, only those living in the lane were responsible for managing the finances and overseeing the work on the lane sanitation.

Shortly after the work started, the OPP's area of operation was reduced to half of Orangi and, from 1982 to 1989, the program worked in this small area. After 1989, it was allowed to operate throughout the settlement. By 1993, nearly 97 percent of the lanes in the area in which they had been active since 1982 had installed lane sanitation (3,285 lanes in all). In the area in which they had begun working since 1989, there was lane sanitation in 1,689 lanes, or 57 percent of the total number of lanes in this area.

Between July 1981 and November 1993, approximately PKR 57.2 million (US\$700,00) had been invested by local residents on improved sanitation and drainage. During the same period, the OPP had spent approximately PKR 3.8 million (US\$48,000) on research and extension, equal to about 7 percent of the total amount invested by residents.

Since 1983, community organizations, activists, and NGOs from other squatter and informal settlements in Karachi and other cities of Pakistan have sought the OPP for help in replicating its low-cost sanitation program. Since 1986, government and international agencies have also tried to replicate the OPP



experience by integrating it into their planning processes. To respond to this demand, the OPP converted these programs into a Research and Training Institute for the development of squatter settlements. The Institute is currently assisting initiatives in a number of other areas in Pakistan that are seeking to replicate the Orangi low-cost sanitation program.

Key Outcomes

The Orangi Project has been a great success because the sanitation system now reaches more than 90 percent of Orangi residents. The key outcomes of the initiative have been:

- Improved sanitation for approximately 900,000 people and 94,122 houses on a self-help basis.
- Average cost of sewerage system laid down through community participation is low cost, amounting to approximately PKR 1,000 (US\$13) per household.
- The residents of Orangi laid 1.3 million feet of sewer line and invested about PKR 57.2 million (US\$700,000) in the low-cost sanitation program. If the state had done this, it would have cost over US\$10 million.
- Orangi residents maintain the sewerage system themselves at no cost to the government.
- The initiative has resulted in improved environmental sanitation and reduction in diseases. A survey by the Aga Khan Medical University shows that health conditions in Orangi have improved immensely and real estate prices have shot up.

Lessons Learned

The OPP has emerged as a viable low-cost sanitation system propelled by community financing and community involvement in construction and management. It helped the people of Orangi organize themselves, and learn about mixing and curing of concrete and about the proper manner of making inverts.

Thus, OPP reduced costs substantially and resulted in major technical innovations. The high overheads, excessive profiteering, and kickbacks to government officials in conventional public projects make them unaffordable for the poor. The OPP sanitation program is affordable for low-income households as they have to pay the cost of labor and materials only. Labor costs come down further if they contribute their labor during construction. Since people organize themselves and collect money first, the problem of loan recovery is avoided. The success of OPP has proved that the concept of development through community

participation is the only viable option for low-income communities.

The intensive training of masons in the technology of sanitary engineering and the widespread training of lane managers has resulted in an increased level of skill and a reduced dependence on the OPP for social and technical guidance. Residents are increasingly willing to take on the costs and organizational challenge of secondary drains.

However, there are problems; drains are silting up and prone to flooding after rain. Untreated sewerage is drained into the sea, not only from Orangi but all of Karachi. The OPP has now developed designs for trunk sewers and is lobbying with the Karachi Municipal Corporation to get them implemented. The residents of Orangi cannot possibly develop trunk sewers and treatment plants. A limitation of this approach has been the inability to construct external or off-site infrastructure to integrate informal settlements into city-level networks.

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CASE STUDY 6

Kalyani Municipality,
Kolkata Metropolitan Area, India

Kalyani: No Subsidy Sanitation Leads to Open-Defecation-Free Slums

Context and Background (City, Urban Poor, and Service Provider)

Kalyani, a municipality located at the northern tip of the Kolkata Metropolitan Area (KMA), has a population of approximately 100,000.²⁸ It is estimated that 40 percent²⁹ of the city's population lives in slums. The city's 52 slums are located mostly on government land with limited access to basic services and facilities.

²⁸ The city had a population of 82,000 as per the 2001 Census.

²⁹ Approximately 11,000 households; a majority of the slum dwellers are refugees from Bangladesh.

The Kalyani Municipality is responsible for the provision of civic amenities and facilities in the city. The municipality covers an area of 219 square kilometers, which it manages through 14 administrative wards.

The Kolkata Urban Services for the Poor (KUSP), an innovative program aimed at improving the quality of life of the urban poor, has been in operation in the KMA since 2004. Funded by the Department for International Development (DfID), the KUSP aims at facilitating pro-poor urban development by encouraging reforms and capacity building in urban local bodies (ULBs) and development of infrastructure at the community, town and inter-municipal level. The initiative covers all 40 ULBs in the KMA (except the Kolkata Municipal Corporation).

Through this eight-year program (2003–11), approximately £102.1 million has been made available for slum improvement and development in the area.

The program is being implemented by the Municipal Affairs Department, Government of West Bengal, with the strategic overview of the Kolkata Metropolitan Planning Committee.

Other stakeholders include State Urban Development Agency, Director of Local Bodies, Municipal Engineering Directorate, and Institute of Local Government and Urban Studies. A separate organizational entity known as the Change Management Unit has been set up under the Municipal Affairs Department to oversee program implementation.



Key Program and Initiative Highlights

Since the early 2000s, approximately Rs 4 crore (US\$800,000) was spent under various programs for providing sanitation facilities in Kalyani slums. Unfortunately, these programs had limited impact as the project design and construction phase largely excluded the target communities. Many of the toilets that were constructed were being used as storehouses. Slum families, especially men, continued to defecate in the open. Simultaneously, the KUSP program continued to search for solutions to address inadequate sanitation and poor hygiene practices. It was in this background that a need was felt for devising a new approach to address the sanitation, health, and hygiene needs of urban poor communities in Kalyani.

Kalyani was selected for a pilot initiative for community-led health and sanitation. The municipality took on board experts to develop a comprehensive sanitation program focusing on health and hygiene promotion along with creation of sanitation hardware. These included Kamal Kar, a consultant who had been involved in similar community-led sanitation initiatives, and Dr. Goswami, health and community mobilization specialist, KUSP. Dr. Shantanu Jha, chairman, Kalyani Municipality, spearheaded the brainstorming and planning sessions and the Community-Led Total Sanitation (CLTS) program was conceived.

Program Objectives

The CLTS program was aimed at helping slum communities to access

adequate sanitation facilities. Developing a sanitation solution through community participation was conceived as the first activity. The program was initiated in February 2006 and its primary objective was to put an end to open defecation and improve health status in slums by facilitating slum households to construct toilets within their dwelling unit. Though there were funds available through the DfID-sponsored KUSP for toilet construction, the municipality unanimously decided not to use these funds but to mobilize the community's financial resources for building toilets. This decision by the municipality's management was based on an understanding that when sanitation hardware (toilets, sewerage infrastructure) is provided without adequate community involvement in planning and financing, open defecation persists. The need for awareness generation on the impact of improved sanitation on health, hygiene, and livelihoods for creating open-defecation-free (ODF) communities was also recognized. While there was no subsidy available for sanitation infrastructure (that is, the cost of toilet construction was borne by the household), once the slum was certified open-defecation-free it became eligible for grant assistance for other community development works (for example, solar-powered street lighting, roads, and so on).

While the program was to cover all slums in Kalyani, their prioritization for inclusion in the program was done by the municipality. The work in the community was initiated with a community mobilization drive to spread awareness about the program. This was followed by awareness sessions facilitated by municipal health experts.

The aim of the awareness sessions was to highlight the direct and indirect impact of improved sanitation on health, livelihoods, and overall quality of life. While the community was given the right to decide how the toilets would be built, there were three overriding criteria—feces should not be seen, there should be no foul smell coming from the toilet, and no animals or pests should be able to reach the feces. Community participation in toilet design and construction stage was achieved by developing natural leaders from within the slum communities who were leading the community engagement processes.

To bring down the cost of toilet construction, the municipality bought 500 squatter pans from Pune at the rate of Rs 150 (US\$3.2) each. However, it was found that most slum households wanted better quality toilets and some even purchased costly ceramic pans priced at approximately Rs 4,000 (US\$87). In general, households spent between Rs 250 (US\$5) to Rs 5,000 (US\$109) on toilet construction. The poorest of the poor also paid for toilet construction and only a very few (three or four families) received financial assistance. This highlighted that urban poor communities are willing to pay for improved sanitation once they are aware of the long-term savings on health and the potential of earning more due to lesser man-days lost due to illness.

Program Strategies

Awareness on health impacts of improved sanitation: The municipal council's health officer and the natural leaders within the communities were entrusted with the role of generating

awareness among communities about the direct and indirect benefits of improved sanitation. The awareness sessions highlighted that individual toilets would translate into reduced expenditure on health, better health status, and higher potential for earning more due to lesser man-days lost. The willingness of households to pay for improved sanitation facilities increased following awareness sessions.

Community participation: CLTS rests on the foundation of 'natural leaders' that emerged from within the community. The municipal health officer, councilors, and Community Development Society leaders were instrumental in identifying 'natural leaders'. Once the 'natural leaders' emerged, they took the lead role in galvanizing the community, triggering off the action within the community, and enabling engagement in design and planning sessions. These 'natural leaders' became the focal point of the community mobilization effort.

Creating incentives for ODF slums:

The municipality's chairman has institutionalized a system for recognizing and rewarding all wards that achieve ODF status. A chart showing all municipal wards along with photographs of their municipal councilors, and cards denoting their status with respect to achieving ODF status, is displayed in the municipality's board room. A green card means all slums in that ward are ODF, a yellow card means some slums are free from open defecation, and a red card means no slums are ODF. This reward and recognition system was put in place to create incentives for ODF slums.

Program Evolution—From Pilot to Citywide Plans

The municipality introduced CLTS as a pilot project covering five selected slums. The pilot phase of the project was initiated in February 2006 and lasted one year. The first slums



targeted were Bidyasagar Colony and Bhutte Bazaar. The first attempt to cover Bhutte Bazaar failed as some local leaders instigated community members not to participate in the CLTS program, citing the existence of other subsidy-based schemes for provision of sanitation. The first slum to be declared ODF was Bidyasagar Colony and it qualified for other community development assistance after achieving this status. The slum was provided with two solar lamps for street lighting. At present, of the 52 slums in the city, 44 have been declared ODF where communities have stopped open defecation after constructing their own toilets. By the middle of 2008, all slums in Kalyani had been covered by this scheme.

As a result of this program, Kalyani has been awarded the Environment Excellence award and 'Clean and Attractive City' award for the last two years consecutively.

There exists great potential for scaling up this approach in other municipalities through the Government of India's Jawaharlal Nehru National Urban Renewal Mission³⁰ subprogram on Basic Services for the Urban Poor.

Other Consumer-Friendly Initiatives of the Municipality

The municipality has also introduced several reforms and consumer-friendly initiatives in the last decade, including:

- Modernizing ward offices to serve as a one-point contact for

customers for seeking information on services, grievance redressal, payment of taxes, and user charges. Recently, a kiosk with a touchscreen computer has been installed for the convenience of consumers.

- Preparing a citizen's charter articulating the standards for service provision and redressal of grievances.
- Introducing a phone-in grievance redressal system.
- Establishing partnerships with NGOs and civil society organizations (CSOs) to address the needs of urban poor communities and citywide environmental issues.
- Ensuring greater transparency of municipal activities through the publication of a quarterly newsletter, which has an approximate circulation of 10,000 households. The municipality's discussions and decisionmaking processes are also filmed to guarantee transparency.

Key Outcomes

How the poor benefited: The CLTS program has resulted in 44 slums being declared ODF, and all slum households in Kalyani now have access to individual sanitation facilities.

The program has also resulted in several health benefits, including a reduction in the incidence of water-borne diseases, reduction in the number of cases of gastroenteritis, stomach ailments, and worm infestations, along with a control in the spread of polio.

Other benefits have been improved hygiene practices among target communities; improved environmental sanitation situation in slums, increased earnings due to lesser man-days lost due to illness, and improved quality of life.

The initiative has served as a starting point for greater community-led activities. The program has resulted in communities becoming empowered and confident to take the initiative in solving their own problems. CLTS proved an effective entry point activity whereby the slum communities were motivated to analyze existing sanitation practices using participatory tools and techniques.

The poor in the slums have progressed from the initial activity and are taking more interest and initiative in improving their living environment.

Lessons Learned

Enabling Factors

- The donor-funded KUSP, aimed at improving the quality of life of the urban poor in the metropolitan area, had limited success with subsidy-based sanitation and looked for other alternatives. Other programs aimed at providing sanitation facilities to poor communities in Kalyani failed to have much of an impact. This triggered the need for developing a new approach to address the sanitation needs of urban poor communities.
- The presence of a champion in the form of the municipal chairman. The chairman, who has held this position for the last 11 years, has been instrumental in introducing

³⁰ The Jawaharlal Nehru Urban Renewal Mission (JNNURM), Govt's flagship program for urban development, is aimed at encouraging reforms at the level of urban local bodies (ULBs), parastatal agencies, and the state government. The thrust of the mission is on fast track planned development of the identified 63 cities and for ensuring improvement in urban governance and service delivery so that ULBs become financially sound and sustainable for undertaking development initiatives.

Box 11: Achieving Open-Defecation-Free Status

Bidyasagar Colony slum was the first slum to be covered by the Community-Led Total Sanitation program. Of 213 households, only 13 had access to toilets. The majority of the families were living below the poverty line even when both parents were working. Community representatives used poems and songs to motivate and inspire families to work towards improved sanitation and hygiene. A map of the slum was drawn and put on display to show households with and without their own toilets. Following the Community-Led Total Sanitation program, all families have individual toilets. On an average, each family spent between Rs 250 (US\$5) to Rs 4,000 (US\$87) on toilet construction. The time frame to becoming open-defecation-free was just four months—this was successfully achieved due to significant peer pressure and heightened awareness among families about the benefits of improved sanitation. A reward for achieving open-defecation-free status was the installation of solar-powered street lighting in the settlement.

reforms aimed at good governance, and policies and programs aimed at ensuring service delivery to urban poor communities.

Constraints

- The main constraint to community investment in infrastructure is the lack of security of land tenure and fear of eviction.
- The presence of subsidy- or grant-based sanitation programs undermines the community-financed CLTS program.

Learning from the Project

- Community financing for creation of sanitation hardware is a viable option for creating ODF communities and cities.
- The poor are willing to pay for improved sanitation services. In Kalyani, slum families have

invested between Rs 250 (US\$5) to Rs 5,000 (US\$109) for toilet construction.

- A program aimed at improving access of urban poor communities to sanitation must, along with creation of sanitation hardware (toilets, sewerage), have adequate

inputs for generating awareness on the benefits of improved sanitation and hygiene on health.

- In order to proactively involve key stakeholders such as municipal councilors, innovative schemes of recognition or rewards can be institutionalized as incentives for facilitating ODF communities.

The card system developed by the municipal chairman in Kalyani, for instance, has been effective in creating incentives for ward councilors to create ODF communities.

- Service delivery reform at the level of the service provider or municipality can ensure improved service delivery for the urban poor.
- Once the community recognizes its capacity to solve its own health problems, people become motivated and empowered to take initiatives to improve their health, hygiene, and livelihood conditions. It also has increased ability and readiness to communicate with government agencies and service providers.

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GRAMALAYA - WATER A



CASE STUDY 7

Tiruchirapalli, India

Community-Managed Toilets: Solving Sanitation Problems of Urban Poor Communities

Context and Background (City and Service Provider)

Tiruchirapalli, popularly known as Trichy, is the second-largest city in Tamil Nadu (a state in southern India), after Chennai. As per the 2001 Census, the city's population is 752,000. The Tiruchirapalli City Corporation (TCC) estimates that the city has 286 slums (211 recognized or approved, and

75 unapproved) in which reside approximately 162,000 people, accounting for 22 percent of the city's population. Like other urban local governments, the Municipal Corporation provides basic services only to recognized slums and leaves the unapproved slums outside its service coverage. It is estimated that approximately 92 percent of the recognized slums have access to the water supply by the Municipal Corporation, through household connections or standposts. A majority of the slum communities lack sanitation facilities and people are forced to defecate in the open.

Community toilets: The city has 359 community toilet units with 3,146 seats.³¹ While 20 of these are public toilets located in commercial areas, the rest are located in or around slum communities. All the public toilets are pay and use in nature and are being managed by the Municipal Corporation or private sector.

Most community toilets have been constructed by the Municipal Corporation. All community toilets were previously managed by the Municipal Corporation, but in recent years the local government has been handing

³¹ TCC, 2006.

Table 4: Comparative Analysis

	Pay and use	Free	Total
Public	20 (12 managed by the private sector, eight by the Tiruchirapalli City Corporation)	0	20
Community	167 (community managed)	172 (managed by the Tiruchirapalli City Corporation)	339
Total	187	172	359

over the management of toilets to communities either directly or with support from nongovernmental organizations. At present, 167 community toilets are managed by communities and 172 by the Municipal Corporation. While the community-managed toilets are pay and use, the Municipal Corporation-managed ones are free. The Municipal Corporation plans to hand over more toilets to communities for management.

Box 12: Integrated Sanitary Complexes

The Tiruchirapalli City Corporation has 66 integrated sanitary complexes, with separate toilet seats for men, women, and children, and facilities for bathing and washing clothes. These have been constructed under the World Bank-supported Tamil Nadu Urban Development Program 2. The first such complex was constructed in Rajiv Gandhi Nagar, Tiruchirapalli, in June 2001. The Corporation plans to construct more integrated sanitary complexes under the forthcoming Tamil Nadu Urban Development Program 3. The management of all such complexes has been handed over to nongovernmental organizations and communities.

Key Program Details and Highlights

Trigger for the Initiative

Until 2000, all community toilets were managed by the Municipal Corporation. Due to poor maintenance, most toilets were dilapidated and defunct. In 2000, a group of NGOs, supported by WaterAid, began working with communities to renovate and take over the management of these toilets. Following the success of this initiative, the Municipal Corporation began handing over responsibility of toilet management to communities, directly or through NGOs. At present, around half of the community toilets in the city are being managed by communities.

Community Toilets' Management Models

There are three management models of community toilets in the city, including management by (a) the TCC; (b) Sanitation and Hygiene Education (SHE) teams supported by Women's Action for Village Empowerment (WAVE) and the NGO Gramalaya; and (c) Self-help groups and individuals (with the support of NGOs).

The Municipal Corporation has been supportive of the concept of community-managed toilets for three main reasons:

- To improve the management of community toilets and provide better service.
- To reduce costs: Municipal Corporation staff was previously required to clean the toilets. Toilets were, however, free to use and hence made a loss.
- To provide services with less Municipal Corporation staff: A ban has been introduced on recruiting more sanitary workers by the state.

Community-Managed Toilet Model (Supported by WAVE and Gramalaya)

Gramalaya supports communities to renovate and take over management of community toilets.³² In a few cases Gramalaya has also supported communities to build eight completely new toilets. These toilets have been built on sites of abandoned toilets and have separate facilities for men and women, are children- and disabled-friendly and have facilities for hygienic disposal of menstruation clothes.

Gramalaya begins by establishing self-help groups in a community, usually two to seven groups with 15 to 20 members each. All the group members are also members of a SHE team, of whom two are chosen as team leaders who operate the bank account jointly and represent the team

³² Till 2006, Gramalaya has supported 41 community toilet complexes and supported another 75 in the fiscal year 2006-07.

**Box 13: Community Toilet Model
(Managed by Tiruchirapalli City Corporation)**

The Tiruchirapalli City Corporation still manages 172 community toilets without community involvement. These toilets are free to use. The entire operation and maintenance cost—staff salaries, cleaning costs and electricity bills—is borne by the Corporation. A sanitary worker (Corporation staff), is assigned to clean the toilet twice a day. The Corporation spends about Rs 0.95 million (US\$20,000) every year on cleaning materials. Each toilet is provided with a borewell, fitted with a pump, which is operated either by the TCC sanitary worker or a nearby resident. The ward councilor keeps a close watch on the working of these units and attends to major problems and requests support from the Corporation, whenever needed.

**Box 14: Community Toilet Model
(Managed by Communities outside the
Women's Action for Village Empowerment Federation)**

The Tiruchirapalli City Corporation has handed over the management of 126 community toilets to communities not yet part of the Women's Action for Village Empowerment federation by giving responsibility to a nongovernmental organization, a self-help group or an individual. These toilets are run on a pay and use system, although the token system is not followed and records of accounts are not maintained, which often leads to community disputes. The user fee is the same as that in Gramalaya-supported toilets, although users often do not pay. In many cases, NGOs are inexperienced and are unable to play an active role in supporting communities to manage the toilets and promoting health improvements. The appointment of caretakers by local politicians has been reported as a major barrier to real community management.

at the WAVE federation. On an average, half the households in a community are members of self-help groups; half the community is hence directly involved in the management of the toilet. Each self-help team takes responsibility for managing the toilet for a month on a rotation basis. During that month, each member of the group acts as caretaker for a day, responsible for collecting user fees and maintaining the accounts

book. Most SHE teams employ two cleaners (a woman for cleaning the women's seats and a man for men's seats) and a watchwoman for protecting the facility and operating the water pump. Each self-help group managing the toilet deposits the income of the month in the bank account and hands it over to the next group meeting. In the monthly SHE team meetings, various self-help

**Box 15: Gramalaya:
Working for Poor People**

Gramalaya was established in 1987 by a group of committed youth working in the field of rural development. The original goal of Gramalaya was to work for the amelioration of socially downtrodden people under an integrated rural development approach. Since 1987, Gramalaya has been operating various rural development programs. In 1999, Gramalaya extended its area of operation to slum communities of the Tiruchirapalli City Corporation.

Health and hygiene education, the promotion of self-help groups among rural and urban women, as well as construction of low-cost housing and toilets are the prime activities of Gramalaya.

groups present details of income and expenditure during the previous month, and members discuss management issues. When there is a major expenditure and the SHE team does not have adequate reserves, it takes a loan from the WAVE federation. The surplus funds are used for health- or sanitation-related activities in the community.

The SHE team is responsible for fixing user fees. In most toilets these are set at, for adults, Re 0.50 (US\$0.01) for defecation and Rs 2 to 3 (US\$0.04–0.06) for bathing and clothes' washing.

Box 16: WAVE: Managing Community Toilets

WAVE (Women's Action for Village Empowerment) is a federation of the 53 Sanitation and Hygiene Education (SHE) teams in Tiruchirapalli. The federation is headed by a president, who is assisted by a secretary and treasurer; there are 12 executive committee members. WAVE meets twice a month and discusses matters relating to problems faced by SHE teams and their solutions. WAVE guides these teams in the maintenance of community toilets and assists other self-help groups to take over toilet maintenance of community toilets.

Urination and use by children, elderly, and single women is free. In some toilets where the community is reluctant to pay for each use, a monthly card system is followed and the rates set at lower levels—between Rs 15 (US\$0.32) to Rs 30 (US\$0.65) per family per month. Charges for toilet use of Rs 30 (US\$0.65) to Rs 60 (US\$1.30) per month constitute between 1–4 percent of the average household monthly income³³ and communities found them affordable.

Box 17: Technical Innovations: Community Toilet with Decentralized Wastewater Treatment

The Decentralized Wastewater Treatment System (DEWATS) is an innovative technological option for the treatment of sewage in areas where there are no treatment systems or underground drainage. DEWATS is an on-site wastewater treatment system that requires low organization, is environment friendly, and has low maintenance cost (it works on the principle of gravity flow and thus there are no electricity costs).

BORDA, a Germany-based organization, has partnered with a nongovernmental organization, Exnora International, for setting up the first DEWATS-linked community toilet in East Devadanam, Tiruchirapalli. The DEWATS module includes a biogas digester and anaerobic baffle reactor, which act as the primary treatment system, followed by an aerobic planted gravel filter and collection tank, which acts as the secondary treatment system. The wastewater from the men's and women's toilet flows into the biogas settler through underground pipelines. The primary treatment system is treated with cow dung slurry for micro-organisms during the commissioning of the plant. The gas production takes place after a digestion period of 30 to 90 days. The biogas is used in the community canteen. The digested slurry along with the sludge flows into the anaerobic baffle reactor where the sludge settles down due to gravitational flow in a series of chambers. The clarified wastewater is further treated in the planted gravel filter, where plants such as *Cana Indica* and common reeds absorb the nutrients present in the wastewater and the aerobic bacterial inoculums present in the planted gravel filter bed further digests the sludge, if any. The wastewater produced is clear with no odor and can be let out into any water body. The treated water has a biochemical oxygen demand value of less than 30 mg/liter, which is the standard set by the Bureau of Indian Standards for safe discharge of wastewater into any water body.

In East Devadanam, the DEWATS is designed to treat 9 cubic meters of wastewater per day and the gas produced from the biogas digester is utilized for the lighting of the child-friendly toilet and for cooking and heating purposes. The treated wastewater is used for irrigation in the nearby organic vegetable garden maintained by various self-help groups that is a source of income for these groups. The entire operation and maintenance is carried out by the Sanitation and Hygiene Education team.

³³ Ranging between Rs 1,500–3,000 (US\$32–64).

Key Outcomes

The community-managed toilet model demonstrates how urban poor communities can be made open-defecation-free (ODF). From the Municipal Corporation's perspective, one of the major benefits has been a reduction in costs earlier incurred paying for salaries, electricity, and cleaning materials.

For slum communities, the primary benefit of community-managed toilet complexes has been access to clean and safe sanitation facilities that has also ensured a clean living environment. A proud sense of cleanliness and well-being is commonly observed among communities. Access to clean toilets has resulted in a decrease of water-borne and water-washed diseases. A study conducted by WaterAid³⁴ in 2001, covering eight communities, found that the incidence of diarrhea had reduced from 73 to 10 percent and other diseases such as malaria, typhoid, skin, and worm infections had also significantly reduced. The study also showed an 88 percent reduction in household medical expenditure.

For the women of these communities the process has been empowering. Women have been transformed from homemakers to change agents. They are using their newfound self-confidence, leadership skills, and access to government machinery to address issues beyond sanitation for larger community development. Women are managing the finances of the toilet complexes along with credit not just for family but also for

community needs. Women now know how to maintain accounts, records, and operate a bank account. They negotiate with bank managers and develop proposals for their entrepreneurial plans. Community-managed toilets have created employment opportunities for self-help group members as caretakers and for community members as cleaners, night guards, and sweepers.

Lessons Learned and Challenges

The community-managed toilet model in Tiruchirapalli has shown that achieving ODF status, or clean and healthy slums, does not require huge financial investment. What it does require is a local government sensitive to the problems of slum communities and supportive of community action.

It has been proved that communities can manage their own toilet units and when they do this, the toilets are much cleaner. It has shown that managing toilets leads to women's empowerment with many positive impacts in terms of personal and community development. This experience shows that after initial reluctance, communities do pay for using toilets, bathing, and washing facilities.

The financial sustainability of community toilets is dependent upon the number of users and smaller toilets do require support for them to be financially viable. Community management of toilets saves Municipal Corporation money, and the public benefits resulting from ODF communities make a strong case for the Municipal Corporation to financially support these initiatives. Further, ensuring sufficient and affordable water



³⁴ Source: WaterAid and Gramalaya, 2001.



supply, wastewater, sewage, and solid waste management in all community toilets is a concrete step that city authorities need to take to maintain hygiene standards and financial viability.

Why is community participation and management a better option than contracting out of urban social infrastructure?

- Community participation alone can guarantee low-cost, well-designed, and user-friendly urban slum infrastructure.
- Community management alone can sustain capital infrastructure through timely operations and management, by relying on members and users as participants in this effort and not simply as clients for a business opportunity. Institutionalizing community participation requires the support and involvement of local NGOs and the federation of individual slums' managers into a citywide federation to become effective and engage with the municipality or utilities as equals.
- Community-managed infrastructure can provide not only sanitation facilities but can also be upgraded for bathing and washing facilities at affordable costs for the poorest urban slum dwellers.

The community-managed toilets supported by Gramalaya in Tiruchirapalli have been operational for six years now. All are in use, many are well managed and communities are being declared ODF. However, a number of challenges are emerging both to the sustainability of the toilets and to further scaling up of this approach throughout the city.

Political Challenges

- Political interference in appointment of caretakers in Municipal Corporation-managed community toilets.
- Local politicians pressurizing Municipal Corporation officers not to transfer free to use toilets to pay and use community-managed toilets.
- Providing sanitation services to people living in unapproved slum communities.

Administrative Challenges

- Delays in the Municipal Corporation's decisionmaking process and frequent change of officials.
- Inadequate processes for the Municipal Corporation to monitor the growing number of community-managed toilet complexes.

Technological Challenges

- Introducing innovative and energy-efficient technology in community-managed toilet complexes to save costs.
- Managing sewage and improving the open drainage system throughout the city to maximize health outcomes.
- Shifting of focus from open-defecation-free areas to totally sanitized areas, which would involve tackling problems of solid waste management and wastewater.

Managing resistance from sweeper communities, whose livelihood opportunities are being threatened by community-managed complexes.



Financial Challenges

- High household connection fee for water and sewerage (Rs 9,000 or US\$196) is preventing people in the slum communities from getting an individual household toilet.
- Transferring responsibility for sweeping streets around toilets from Municipal Corporation to SHE teams.
- Financial viability of slum community complexes with less than 500 users per month.

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CASE STUDY 8

Hyderabad, India

The Hyderabad Metro Water Supply and Sewerage Board: Organizational Reform for Improved Service Delivery

Context and Background (City and Service Provider)

Hyderabad,³⁵ the capital of Andhra Pradesh (a state in southern India), has a population of more than 4 million.³⁶ It is India's seventh-largest city and one of its fastest growing—over the last two decades, the city's population has expanded at an average rate of over 3 percent a year; more recently, this

City	Hyderabad, Andhra Pradesh, India
Total population	3.45 million (2001 Census)
Slum population (% of total population)	1.7 million people (49 percent)
Service provider and status	HMWSSB, semi-autonomous service provider

rate has increased to 5.6 percent a year. It is expected that, by 2020, the city's population will reach 11 million.

Hyderabad is severely water-constrained as regional agricultural

³⁵ The designation 'Hyderabad' is used to refer to the adjoining cities of Hyderabad and Secunderabad, located on opposite banks of the Musi River.

³⁶ According to the 2001 Census of India, the population of Hyderabad was 3,449,878.

Box 18: Customer-Focused Service Delivery Reforms

The Hyderabad Metropolitan Water Supply and Sewerage Board undertook a series of customer-focused service delivery reforms at the end of the 1990s. These included setting up the Metro Customer Care, a grievance redressal mechanism; Single Window Cell for new connection services; and a Citizen's Charter outlining the Board's service delivery and obligations.

The case demonstrates how a semi-autonomous service provider can undertake organizational change and achieve sustained improvements in service delivery performance for all its customers. Such improvements have the potential of translating into better services for poor communities. The Hyderabad Water Board's experience demonstrates how the interplay of enabling external, organizational, and individual factors can drive improved service delivery reform.

interests exert control over a substantial proportion of the area's surface water resources. Hyderabad's residents suffer from lack of adequate water and sanitation services, but the most seriously impacted are the city's 1.7 million slum dwellers. Water supply and sanitation lines (trunk mains) extend to roughly half of the city's slums.³⁷ Slum households rely on public standposts,³⁸ borewells, or the water board's tankers³⁹ for water supply. It is estimated that an investment of Rs 540 million–1 billion (US\$11–21 million) is required to extend services to the city's unserved slum communities.⁴⁰

The Hyderabad Metro Water Supply and Sewerage Board (HMWSSB) was

established in 1989 as a response to the crisis in water and sewerage services of the Municipal Corporation of Hyderabad (MCH). A prolonged drought (1983–85), rapid increase in the city's population, and an antiquated water supply and sewerage network suffering from persistent underinvestment had resulted in an abysmal level and quality of services provided by the MCH. The state government was further forced to set up the semi-autonomous body to tap finance available from the World Bank⁴¹ for much-needed improvements in water supply and sewerage infrastructure. The Water Board⁴² is responsible for the supply of potable

water (including planning, design, construction, maintenance, operation and management of water supply system) and sewerage, sewerage disposal and sewerage treatment works (including planning, design, construction, maintenance, operation and management of all sewerage and sewerage treatment works) in the Hyderabad metropolitan area.

Following the setting up of the Water Board, the World Bank approved a US\$89 million loan to implement the Hyderabad Water Supply and Sanitation Project (HWSSP).⁴³ This project was implemented over a period of eight years and is believed to have played an important role in supporting a range of organizational reforms. However, attempts to improve service delivery were undermined due to weak supervision from senior managers, poor information management, and resistance to change among complacent middle-level and frontline staff.

Factors including the appointment of a new managing director toward the end of 1997 and the unexpected turn of events at the international level in 1998 (when the Indian Government conducted a nuclear test that led to both the World Bank and the International Monetary Fund suspending their ongoing programs

³⁷ Principally the result of a project funded by the British Overseas Development Authority.

³⁸ The more than 6,600 public standposts providing access to water in slums are at a risk of being phased out as each standpost, which supplies water free of charge to residents, is a loss-making venture for a Board scrambling to improve its financial position.

³⁹ Tankers provide approximately 40 liters per capita per day free of charge to slum dwellers lacking network infrastructure.

⁴⁰ Source: A paper by Professor Jennifer Davis and Sunil Tanka, Massachusetts Institute of Technology for Henry Lee, Lecturer in Public Policy at the Kennedy School of Government. Available online at <http://ocw.mit.edu/NR/rdonlyres/Urban-Studies-and-Planning/11-479Spring-2005/3AFFDD6C-7096-4CC8-85ED-89839F8BAC15/0/pm2background.pdf>

⁴¹ The World Bank encouraged this decentralization of service delivery through attaching it as a preloan condition for Bank-funded water supply and sanitation infrastructure loans.

⁴² As per the provisions of Hyderabad Metropolitan Water Supply and Sewerage Act, 1989 (Act No. 15 of 1989).

⁴³ The project had six components covering (a) increasing bulk water supply; (b) rehabilitation and strengthening of the existing water system; (c) rehabilitation and strengthening of the existing sewerage system plus treatment works; (d) household latrine program; (e) resettlement and rehabilitation of people displaced by the Singur dam and reservoir; and (f) institutional strengthening.

and withdrawing from India and Pakistan),⁴⁴ created a window of opportunity for senior managers to implement a series of bold service delivery reforms in late 1990s.

The Water Board does make network connections affordable for poor households by participating in some Government of India schemes such as the National Slum Development Program.⁴⁵ Between 1992–1998, the Board also undertook a large low-cost sanitation initiative that involved building over 20,000 twin-pit pour-flush latrines in outlying slum neighborhoods as part of the HWSSP.

Key Program Highlights

Precursor to Service Delivery Reform: Customer Meets Campaign

The catalyst for service delivery reforms in the Water Board was an initiative called the Customer Meets campaign, undertaken over a two-week period in November 1998. The aim of the campaign was ‘to mold board employees to dedicate themselves to customer care’. It was achieved through face-to-face meetings between senior managers and citizens in order to learn about the consumer’s service needs and concerns.

In attending these meetings senior managers were confronted with large

numbers and a diversity of citizens who participated; the directness of citizen grievances; and the gratitude shown by citizens towards staff in undertaking this process of engaging with them. This process is believed to have facilitated the creation of a conducive environment for service delivery reforms. The campaign resulted in greater willingness among staff, especially senior and middle-level managers, to do something about the citizens’ problems and grievances.

Following the campaign there was considerable pressure from citizens,

politicians, and the media to respond to citizen concerns and improve service delivery. These public expectations for change, combined with support for service delivery reform among managers, led to the implementation of three innovative service-focused reforms.

Service Delivery Reforms

The Water Board introduced three innovative service-focused reforms in the late 1990s, that is, (a) Metro Customer Care; (b) Single Window Cell system; and (c) a Citizen’s Charter.



⁴⁴In 1998, when the Andhra Pradesh State Government and the Hyderabad Metro Water Supply and Sewerage Board were on the verge of securing a US\$300 million loan from the World Bank to undertake a second water and sanitation infrastructure and service delivery improvement project in Hyderabad, the Indian Government’s decision to conduct a nuclear test in May 1998 placed this project on an indefinite hold. Both the World Bank and the International Monetary Fund suspended their ongoing programs and withdrew from India and Pakistan.

⁴⁵The program provides a federal subsidy of 50 percent of the connection charge (approximately US\$115) for households in the city’s approximately 800 designated slum neighborhoods. The charge can also be paid in installments over a five-month period without interest.

Metro Customer Care (MCC): This was launched in February 1999 to address citizen concerns articulated during the Customer Meets' campaign regarding section managed complaints services. It is a dedicated office, operational 24 hours at the Water Board's head office to receive and coordinate the response to complaints lodged by citizens. A specially designated toll-free telephone number is available for lodging complaints.

When a customer registers a complaint he is issued a complaint token number through which he can track the redress of his complaint. MCC operators forward the complaint by placing a call to section managers based in the neighborhood from where the complaint has originated. Once addressed, section staff is required to call the customer care operators to clear complaints from their complaints database.

An important innovation of the MCC has been the establishment of an online computer-based program, called the Complaints Redressal Efficiency (CRE), to monitor section staff performance. This program calculates the percentage of complaints that are redressed within the service norms outlined in the Water Board's Citizen's Charter. This tool has transformed the supervisory role of senior managers as they now have accurate quantitative performance data with which they can hold section managers accountable for complaints service delivery performance (low CRE percent).

The Single Window Cell (SWC): This initiative was aimed at reforming new connection services. It was established in April 1999 as a dedicated office based at the Water Board's head office

Box 19: Metro Customer Care: Has It Really Improved Service Performance for Slum Residents?

While roughly a third of the Water Board's customers reside in slum neighborhoods, fewer than 10 percent of calls to Metro Customer Care (MCC) are made by slum residents. This can be attributed to lack of access to telephones, little experience of lodging telephone complaints, and usually no experience with the automated touch-tone systems like the one used by MCC. While the call to the service can be made free of charge from any commercial telephone booth, booth attendants refuse to place calls without payment. Slum residents thus usually continue to file complaints in person at the section offices. Section office managers are faced with strong incentives to give priority to complaints submitted through the telephone hotline.

While the section managers have been instructed to use the hotline to phone in any complaints they receive from customers who lodge their complaints in person at their offices, they have no incentive to log such complaints as the monthly 'efficiency ratings' by which their performance is evaluated are calculated using only data from hotline complaints.

Source: A paper by Professor Jennifer Davis and Sunil Tanka, Massachusetts Institute of Technology for Henry Lee, Lecturer in Public Policy at the Kennedy School of Government. Available online at <http://ocw.mit.edu/NR/rdonlyres/Urban-Studies-and-Planning/11-479Spring-2005/3AFFDD6C-7096-4CC8-85ED-89839F8BAC15/0/pm2background.pdf>

to receive, process, and coordinate all new water and sewerage connection applications. Prior to this reform, citizen applications for permission to connect to the water or sewerage network were submitted at section offices where they were processed and approved by section managers before being sent to subdivision and division managers for additional approval. Once approved, citizens had to hire private plumbers, who often had close ties with section staff, to physically make a new connection. Four months after establishing the SWC, the Green Brigade—a dedicated team of 26 Water Board staff and private sector contract—was established to physically connect all

approved new connection applications for which payment had already been received.

Citizen's Charter: The Citizen's Charter, launched on January 26, 2000, outlines measurable service delivery norms for a range of services provided by the Water Board. The publication of the Charter was a landmark as it publicly acknowledged the Water Board's commitment to improving service delivery.

The Citizen's Charter clearly articulates the performance standards for each service provided by the Board. It provides details of the processes and time period for accessing different services provided by the Water Board,

for example, release of new water supply and sewerage connections,⁴⁶ water supply standards,⁴⁷ billing services, and complaints procedures and guarantees. It also outlines customer obligations.

Key Outcomes

Some key outcomes of these initiatives are:⁴⁸

Metro Customer Care: The setting up of the MCC has ensured standardized procedures for seeking redressal of grievances for customers of the Water Board. Prior to the formation of the MCC, section staff intentionally complicated complaint procedures as this provided an opportunity to either defer responsibility to private plumbers or solicit bribes. The simplified procedures have ensured easy access for consumers to the new service. A majority (96 percent) of MCC users surveyed found procedures easy to follow.

The customers who engaged with the new service have perceived significant changes in staff behavior. MCC users ranked the service to be better on accessibility, politeness, and respect than what was in place earlier. However, only 19 percent of slum residents reported that the service was more accessible, and 44 percent felt it to be more polite and respectful.

The MCC reform has improved complaints service delivery for citizens across all income groups throughout the city. Since the MCC was established, all complaints registered through the system are now being addressed, as opposed to past practice where it was common for complaints never to be addressed. The average time taken for complaints to be redressed is 4.8 days for MCC users and 6.8 days for customers from slum settlements. Higher levels of customer satisfaction were recorded among customers from slum settlements than among MCC users,⁴⁹ and this can be attributed to the reduction in time taken for complaint redressal ever since the MCC was established. This provides convincing evidence that this reform has improved complaint services for poor city residents living in slum communities, even though they have not directly engaged the service.⁵⁰

Single Window Cell: Prior to this initiative, procedures varied widely across sections due to lack of standardized procedures, weak supervision, and corruption. The SWC reform has improved information transparency through the free distribution of a clear and detailed two-page brochure, explaining application procedures and the fees to be paid for different types of new

connection applications. This reform has halved the average time to approve and issue a new connection application from six to three months. There has also been an improvement in the volume of new connection applications processed⁵¹ and in making new connections. This was achieved without any changes in the staffing levels or resources allocated to the SWC.

Lessons Learned: Enabling Factors

Multiple relationships, operating between external factors, organizational factors and individual factors, have collectively contributed to sustained organizational change and improved service delivery performance.⁵²

Active citizen engagement has been the key to the organization's overall success in delivering improved services to citizens (both middle class and urban poor) throughout the city.

External Factors and Institutional Arrangements

Legal status: The Water Board's legal status as a semi-autonomous organization located outside the traditional government bureaucracy provided enhanced autonomy to the Water Board's management, which has resulted in greater independence in decisionmaking, leading to organizational changes that would not have been possible earlier.

The establishment of a Board of Directors consisting of senior government administrators (Indian Administrative Service-level officers)

⁴⁶ Process for issue of application forms; process and time limits prescribed for acceptance of filled in application forms; process and timings for payment of fees; and process of release of water supply connection and sewerage connection.

⁴⁷ Including details about water supply timings, standards for water supply; quality standards, and so on.

⁴⁸ Research findings derived from Caseley, Jonathan. December 2003. *Blocked Drains and Open Minds: Multiple Accountability Relationships and Improved Service Delivery Performance in an Indian City*. IDS Working Paper 211. The study surveyed an equal number of households (80) from Metro Customer Care users (that is, from middle- and high-income localities) and direct customers (that is, from urban poor settlements).

⁴⁹ Forty-seven percent of customers from slum settlements and 29 percent of Metro Customer Care (MCC) users thought MCC was a good service. Forty-seven percent of customers from slum settlements and 45 percent of MCC users stated they had a good response from MCC to their complaint.

⁵⁰ Sixty-three percent of customers from slum settlements were satisfied with the Water Board's complaint services while this was the case for only 46 percent of Metro Customer Care customers. This difference could be due to the higher expectations from the service among educated and better-off Metro Customer Care customers.

⁵¹ Over two three-month periods (July to September 1999 and 2002), the number of new connection applications submitted to the Single Window Cell increased by 43 percent (from 4,636 to 6,612).

⁵² Findings based on Caseley, Jonathan. December 2003. *Blocked Drains and Open Minds: Multiple Accountability Relationships and Improved Service Delivery Performance in an Indian City*. IDS Working Paper 211.

and elite politicians with diverse professional expertise to advise the management has also played an important role in driving and sustaining reform.

Involvement of the media: The media has been used effectively by the Water Board to communicate information directly to citizens. Media criticism was also used to strengthen the top management's resolve to undertake

organizational reforms to improve service delivery.

Active citizen engagement: Active citizen engagement through formal mechanisms such as the Customer Meets campaign, and subsequently through the implementation of the MCC and SWC reforms, have provided citizens with an opportunity to place pressure on the Water Board to improve service delivery performance.

Organizational Factors

Recentralization of selected aspects of frontline service delivery: Complaint and new connection services were made the responsibility of head office staff, which placed pressure on them to demonstrate improved performance. Recentralization also radically altered established hierarchical relations between section managers and their



immediate supervisory middle-level managers, which had impeded and compromised the flow of performance information to senior managers prior to the reform. These traditional relationships were no longer viable as there was simply too much at stake for senior managers. In both reforms, citizen interface—one of the most difficult areas for senior managers to monitor with regard to frontline staff performance—was recentralized. This provided senior managers with greater access to reliable information on staff performance and citizen concerns.

Decentralization of management

authority: The management authority was decentralized by placing all section staff under the responsibility of section managers. This decision enhanced the ability of section managers to manage section work and it made a significant contribution to improved service delivery performance.

Pro-reform champions: The catalyst for cultural change and improved service delivery performance at the Water Board can be attributed to the appointment of two young, professionally competent, and pro-change Indian Administrative

Service officers (as managing director in 1997, and executive director in 1998).

Individual Factors

The high levels of work motivation have been achieved without external incentives (pay, promotion, and recognition). An existing and most likely latent public service motive (wanting to help the organization or a sense of duty) was effectively tapped by senior managers to motivate section staff to achieve set goals and targets. This has resulted in improved individual and overall service delivery performance.

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NWSC KAMPALA'S URBAN POOR

HYGIENE TRANSITION

- In hygienic Salabhi technology toilets
- And go for paid water services
- Buy water for hygiene Salabhi technology toilets
- Use Salabhi technology toilets
- Na uweere muhi yamulipira.



IPALA'S URBAN POOR PRO

CASE STUDY 9

Uganda

National Water and Sewerage Corporation: Utility Reform Helps the Urban Poor

Context and Background (Country and Service Provider)

Uganda is located in East Africa with only 15 percent of its population living in urban areas. In recent years the Government of Uganda and its utilities and infrastructure service providers have proactively pursued new management approaches such as public private partnerships and other initiatives aimed at improving accountability and transparency.

In the urban water sector, the National Water and Sewerage Corporation (NWSC) is a public corporation wholly owned by the Government of Uganda. The Corporation was established in 1972 by Decree No. 34 and its legal position was further strengthened by Statute No. 7 (1995), which was later incorporated into the National Water and Sewerage Corporation Act (2000). Under the new legal framework, the powers and structure of the Corporation were revised to enable it to operate on a commercial and financially viable basis.

The Corporation is currently mandated to manage water and

sewerage services to 22 urban areas.⁵³ Its mission is 'to provide efficient and effective water and sewerage services, applying innovative managerial solutions to the satisfaction of customers and other stakeholders in an environmentally friendly manner'.

The Corporation has a head office and service providers (operators) in the 19 urban areas (large towns) under its jurisdiction. While the operators manage day-to-day operations, the head office is responsible for

⁵³ These towns include Kampala, Jinja/Njeru, Entebbe, Tororo, Mbale, Masaka, Mbarara, Gulu, Lira, Fort Portal, Kasese, Kabale, Soroti, Bushenyi/Ishaka, Arua, Mubende, Masindi, Hoima, Lugazi, Iganga, Malaba, and Mukono.

large-scale investments, asset management, operations support, and performance monitoring.

Key Program and Initiative Highlights

Situation Prior to Reform

In 1998, the Corporation was not a healthy organization. The World Bank noted in its report, 'Over the last 10 years, the Government of Uganda in partnership with the World Bank and other donors have made significant investments (over US\$100 million) in the urban water and sewerage sector. While these investments have contributed immensely in rehabilitating

the existing infrastructure they have not been matched with the necessary commercial and financial management capacity that can ensure the delivery of sustainable services in the medium to long term.'

While the Corporation had sound infrastructure, abundant water resources, and enabling legislative framework, it was plagued with problems such as a large and inefficient labor force with conflicting and overlapping roles, high unaccounted-for water (more than 50 percent), poor customer service, low collection efficiency (approximately 71 percent), substantial accounts receivables (Days Receivable Ratio of about 420 days), and corruption within the workforce, especially among frontline staff. There

was a running monthly deficit of approximately US\$. 348 million (approximately US\$300,000) despite a high average tariff of US\$. 1,100/m³ (US\$1.00/m³). The Corporation was in a state of near-bankruptcy. It also had to contend with a number of other threats, including debt-servicing obligations falling due and a Value Added Tax law that compelled it to pay taxes on any increases in bills. The government was willing to support the Corporation by freezing the debt (US\$100 million) for some time to give the Corporation a chance to recover, if serious managerial efforts were initiated.

Performance Improvement Initiatives

To address managerial inefficiencies in the Corporation, the government appointed a new Board of Directors⁵⁴ comprising representatives from local governments, business community, professional bodies, environment groups, and government ministries (including Finance, Water, Health, and Small-Scale Industries). The composition and structure of the Board enabled it to exercise its governance functions and was able to shield the Corporation from political interference and patronage. The Board appointed a new Managing Director, Dr. William Muhairwe, who was given the mandate to rethink strategies for performance improvement. His appointment led to an emphasis on commercial viability and for using 'customer care' as an organizing theme. The Board and new management signed a Performance Contract with the government in September 2000, which clearly spelt

Box 20: Performance Improvement Leads to Positive Impact

The National Water and Sewerage Corporation (NWSC), Uganda, has been undertaking a comprehensive performance improvement program since 1998. The Corporation undertook strategic programs addressing five key performance areas: water production and sewerage services, water distribution services, customer care services, revenue generation services, and cost reduction. In carrying out the reform process, due consideration was given to professional change management to cope with possible resistance to change.

The reform initiatives have had positive impact with increases in service and network coverage, reduction in unaccounted-for water increases in connection, and metering efficiency. Annual turnover has improved from about US\$11 million to US\$34 million. Positive cash flows have helped finance network expansion and enabled maintenance programs to be implemented.

While the Corporation has made significant improvements in its financial and commercial performance, there have been limited initiatives to serve the poor. The poor benefited mostly from reduced connection fees, increase in connection efficiency, and establishment of consumer grievance redressal mechanisms. It can be assumed that everyone, including the poor, benefited from a much more efficient utility.

⁵⁴ The terms of the Board of Directors and the Managing Director were coming to an end.

out roles and obligations. The targets and reporting procedures institutionalized accountability, without introducing a separate agency for monitoring.

At the **strategic level**, the following programs were implemented:

- **100 Days Program (February–May 1999):** This was a high impact program that addressed five key performance areas: water production and sewerage services, water distribution services, customer care services, revenue generation services, and cost reduction initiatives. The program focused on reversing operational and financial inefficiencies through aggressive revenue collection strategies and cost cutting measures (including rationalization of the medical scheme and reduction of travel costs, which was a part of the establishment costs). Some of the achievements of this program included the reversal of the financial performance of the Corporation from a deficit of US\$. 348 million to a profit of US\$. 331 million (US\$206,875). Another great achievement was the improvement in the public image of the Corporation, which enhanced the customers' willingness to pay.
- **Service and Revenue Enhancement Program, SEREP I and II (August 1999–August 2000):** The SEREP programs followed the 100 Days Program and were designed to consolidate its achievements and further improve performance. The main emphasis was on restoring customer confidence in the ability of the Corporation to deliver services.

Under this program, customer service centers and front desks were put in place, customer surveys to capture customer wants were conducted, and amnesty for illegal water use instituted. The most notable was the expansion of the customer base and the increase in the number of break-even towns to six from three. In addition, revenues increased and some of the profits were reinvested to extend water mains by an additional 20.5 kilometers.

- **Area Performance Contracts (APC) I and Support Services Contracts (SSC) I (October 2000–October 2001):** The APC and SSC were contracts signed between the Corporation's headquarters, area managers, and heads of support service departments (including maintenance, procurement, and stores). The contracts were designed to give a new outlook to the previous change management programs and to address the targets set out in the Corporation's Performance Contract signed with the government in September 2000. The main characteristics of the APCs and SSCs were increased autonomy for area and support departments, clear separation of responsibilities, enhanced commercial orientation, creation of result and output-oriented management, and increased accountability. Other characteristics included improvement of cost effectiveness, efficient service delivery, and the introduction of incentives or disincentives as drivers of performance. The APCs and SSCs resulted in major

improvements in billing, unaccounted-for water, revenue collection, arrears reduction, and cost reduction. They created more confidence among managers and heads of support services departments.

- **Area Performance Contracts (APC) II and Support Services Contracts (SSC) II (December 2001–November 2002):** The APC II and SSC II were a strengthened form of the APC I and SSC I. Under these programs additional key performance areas were introduced, for example, the reduction of suppressed accounts. In addition, the incentives structure was redesigned according to SMART (Specific, Measurable, Achievable, Realistic, and Timely) criteria to enhance staff motivation to work harder. Further, the obligations of either party were reviewed and redefined to reduce the occurrence of performance constraints identified in the APC I and SSC I.

Organizational change was accomplished through two other initiatives:

- **S-T-R-E-T-C-H Out Program (2002–2003):** During the course of the implementation of the APCs, it was realized that there were still some organizational governance issues that needed to be improved upon to accelerate the achievement of APC II objectives. A tailor-made program named S-T-R-E-T-C-H Out, whose many concepts were benchmarked and adapted from world-class organizations (such as General Electric), was instituted. The main characteristics of the program were reduction of

bureaucracy, increase in speed of work, simplicity and self-confidence; worker involvement; organizational boundarylessness; stretched targets that were far above SMART targets; and rewards for achievement of stretched targets. There was increased simplicity, demonstrated by informal dressing (T-shirt wear for everybody) on every Friday to show that all staff are the same and are working toward a common objective. The management also collaborated with the union to reduce excess staff by half from 1,800 in 1999 to 900 in 2001, without any industrial unrest.

- **One-Minute Management Program (2003)** created

procedures for promoting individual performance accountability. Individual staff accountability was introduced by asking each staff to come up with a vision, a mission, and goals describing his or her planned role in achieving corporate objectives. The achievement of goals was then monitored in periodic appraisals.

The Corporation is currently implementing **Internally Delegated Area Management Contracts (IDAMCs)** aimed at giving more autonomy to area managers (partners), defining roles and responsibilities more clearly, and creating better incentive plans that allocate more operating risks to partners. The partners are paid for

taking on these risks through increased incentives. By passing more risks to partners, the head office is able to encourage more innovation and work commitment. To rationalize the monitoring and evaluation activity, a **checkers system** has been introduced to strengthen the IDAMC implementation process, emphasizing both processes and outputs. To ensure learning among peer companies, the Corporation carries out regional networking through a recently established 'External Services' unit, which shares experiences and renders consultancy services to peer companies, on a cost-covering basis.

Complementary to internal programs, the Corporation also realized the need



to **engage the private sector in its operations**. As an initial move, it outsourced some of its noncore activities including grass cutting, building maintenance, vehicle repairs, and guard services. The service improvement management contract in Kampala⁵⁵ city—the Kampala Revenue Improvement Program (KRIP) contract that had been in operation from December 1997 to June 2001—was strengthened. The new management rationalized the incentives and monitoring structure through renegotiations in order to make it more performance-based. After the expiry of the KRIP management contract in June 2001, the Corporation mobilized a strong team to run operations in Kampala, which was followed by a second management services contract with ONDEO Services, a French management utility company, signed in January 2002. This contract was terminated in early 2004 but this contract management experience has proved useful for managing area service contracts.

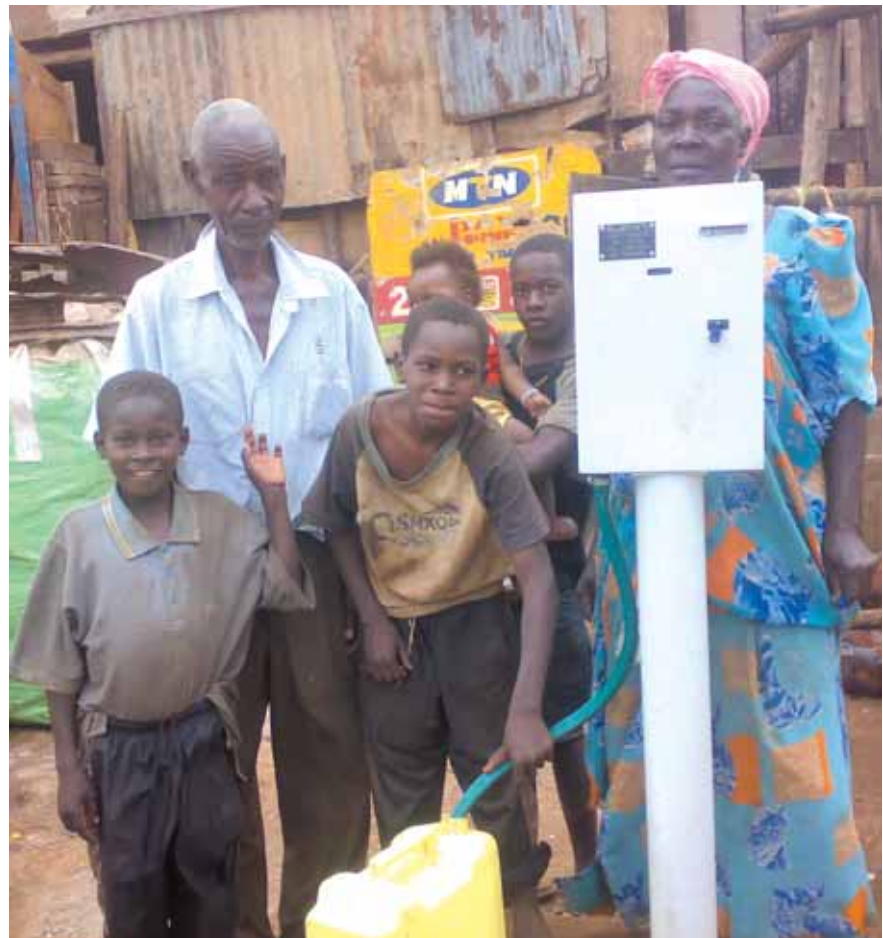
Other **commercialization activities** carried out by the Corporation included the indexation of tariff to protect it from externalities such as inflation and take into account changes in production costs, and thus maintain its real value. The tariff was indexed with effect from March 2002 following Cabinet approval. The indexation allows for annual adjustment of the tariff, and entailed a 6 percent increase in the first year of

implementation, which was a significant achievement for the reform process.

The Corporation has also put emphasis on **developing its management information system**, a key ingredient to a robust commercialization process. In line with this, networking of its offices and computerization of systems⁵⁶ (billing, financial, procurement, payroll, voice over IP, Lotus Notes, customer complaints tracking, call center, and so on) were undertaken. In addition, the Scala Accounting System was modernized and expanded and a new fixed assets register based on the Scala module was introduced from July 1, 2001.

The Corporation also implemented some **measures to improve services for customers**, including reducing the average time to deal with complaints, using GIS-based (or geographic information system-based) customer records, introducing a Customer Charter, introduction of account balance checking system through local telephone, and direct debit system with local banks.

In terms of initiatives to capture the voice of the poor, it has appointed a community development officer in its commercial and customer services department.



⁵⁵ Kampala city covers approximately 70 percent of National Water and Sewerage Corporation operations in terms of water production, customer base, and revenue generation.

⁵⁶ Major computerization initiatives were implemented in 2003 and these were funded by the German Development Cooperation through the GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit GmbH).

Accomplishments and Challenges (1998–2005)

The reform initiatives from 1998–2006 have had positive impacts. Notably, service coverage has increased from 48 percent to 70 percent. The water network coverage has increased by 52 percent.⁵⁷ In addition, new connections increased from 3,317 to 23,312 per year. As a result, total connections are up from 50,826 to 148,312 (or 70 percent of target population served, from a population base of 1.7 million people in 2006). Unaccounted-for water has fallen from 51 percent to 29 percent. Metering efficiency (proportion of metered accounts to total accounts) has increased from 65 percent to 99.6 percent, while connection efficiency (proportion of active connections to total connections) has improved from 63 percent to 93.9 percent.

The Corporation has improved its commercial viability; it has reduced the

number of staff per 1,000 connections, from 35 in 1998 to around seven in 2006. Similarly, its operating ratio (revenues/operating costs) has decreased from 0.90 to 0.75 from 2000 to 2003. This has been a result of improving the performance of the Corporation's own staff and by engaging with the private sector.

On the financial side, annual turnover has improved from about US\$11 million to US\$34 million. Because of this performance, operating profit after depreciation has improved from losses of US\$0.4 million to a surplus of US\$3.0 million. Positive cash flows have financed network expansion and enabled maintenance programs to be scheduled and implemented.

How the Poor Benefited

While the Corporation has made significant improvements in its commercial performance, there have been limited initiatives to serve the poor. This is probably due to a

perception that a big commitment to serve the poor could threaten achieving the commercial targets and staff incentive payments that are specified in the performance contracts. The poor benefited mostly from the reduced connection fees and an increase in connection efficiency. Response time to customer complaints decreased from one week to less than 24 hours. It can be assumed that everyone, including the poor, benefited from a much more efficient utility.

If the government is to substantially improve services to the poor, future reforms will need to clearly set out targets, funding and incentive payments for improving services in low-income areas. To agree to, and achieve, a Universal Service Obligation (USO), clear allocation of roles between sector institutions will be necessary, as well as holding those institutions accountable for services to poor areas.

Lessons Learned

Challenges

Despite its accomplishments, the Corporation still faces challenges in the area of **sewerage** where the coverage is only 10 percent. Sewerage investment costs are very high and the Corporation is currently finding it hard to devote resources to such investments.

The Corporation also faces the challenge of **servicing the poor communities** where cost recovery is questionable. The original approach to serve the poor was through the use of water kiosks or communal taps. However, it was found that the water vendors at these points sell water at a price 48 times that offered by the Corporation. This 'middleman' effect defeats the whole objective for which the pro-poor tariff was set. It affects the willingness and ability to pay and

Table 6: Improvement in Performance

Performance indicator	1998	2006
Service coverage	48%	70%
Network coverage		Increased 52%
New connections every year	3,317	23,312
Total connections	50,826	148,312
Collection efficiency	60%	96%
Unaccounted-for water	51%	29%
Metered accounts (%)	65%	99.6%
Staff every 1,000 connections	35	7
Connection efficiency	63%	93.9%
Operating ratios	0.90	0.75
Annual turnover	\$11,000,000	\$34,000,000
Profit	Loss \$0.4 million	Profit \$3 million

⁵⁷1,300 kilometers (km) of water mains extensions, 1,060 km from internally generated funds and 140 km from external funding.

restricts consumption, thereby obstructing health enhancement initiatives. In order to address this problem, the Corporation has come up with a new connection policy, which aims to subsidize access (by providing access for pipe lengths up to 50 meters with a nominal fee of about US\$30) and charge consumption at affordable rates. The policy also incorporates a network intensification activity in poor communities to reduce connections lengths to individual households. Consequently, each household in urban poor communities is encouraged to connect a yard tap and pay directly to the Corporation.

Enabling Factors

The major incentive or drive to change was the threat of privatization. Managers and staff were aware that there were many potential substitutes, which would be implemented if improvements at the Corporation were not forthcoming.

The composition and structure of the new board of directors enabled it to exercise its governance functions and was able to shield the Corporation from political interference and patronage. The managing director appointed thereafter was instrumental in planning strategies for performance improvement, placing emphasis on commercial viability, and for using 'customer care' as an organizing theme. The tough stance, coupled with participation, transparency, and tangible results from short-term-oriented programs brought everybody on the 'performance bandwagon'. Externally, the Corporation enjoyed significant support from the Government of Uganda, which resulted in debt freeze and noninterference with the Corporation's

management. Being somewhat insulated from political pressures meant that managers could focus on commercial issues in the early years of reform. Instead of fending off powerful political leaders who sought jobs for relatives or network expansion for their constituencies, managers could devote their scarce resources to more productive activities. Donor support in the form of financial and technical assistance added to the capabilities of the organization.

Customer and public confidence in the Corporation's performance improvement initiatives turned out to be another external factor that motivated staff to innovate further. The Corporation's turnaround was good news, and captured media headlines. Pride, based on genuine accomplishments, gave confidence to midlevel managers that they were on the right track. This case reflects common sense since it builds on principles that have demonstrated

their worth. The lessons from Uganda's NWSC experience also show the value of experimentation and decentralization—without losing contact with experts at the center. First, a hardworking and committed board of directors with a good mix of skills is necessary if an organization is to make meaningful progress. In addition, a dynamic utility management and staff team motivated by clear vision, mission, and objectives is fundamental to success.

Further, it is necessary to secure government and donor commitment to support key initiatives such as debt freeze, pension reform, and payment of government debts. In addition, the following factors have been the pillars of reform: promoting managerial autonomy through decentralization; strengthening information systems via monitoring and evaluation programs; and providing incentives to managers through comparative competition, and financial incentive packages associated with meeting targets.

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CASE STUDY 10

Bengaluru, India

Bangalore Water Supply and Sewerage Board: Service Delivery in Slums

Context and Background (City, Slums, Utility, and Access to Services)

It is estimated that approximately 20 percent of Bengaluru's⁵⁸ 6.5 million population lives in slums with little or no access to basic services. According to the Census of India (2001), the Greater Metropolitan Bengaluru area⁵⁹ had 733 'slum enumeration blocks' that housed 345,200 people. The Karnataka Slum Clearance Board (KSCB), based on 2004

data, maintains that there are only 367 slums in the same area, but with a much greater population of 592,000 people. Official figures put the proportion of the city's population residing in slums between 8–15 percent.

Until recently, most slum dwellers obtained water from a combination of private borewells, water vendors, government tankers, public taps, and illegal tapping of the Water Board's lines. Legal household connections were rare in slums, as the Water Board didn't provide connections unless the residents could provide proof of land tenure, which most slum dwellers were unable to do.⁶⁰ In addition, an estimated 250 slums were

located in areas far from the main network.⁶¹ However, this did not mean that slums did not have access to water supply; in fact, a 2001 survey reported that over half of the slums had access to the water supplied by the Water Board, either through public taps or through individual, mostly illegal, connections. Public taps never provide a good level of service: there are up to 50 households per tap, water supply is for short periods on alternate days, and long queues are common.

The Water Board is a publicly-owned water utility created in 1964 by the state government of Karnataka. Its primary tasks are providing water supply, sewerage networks, and sewage disposal; ensuring the sufficiency of domestic water supply to the required standards; and levying and collecting

⁵⁸ Earlier known as Bangalore.

⁵⁹ Under the jurisdiction of the Bangalore Mahanagar Palike (that is, the Bangalore Municipal Corporation).

⁶⁰ Only 53 of all the slums in the city had formal tenure and very few residents of these slums actually paid any property tax.

⁶¹ This was because the municipal boundary revision to include 27 new wards and extend the borders of 28 older wards occurred as late as 1995. These new areas had yet to be provided with water distribution systems.

Box 21: Increasing Access for Slum Households

Over a five-year period from 2000 to 2005, the Bangalore Water Supply and Sewerage Board experimented with service delivery in slums, first through three pilot projects under a donor-funded program, and then through a newly created Social Development Unit (SDU). By early 2005, the SDU had mobilized 46 poor communities, approximately 10 percent of the city's slums, of which more than half had successfully connected to the Water Board network and continue to be served with water, receive bills, and make payments. The Board's work in slums achieved important objectives of increasing the number of slum households connected to the metered network, decreasing the slum dweller's dependency on 'free' water through public taps or illegal connections, and reducing nonrevenue water.

Although the Water Board still has a long way to go to roll out the program to the nearly 400 slums in the city, progress is real and many lessons have been learned. The SDU and the utility have gone through an important learning period and the slum program has transitioned successfully from a discrete pilot project to a citywide program. Moreover, as the SDU and engineers have developed their approach and learned from their own mistakes, the pace of new slum connections has increased.

water charges on a no loss, no profit basis. The Water Board faces many challenges—it is struggling to cope with insufficient funds, an aging distribution system, high unaccounted-for water, explosive population growth, expanding urban boundaries, hiring and promotion constraints, high bulk water costs,⁶² and political interference primarily in tariff setting. On the positive side, the Water Board is one of the best-managed and most efficient utilities in the country. It boasts of 100 percent metering, the lowest staff-to-connections ratio in the country, an effective customer grievance redressal system; and an active program to reduce nonrevenue water.

Historically, the Water Board had few incentives to work in slums. Until

recently, the Water Board's service to slums consisted solely of supplying water, on behalf of the Bangalore Mahanagar Palike, to the public taps⁶³ connected to the network, and maintaining some borewells in areas beyond. The Water Board's policy regarding land tenure requirements was a barrier for residents of informal settlements to obtain legal connections, as was the cost. A critical point relevant to service to the poor was that the Water Board itself did not pay for capital investment in new distribution mains to connect previously unserved neighborhoods. The capital works division of the Water Board finances new infrastructure through direct 'deposit contribution' of funds from third parties,

such as the Bangalore Mahanagar Palike (the urban local body) or KSCB. Given these obstacles, very few slum communities had, in the past, approached the Water Board for new connections. Instead, improving slum water supply was left to one of the many authorities responsible for the development of the city and improvement of the slums, such as the Bangalore Development Authority, the urban local body (ULB), or the KSCB.

Key Program and Initiative Highlights

Precursor for the Initiative— Pilot Projects under AusAID Project

Three pilot projects were implemented under an AusAID master planning project, designed to demonstrate how water and sanitation services could be delivered by a utility to slum households. At the suggestion of the AusAID project team, the board of directors of the Water Board adopted a resolution to accept government-issued 'lease-cum-ownership' documents provided to some slum dwellers rather than actual land titles as an adequate basis for granting connections.

This decision was later informally extended by the chief engineers to include ration cards, identity cards, election cards, and even electricity bills, as admissible proof of occupation. The tacit support of the state urban development department was crucial; the secretary of the department was a member of the board of directors that adopted the initial resolution and did not object to the practice. Taking this

⁶² One of its major sources of bulk water, the Cauvery River, is 100 km away and water must be pumped to the city at great expense: as a result, the Bangalore Water Board's production costs, at close to Rs 20 per m³ supplied, are the highest of any major urban utility in India.

⁶³ There were about 15,000 public taps fed by the Bangalore Water Board network, and another 3,000 supplied from local boreholes. About half of these taps were in low-income areas and about a quarter in slums.

administrative and bureaucratic route circumvented going to the state legislative assembly for approval, where the issue could have been bogged down in lengthy debate. The three slums for the pilot projects were carefully selected to represent different kinds of slums present in the city—one a small, dense slum in the city center, one a medium size slum without land titles in a newly added ward, and one a large partially planned slum fully ‘declared’ by the KSCB.

Community participation was a central component of the projects, and it showed that nongovernmental organizations could rally slum communities to work with the Water Board’s engineers and other frontline staff. The overall experience of the pilots was very positive—more than 1,000 slum households (approximately 6,000 people) became new utility customers.

A combination of shared and individual metered connections were installed and, on an average, 70 percent of households in the project slums participated. In addition, AusAID paid private contractors to install sewerage networks, construct new drains, improve roads, and establish solid waste management systems. A local water and sanitation committee was established in each slum as the institutional focal point for community participation. The pilots demonstrated that slum dwellers were willing to pay regular tariffs for utility water and that individual and group connections were a viable option in dense, poor slums.

Trigger for the Initiative

The city stops paying for public taps:

The Water Board was responsible for the management of public taps⁶⁴ while the ULB was responsible for paying for the water. This water was provided free of charge to users. In 2002, there were approximately 15,000 public taps supplied by the Water Board’s network of which it billed for water supplied at 7,000 taps.⁶⁵ In theory, the ULB was to pay for the water bill from its revenues, using a pricing structure based on gauging the water flow. The last gauging exercise took place in 1997 when it was estimated that the average public tap supplied 22,000 liters of water per day, billed at Rs 3,000 (US\$65) per tap per month (equivalent to Rs 4.5, or US\$0.09, per m³, a very low rate equivalent to less than the lowest block of the domestic tariff and

well below the Water Board’s cost for supplying water). In practice, the ULB paid these bills erratically and, by 2002, had accumulated arrears of nearly Rs 150 crore (US\$30 million).

In 2002, certain of its inability to finance future payments and large arrears, the ULB obtained the urban development department’s approval to cancel the arrangement for municipal funding of public taps and to finalize a debt repayment plan. The decision was justified on the basis that it was the Water Board’s social responsibility to provide water to slum dwellers and to fund public taps through its own cross subsidies. Water supplied to public taps amounted to 20 percent of all water going into the Water Board’s distribution system, and represented a major loss of revenue if no one paid for it. Given the Water Board’s mandate to operate on a ‘no profit, no loss’ basis,



⁶⁴ Subject to the 1964 Act.

⁶⁵ The others were unauthorized or deemed to be out of service, though in practice they still operated.

and its ongoing struggles to reduce nonrevenue water, it could not afford to continue the practice of supplying water free of cost. It was also clear that a citywide disconnection drive would incite large-scale opposition from the community and councilors. This got the Water Board to start thinking about how to curb this loss of water and revenue, ideally transforming users of public taps as customers with domestic connections.

The network is extended to all

wards: Although 27 new wards were added to the official ULB roster in 1995, only the original 73 wards were supplied with the mains and distribution network, and of these only 45 had systems that provided complete coverage. The ULB, which was responsible for funding basic infrastructure within municipal boundaries, decided to pay for the full extension of the Water Board's piped network to the new and partially-served

wards. The ULB agreed with the Water Board's capital works division to divide the work into three major contracts, nine wards each, instead of the usual proliferation of small contracts. This 'Package Program', as it came to be known, was completed in 2005. While piecemeal projects to extend the pipes would have been slow and unlikely to reach slum areas, under the Package Program distribution mains were to be installed in practically every street in the city. Even if slum households could not afford to connect to the pipes through the Water Board's regular individual connections, their chances of securing access to water through other means increased exponentially. Network extension thus mobilized the Water Board to consider working with slum dwellers to pre-empt a surge in illegal connections, informal connections obtained through political pressure, and unauthorized public taps.

Project Design

The events mentioned earlier created an enabling environment that prompted the Water Board to start considering the unconnected urban poor as potential customers.

The Water Board initiated a series of bold policy changes, including:

- The requirement for formal tenure documents to be submitted with applications for new connections was replaced with a simple obligation to prove occupancy.
- The Board decided to innovate with service levels, allowing shared connections for groups of five to 10 families as an alternative option.
- Connection fees were reduced for slums to a rate that covered the cost of the meter only, with any additional costs being absorbed by the Water Board's maintenance division, and the domestic tariff structure was modified to introduce a lower minimum monthly charge, which considerably lowered the monthly bill for those using small volumes of water.

The Water Board also made changes to its own organizational structure by creating an in-house SDU. As there were no suitable personnel within the utility to head this unit, the officer who had been seconded from the state Women and Child Development Department to the AusAID pilot project was retained in the same position on a contract with the Water Board. This was an important signal of the Water Board's willingness to continue

Box 22: Rationalizing Tariff Structures

Connection costs: Normal rate for a new domestic connection:
Rs 1,800 (US\$39).

In slums

- For plots less than 150 square feet, only the water meter cost is covered: Rs 550 (US\$13).
- For plots between 150 and 600 square feet, a sanitary charge is added: Rs 800 (US\$18).
- If slum dwellers coordinate and have their additional piping and taps installed by the same plumber, the additional cost per household is between Rs 800 (US\$18) and Rs 1,000 (US\$23).

Tariffs: The old tariff structure required all customers to pay a minimum charge equivalent to 15 cubic meters of water a month. Most slum dwellers consumed around half this amount. The new tariff reduced the minimum charge to 8 cubic meters. A family using this amount or less now pays Rs 73 (US\$1.7) per month, compared with Rs 115 (US\$2.7) under the old structure. For shared connections, the total volume consumed is divided by the number of families sharing a tap, after which the same tariff structure is applied to the amount consumed by each family.

working with slums. Although the SDU was strongly supported by some members of senior management, it faced several organizational challenges. It was not given a budget or support staff, and consisted essentially of the single officer heading it. The capacity and character of this particular person proved to be a crucial factor in translating the willingness to work with slums into actual outcomes.

Another obstacle was the fact that the SDU reported to the corporate planning division, a legacy of the AusAID project, despite the fact that the vast majority of the SDU's work was with field-level engineers from the maintenance division.

The small scale of the financial investment made by the Water Board in the slum program is noteworthy, and was another challenge the SDU faced. Households wanting to connect were required to pay for the out-of-pocket costs associated with the purchase of the meter, materials to connect to the distribution network, and plumbing costs. The Water Board's financial obligations were thus limited to the salary of the head of the SDU. This low risk approach allowed it to experiment working in slums.

Project Methodology and Strategy

Between 2002 and 2005, the SDU initiated work in 46 slums following a series of steps, which are detailed below.

- The selection of slums was based on good relationships with NGOs forged during the pilots and

subsequent postpilot operations, as well as on need, client demands, engineer requests, state of network extension, and water availability.

- The SDU ensured that the local distribution network was either already in place through the Package Program or feasible through minor extension works from nearby mains.
 - Initial forays into communities consisted of preliminary assessments of the existing water and sanitation situation, meetings with local leaders and community groups, and door-to-door house visits during which the slum program was explained, information on service levels (individual connections, private connections) and costs was disseminated, and willingness to connect to the network was assessed.
 - Site visits with the Water Board's local service station engineers were made, to bring engineers on board, introduce them to the community, and discuss technical issues.
- Application forms were distributed, either directly to residents or through community leaders and NGOs, who monitored and assisted in compiling and collecting them.
 - Applications were submitted for approval, with proof of occupancy and the connection fee, in batches of about 50 at a time.
 - Meters were issued and slums connected to the network after at least 50 percent of the slum had been paid.
 - Distribution of water and billing commenced as soon as meters were issued.
 - Water was supplied on alternate days for two to six hours at a time.
 - Monthly billing was carried out by meter readers and cash





payments were collected at the service station.

Community mobilization: The importance of community mobilization in the process of connecting slums cannot be overstated. The slums in Bengaluru had to be treated as a 'unit', at least in the initial stages of bringing them on to the network. For technical and management reasons, at least half the households had to commit to connecting by registering their applications and paying the initial connection fees. This strategy of dealing with slums as communities made the work particularly daunting for the Water Board's engineers, for they are unaccustomed to mass connections and the dynamics of poor neighborhoods.

The SDU did not have any systematic method of eliciting community preferences and ascertaining local demand. Initial forays into a given slum consisted largely of informal meetings with residents or community leaders, followed by a lane-by-lane assessment based on visual observation and discussions. The SDU chose specific people who had a record of community leadership and expressed an interest in the work, to act as liaison and representatives of the community in later negotiations with engineers and NGOs.

Role of the NGOs: It was important to establish a degree of cohesion within the community through intense fieldwork by the SDU, which was greatly assisted in this by forming partnerships with local NGOs. The latter introduced the SDU to key community leaders, aided in mobilizing

the community, assisted slum dwellers in filling out applications, collected connection fees, and generally acted as the liaison between the community and the Water Board. They also assisted with savings for households unable to pay the connection fee upfront, or holding cash on behalf of individuals until a family was ready to submit its application. NGOs were also effective advocates and applied pressure when engineers delayed new connections or stalled in other ways. Two NGOs that the SDU had worked with during the pilot projects—Association for Voluntary Action and Service, and Mythri Sarva Seva Samiti—were willing to continue engaging with the Water Board without remuneration. They went on to broker deals with the Water Board in five other slums, most of them locations where they had a long history of involvement. The SDU was able to engage with eight additional NGOs, many of which coordinated women's groups and thrift and credit societies that were also tapped to enhance community mobilization.

Role of the engineers: The SDU also had to engage with the subdivisional and service station engineers. Most engineers stayed out of the early stages of community mobilization, becoming involved only when a slum was 'ready'. Their inputs consisted of determining how slums could be connected to the nearest network, deciding the hours and timing of supply depending on distribution cycles for the entire service station, and issuing monthly bills once meters were installed. Many engineers had never worked in slums before, and those that had, often recalled bad experiences when poor services led to tension. The

SDU spent a lot of time sensitizing them to the nature of the program, how it worked, and what was required of them. For example, the SDU helped the engineers innovate with solutions for late payments and arrears, as well as the conversion of illegal connections to legal, metered connections without penalty. Working with the engineers was challenging. In most instances, the Water Board staff, from the engineers down to the valve men, needed to be convinced of the merits of the program and the reason they should spend their time working with the SDU to broker complex neighborhood agreements.

Key Outcomes

Of the 46 slums in which the SDU started working, 26 had been connected to the network by early 2005. In these communities 4,300 households, or 65 percent of the total, chose to take a connection and were being provided with water on alternate days. The record on bill delivery by meter readers and payment by slum dwellers has been mixed but it is

estimated that well over half of the newly connected slum dwellers do receive and pay their bills regularly.

If the 1,000 households connected during the AusAID pilot program are to be included, the Water Board has brought just over 5 percent of the slum households in the city onto its customer base.

Lessons Learned: Enabling Factors and Constraints

The success of the Water Board's slum program has been extremely varied. One reason for this is that engineers and frontline staff were not required to respond to overtures from the SDU, and compliance with the slum program was not a factor in their monthly performance assessments. As a result, in the initial stages, the SDU had to rely on goodwill from Water Board staff to get responses to its requests for technical and management support. Even when engineers and their field staff were willing to engage in slum

work, their ability to do so was not guaranteed. Whether the SDU received positive responses to its requests for assistance depended both on personal factors (such as staff members' empathy with urban poor and local political alliances) and on professional environments (such as performance incentives given by superiors and the characteristics of the local service stations).

There were no direct incentives for engineers to work in slums, or organizational targets associated with the slum program. The new attention to the urban poor by senior management was not communicated to frontline engineers in an explicit manner. They were merely informed that they could now connect slums to the network through individual connections. In practice, engineers responded to the SDU according to a set of indirect incentives and disincentives:

- Slums provided an untapped market for engineers when they needed to increase revenue. Around the same time that the SDU was rolling out the slum program, senior management started increasing monthly revenue targets for service stations. When the gap between projected collection and revenue targets for a given service station was large, slums presented a new customer segment. However, when the gap was small or revenue targets could more easily be met through high-tariff-paying industrial connections, the incentive was much lower for engineers to engage in slum work. High revenue targets thus motivated engineers to consider connecting slums, even though this was not their original purpose.



- Senior management also emphasized the regularization of illegal connections. Service station engineers made greater efforts to work in slums with the SDU when subdivision and division superiors proactively sought to decrease illegal connections.
- Service stations in areas with small pockets of slum households had a higher rate of servicing the poor. Engineers, particularly those encountering slums for the first time, were more willing to try their hand in a small slum than a large one.
- Engineers working either in areas with acute water scarcity or problems of 'tail-end supply', or in the 27 newly added wards where the network was incomplete, were more reluctant to work with slums. This was because once new connections were sanctioned and meters issued, engineers were made accountable and had to provide water and collect payment.

If not, they risked the wrath of a local politician, visits by slum dwellers en masse to register complaints, and a future pattern of low collections from a dissatisfied customer base.

- Engineers and frontline staff responded, or failed to respond, to the SDU based on their own perceptions of the nature of slum work. These were sometimes based on facts and prior experience of working with urban poor and sometimes on personal convictions, some inaccurate, about what slum dwellers and their environments were like.

Three of the most important characteristics of a community that affected success were:

- **The presence of active, reputable, and well-networked NGOs and community-based organizations (CBOs):** In the most successful cases, local CBOs and NGOs introduced the community to

the SDU, provided extensive inputs, and acted as ongoing liaison. NGOs with the longest presence in communities and the most pro-active extension workers achieved the best results.

- **The extent of investment in the existing supply arrangements:** Engineers encountered the most resistance in slums where residents already had access to illegal supply or good quality groundwater. Water obtained through illegal connections was free, slum dwellers were unlikely to suddenly agree to pay for the same level of service, though the promise of reliable legal service delivery combined with the threat of disconnection carried some weight. The greatest success was in those areas that had been newly networked, and in slums with no access to groundwater.
- **Involvement in slum affairs by elected officials:** The active participation of elected officials in slum affairs could have either a positive or a negative impact. Not all political intervention was bad and, in many cases, elected members of the ULB and the state legislative assembly acted as champions, calling for accountability and putting pressure on engineers to complete works on time. However, the political imperative to secure votes by appearing to be the sole provider of a new service was sometimes an obstacle. Engineers often had to delay new connections in order to appease political ambition, particularly in 2004, which was an important election year. Once a slum was connected to the network, detrimental political interference diminished. At this point, politicians



were more likely to engage in demanding better operation and maintenance from the Water Board when it lapsed into poor service delivery.

The Water Board's program to serve the poor has several strengths from which useful lessons can be derived. From the utility's perspective, the initiative is consistent with effective management—increasing the consumer and revenue base, regularizing illegal connections, and reducing nonrevenue water. From the perspective of the slum dwellers, the program provided a better quality of water supply, enabled communication with service providers, and recognized residents as legitimate urban citizens and valid customers of the utility.

Once external triggers made finding new ways to serve the poor a necessity, the Water Board developed a program to do this in halting and piecemeal ways. However, the very fact that the initiative was somewhat 'fuzzy' offers some interesting strengths. Since the objectives of the program were never clearly defined, the SDU was able to focus on mobilizing stakeholders rather than on meeting output-oriented targets. This enabled innovation and close engagement with stakeholders, enabling the SDU to experiment with methods to mobilize slum communities and, even more critically, ways to engage field-level engineers. The slow start enabled intense involvement of frontline staff with the SDU, which convinced these engineers of the merits of the approach and gradually brought them on board as reformers themselves.

However, the program also continues to suffer from several weaknesses:

- The SDU remains severely understaffed and underfunded. Achieving citywide scale will require significant changes to the SDU as an organization.
- Incentives for staff to engage with the poor are still weak. Apart from the unintentional effects of revenue targets, there have been no direct incentives for engineers to work in slums.
- There is an almost total reliance on NGOs as voluntary, unremunerated partners. Communities without links to suitable NGOs are likely to be bypassed.
- Initial beneficiaries have not been consulted as to the success of the program so far and whether their demands are being met. There has been no monitoring of outputs or periodic assessment of the program to date.
- Although slum dwellers are consulted and they can opt out, they are under intense pressure to regularize illegal connections, and

the choice of service levels offered to them remains limited. This means that although some form of participation by slum dwellers exists, it is limited, unsystemized, and not always genuine.

- The Water Board's efforts to date have been almost entirely confined to water. Apart from a few individual connections to the sewerage network and the installation of individual latrines, there has been no concerted effort on the part of the utility to address sanitation or hygiene in slums, either through private sewer connections or through community toilets.
- The Water Board continues to operate without an explicit poverty policy. The pro-poor program is really no more than a series of experiments and decisions that have, over time, developed into a meaningful whole.

REFERENCES

- This case study has been summarized from *Connecting the Slums: A Utility's Pro-Poor Approach in Bangalore*. Water and Sanitation Program Field Note, January 2006.



CASE STUDY 11

Dhaka, Bangladesh Nongovernmental Organization-Assisted Water Points: Social Intermediation for the Urban Poor

Context and Background (City, Urban Poor, Utility, and Nongovernmental Organization)

Dhaka is one of the fastest growing mega-cities in the world, with an estimated 0.3-0.4 million migrants, mostly poor, arriving into the city annually.⁶⁶ The city's population is currently estimated to be around 12 million and is projected to grow to

20 million by 2020, making it the world's third-largest city. This large-scale migration creates tremendous strain on an already crowded city with limited inhabitable land due to topographical constraints, limited infrastructure, and a low level of public services. Around 55 percent of the city's population lives below the poverty line, half in slums and squatter settlements. Access to water supply, sanitation, solid waste management, and other social services is extremely limited in these settlements.

Water and sewerage services in Dhaka (and Narayangonj) are organized and managed by the Dhaka Water Supply and Sewerage Authority. Water, sanitation, and sewerage services in

the city urgently need rehabilitation and upgrading. To meet the Millennium Development Goal of 80 percent coverage by 2015, the Water Authority needs an investment of US\$500 million.⁶⁷

The poor quality of life in the slums of Dhaka prompted a group of doctors to set up the nongovernmental organization (NGO) Dushtha Shasthya

⁶⁷ A break-up of investment required: to acquire mechanical equipment for treating wastewater, US\$30 million; to rehabilitate the existing water system, US\$1.2 billion; to open new areas to cover 70 percent of the total area, US\$500 million. The Dhaka Water Supply and Sewerage Authority has proposed to secure Taka 750 million from World Bank/France for the 4th Dhaka water supply project: the Government of Bangladesh is funding three other water supply improvement projects worth about Taka 17 billion; a fifth project (water treatment plant) has no identified funding yet. (US\$1 = Bangladeshi Taka 68 [approximately, as of October 3, 2008]. Conversion rates are from www.coinmill.com; all conversions in the text are approximations.)

⁶⁶ Bangladesh Bureau of Statistics.

Box 23: Encouraging Community-Based Organizations

The main aim of the initiative was to create access to legal, affordable, and safe water and sanitation for slum dwellers through the establishment of community-based organizations and on a capital cost recovery basis. The process was anchored by a local nongovernmental organization, Dushtha Shasthya Kendra (DSK), which played a critical role as an intermediary between urban poor communities and formal government agencies or service providers. It also lent initial capital funds and provided technical support for construction. The DSK facilitated processes with community participation for designing water points, selecting placement of infrastructure, and formulating guidelines on water access and cost sharing.

The DSK approach demonstrates how ‘informal’ communities can access ‘formal’ services. The key principle is to respond to demand for water indicated by communities’ willingness to pay. The case demonstrates how communities willing to form self-help groups or community-based organizations can be encouraged and supported to maintain water points and work towards improving hygiene habits and health status.

Kendra (DSK) in 1988. The DSK’s main goal was to seek effective ways of providing community health care services to the poor—it began work by starting a free weekend clinic. The

DSK’s work on health in the slums made it realize that one of the major reasons for the incidence of disease and poor health was the lack of safe drinking water.

Box 24: Program Components

Software

- Community action plan development through a participatory approach.
- Formation of community-based organizations and community management groups.
- Technical, hygiene promotion, and community management capacity training for community-based organizations and community management groups, for community members.

Hardware

- Community water points.
- Community toilets.
- Community sanitation blocks.
- Solid and liquid waste management.
- Storm water drainage.

Key Program and Initiative Highlights

Precursor Initiatives and Program Objectives

The DSK first attempted to install handpumps in slums, thinking that users could draw water from shallow tubewells but the Water Authority’s deep tubewells did not leave them enough water. The DSK struggled hard to persuade the Water Authority and the Dhaka City Corporation (DCC) to provide access to piped water services to residents of informal settlements and slums. The Water Authority had till then largely excluded slum dwellers from its service coverage. In 1992, following continuous negotiations with the water authority, the DSK was able to convince the utility to give access to piped water systems to two *bastis* (slum communities) in Mirpur area.

The principal purpose of the initiative was to create access to legal, affordable, and safe water; improved environmental sanitation; hygiene promotion; and improved health status in slums based on the work of community-based organizations and on a capital cost recovery basis. The challenge was to demonstrate and prove that community-managed initiatives are successful; and on the strength of such experience to influence and push local governments or utilities to make investments in projects that would benefit the urban poor and slum dwellers.

Process

The DSK employed a system of participatory rapid appraisal to gather descriptive data on the community,

including needs and aspirations vis-à-vis water and resources available, through interviews and discussions. The main criteria adopted to select a community for setting up a water point was:

- Expressed community demand and willingness to pay for services.
- Technical feasibility.
- Avoiding communities accustomed to free water and sanitation services and those dominated by *mastaans* (musclemen or influential people who control slum areas).
- Positive participation of key local government institutions, that is, the Water Authority and the DCC.
- NGO intermediation.

The DSK organized the residents of the slum communities to build shared water points, and then applied to the Water Authority to legally connect the water point to the utility's mains. Each water point had an underground storage reservoir and a concrete platform, with two simple suction handpumps, which served approximately 100 families. The Water Authority agreed to provide the connections after the DSK obtained permission from the DCC to use the site, and after it paid a security deposit and guaranteed that the bills would be paid.

The DSK introduced the water points to the residents as community owned, and managed infrastructure for which the residents were to pay for the construction costs and security deposit. The residents agreed to take an interest-free loan of US\$960 from the DSK to cover the costs of water point construction and connection.

The agreement, signed by the community with the DSK, calls for the total cost of the infrastructure to be repaid over 30 months, with an initial period of six months when the households were not required to make any payment. Following community meetings, each family's share in the infrastructure cost and its corresponding share to the monthly water bill was computed according to its usage and ability to pay.

To generate revenue to pay off the loan, pay the Water Authority's water bills, repair the water point when necessary, and employ a caretaker, the community collects fees for water connection and water use. Fixed prices have been agreed for collecting a *kolshi* of water

(equivalent to 20 liters), bathing or washing clothes. Community members have agreed to pay monthly or daily, depending on their circumstances.

These poor slum dwellers have a good repayment record, and are never late with their payments. They know that this costs less money than buying water from street vendors. In addition, the water is cleaner. So they understand the economics and also appreciate the opportunity cost of having to walk to collect water. They really value the water.

The community committee that manages the provision of water and sanitation is made up entirely of women.



Role of Dushtha Shasthya Kendra

Since 1991 the DSK has served as an intermediary between the slum communities and the Water Authority. It has taken responsibility for the provision of water connections and mediating with DCC mainly to obtain permission for road cutting and location of water points on the local body's land. This NGO has mobilized, organized, and prepared slum communities to operate and manage water points, bear the capital cost, and regularly pay the water bills. It has also played an

instrumental role in incorporating technical developments and facilitating the provision of alternative sources (such as rowing pumps, shallow wells with hand pumps, and spring source improvements).

The DSK raised community awareness on effective water use and right of access to water. It partnered with local communities and the municipality to lay communal sewer lines, drainage facilities, and connections of private toilets to main sewers after communities paid the capital costs, with bank accounts transferred to

the water committee's name. The DSK also assisted water communities with management skills and technical support.

Addressing Women's Needs

In undertaking these projects, WaterAid and its local NGO partners have also been exploring the particular problems associated with assuring that women's needs are addressed in the provision of water and sanitation services. Through the development of water user committees, local NGOs were determined to ensure that women were



involved in decisionmaking processes for the installation of water points, as it is predominantly women who will benefit from them. A women's NGO, Phulki, has been successful in ensuring genuine women's participation in these mixed committees. It worked through the problems in relation to women's involvement in the committees through gender training, working with men, not just women, in discussing different gender roles, and what individuals could do to address them. This has led to more effective management systems and a more sustainable supply of water and sanitation services.

Replication

Such was the success of this project that the Water Authority and the DCC agreed to scale up the program in collaboration with WaterAid, Water and Sanitation Program, UNICEF, and Plan International, along with the DSK and five other local NGOs (Bangladesh Agricultural Working People's Association, Activity for Reformation of Basic Needs, Population Services and Training Center, Rural Health and Development Society, and Phulki).

A total of 110 community-managed water systems have been established and are running successfully, benefiting around 60,000 slum dwellers.

Further expansion of these arrangements is being planned by the Water Authority for one of the largest slum concentrations in Dhaka, which would potentially provide to over 250,000 slum dwellers. In addition, with communities having successfully demonstrated to the government that residents of informal settlements have the capacity to manage and maintain communal water points, the Water

Authority is now allowing communities to apply for water connections on their own, without the need for an NGO as a mediator.

An International Development Agency-funded project currently under preparation will provide a greater opportunity for expanding and mainstreaming water supply and sanitation services to many slum areas in Dhaka. Five development partners (Asian Development Bank, Danish International Development Agency, Japan International Cooperation Agency, Department for International Development, UK, and World Bank) are currently negotiating a 'Partnership Framework' with the Government of Bangladesh to identify necessary policy reforms that will enhance the development partners' investments to benefit the Water Authority. An important aspect of this Partnership Framework will be an unequivocal policy statement regarding the eligibility of slum dwellers to receive formal water supply and sanitation services.

Key Outcomes

The collaborative effort of the Water Authority and its development partners (the DCC, implementing agencies, local implementing NGOs, and the communities) has created an opportunity for the urban poor to have legal access to safe and affordable water and sanitation facilities.

The Water Authority has been able to increase its revenue by increasing the number of legal customers, and reducing its system and revenue losses by turning illegal connections into legal connections. The assisted communities

are paying bills on a regular basis. As of June 30, 2000, DSK-targeted communities had paid Tk. 473,572 (US\$7,054), or 94.12 percent, of the bills invoiced. Communities continue to meet their obligations to the water utility.

The initiative has effectively integrated environmental sanitation and hygiene promotion interventions. The integration of these components is vital to ensure sustainable access of the target populations to legal basic services that will allow them to live and work with a dramatically reduced incidence of disease and an increased potential to maximize the benefits of economic opportunities. Moreover, safe environmental sanitation practices by slum dwellers, on the scale planned, have the potential to have a positive impact on the wider city environment.

The enhanced self-help and community management capacity of slum dwellers will have a lasting benefit for future development initiatives. The process has helped communities achieve maturity of leadership, especially for women in the community, to run the management of the water points on a regular basis.

In 2000, one of the water points was transferred to stand-alone community management, that is, without support from DSK staff. Other water points were also subsequently transferred. The main criteria for transferring to stand-alone community management were (a) presence of water point management committee; (b) regular monthly meetings; (c) attendance of women; (d) women leadership; (e) male

attendance; (f) regular payment of the Water Authority's bills; (g) regular payment of capital loan installments; (h) maintenance and cleanliness of the water point; and (i) expressed 'ownership' of the facility. The approach has been accepted as an effective tool for providing water and sanitation services to communities living in slums and squatter settlements. Several NGOs and programs of international agencies have begun to replicate this model.

Recognition of the model's effectiveness has also been reflected in the National Water Policy of the Government of Bangladesh, 1998.

The experiences of the DSK and other NGOs have provided an important basis for addressing the need to mainstream water supply and sanitation service provision to slum areas.

Current efforts are aimed at ensuring that the Water Authority continues to manage and actively expand its service provision by subcontracting and licensing NGOs and other small and medium enterprises, which can address the specific hardware and software needs of communities in slum areas in a flexible manner.

Lessons Learned

Enabling Factors

- The presence of an NGO consortium, including the DSK, Population Services and Training Center, and Proshika, with technical and financial assistance from WaterAid, Plan International, and UNICEF.
- A culture of partnership that facilitated relationships among

NGOs, the Water Authority, the DSK, and slum dwellers.

- The presence of champions and supporters at the Water Authority and the DSK who were receptive to working with NGOs.

Constraints

The program has not been without its problems. One of the most important lessons that have been learned is that the social dynamics of different communities are unique. The other issue relates to the time that is required for acceptance of new models for pro-poor service delivery by municipal authorities. Working with the Water Authority and the DSK took time, but acceptance was created slowly and surely. The influence of international organizations was also a major factor to help convince



sceptics within local authorities and utilities.

While the lack of land tenure for slum dwellers has been raised in the past as an issue that disqualifies slum communities from receiving formal services, the practice adopted by the Water Authority in recent years has been to look for opportunities for providing services.

Lessons Learned

There are several important lessons garnered from the DSK's negotiations with the Water Authority to provide water to urban slum communities. Among them are:

- There is a willingness and ability among the urban poor to pay for basic service delivery. The myth, that providing service delivery to poor communities requires heavy subsidies, has been disproved. Additionally, the

Water Authority benefited from the increased revenue, which acted as a motivator to continue the working relationship.

- Mediation and negotiations for the rights of the urban poor by an NGO can be successful. It was only through the DSK's continued negotiations with the Water Authority that water points were supplied to slum communities.
- Community ownership is critical for the sustainability of any project. The first attempt for a water point in a slum was taken over by the local *mastaan*. The second attempt put management of the water point in the hands of the community themselves, who did not allow a takeover by the *mastaan*. It is almost impossible for an outside NGO, such as the DSK, to exert any control or pressure over slum leaders; the control has to come

from within the slum community. Community ownership should be taken to the extreme goal of leaving the entire process up to community members, from negotiations with the Water Authority, to implementation of the water point and keeping local power seats out of the process.

- If a community is already accustomed to making installment payments or regular payments of any kind, such as through microcredit loans, they are more likely to make timely payments for services such as water.
- As with any successful project, cooperation between field staff and upper level management is essential. The commitment of senior level managers in the government or utility is as important as the commitment of NGO field-based staff.

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CASE STUDY 12

Alandur, India

Alandur Municipality: User Contributions in Infrastructure Development

Context and Background

Tamil Nadu is one of India's most urbanized states, with 44 percent of its population (27 million people) residing in urban areas. Sanitation has tended to remain the most neglected aspect of public infrastructure provision—few of its 794 urban areas have even partial sewerage systems. According to the 2001 Census of India, 36 percent of the urban households in the state have no toilets; only 86 percent of urban households in the state have access to safe drinking water, and just 44 percent have a water source within their own premises (Census, 2001). Water contamination is a persistent danger due to limited sanitation

infrastructure. Tamil Nadu suffers from a higher-than-national average incidence of acute diarrheal diseases in Tiruvannamalai, Ramanathapuram, Vellore, Virudhunagar, and Cuddalore districts, which have a lower percentage of households with water source within their premises.

To remedy this situation, the Government of Tamil Nadu has sought to reform the state's water sector. Most notably, it granted urban local bodies (ULBs) the freedom to raise water charges as necessary. In some cases, it has allowed limited private sector involvement—some municipalities contract specialized companies to maintain their water treatment facilities. In 1997–98, the Department of Municipal Administration, Government

of Tamil Nadu, decided to significantly expand the existing sewerage network. However, there were severe limitations on the quantum of funds it could access from the central and state government. The Tamil Nadu Government thus devised a sewerage development strategy that would require ULBs to work in partnership with citizens, so that these two groups together defray a larger part of capital and project costs and relieve the financial burden on the state government.

The first sewerage project under the new initiative was launched in Alandur, known as the 'Gateway of Chennai' due to its proximity to the metropolis. The shortage of ULB funds had compelled Alandur's local political

Box 25: Community Response Energizes Work

Alandur Municipality in Tamil Nadu is improving sanitation services to slum dwellers through an inclusive approach that benefits all segments of the township. The effort demonstrates how services can be improved where there is strong political commitment coupled with effective communication strategy, transparency, and partnership with community-based organizations. Nearly 8,350 of the 23,000 households that paid for the service are now connected to a sewerage network (as of 2005). These include 500 slum households from a total of 7,000. A large number (43 percent) of slum dwellers have opted and paid for individual sewerage connections.

leadership to find alternative means by which to finance needed development works. They were able to successfully sell the idea of a sewerage system (part-financed by user contributions) to the city's residents.

This initiative fueled similar demand in neighboring Valasaravakkam, which generated matching requests to the state government from municipalities and town panchayats surrounding Valasaravakkam and Alandur. These early demand-led initiatives made state agencies confident that the scheme could be replicated in other urban areas. Target agglomerations were selected (many district headquarters) and detailed plans, including possible user contributions, drawn up. In the subsequent phase, the initiative tended to become supply-led, though in many cities—Pallavaram, Ambattur, and Madurai—there are signs of persistent demand emanating from residents or their welfare associations, and the ULB itself. Coimbatore, too, has shown signs of strong demand, as it has stayed on course for more than five years to negotiate a sewerage scheme on its own terms, even though there has been a minimal grant component available.

Key Program and Initiative Highlights

Situation Prior to the Initiative

Till 2000, Alandur had no sewerage system—a majority of its households (95 percent) had septic tanks. The sewage, disposed outside the municipal limits, posed immense health hazards as it served as a breeding ground for mosquitoes and diseases, besides affecting groundwater sources. The risks for the town—with a population of 147,000 of which slum dwellers constituted nearly 23 percent—were high. The situation was even worse in the 33 slum areas where almost 7,000 families resided.

Project Details

To address these problems, the Alandur Municipality initiated a project to build an underground sewerage system. At the heart of the project's success so far lies a well-planned communications strategy that has evoked strong and positive community response. Willingness to pay among 97 percent of the households surveyed was another factor that helped it

become a multistakeholder project involving the municipal authorities, the private sector, community-based organizations and, most significantly, the people. These partnerships manifested themselves in various aspects and stages of the project. As part of another initiative, care was also taken to ensure that the poorest people, who could not afford private sewerage facilities, were not left out. Provision had been made for community toilets for these segments.

Project Approach and Design

The project is currently ongoing in 64 urban areas in Tamil Nadu. Although the state government initially mooted the idea, it is the ULBs that drive it operationally in close coordination with the Tamil Nadu Water and Drainage Board (TWAD) or Metrowater.⁶⁸ Both actors (ULBs and the two parastatals) report to the Tamil Nadu Government's Department of Municipal Affairs.

Once a ULB decides it is interested in launching a sewerage scheme, municipal councilors sell the idea to their constituencies through the local resident welfare associations. Citizens are briefed about the merits of sewerage systems vis-à-vis septic tanks, including improved groundwater, reduced mosquito and smell problems, and a rise in property values due to environmental improvements. Similar messages are communicated through pamphlets, the print and electronic media, and localized public announcements are made in target neighborhoods. Other strategies may also come into play—such as implied messages that those not joining the scheme may be denied some services by ULBs, or that those joining after the cut-off date may have to pay a higher deposit.

⁶⁸ While the Tamil Nadu Water and Drainage Board is responsible for building water and sanitation infrastructure throughout Tamil Nadu, Metrowater services only the Chennai Metropolitan Area.

Once communities have decided that they want to avail of the scheme, an intense process of dialog and negotiation ensues, involving local elected representatives, ULB officials, and the relevant parastatal. This includes a detailed discussion of how project costs might be brought down, and the benefits of self-financing versus loans. A similar process of negotiation begins among state agencies, ULBs, and resident welfare associations regarding the quantum of deposits, sewer connection charges, and monthly sewer charges to be required from participants.

Scheme Financing

Average costs: The average cost of each project is US\$11 million per urban area. ULBs bear an average cost of US\$3.5 million (26 percent of capital costs) and users contribute an average of US\$2.2 million (16 percent of scheme costs). To finance capital costs, ULBs often supplement their own resources with loans from state financing institutions, such as the Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL) and the Tamil Nadu Urban Finance and Infrastructure Development Corporation, and national

finance institutions such as HUDCO and the Life Insurance Corporation of India. The Government of India and of Tamil Nadu also provide supplementary grants. In 21 of the 64 participating urban areas, up to 70 percent of scheme costs are being financed by grants from the National River Conservation Directorate (Government of India), which provides money for water pollution projects. ULBs have also raised funds from the World Bank-financed grant component of the Tamil Nadu Urban Development Fund.

User contributions: ULBs collect capital contributions from the public in





two installments—50 percent before the state government releases funds for the project, and 50 percent during implementation. Users also separately pay for sewer connections and monthly sewer maintenance charges (which are designed to cover the actual cost of maintenance). The capital costs for the scheme include operation and maintenance costs for one year. Since public contributions are the smallest component (and are generally used to service part of the external finance cost), ULBs make every effort to keep the loan component as small as possible. The average contribution per household is about US\$142. It may range from US\$33 to US\$445, depending on the value of the property in cities that have used this system for determining the amount of contribution to be paid.

Monthly sewer charge: The average domestic monthly sewer charge is US\$3.5, though it could range from a low of US\$0.66 to a high of US\$11. The average monthly sewer charge for commercial properties is US\$939 and the average monthly sewer charge for industrial properties is US\$12. Commercial charges themselves are 2.5 times that of domestic charges, and industrial charges 3.5 times. The parastatals oversee the construction of the physical infrastructure, which is then handed over to ULBs to operate. The contractor used to build the infrastructure is responsible for maintenance during the first year, and may or may not be reappointed depending on performance. In most cases, ULBs continue to contract out operation and maintenance, even after the first year.

Project costs and sources of

finance in Alandur: The total project cost is estimated at Rs 340 million (US\$7 million). The Municipality has raised funds from the TNUIFSL and the Tamil Nadu Urban Finance Infrastructure Development Corporation, an agency channelizing funds from the Governments of India and Tamil Nadu for infrastructure projects. The project also received deposits from the town's residents.

Project Strategies

The project, designed to provide essential and basic facilities to all the residents, included a sewerage network consisting of the main sewer line, branch sewer line, and manholes; the construction of a sewerage pumping station; the laying of pumping mains; a sewage treatment plant; and low-cost sanitation.

Institutional arrangements: Private sector participation was considered important for the project. Accordingly, a private partner, the TNUIFSL, was nominated to coordinate the investigation and to structure the finances for the project. The project was structured such that an engineering, procurement, and construction contractor not only designed and built the underground sewerage system, but also financed, designed, built, and operated the sewage treatment plant. An independent project management consultant controlled, supervised, and reported on the project; the Municipality organized the public mobilization and frequently reviewed the project. The Government of Tamil Nadu and TNUIFSL also reviewed the project regularly. A special committee, which was formed to monitor the operation of

the accounts, brought transparency to financial transactions.

Mobilization and communication:

Effective and timely communication to involve key partners and, importantly, the people themselves in the initiative, formed a key part of the project, especially in the initial phase. The Municipality made a strong and concerted effort in spreading awareness about the project. An election-style campaign was launched—officials and councilors traveled in auto rickshaws to inform people about the project; local cable television networks were roped in; pamphlets in English and Tamil were distributed; and door-to-door canvassing was done with municipal sanitary workers joining hands with senior municipal staff to spread the message. Active use was made of the local press. In addition, on-site meetings were held with residents' associations and the public to explain the scope and benefits of the project. The concerted awareness and mobilization campaign led to the formation of associations from which two persons were chosen to work part-time to collect deposits and connection fees from the residents. The money was deposited into an account, and status updates were communicated to the public every month. There was thus full transparency regarding the financial aspects. The communication has continued during the implementation phase as well, in the form of a feedback and grievance redressal system. Members of the public can voice their concerns through a complaint register that is reviewed daily by the project management team and twice a week by the municipal commissioner. People can also contact

the Municipality directly if problems arise. This two-way communication seeks to ensure the project's transparency, accountability, and effectiveness.

Progress so far: The ongoing project (that began in 2000) had in 2005 connected, in its first phase, nearly 8,350 of the 23,000 households that paid for the service. Nearly 500 slum households out of 7,000 had a sewerage connection. A large number (43 percent) of slum dwellers have opted and paid for individual sewerage connections.

Services for the poor: Even as the underground sewerage project of Alandur rolled on to provide sewerage connections to slum households, many poor households that could not afford to pay for these services were left out of this program.

The inclusive approach: To ensure that the poor or the unreached are not excluded from the benefits of this sanitation project, the Municipality has made provision for community toilets. Where a need is identified, either by slum dwellers or by the Municipality, public toilets are provided by the Municipality on its land. When located relatively close to the sewerage network, the toilets are connected to it, otherwise septic tanks are used. The facilities are also provided with water and electricity.

Partnership for the Poor

This initiative involves civic authorities, community-based organizations (CBOs), and the final beneficiaries or slum residents. To manage public toilets, women's groups have been formed with support from the Municipality. The Municipality trains the

CBOs on managing the facility. The CBO establishes a member register, fixes and collects the monthly fees from the households, and maintains the toilets. The Municipality finances the construction and connection, while the CBO finances the maintenance and repairs. There is no connection fee, but a repair fee of Rs 200 (US\$4) per connection is collected from each member household. The monthly fees are fixed by the local CBO and the charges range from Rs 20 (US\$0.44) to Rs 50 (US\$1.12) per family. Nonmembers also pay a charge fixed by the CBO, in most cases around Rs 1 (US\$0.02) every visit. Fourteen toilets had been constructed in 2005 to serve poor clusters in the Municipality based on demand articulation by the people.

Outcomes

The public participation component has triggered an expansion of sewerage schemes from 14 (out of 794 urban areas across the state, excluding Chennai) to 64 urban areas. Moreover, the project gives equal attention to small as well as large agglomerations. The scheme is in active operation in one-third of all the areas covered, and in the investigation, drawing board or negotiation stage in the remaining two-thirds.

The TWAD is implementing or coordinating the scheme in 50 out of 64 urban areas, while Metrowater is doing so in 11 areas. In Tiruppur, the New Tiruppur Area Development

Corporation Ltd—a special purpose vehicle—is implementing the scheme. The Tamil Nadu Government intends to gradually expand the scheme to the entire state once its success has been proven.

Empowering ULBs: This scheme has put ULBs at the center of planning, implementation, and maintenance of networked infrastructure. It de facto addresses the widespread concern that initiatives for local development rarely come from ULBs, which are insufficiently consulted on user charges, property tax, octroi, the optimal role of parastatals in water supply and sanitation services, and so on.

Empowering users: Since the official sanction for the sewerage system of a city is preceded by actual collections of deposits from users, users are part of the decision on whether their city needs such a system and how much it should cost. On successful completion users, municipal councilors, and municipal officials exude pride and confidence in having successfully achieved a challenging, almost unattainable, service for their area.

More serious study of costs: Since there is considerable debate on assessee contributions and their relationship to total project costs, the elected representatives who make the decision about the loans to be taken by ULBs tend to exercise responsible financial planning. For instance, the state government has responded to requests by ULBs to recast the scheme, in some cases even modifying the engineering design to reduce costs.

Collaborating with the contractor: Additionally, the collection of user



contributions has tended to put pressure on both elected representatives and municipal functionaries to ensure that the project is completed in a timely and quality conscious manner. Alandur's and Valasaravakkam's ULBs, for instance, interfaced directly with the contractor on a regular basis. They have pressurized contractors to limit works to one ward at a time so that these may be quickly completed. All households in the ward are informed about impending works and their duration. A citizens' committee is set up to monitor the quality of work, including safety aspects, and regular meetings are scheduled with the contractor.

Rise in property values: Property values have reportedly increased as a result of the sewerage scheme.

Accountability to the poor: The scheme covers areas that include concentrations of poor residents. Thirty-one of the 64 participating cities have slum populations that average 20 percent of the total population. Nonetheless, the scheme is not predicated on the concept of differential rates for the poor. Officials cite a number of reasons to explain the scheme's insistence on a nondifferentiated rate for the poor:

- Urban poor already pay nondifferentiated per unit rates for water and power.
- Exempting or reducing capital contributions for any one category of users will open a Pandora's Box and radically slow momentum, at a time when no city has fully completed a sewerage scheme under the new initiative.

Officials at all levels, however, appear to be conscious of the need to fully include all residents in the scheme area as far as possible. Thus, in some municipalities, families that have been unable to pay have been given the option of taking a loan from the local bank with a nominal interest rate. In such cases, the bank pays the deposit directly to the Municipality. Poor users are also given the choice of paying in two installments a year (on the pattern of existing property tax payments). In some cases, poor users have requested ULBs for a further leeway of two months, and the latter have complied. Poor users who cannot afford a connection are encouraged to use pre-existing public toilets,

which will eventually be connected to the new sewerage system.

Lessons Learned

Success Factors

The scheme has succeeded in invoking strong demand and continuing political acceptance throughout the state. A number of factors have been crucial to its attaining this level of credibility.

A strong set of incentives for each stakeholder: Each set of actors had a strong motivation to ensure the success of the scheme. Users wanted improved sanitation services, a better environment, and a rise in the value of their property. They also did not want to risk being denied a water connection



should they not participate. Municipal councilors felt they could claim personal credit and draw political mileage from their role as initiators of the scheme. ULB officials and the Government of Tamil Nadu both saw it in their interest to have an expanded sanitation network to show. The TWAD and Metrowater got more infrastructure work to do than ever before.

ULB commitment: The spearheading role that ULBs have played in moving the scheme forward is a key element in its success—most especially as they have engaged with the public directly and not depended on external resources, such as consultants and nongovernmental organizations (NGOs). The methods of engaging with the public are those that fit with ULBs' existing institutional arrangements, so they can last over time without external inputs or support.

Residents' welfare associations:

Such associations have played a key role in fostering user demand for the scheme, and in maintaining pressure to move the initiative forward. Not only did they spearhead deposit mobilization, they also monitored construction and forwarded complaints to the ULB, including some on the need to better manage roads during sewer installation.

The communication and mobilization strategy:

Public support and user contributions were quickly mobilized due to the scheme's innovative and concerted communication strategy. As a result, ULBs were able to assuage public fears about unaffordability and to appeal to individual assesseees' self-interest. The media also played a key role in mobilizing public opinion in favor of the scheme.

Financial health of the ULBs:

Another key innovation in the project is that it has compelled ULBs to rely on loans, rather than on government monies. Since these loans have to be serviced, there is a pressure on ULBs to be more financially responsible—and to engage more deeply with respect to the financing, implementation, and operation and maintenance of the scheme.

The existence of precedents:

Tamil Nadu had, for some years, been home to projects in which public contributions were required, such as the 'Nammake Naame' and World Bank-funded initiatives. Partly for this reason, the sewerage scheme did not provoke resistance from the local political class, which in other parts of India has often sought to gain electoral mileage from blocking schemes in which the poor are required to pay. The fact that the



maintenance of sewerage assets can also be taken up under the 'Namakke Naame', under continuing community participation arrangements, further adds to the political and financial attraction of the scheme.

The sustainability of investments:

Since operation and maintenance charges are fixed on the basis of actual costs, ULBs and parastatals have, by and large, been able to recover operating costs. Through various measures instituted in the past (including the threat of severing connections for persistent nonpayment and so on), the proportion of revenue receipt to billing has been quite high. Additionally, since the ULB handles operation and maintenance through contractors, it has been able to carry out contractual refinements to make the service more efficient.

Wide-ranging political support: All Tamil Nadu's major political groupings continue to support the program. This is partly because large-scale public participation allows for a much larger number of such projects to be taken up within a shorter span of time, which reflects positively on the political leadership as well as the bureaucracy.

Limitations

Insufficient accountability: As yet, the accountability relationship between ULBs or users and parastatals is still very weak. Neither users nor ULBs have any enforcement mechanisms over the parastatals, since monitoring and enforcement are performed only by the state legislature, the audit wings of the parastatals, and the Department of Municipal Affairs.

No menu of options: There was no effort to present users with a menu of

desirable and possible options for urban improvements in their city, which they would like to contribute toward. While the sewerage initiative sells the idea of the scheme to the populace and encourages them to make contributions, it does not really draw users into a discussion of what other priorities there might be for improvements to their areas. Additionally, the project makes no attempt to engage users or their elected representatives on the following issues:

- Whether a sewerage scheme is a cost-effective solution to the environmental issues faced by the town, and whether a centralized or decentralized model of sewerage treatment should be adopted.
- A detailed plan on how to implement the scheme with the least possible inconvenience to the public, which includes monitoring and ongoing reporting to the public during and after implementation.
- Damages to be paid by the contractor, by a defined authority in the TWAD or Metrowater, and by ULBs, if members of the public are involved in accidents related to the works being implemented.
- Continuing reporting to the public (perhaps twice a year ahead of

the property tax due date) on scheme performance, number of connections, per capita wastewater treated, untreated discharges, treatment standards met, operation and maintenance costs, user charges collected, and so on.

- Some form of monitoring by citizens or elected representatives of the treatment plant (problems with access to electricity supply, whether treatment process followed as stipulated, and so forth).

Little involvement by qualified

NGOs: Such organizations appear to have played a minor role in the initiative. Were they more involved, they might have been a useful entity in engaging with ULBs and parastatals on the technicalities involved in the scheme, leading to a better public understanding of all the financial and the other liabilities involved.

Political and administrative issues

within ULBs: Although the two main political formations in the state have broadly shown a commitment to the reform process, at a local level their rivalry can affect the functioning of ULBs and the sewerage scheme. Additionally, protracted vacancies in the ULB's top executive positions can create a vacuum in the ownership and implementation of the scheme.

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PUMP NO 2

PUMP NO 4

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CASE STUDY 13

Jamshedpur, India

Jamshedpur Utilities and Services Company Limited: Innovative Initiative to Provide Adequate Water

Context and Background (City and Service Provider)

The contemporary history of Jamshedpur can be traced back to the early 1990s when the Tata Iron and Steel Works was established in a small town of Sakchi, situated in the East Singhbhum district of Bihar that later became a part of the new state of Jharkhand.⁶⁹ In 1919, Sakchi was

renamed Jamshedpur in tribute to Tata Steel's founder Jamshedji Nusserwanji Tata. Spread over an area of 64 sq km, the city has a population of 700,000.⁷⁰ Jamshedpur has been the only Indian city to be selected UN Global Compact City in 2003, winning over Bengaluru due to the good infrastructure conditions and quality of life.

Till 2003 municipal services in the city were provided by Tata Steel's town

division. However, the company could not focus on service delivery within its existing corporate structure, which was not its primary line of business. The town division was severely constrained by financial, human resource, and technical limitations that were hampering the effective provision of basic services.

It is in this context that the Jamshedpur Utilities and Services Company Limited (JUSCO), a wholly owned subsidiary of Tata Steel, was set up on August 25, 2003, under the

⁶⁹ The state of Jharkhand was carved out of Bihar on November 15, 2000.

⁷⁰ Census, 2001.

Box 26: A Private Service Provider Takes the Initiative

In an industrial township in Jamshedpur, India, a private service provider (the Jamshedpur Utilities and Services Company Limited, or JUSCO) has made attempts to provide adequate basic services (water) to urban poor and informal settlements located outside its industrial area. The trigger for the initiative was the state government's decision to constitute a municipal corporation in this industrial township. This proposal was met with severe resistance from all sections of the citizenry—the urban poor got together and demanded services from JUSCO. In response to the requests, JUSCO started a pilot project that initially covered two slum areas and was subsequently scaled up to cover other settlements. JUSCO is committed to extending its service coverage to all currently unserved areas.

The initiative's success can be attributed to an effective community mobilization, organization, and consultative process, which has enabled the service provider to respond to the needs of slum households. A flexible installment-based system has enabled households to pay installation charges. Simple systems and procedures put in place by the service provider have streamlined the process of seeking new connections and ensured transparency and accountability.

Table 7: Jamshedpur at a Glance

City	Jamshedpur, Jharkhand, India
Total population	700,000 (2001 Census)
Service provider and status	JUSCO, private service provider

Companies Act (1956). The company was carved out from Tata Steel's town division and was spun off as a separate company with a mandate to improve the quality of civic services in Jamshedpur. It provides comprehensive municipal services in the city including water and wastewater services; management of municipal solid waste; power services; public

health and horticulture services; construction services; and integrated facility management. The company serves approximately 500,000 people with 40,000 water connections of which only 20,000 connections supply water to Tata employees and the rest provide water to non-Tata customers, which is a growing customer base of the company.

Key Program and Initiative Highlights

Situation Prior to the Initiative

Tata Steel's town division had been providing services to people in areas outside the Tata command areas. Known as *bagan* areas, these are under lease to Tata either industrially or residentially and mostly constitute slum colonies and other non-Tata residential colonies. Water was being supplied through public standposts, borewells and handpumps⁷¹ free of charge. Additional to these some government agencies including the Public Health and Engineering Department and Jamshedpur Notified Area Committee⁷² were also providing services in *bagan* areas. The services were intermittent, unreliable, and unsafe.⁷³ Since it took over operations in 2003, the utility has been expanding its service coverage to *bagan* areas.

Trigger for the Initiative

In the wake of the state government's proposal to constitute a municipal corporation in Jamshedpur that would be responsible for providing basic services, especially to areas outside the Tata command areas, the residents of *bagan* areas began demanding piped water connections from the water utility. The citizens came out in unison against

⁷¹ Standposts (550), borewells (80), hand pumps (150).

⁷² The Jamshedpur Notified Area Committee (JNAC) was formed in 1924 by the then Bihar state government under the state's Municipal Act though within limited areas of operation basic services were being taken care of by Tata Steel. JNAC and Tata Steel worked in close collaboration since the inception of the JNAC but the cohabitation did not last long. A little political wrangling in the last half of the 1990s ended it. Tata Steel continued the provision of basic services as allowed by the then Bihar government, which is now continued by JUSCO.

⁷³ The water supply was below the accepted BIS potable water standards.

the state government's proposal and voiced their preference for the city to be an industrial township rather than a municipal corporation.⁷⁴

The residents of the slum settlements came together and formed a committee, the Bagan Area Vikas Samiti (BAVS), registered as a nongovernmental organization. The BAVS had a central committee headed by a president chosen by the residents. It was to be the point of contact for the utility in this corporate-citizen partnership aimed at providing services to the residents of the *bagan* areas.

Pilot Initiative

The initiative began with a pilot approach covering a narrow service area. The rationale for the pilot approach was to enable the service provider to better understand and address the needs of the slum settlement residents and to effectively deal with any emerging issues or problems. The pilot project was launched in Uliyan and Bhatia areas



covering approximately 2.5 sq km and a population of 28,050.

The pilot was initiated with a survey and mapping of slum colonies and existing infrastructure. The survey and mapping

exercise helped the utility estimate the demand for new connections and to assess the status of the present infrastructure. The process also helped the service provider ascertain the project's technical and financial feasibility; it helped estimate additional water, new infrastructure requirements, and approximate project costs.

Table 8: Scaling up the Pilot Project

Area	Number of connections	Population	Status
Uliyan and Bhatia	5,500	28,050	Completed
Ramdeo Bagan	135	786	Completed
Laxmi Nagar	865	6,920	Completed
Teacher's Colony	100	534	Completed 24 x 7
Vidyapati Nagar	488	2,928	Completed
Total	7,088	39,218	

Scale-up Phase

The water utility started with the pilot project in Uliyan and Bhatia and soon moved on to other slum settlements (see Table 8).

Community Participation and Financing for Installation Charges

Community participation has been a cornerstone of the project implementation strategy. Discussions were held between the BAVS and JUSCO to decide the modalities of the project planning, implementation, and

⁷⁴ The 74th Constitutional Amendment provides for the formation of municipal corporations or, alternatively, industrial townships where the city has the backing of an industrial house that is willing to provide basic services.

financing. Once that was done, an undertaking was signed between the two project partners. Since the connections were to be made to individual households, separate contracts were signed with each household or connection required.

The water utility has put in place a detailed procedure for seeking and providing new connections in the *bagan* area, which came into effect from November 2004.

- A written request, in a format prescribed by the water utility, is to

be made by prospective customers. The format includes a joint letter written by all residents of a colony seeking water supply to their settlement. This request includes names and particulars of all residents who are seeking water connections; it also lists out the terms, conditions, and procedures to be undertaken following the demand for the water connections.

- A site inspection is then carried out by the utility to establish the viability and feasibility of new water connections in the area.

- Once an affirmative assessment is made, individual customers who were part of the joint request have to apply separately for their own water connections.
- The upfront installation charges are to be paid by each prospective customer to the utility. The installation amount varies from colony to colony (from anything between Rs 5,000 to Rs 12,000, or US\$108–260) and is determined by the (a) number of applicants; and (b) distance from the water tower, which decides the length of the required pipeline.



Technical Factors

Though individual applications are made, unless a certain proportion of payments are received the work cannot be commissioned. The installation charges are not required to be paid upfront in full and the amount can be paid in installments, which are worked out for individual connections and colonies. In case applicants cannot pay the upfront installation charges, free connections have also been provided at the sole discretion of the managing director of the utility. Customers from the slum settlements pay a flat rate of Rs 120 (US\$3) per month for potable water supplied three to four times a day for two to three hours each. There is an extra charge of Rs 110 (US\$2.5) for every additional floor. In some colonies, for instance, in Teacher's Colony, round-the-clock-supply residents have to pay

Rs 1,000 to Rs 1,200 (US\$23–28) every month. The water utility proposes to replace the flat-rate system by metered and consumption-based tariffs.

Key Outcomes

How the poor benefited: The initiative has resulted in expanding the service area that was traditionally outside the scope. It has resulted in improved access of urban poor or informal settlements to individual level water supply, which is of good quality and reliable. In the five *bagan* areas covered, the initiative has resulted in improved access to water supply for approximately 7,100 households and 40,000 people.

How the water utility benefited: The additional service coverage has increased the revenue of the water company by 8 percent.

Lessons Learned: Enabling Factors and Constraints

The initiative can teach a few important lessons to other government or private utilities that are trying to reach people in unplanned settlement colonies in cities.

The initiative's success can be attributed to an effective community mobilization, organization, and consultative process, which has enabled the service provider to respond to the needs of the slum households.

A flexible installment-based system has enabled households to pay installation charges. Simple systems and procedures put in place by the service provider have streamlined the process of seeking new connections.

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CASE STUDY 14

Dar es Salaam, Tanzania Temeke District: Community-Managed Water and Sanitation Program

Context and Background (City, Urban Poor, and Access to Services)

Dar es Salaam's population is estimated at 2.5–3 million, accounting for approximately 25 percent of Tanzania's urban population. In the late 1990s, there were 55 informal settlements in the city accommodating approximately 80 percent of the population.⁷⁵ The water supply and sanitation services have been in a perennial state of crisis. The Dar es Salaam Water and Sewage Authority (DAWASA) is responsible for the

provision of WATSAN and related services in the city and surrounding areas. The privatized utility currently has 86,000 customers; the remaining unserved population of the city obtains water through informal supplies, often of dubious quality and at a price well beyond that paid by the water and sewerage authority's customers.

Temeke is one of three municipalities that comprise the metropolitan area of Dar es Salaam. It is organized into 24 wards and 97 streets. Though approximately 50 percent of the capital city lives in Temeke, it is extremely underserved with respect to basic services. The development of the municipality has been unplanned and, as a result, overcrowded dwellings have proliferated. There is virtually no

pipled water for residents; a survey of 4,000 homes conducted in 2001 revealed that only 11 percent of the residents had an individual water connection and the remaining obtained water from traditional wells, community kiosks, or purchased water from privately owned wells or water vendors. Sanitation takes the form of poorly built, unmaintained latrines, and open garbage pits and sewers. According to the 2001 survey, 78 percent of the residents have access to pit latrines while the remaining are forced to defecate in the open. Water and sanitation-related illnesses were high in informal settlements.

⁷⁵ Taken from an unpublished situation analysis report, produced by WaterAid-Tanzania, as part of an ongoing study on private sector participation in Dar es Salaam.

Box 27: Communities Manage Their Own Water

The Dar es Salaam Community-Managed Water and Sanitation Program was implemented in an attempt to address water and sanitation needs of the peri-urban population in Temeke municipality. The case study illustrates the complexity of implementing a community management program in a peri-urban environment. It shows that community management within informal settlements requires a number of strategies, institutions, and agencies to ensure an effective and sustainable improvement effort. Inclusion of key institutions (including government entities at various levels, nongovernmental organizations, local community-based groups, and citizenry) ensures that the relevant agencies are involved in program development, and that a comprehensive support network is available when needed.

While this approach is likely to face a number of political, legal, and technical issues that require effective and timely responses, it also demonstrates the potential for creating more sustained efforts, since individual system components are created and formed in relation to a larger, more integrated system.

Key Program and Initiative Highlights

Trigger for the Initiative

In 1997, a major drought adversely impacted Dar es Salaam. Informal settlements, already experiencing limited access to water, descended into a state of emergency—prompting the United Kingdom's Department for International Development (DfID) to fund the drilling of emergency borewells throughout the city. The DAWASA, however, was unable to manage these borewells due to staff and budget limitations. The DfID and the DAWASA discussed the possibility of local communities managing these directly, thereby taking greater responsibility, in the long term, for supporting their own water needs. The DfID also commissioned a study, which

concluded that community management of water was feasible and that sufficient interest existed among government and community leaders for the effort. WaterAid, with its history of working in rural Tanzania, was selected to be the program's facilitating organization. WaterAid's work in Dar es Salaam consisted of rehabilitating borewells⁷⁶ in seven streets in the informal settlements.

WaterAid proceeded to work with the Temeke municipality in 1988, to develop methodologies that support community groups in managing their own water supplies, by organizing water user associations in each street. Preparatory activities began in September 1998 when WaterAid established contact with a variety of stakeholders including government,

⁷⁶ These boreholes were put into place by the Tanzanian government, with UK DfID funding, at the time of the drought in 1997.

community, and other actors, leading up to a participatory urban appraisal of seven communities. The appraisal focused on water needs, resources, and local geographic characteristics. Once initial relationships were established and data was collected, a workshop was convened to develop a logic model for the program, which identified core problems and related effects, desired solutions, indicators of progress and success, and assumptions and risks.

Project Goals and Approach

The Dar es Salaam Community-Managed Water and Sanitation Program was implemented in an attempt to address unmet water and sanitation needs of the peri-urban population in Temeke municipality. The primary purpose was to increase access to clean and safe water through the creation of procedural systems, stakeholders groups, and the construction and maintenance of improved hardware. The broader goals of the project also included improving the lives of citizens through increased economic activity, reducing the negative effects of poor water and sanitation on health, and improving social harmony across the community.

The community management approach was designed within a demand-response framework, stressing the importance of community involvement in planning and decisionmaking. This included an expectation that citizens contribute money or labor in support of needed infrastructure and that they provide management and ongoing support of all developed systems and hardware.

The program focused on 11 streets in three wards. In the first two years,

seven community water supply schemes⁷⁷ were constructed, serving an estimated population of 43,000 residents through a network of 50 public standposts. Two schemes were subsequently added, extending the public standpost network to 72 domestic points.

Key Project Partners

Much of the program's efforts were implemented through a large and diverse set of community and governmental groups, which can be organized into three functional areas, namely, facilitating organizations, community groups, and ward- and municipal-level participants.

Facilitating organizations: Two organizations played key facilitating roles in the program—WaterAid and Dar es Salaam City Commission. WaterAid helped convene groups, manage discussions related to project design, organize implementation, and facilitate networking and coordination among groups; the Dar es Salaam City Commission served as the government's facilitating organization, calling major stakeholder meetings and coordinating government efforts.

Community-level groups: At the community level, a complex set of associations and committees were developed to manage and implement project activities. Water User Associations (WUA) comprised community members who stood to benefit directly from project efforts. Water User Committees (WUC), comprising elected individuals from the WUAs, served as the primary community management body. An

umbrella structure called the People's Voice for Development (PEVODE) was developed to help convene members of the various WUAs and WUCs across participating streets.

Ward- and municipal-level participants: The Department of Water, Health, and Community Development (WAHECO) team comprised extension workers from government departments assigned to work with specific communities. The extension agents served as the primary link between the municipality and local street representatives. The various street chairmen, representing government activities at the street level, were important for mobilizing residents and obtaining resources within participating communities. Seen as a critical gatekeeper and known as the 'custodian' of the water infrastructure, program activities were frequently required to have this person's support and approval before advancing.

Key Project Strategies

Mobilization and the development of WUAs and WUCs: Mobilization was a critical strategy used in the implementation of the program. The first step was to raise awareness among the general population about the possibility and requirements of managing water systems locally.

From these initial mobilization meetings, WUAs were created, consisting of street representatives with an interest in working on water issues. These WUAs were responsible for operating and maintaining the water points. This included collecting fees for the water drawn by residents, documenting all sales transactions and ensuring broken down pumps were repaired. The fees collected by the WUA help pay for the costs of repair and maintenance, as well as for the caretaker.

WUA members subsequently elected WUCs—representatives consisting of

Box 28: Primary Responsibilities of Water User Committees

- Working with local elected officials and other authorities to ensure construction of the water system.
- Involving the community in decisionmaking and representing members of the Water User Associations.
- Convening and holding biannual community meetings of the Water User Associations.
- Establishing a water tariff based on a cost and feasibility assessment.
- Managing finances related to the local water system.
- Reporting on financial status to Water User Associations and monitoring principal actors.
- Employing the staff necessary for the daily operations of the water system.
- Ensuring timely maintenance and repairs.
- Supervising and protecting all water sources and collection points.

⁷⁷The technology consists of medium-depth boreholes (40-60 meters deep) with electric submersible pumps and an overhead tank serving piped reticulation systems.



8 to 10 volunteer members, three-fourths of which were required to be women. Women were to hold positions of treasurer, and either secretary or chairperson of the committee. The mission of these WUCs was to develop appropriate sustainable water development plans that were manageable and affordable for their respective community. They were responsible for planning, supervising, and coordinating all activities related to water improvement efforts. Through WUC efforts, citizens were encouraged to make contributions in the form of money or manual labor for construction and operation and maintenance.

The **street chairmen** played an important role in the WUCs' activities by facilitating community meetings and exercising their influence to promote the program. Community contribution targets were established, identifying the amount of funds required to be obtained before construction of any water-related hardware could be initiated in a given street.

When repairs were requested by the WUAs, it was the WUC's responsibility to contact the appropriate workforce, and ensure the completion of work. Water systems also required that highly specialized and technical tasks be performed, such as testing water quality, assessing water table levels, and siting of new water points and pipes. The Water Authority provided technical expertise and training to local resource people in many of these areas.

The WUAs faced similar problems in relation to operating and maintaining their rehabilitated borewells. To address technical and bureaucratic problems, they organized themselves into a

federation, the PEVODE, established as an umbrella organization of the community management structures. Its role involved helping convene members of various WUAs and WUCs across participating streets and to provide a variety of supportive services (including the provision of finance and accounting support to WUCs; training and support in a number of technical areas including emergency repair of hardware systems; establishment of health and sanitation committees; organization of 'development days' that brought together project partners to demonstrate achievements and discuss ongoing needs; and advocacy for community, city, and national water and sanitation policy).

Health, hygiene and sanitation education: Hygiene and sanitation education committees were introduced into the community management programs once the WUAs and WUCs were in place. These were established to help communities use newly acquired water and sanitation resources more effectively, and to improve overall environmental sanitation and hygiene behaviors. The committees were formed with the help of the PEVODE and the WAHECO and activities focused on training and awareness campaigns related to health and sanitation behavior, household visits to teach appropriate hygiene practices. The PHAST⁷⁸ toolkit was the primary health curriculum utilized by WaterAid and WAHECO team to help structure educational activities.

⁷⁸ The Participatory Hygiene and Sanitation Transformation (PHAST) methodology was developed by the World Health Organization in 1993. It focuses on changing hygiene behavior in developing countries through a process of assessing current health and hygiene knowledge, and visualizing and implementing improved hygiene behavior best suited for a given community.

Skills and technical assistance training: For the community management effort to be successful and sustainable, a great deal of training and technical assistance was required to increase the skills of participating citizens. Basic training in the areas of community mobilization, conflict resolution, group facilitation and training, leadership, project management, gender sensitivity, bookkeeping, and resource development was conducted. A second major training area focused on the development of more technically-oriented skills including facilities construction, operations and maintenance, and the monitoring of water levels and quality.

Training events were frequently repeated to ensure that as new people joined the project and others left, skills were appropriately transferred. A train-the-trainers approach was utilized with WaterAid training local agency staff who would, in turn, train community members. The PEVODE provided training in a number of technical areas including emergency repair of hardware systems, money management, and banking activities. WAHECO also provided training to WUC and WUA members and street government officials in participatory development and community mobilization techniques, health and hygiene knowledge and practices, gender sensitivity, and technical aspects of constructing and maintaining facilities.

Linkages and support networks: A carefully arranged network of support and monitoring was established among participating agencies to ensure the proper functioning of committees and a requisite level of transparency and accountability in program activities. This

included maintaining relationships between the various committees and government actors at the ward, municipal, and street levels. Key monitoring areas included overseeing financial accounting and monetary procedures, achieving fair representation within participating communities, and overseeing the daily operations and maintenance of newly installed water points.

The WAHECO team and the municipal water engineer for Temeke were empowered to conduct a monthly examination of financial records for each WUC. The street government chairperson exercised his right to monitor all water selling procedures and expenditure along with an independent controller appointed by the WUC. Additionally, audits were conducted twice yearly by an auditor assigned by the district zonal director. The WAHECO team also provided a critical link between the ward-level government and streets to ensure consistency between municipal- and street-level water and sanitation plans. WAHECO further assisted in supporting the health of inter-group relationships by holding regular meetings with the WUCs and street government officials to resolve any emerging problems and when critical project decisions were made. The Water Authority's involvement also served important linkage functions. WAHECO's extension team provided ongoing technical support to WUAs and WUCs on issues related to water, sanitation, health, and community development. At the time of the program's implementation, the Water Authority was in the process of becoming privatized. When WaterAid and the WUC members became aware of this change in status, they realized

that it was critical for them to become independent, registered entities with legal authority—before the Water Authority became fully privatized. With this legal standing, WUCs would be able to buy and sell bulk water, allowing communities the ability to manage their water supply and services independent of the new private operator.

One of the most critical accomplishments with regard to the development of networks and linkages at the municipal level was the establishment of the Municipal Water and Sanitation Coordinating Committee. This group was established to link participating agencies and organizations at the municipal level to address water and sanitation in a collaborative and systematic manner.

WaterAid played a central role in the development and arrangement of the various stakeholders into a support network for the community management effort. It facilitated a broad, collaborative agenda that incorporated the strengths of participating institutions, helping to define roles and ensuring that a system was in place for monitoring the integrity and transparency of the initiative.

Key Outcomes

The program achieved a number of successes, including accomplishments related to the establishment and functioning of water associations and committees; increased access to water; improvements in sanitation, hygiene and health; and increased

involvement of women and children in the water and sanitation efforts.⁷⁹

- Water associations and committees continued to function effectively and accumulate resources. As of May 2002, Ferry's WUC had collected 1.3 million Tanzanian shillings (US\$1,139), and KMB collected 700,000 Tanzanian shillings (US\$613).
- New water facilities were constructed in communities, improving the quality of life for citizens. In Ferry, eight water points were established, one water tank constructed, and one borehole drilled. In KMB a borewell, tank, and several water points were in progress as of November 2002.
- Populations with access to safe water points greatly increased. Ferry's water points served 4,000 citizens (formerly, there were no safe, functioning communal water points in that street) and though KMB did not have newly established water points as of November 2002, plans were in place for developing enough to serve 5,000 people.
- Improved sanitation was also observed in KMB. This included the building of one ECOSAN toilet and the addition of toilets in local schools.
- Due to the PHAST interventions, health committee work, and the implementation of CiC, safe water handling and storage activities improved.



⁷⁹ This section is based on data for two streets, namely, Ferry and Keko Mwanga B (KMB).

- The program saw significant levels of involvement by women and children in their water and sanitation activities. Women hold officer positions in their water committees, and in KMB, the women's committee from the PEVODE has helped to establish an active and growing women's water group.
- The institutionalization of the community management model through the Water Users Constitution provides several opportunities for replication in other areas of Dar es Salaam and urban or peri-urban centers.

Challenges for the Program

The Dar es Salaam Community-Managed Water and Sanitation Program experienced a number of significant challenges in its efforts to achieve the program's objectives. Some of the major challenges reflected issues of community mobilization, political interference, and difficulties related to group coordination and collaboration.


Mobilization: Certain segments of the community were difficult to mobilize due to past experiences with development projects or concerns that the focus of this program might be water-related commercial activities. A great deal of distrust was initially expressed about the program due to a large number of failed development projects in the past. Water vendors raised concerns that the program would compete directly against their interests and they, therefore, did not want to participate. Some of these concerns stemmed from a lack of understanding about the potential benefits of the program to water users and vendors. In response, WaterAid,

WAHECO, and street government representatives engaged in an intensive information dissemination effort, which was largely successful in changing public opinion.

Political interference: Because water committees enjoyed no legal standing as independent

organizations with decisionmaking authority, tensions emerged between street-level government officials and the WUCs. Street leaders attempted to use their authority for political or financial gain. The involvement of street chairpersons in decisionmaking efforts also resulted in the perception that the





water system and related activities were being used for political patronage. Due to the potential influence of street chairpersons, both direct and indirect, their participation needed to be managed. Other concerns were raised in relation to the Water Authority's impending privatization, with fears being expressed about potential seizures of water facilities by the private operator, effectively stripping the power and authority of the WUAs to manage community water points.

Many of these challenges were addressed legally and statutorily. The WUAs became independent community-based organizations, with clear independence from the street government. The organizations developed a Constitution that was adopted by all stakeholders and created binding bylaws that governed activities. The Constitution articulated the democratic nature of the WUAs, and defined the roles and responsibilities of all parties (including the WUC, the street government, the municipal engineer, and other stakeholders). It further outlined the consequences of not meeting described expectations and accountabilities. The WUAs also applied for the legal right to buy water in bulk from the Water Authority and to sell this to community members. This second strategic move in effect protected the WUAs from the threat of privatization and allowed communities to continue managing and investing in their own water management system.

Collaboration and coordination: The sheer number of collaborative partners also caused problems and, at times, hindered progress. The PEVODE, for example, found that working with the Water Authority caused delays in the

repair of water systems since spare parts were required to go through the latter rather than to the former directly. Trusting collaborative relationships between the government and communities took time to develop. The WUCs did not want to show WAHECO their accounting books and did not acknowledge it as an authority in water systems management. WAHECO, however, worked hard to make its presence known in communities and was able to establish trust with the WUCs over time. Coordination and collaboration was also important to lessen the duplication of effort and to ensure greater efficiency. This required work on the development of clear roles and responsibilities and a great deal of ongoing inter-group dialog. However, this remained an area of some difficulty, at times straining relationships and leading to confusion regarding who was responsible for what areas.

Lessons Learned

A number of important lessons were learned through the examination of this project's efforts.

Community management programs must fit within larger policy frameworks:

A clear understanding of national and local policy frameworks within which a program operates greatly contributes to the project's success. Since the program partners understood government policies and the role these played in water and sanitation efforts, they were able to leverage WAHECO extension workers and the Water Authority's employees to provide technical assistance to communities. Having an understanding of policies and their implications allows implementers to be aware of potential political threats to program efforts.

At the time of the program's implementation, the Water Authority was in the process of becoming privatized. When WaterAid and the WUC members became aware of this change in status, they realized that it was critical for them to become independent, registered entities with legal authority before it became fully privatized. With this legal standing, WUCs would be able to buy and sell bulk water, allowing communities the ability to manage their water supply and services independent of the new private operator.

A broad, cross-sector network is essential for sustainable community management schemes:

In a community management initiative, it is not enough to intervene with water users alone. Programs must involve all relevant stakeholders, including all government and community-based organizations engaged in similar efforts, to ensure that broad support is secured. Community management also requires ongoing and intensive efforts to maintain network relationships and involvement.

A variety of skills—including community mobilization, skill building, technical assistance, training in financial management and banking, health and hygiene education, operations and maintenance of physical structures, and so on—are required for such a program to be successful. Given the diversity of expertise needed, the participation of a host of agencies was required, mandating that significant resources be spent on simply managing the network of participants to ensure their lasting and meaningful participation.

Capacity building for community management requires time: In the present case, developing and training

the WUAs and WUCs, and the PEVODE infrastructure took a great deal of time and effort. Included in this process was the development of formal structures, skill development, policy formation, collaboration with other entities and, finally, implementation. Such efforts necessarily take time, particularly when the groups are newly formed.

A minimum of two to three years may be needed before achievements will become apparent.

Careful selection of a facilitating organization is critical to success:

WaterAid brought to the effort a deep knowledge and understanding of community management efforts and processes, strong facilitation skills, and

a clear methodology for coordinating the program's development and implementation. In addition, it was viewed as being relatively neutral among the various participating agencies, which is essential for developing trust and motivating organizations with often competing interests to work toward the realization of larger objectives.

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CASE STUDY 15

Tegucigalpa, Honduras Water for All: Community- Managed Water Services

Context and Background (City, Service Provider, and Peri-Urban Neighborhoods)

Current estimates place the population of Tegucigalpa to be approximately 1.1 million⁸⁰ and it is estimated that the city's population will double over the next 25 years. Approximately 40 percent of Tegucigalpa's residents live in peri-urban neighborhoods⁸¹ that have developed informally, often on steep hillsides surrounding the city.

The expansion of water and sanitation infrastructure and delivery of services to peri-urban neighborhoods has proved difficult due to their location (above the official height limit of '1,100 meters above sea level' for providing infrastructure), higher associated costs of installing necessary infrastructure (such as multiple pumping stations), history of informal development, and illegal land tenure. It is estimated that approximately 38 percent of the city's households are not connected to the formal piped water supply system.

The National Autonomous System of Aqueducts and Sewers (SANAA) is the governmental entity charged with the responsibility of executing, operating, and maintaining water and sewerage systems in Tegucigalpa. It is regulated by the Water and Sanitation Regulatory

Entity (ERSAPS) and National Water and Sanitation Council (CONASA), which have sector coordination and planning functions. The utility, by and large, makes systems available to communities that have water sources capable of meeting the demand for water for at least the next 20 years.

The paradox of low-income peri-urban communities is that they pay up to 100 times more for unreliable service of poor quality as compared to communities connected to the formal system. In 2005, SANAA registered 113 communities serviced by water trucks, either privately operated or owned by it. While these trucks pay approximately Lps. 0.025 (US\$0.001) per gallon, they sell water to poor households at Lps. 0.40 (US\$0.02) per gallon. Based on these figures and the

⁸⁰ UN-Habitat, 2003.

⁸¹ Approximately 350 in number.

Box 29: Collaborative Initiative

The 'Water for All' initiative has been in operation in Tegucigalpa, Honduras since 1987. The program, a collaborative initiative between the government service provider, National Autonomous System of Aqueducts and Sewers (SANAA), UNICEF, and the private sector was aimed at addressing the service delivery gap to marginalized peri-urban neighborhoods. To date, the Executing Unit for Settlements in Development, a special unit that was created within SANAA, has constructed 116 small-scale water supply systems benefiting an estimated 80,000 residents (approximately 30 percent) of the city's peri-urban communities.

The key features of these models are community participation through the establishment of Water Administration Boards, a revolving fund that allows for cost recovery of capital costs from beneficiaries and user charges for water use.

The model demonstrates how low-income communities can be valuable partners in decentralized service delivery where communities manage operations locally.

number of water trucks in operation, it is estimated that the residents of Tegucigalpa's peri-urban communities spend between US\$6.9–9 million dollars annually, which is up to nine times the average annual revenue generated by the utility.

In response to the lack of basic services and poor environmental conditions in peri-urban neighborhoods, the utility has attempted to make its policies flexible to ensure access in a viable and sustainable manner. Alternative solutions to water service delivery have been initiated to address the service gap including the 'Water for All' ('Agua Para Todos') program and the recently launched 'Water for Life' ('Agua Para Vivir') initiative. These alternative programs have been developed as provisional projects in the expectation that a definite solution will be provided in the middle or long term.

Key Program or Initiative Highlights

Water for All

In 1987, to address the service delivery gap to marginalized peri-urban neighborhoods, a collaborative initiative was launched by the water utility, UNICEF, and the private sector.⁸² A distinct subdivision, Executing Unit for Settlements in Development (UEBD), was established within the utility for program implementation. The secured seed funding for the program (approximately US\$400,000) was transferred to the private sector partner, Chamber of Commerce and Industry of

Tegucigalpa for management and was used to leverage additional bilateral financing from the governments of Taiwan, Canada, Holland, and Japan. The result was the establishment of a legal foundation, entitled 'Agua Para Todos' or 'Water for All'.

Each collaborating partner involved contributes distinct components to the model based on its skills and expertise: the Agua Para Todos Foundation finances physical infrastructure and uses its knowledge of the private sector to source required materials at affordable prices; the UEBD⁸³ takes a proactive role in the participating communities and is responsible for community mobilization, undertaking project programming, implementation, supervision of construction, and capacity building of the Water Administration Board; and UNICEF funds technical assistance and promotes a hygiene education program in the target communities.

Program Strategies

The small water supply systems developed by the UEBD, under the aegis of the 'Water for All' initiative, integrates community participation through the Water Administration Board, cost sharing, and a revolving fund that allows for cost recovery of capital costs.

The most important component of these models is a significant component of community participation. To achieve community acceptance and to ensure sustainability, the UEBD places emphasis on organizing the community and creating a Water

⁸² The private sector involved in the partnership included the Chamber of Commerce and Industry of Tegucigalpa, the Honduran Council for Private Enterprise, the Association of Communication Media, and the Televisión Corporación.

⁸³ In areas where the National Autonomous System of Aqueducts and Sewers (SANAA) does not operate the systems, nongovernmental organizations assist a dialog between the community and SANAA with the objective of initiating collaboration.

Box 30: Small Water Supply Systems for Peri-Urban Communities

The Executing Unit for Developing Neighborhoods (UEBD) is executing a series of projects in which small water supply systems are constructed for peri-urban communities, including the following:

Direct water sale from the main network to communities through a meter: The UEBD has executed several autonomous projects connected to the main supply network of the city. This model involves connecting to the main supply network, a system of secondary networks that feed one or more public tanks so that users receive a direct service from the city's network. In many cases, house connections have been made, where consumption is measured with macrometers. This system needs storage tanks, macrometers, secondary networks, and public or community cisterns. The UEBD has also developed many systems that are supplied by wells where water is pumped to a storage tank for ongoing distribution. The UEBD has built 95 such systems covering 28,985 houses and benefiting 176,913 persons in peri-urban neighborhoods.

Consumption is invoiced through a macrometer, which registers the consumption of the entire community. The Water Administration Boards (JAAs), or councils of the neighborhood, are responsible for the maintenance and operation of secondary networks, including the collection of user charges. The amount charged covers the operating and administrative costs, the payment of the water bill as measured by the macrometer, and the payment to a revolving fund, which finances projects for five to 10 years, free of interest. When the JAA makes full payment to the fund, the UEBD provides confirmation to the commercial area of the National Autonomous System of Aqueducts and Sewers to establish the rate to be charged subsequently.

Community tanks supplied by tank cars for ongoing distribution: Another system that the UEBD is implementing in peri-urban neighborhoods that are distant or have difficult access is the communal water tank supplied by cistern-cars. It is considered as a provisional solution in cases where it is not feasible to connect to city-level water networks. Water supply by cistern-cars results in higher costs than the previous system since cistern-cars need fuel for transportation. This system needs storage tanks (supplied by tank cars), secondary networks, and public or community cisterns. A variant of this system is one that has a reservoir (storage tank) supplied with water by a tank truck, which subsequently feeds public tanks through secondary networks. Twenty-one such projects have been implemented, supplying water to more than 59,232 persons (9,872 households). The JAAs are responsible for administering the system, delegating the duty to ensure an ongoing supply through tank cars and for collecting water expenses from the population.

Administration Board (JAA) or a neighborhood council for managing the water supply systems.

To be eligible for the program, communities are required to establish a JAA, consisting of a group of men and women, selected by community members through popular vote. To ensure that such JAAs remain integrated with the community, their membership is required to change every two years. However, an individual who is already a member of the JAA may be re-elected for an additional term. In some communities inter-

community JAAs have been formed across a large number of communities.

The JAA mobilizes and organizes community residents, and works in collaboration with the UEBD for the construction of small, networked water supply systems. Each provides a predetermined amount in the form of their labor toward the construction of a

new system (this stood at US\$ 42 and 26 days of labor per household in one community).⁸⁴ A system of public taps or individual household connections are created and the consumption is measured by a macrometer. The JAA operates and maintains secondary networks and collects water usage charges. Assigned tariffs cover the administrative and operating costs, the

⁸⁴ To facilitate system expansion as urbanization rates continue to rise is a challenge for the Water Administration Boards given the capital investment required. To this extent, a practice commonly employed is to categorize a household requiring a new connection and levy associated charges for its inclusion in the network. In one peri-urban community, US\$212 is levied on a household belonging to an existing family of the community, which participated in the construction of the network and provided the financial contribution, US\$318 to newly-arrived households, and US\$477 to households that opted not to participate in the initial construction phase or contribute financially. The latter charge is intentionally very high in order to promote widespread community engagement in system development from the outset and prevent the creation of free riders.

payment of the water bill from the water utility or localized small-scale vendors,⁸⁵ and repayment to a revolving fund⁸⁶ that finances these projects without interest for five to 10 years. JAAs are also responsible for securing necessary land for placement of holding tanks. Certain groups of the community may not be charged for the services, including the elderly, schools, or churches in which case the costs are borne by the general community through their payments to a JAA.

This peer-selected group is trained by the utility, encompassing key aspects of tariff setting, considerations for system operation and maintenance, disinfection practices, network expansion, and general administration of the JAA. The JAA is responsible for decisions on appropriate technology, operation and maintenance of the new systems, tariff collection, and overall administration. According to the United Nations (1998), JAAs are often 'the first type of organizations to achieve improvements for the community'.

Although varying in size and capacity based on community engagement levels, the JAA assumes responsibility for the planning, implementation, and management of water and sanitation systems while also promoting appropriate patterns of use and providing technical support within and beyond their communities on issues of plumbing and water treatment. Another important role they play is to assist in the social outreach and awareness building of water service delivery—in



⁸⁵ The Water Administration Boards are not under any obligation to purchase their water from the utility, and may opt to buy from localized small-scale vendors.

⁸⁶ These investment costs are then repaid by participating communities, without interest, over a period of three to seven years.

other words, to develop a 'culture of water'.

There was a significant lack of understanding of the physical logistics, financial costs, and environmental impact involved in the successful delivery of water and sanitation services. Water conservation was 'non-existent' and many did not comprehend why water, which is viewed as a natural gift, should carry a cost. This resulted in some households that were connected to the network to choose not to prioritize payment for services, or allow monthly billing to accumulate over time to a sizeable amount. JAAs are strongly placed to act as important agents of social change within low-income communities and to propagate new approaches to water management.

JAAs operate like socially-minded legitimate businesses, where 'investors' are the community members themselves to whom the JAAs are accountable, and from whom they receive the social acceptance and financial backing necessary to provide service delivery at affordable costs.

Outcomes

To date, the UEBD has benefited an estimated 80,000 residents of Tegucigalpa through engagement with over 116 JAAs, representing some 30 percent of the city's peri-urban communities, with an investment of approximately US\$8.7 million.⁸⁷

⁸⁷ UNICEF 2005; BDP, 2006; SANAA, 2006.

Lessons Learned

Constraints

- There is often a conflict in many communities between the JAA and the local *patronato* (a Local Development Committee that exists in every municipality in Honduras) for the right to operate water systems. Its governing board is selected by community members and represents community interests within their respective municipalities. Given their legal status, *patronatos* are also the official means by which a community can obtain financial,

technical, and other support from municipal, private, and national authorities to implement local development projects. To this extent, many *patronatos* perceive that JAAs infringe upon their legal status within a community and their ability to assume operational responsibilities within the water sector. Conversely, JAAs argue that the key difference between the two organizations is the unilateral focus that JAAs have on water issues and the fact that all funds are singularly invested in water sector-related initiatives.



- Each JAA exhibits unique strengths, weaknesses, and approaches to management methods based largely on its composition. Undeniably, not every JAA possesses the capacity to operate and maintain a water supply system. There are certain limitations: while some succeed in providing excellent service to their communities, others fail. Central to this dichotomy is the notion of

community leadership, which is fundamental to the sustainability of any JAA. There is no profit motivation or other tangible reward for participating and volunteering with JAAs, making them reliant on the commitment and personal drive of participating individuals. While there are numerous success stories emerging from efficient and well-organized JAAs, a lack of

institutionalization and dependence on personality-driven leadership is a limitation.

- The legality of the plots of land is one of the most frequent obstacles encountered by the water utility's UEBD, nongovernmental organizations (NGOs), and other institutions working in these neighborhoods.



Learnings

The 'Water for All' model serves as a strong example of how low-income urban communities can take ownership of development processes and be valuable partners in decentralized service delivery. These systems are very close to having access to a conventional house connection. The scale of collaboration utilized in this model points to how service providers or utilities might approach the expansion of system networks to urban poor communities that will be necessary with unabated urban growth. Through the effective use of public-private partnerships, service providers or utilities could feasibly harness the necessary technical and financial support necessary to expand services to marginalized communities where operations can be locally managed. Further, the ability to recover capital

investments through cost recovery mechanisms should provide an incentive to service providers or utilities to consider adopting such models as they assume control of water and sanitation systems in urban areas.

It is not enough to construct autonomous water systems; it is indispensable to ensure the existence of units that will manage them with efficiency. JAAs and neighborhood councils have shown tremendous potential to effectively manage local level water delivery systems if provided the right inputs through promotional activities, capacity building, and monitoring mechanisms. Much can be learned from analyzing best practice cases and synthesizing their characteristics into a formalized platform on which decentralization processes for low-income urban settlements could rest. Those JAAs

exhibiting sound management practices have succeeded in providing 24-hour chlorinated service at reasonable tariffs, which allow for the system's sustainability and expansion. In the Tegucigalpa neighborhood of Villa Cristina, for example, the JAA charges approximately US\$5 every month to each household that covers water consumption, and all related costs including operations, energy consumed at pumping stations, monthly salaries of seven support staff, and the financing of system expansion to vacant land with capacity for 350 households.

Given the movement toward decentralization in Honduras, it is in the best interest of the Honduran government and the community to actively engage with the JAA, and to ensure its operational effectiveness.

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CASE STUDY 16

Lima, Peru

Programs to Serve the Poor Urban Areas of Lima: Alternative Water Management Models

Context and Background (Country, City, and Service Provider)

Lima, the capital of Peru, is located on the central coast, between the Andes Mountains and the Pacific Ocean. Over 8 million people, approximately 29 percent of Peru's population (27,219,264 inhabitants), live in Metropolitan Lima and

Callao.⁸⁸ The city has experienced unplanned spatial expansion and demographic explosion.

Lima and Callao (referred to as Lima) is the second-largest desert city in the world, after Cairo. Water has always been a great concern in Lima as it is located in a dry region with low rainfall levels (an average of 0 to 10 ml a year). Although the Rimac, Chillón, and Lurin Rivers cross the city, their volume of water is low and varies seasonally. The Rimac⁸⁹ basin is a significant water source, but high contamination caused by industries (especially the mining

industry) as well as by domestic effluents, pesticides, and agricultural drainage is limiting its use. In addition to the permanent water shortage in the city, particularly during summer, water supply is also affected by droughts.

Since the 1950s, there has been a growth of informal settlements in the urban fringe of Lima. Informal settlements are inhabited by new immigrants and are called shanty towns.

The main actors in the water and sanitation sector in Lima are the Drinking Water and Sewage Company of Lima (SEDAPAL, S.A.); the National Superintendence of Sanitation Services (SUNASS); the councils of the region;

⁸⁸ The Region of Metropolitan Lima has 7,237,745 inhabitants and 43 districts while the Callao region has 811,874 and six districts.
⁸⁹ The Rimac River has a greater volume of water during summer months because this period coincides with the rainy period in the Andean area.



and several civil organizations and community groups. A conventional management model prevails in Lima, in which the supplier is a public company that distributes water through primary and secondary networks.

The **SEDAPAL** is a public company that provides water and sanitation services in Lima. It is a state-owned company subject to private law, which was established as a stock corporation with administrative and financial autonomy. It has a board of shareholders (with two members) and a board of directors (with six members) appointed by the National Fund for Financing State's Business Activities (FONAFE). Its coverage extends to the Province of Lima and the Constitutional Province of Callao. Its jurisdictional scope includes the 49 districts of Metropolitan Lima, 43 of which are under its management while six are administered by their own municipalities. The water and sewage company has triple regulation and control: (a) as a public company, it is regulated by the Ministry of Economics through the public office FONAFE; (b) as a water and sanitation company, it is regulated by SUNASS; and (c) by the Ministry of Housing, Construction, and Sanitation, the body that governs the water and sanitation sector.

SUNASS is the entity in charge of regulating and supervising services nationwide. It regulates and oversees the provision of sanitation services at national level in order to ensure that these are rendered with adequate quality, coverage, and prices.

Local governments participate, though partly, in the supply of water to communities without house connections. According to Fomento

para la Vida, an important nongovernmental organization (NGO) promoting better water access, only 40 percent of councils carry out any type of activity related to trucked water distribution (such as surveillance of water spouts and police raids)—20 percent make arrangements with the water company, and 28 percent do not carry out any related activity.

Civil organizations are key actors in urban poor shanty towns. For example, ECO CIUDAD provided technical and social assistance for the implementation of the Drinking Water for Shanty Towns (APPJ) project. This organization has been working with low-income communities, and currently promotes small credit for water networks and encourages training to bring about cultural changes. It also promotes the recycling of greywater through natural systems to irrigate green areas in several urban districts. The Foro Ciudades para la Vida is an association of 83 civil society institutions (including universities, municipalities, private organizations, and NGOs) that has been promoting sustainable development in 29 cities of Peru since 1996. Alternativa also participated in social promotion and technical training in different settlements of the districts of Carabaillo, Ancón, and Ventanilla under the APPJ. It plays a part in the Poverty Eradication Program for Poor Urban Areas of Metropolitan Lima. Fomento para la Vida has also played a significant role in the systematization of data on the population without water and sewage, and on water quality monitoring.

According to Servicio de Agua Potable y Alcantarillado de Lima/The Drinking Water and Sewage Company of Lima (SEDAPAL) (2005), 90 percent of the

population of Metropolitan Lima and Callao has access to drinking water and 85.5 percent to sewage systems. According to SEDAPAL's PAC (Coverage Expansion Program), there is an unserved market of 750,000 inhabitants, which is currently supplied by *aguateros* who distribute water from tank trucks in poor conditions, at inappropriate hours and at high prices. According to Fomento para la Vida, there are 1,104,755 people living in settlements in Lima who are supplied by tank trucks. The conditions of tank trucks and other water sources (water spouts) are very poor. People living in neighborhoods without water have to walk long distances on foot to find water, and costs paid to suppliers (tanks or trucks) are very high. The poorest groups living in the urban fringe end up paying up to 10 times more than common water users. This situation made it imperative to develop


sustainable local models tailored to the real needs of the urban poor community.

Key Program and Initiative Highlights

The APPJ and the Poverty Eradication Program in Poor Urban Areas of Metropolitan Lima (PROPOLI) are two successful examples of local water management models. The Coverage Expansion Program is a utility-led initiative to ensure access of water supply and sanitation in unconnected neighborhoods.

The APPJ is a pioneering initiative in terms of its massive implementation and community management system. It is an experience of public-private





partnership devoted to the development of capacities among urban poor communities to manage basic services locally. The program was initiated in 1993 in an emergency, to fight a cholera epidemic. The project lasted seven years (1993–2001)⁹⁰ and benefited 337,500 inhabitants. It involved building autonomous drinking water systems in peri-urban areas, which were earlier not served by the water utility. The APPJ was a bilateral program involving the European Union and the water utility as a counterpart of the Peruvian government. Both parties signed a tripartite agreement with the local municipality prior to the implementation of works.

The project was managed by a management unit (European and national codirector appointed by the water utility) and an advisory committee made up of representatives of the participating bodies—CENCA Urban Development Institute, SEDAPAL, ministries, and NGOs—who gave their consent to the works. Works were implemented by the beneficiaries who were represented by the governing board of the settlement, the district municipality, the water utility, and project staff.

The most crucial component of this model is the participation of the community through the participation of civil organizations⁹¹ and the Drinking Water Surveillance and Administration Committee (COVAAP)—the latter is

organized as a company and generates a model for cost-effective provision of basic services, which can even generate profits to be reinvested. Made up of users, these committees were in charge of managing the supply system. The model needs a management team that perceives its work as more than an economic activity and proposes an integral approach to water and its effects. The communities that have adopted this type of systems not only satisfy a need, but also gain new skills to manage other services. Another important aspect of this project has been its adaptation to local contingencies and needs throughout the program implementation phase.

This model has shown that building autonomous drinking water systems is not enough; it is essential to ensure the existence of units that manage them efficiently. Good system management requires higher investments in promotion, training, follow-up, and monitoring activities of organizations in charge of administering the systems.

The main objective of the PROPOLI program is to integrate the poorest population into the development processes of its districts with local governments as strategic partners. PROPOLI's activities are implemented under four components: (a) citizen participation and institutional strengthening; (b) training for income generation; (c) equal opportunities; and (d) health and sanitation. The program

was implemented in 2003 following an agreement between the European Union and the Ministry of Women's Affairs and Social Development. The program has a time span of five years (2003–2008) and is being implemented in 10 poor urban districts of Metropolitan Lima, targeting slightly more than 3.1 million people.

The participation of the community and community organizations is essential. The training of water watchers, *Vigias del Agua*, has ensured that they have gained experience in measuring water quality, controlling the quantity of chlorine in the water supplied by tank trucks. This initiative has led to the legal institutionalization of two committees through district ordinances.

The Coverage Expansion Program (PAC) is an initiative to ensure access of water supply and sanitation in unconnected neighborhoods. It is an initiative led by the water utility with the financial support of the World Bank.⁹² It involves the construction of condominial networks instead of traditional network systems.⁹³ The condominial water and sewage system delivers services to each housing block or group of dwellings—condominiums—rather than to each housing unit. Thus, the required length of the network is considerably shorter than that of a conventional system, and this, in turn, allows branches to adapt to local topographic conditions. This type of system is based on the decentralization of water supply

⁹⁰ It consisted of three phases: (a) initial phase (August 1993 to December 1993); (b) transition and adjustment phase (January 1998 to September 1998); and (c) final phase (October 1998 to March 2001).

⁹¹ The institutions that have participated in the APPJ are: Alternativa (Center for Social Research and Education for the Poor), APDES (Social Promotion and Development Association), CEPROMUP (Center for the Promotion of Poor Women), CENCA (Urban Development Institute), CIDAP (Population Research, Documentation and Consultancy Center), CIDEPROC (Research, Project Development and Training Center), CIPUR (Research and Regional Urban Projects), CCODEINGESA, ECO CIUDAD, ISU CIUDAD (Urban Development Institute), IDEAS (Investigation, Documentation, Education, Advice and Services), IPES (Informal Economy Promotion Institute), KALLPA (Association for the Promotion of Health and Development), MORAY, OACA (Environmental Advice Office), SEA (Educational Services El Agustino), and SER (Rural Education Services).

⁹² SEDAPAL invests US\$10 million and World Bank US\$20 million for the first phase.

⁹³ The condominial system is commonly used in Brazil. See Melo, José Carlos. 2005. *La experiencia de los sistemas de aguas y alcantarillado condominiales en Brasil*. Water and Sanitation Program—Latin America, LEDEL SAC, Lima, Peru.

or sewage treatment facilities to avoid costs associated with the transportation of fluids over long distances. Another important aspect of condominial systems is that they develop a much closer relationship between service providers and users, thus encouraging both parties to come to an agreement to facilitate service expansion and adaptation to local needs and constraints.

The condominium becomes a physical unit of service provision and a social unit for facilitating collective decisions and organizing communal actions. These systems are as much as 30–50 percent more economical than

conventional systems and are key promoters of community participation, and specifically of water and sanitation committees that are efficient in resource management. In addition, they contemplate the adaptation to land and social conditions, and promote the wise use of resources as well as capacity building.

The application of this new methodology and technology implies a cultural change, not only among users with respect to hygiene habits, water use, and payment practices, but especially among the utility's technicians and professionals who are used to the conventional system.

Most residents have not only installed a faucet, but also kitchens and full bathrooms. Currently, bids are being called for other projects in order to scale up the program and reach 30,000 connections (equivalent to 230 settlements) by 2008.

Lessons Learned: Enabling Factors and Constraints

The PAC and the APPJ are two interesting management models that can be replicated in other cities. Their adaptation to social and physical conditions, the promotion of





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Fomento para la Vida, Foro Ciudades para la Vida, and IPROGA, among other small- and medium-scale experiences, prove that cooperation mechanisms and management models can work efficiently.

New technologies: New technologies must be creatively sought to obtain more sustainable models with higher impact. The experience of condominial systems is an interesting and low-cost alternative. Furthermore, the need to strengthen innovation capacities and generate synergies among existing knowledge is perceived. It is necessary to develop technologies that take into consideration the region's topography and resources.

Legal framework: Forums for open discussion must be created to establish appropriate basic rules tailored to the water and sanitation demand of the unserved peri-urban segment. Rules are needed that acknowledge and legitimize alternative service management models at the community level (such as the COVAAP). Considering that Lima is the second-driest city of the world, it is necessary to review and amend the General Law on Water at the national level in the light of the region's critical situation and from a comprehensive perspective on the management of hydrographic basins.

Institutional framework and management models: The services provided by public utilities are inefficient

and do not satisfy people's needs. To make services profitable, public-private partnerships are recommended. The participation of direct actors in the provision of services is a successful management model alternative (for example, the COVAAP). It is necessary to have greater sector regulation and to recommend a clear state policy with realistic goals.

Financing models: The population of Metropolitan Lima has almost doubled in 25 years. Therefore, it is essential to invest in infrastructure and services. The establishment of more equitable rates that take into consideration users' financial resources and water needs is under discussion.

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CASE STUDY 17

Kisumu, Kenya

Nyalenda Water Supply Project: Delegated Management Model

Context and Background (City, Urban Poor, and Service Provider)

Kisumu, located on the shores of Lake Victoria, is the third-largest city of Kenya. The city has experienced high population growth rates (4.74 percent every year) and its population has increased from 113,000 in 1969 to approximately 350,000 at present. Approximately, 60 percent of the city's population resides in peri-urban settlements (United Nations Human Settlement Program, 2003).

The coverage of water and sanitation services is very low, there are only 8,000 active water connections and only a very small percentage of households have a sewer connection. To a large extent, water services are being provided by small-scale private operators, well or borehole owners, owners of the few functional connections who resell water to their neighbors, and nearly 1,000 retailers (water carriers).

The Kenyan National Water Act (2002) was aimed at improving water and sanitation service provision through better governance and setting up of new sector institutions. The reforms have created a new institutional framework, which has effectively

devolved water and sanitation services to water service boards; for instance, the Lake Victoria South Water Services Board in Kisumu. The water service boards contract water service providers to deliver services to consumers. In Kisumu the Lake Victoria South Water Services Board (LVSWSB) has contracted the Kisumu Water and Sewerage Company (KIWASCO) to operate water supply and sanitation services.

In order to address the problems of low coverage of water and sanitation services in Kisumu's peri-urban areas, the water company has taken the following initiatives:

- Employing five staff members on a part-time basis, involved in a

propoor unit aimed at addressing service improvement in slums.

The staff of this unit includes the managing director, technical and commercial managers, among others.

- *Reducing the price of water to kiosks in slums from Ksh 80/cu meter to Ksh 35/cu meter (US\$1.10 to US\$0.48).*
- *Developing a special metal box to lock water meters to prevent tampering.* At present, 103 such meter locks have been installed, which has resulted in more accurate billing of water supplied to kiosks in slums.

Key Program and Initiative Highlights

Program Design

The Kisumu Water and Sanitation Project (KWSP)⁹⁴ is an innovative public-private partnership aimed at rehabilitating and expanding water and sewerage infrastructure and enhancing services to the city's unserved peri-urban areas. A component of the KWSP is the Nyalenda Water Supply Project (NWSP), which covers Nyalenda, Kisumu's largest low-income settlement with approximately 14,000 households.⁹⁵ While all residents are landowners with freehold titles, a majority of them are poor. Although the settlement is located in close proximity

to the existing water network, it remains grossly underserved.

In this delegated management model for water service delivery, the water company sells bulk water to a private operator (private entities or community-based organizations) who is competitively selected and contracted to operate and manage the network. The operator is also responsible for billing, revenue collection, and minor maintenance. The network extensions to nonserved areas (tertiary distribution and customer care) are also delegated to the private operators based on output-based aid schemes. This model reduces the administrative costs of the water company and improves its operational efficiency (by reducing nonrevenue water and increasing revenue collection per capita).

To ensure fair selection of operators and to counter nepotism and corruption, the water company has put in place a transparent and competitive bidding process. The water company works closely with the target community to create an application form that is user friendly and appropriate for local conditions and norms. The application forms are made available at easy to access and 'high traffic' places such as churches, the chief's compound, and at the water company's office. As the probability of selecting strong candidates is higher when more applications are received, the water company provides adequate time for the news of the positions to

spread. It is necessary for the operator to possess a certain level of education and business experience along with basic communication and accounting skills. As the informal sector service providers do not have bank accounts and keep their savings either at home, or invest in land or rental units, the guarantee requirement has been kept flexible—documents ranging from land titles to bank statements are accepted as 'proof of financial viability'.

Since operators are selected from the same geographical area, they are known to the community. This helps to not only prevent vandalism and illegal connections, it also aids revenue collection. This model has community participation as a core strategy; the target community is involved in all aspects of the selection process including reviewing applications, short-listing applicants, interviewing finalists, and recruitment. The fact that the private operator is selected with the community's consent ensures higher acceptability and fewer problems in service provision and revenue collection.

The first phase of the NWSP covered approximately 10,000 people. It was envisaged as a blueprint, which could be replicated in the remaining areas of the settlement and other settlements within the water company's jurisdiction. At present, phase I and II of the project have been completed and 12 lines are operational, covering the entire settlement. The existing 600 connections will be transferred to the master operator lines, and the old 'spaghetti lines' that were rampant with leaks and illegal connections will be disconnected.

Community outreach is important to ensure community participation in the

⁹⁴ The Kisumu Water and Sanitation Project is being implemented in two phases. The Short Term Action Plan aims at physical investments urgently needed in the city, undertaken parallel to the implementation of institutional and management reforms. Upon its completion (according to a set of criteria), the Long Term Action Plan relating to rehabilitation and extension of the water and sewerage system of the Kisumu urban area, will be implemented. The Agence Française de Développement has provided 20 million Euros to the Lake Victoria South Water Services Board under this project.

⁹⁵ Location/sublocation	Male	Female	Total	Total households	Area (sq km)	Density
Nyalenda A	12,507	11,224	23,731	7,069	2.8	8,475
Nyalenda B	13,162	12,482	21,644	6,887	6.1	20,955

initiative. An outreach campaign is conducted prior to any capital works to allow the community to voice any concerns and to assist with design (for advising on the best locations for the lines) and implementation. Also, building community ownership is helpful in project implementation. Residents may allow for pipes to traverse their property and help monitor the works to guarantee quality workmanship. Three components are key for community mobilization: (a) forming a community committee; (b) holding a communication strategy workshop; and (c) community mobilization. Adequate financial and human resources have been allocated for this effort.

Key Outcomes

The delegated management model for water services is an innovative partnership between the water company and private operators. The approach makes it possible for peri-urban households to have a private (individual) connection at reduced prices as compared to the earlier situation of paying high prices for poor service. This model allows the development of a range of services (private connections, shared standpipes, commercial kiosks) to match the demand of households, while maintaining the overall sustainability of the water company. Customers have also reported improvements in water quality. This model officially recognizes that rising block tariffs may be detrimental to households that resell water and offers a commercial tariff that does not rise with increasing levels of consumption.

Minimizing the business risk is another integral characteristic of the model. The



risk of defaulting customers is minimized for both the water company and the private operators through a prepayment system. The private operator pays a Ksh 15,000 (US\$210) deposit to the water company; domestic customers pay a Ksh 1,000 (US\$14) deposit to the private operator; and kiosk customers pay a Ksh 5,000 (US\$70) deposit to the operator. The operator and the water company have the right to withhold these deposits in case of nonpayment.

The tariffs translate in reduced connection and consumption costs for the customers, from US\$56–21 for a connection, and between 10–25 percent less on water prices depending on the consumption band. The model

is also positive for the water company: the KIWASCO has increased its revenue collection three-fold from customers in Nyalenda. Reducing unaccounted-for water will be central to improving the performance of the water company, and the delegated management model is helping it move in that direction.

Enabling Factors and Constraints

Three key policy and institutional ingredients have been crucial to the success of this project:

First, Kenya's recent *policy changes in the water sector* made the delegated management of water provision possible. The major changes brought

about by the 2002 National Water Act reforms allow for public-private partnerships in the management of water services. The Act also recognizes small-scale providers in the water services supply chain.

Second, the LVSWSB (the asset holder) and KIWASCO (the water company) have demonstrated the *political will* to solve the challenge of serving the poor, and assigned a strong mandate to the water company to improve services in uncovered areas.

Third, the water company has undergone *positive changes in terms of performance* and has an increasing culture of learning, capacity building of staff, and improving customer service—all vital for serving the poor better.



Constraints

One of the main challenges facing the project is that demand continues to outpace the supply of water throughout the city. It is envisaged that the Agence Française de Développement investment project (see footnote 94) will increase the production of water over the next five years.

Second, infrastructure improvements have been undermined by occasional vandalism. Vandalism is not exclusive to the delegated management model or even to the water sector but is still detrimental to delivering quality infrastructure and services.

Third, the fight against illegal connections has been slow. The problem will not be fully addressed until all spaghetti network customers are transferred to the operator lines and the old individual connections are cut off.

In addition to ensuring the availability of water and curbing vandalism and illegal connections, the project has faced three other significant challenges: (a) building the capacity of the water company to manage the project; (b) ensuring adequate levels of community mobilization; and (c) selecting qualified operators.

Lessons Learned

The delegated management model may be used for water service provision in low-income areas where there is a supportive policy framework, the water supply is sufficient, and the utility has access to funding for new infrastructure. A number of key points and lessons learned from project implementation may be useful when preparing and planning a similar project.

Project planning: A detailed action plan eases the task for the utility since a delegated management model will be new to most water utilities. The plan should include (a) financial analysis to determine tariffs; (b) a participatory methodology for selecting the project area; (c) designing a process for transferring existing customers (where applicable); (d) defining the roles and responsibilities of the operator; and (e) developing a thorough communication and outreach strategy.

Community mobilization: Allocating adequate financial and human resources to mobilization efforts is critical to ensure community participation. Based on the

experience of the NWSP, funds should be earmarked for outreach and the outreach campaign should be conducted prior to any capital works.

Recruiting and selecting

operators: The utility should organize a transparent and competitive bidding process for selecting operators, especially in environments where nepotism and bribery regularly guide appointments. Further, operators have a significant role in the success of the project and strong candidates are needed to take the position.

Revisiting communication and

outreach strategy: Although community outreach should be continuous, a concerted effort should be made to engage with the community as the capital works are implemented.

The purpose of this intensive effort is to introduce the operators to the community; remind the community of the operator's roles and responsibilities; and reassure the community that they may complain directly to the committee or to the utility if there are any grievances with the operators.

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CASE STUDY 18

Lusaka, Zambia

Water Trust Model: A Community-Based Initiative

Context and Background (City, Urban Poor, and Service Provider)

Zambia is one of the more highly urbanized countries in sub-Saharan Africa.⁹⁶ Zambia's capital city Lusaka was estimated to have a population of 1,120,000 in 1996. The city has 33 peri-urban areas (locally known as compounds), which account for 60 percent of its population. The water supply and sanitation services in these settlements are poor, inadequate, and unreliable; a majority of the residents do not have access to safe water supply

(56 percent) and sanitation (90 percent). Residents of peri-urban areas spend a lot of time collecting water, usually from shallow wells, which is often of poor bacteriological and physical chemical quality, resulting in high incidence of water borne diseases.

Local authorities are responsible for providing water supply and sanitation services in their service areas, which include peri-urban areas (WSS Act No. 28 of 1997, Section 10). Local authorities are encouraged to form commercial entities.

The provision of water and sanitation services in Lusaka is the responsibility of the Lusaka Water and Sewerage Company, which is a private liability company wholly owned by Lusaka City Council. In 2003, the water company was producing a monthly average of 76.2 million cubic meters of treated

water, which it was supplying through 34,500 connections covering only 34 percent of the city's population. The residents of low-income settlements located in peri-urban areas were the worst affected by the utility's poor service levels. Some factors that have constrained the Water and Sewerage Company to extend services to peri-urban low-income settlements include legal status of the settlements, inadequate existing infrastructure to facilitate service delivery, and lack of capital investment required to extend services to these areas. In line with the national policy and action plan for delivery of water and sanitation services to peri-urban areas, the Water and Sewerage Company set up a peri-urban unit in 1995 to address the service delivery gaps in these areas.

The Government of the Republic of Zambia embarked on a sectorwide

⁹⁶This case study is based on *Community-Managed Schemes—The Water Trust Model: Facilitating Access to Water and Sanitation Services for the Urban Poor in Lusaka, Zambia*. Prepared by Rose Lidonde, Consultant, Water and Sanitation Program—Africa Region. March 2008.

Box 31: Water Trusts Deliver Better Quality Services

The Water Trust Model has at its foundation community-based service providers for providing water supply and sanitation in peri-urban areas of Lusaka. While the Lusaka Water and Sewerage Company was responsible for water and sanitation services, the service levels were inadequate, inefficiency levels were high (as reflected by a high unaccounted-for water of 58 percent), and service was poor and unreliable. Water trusts were set up to build capacity of local communities for providing services in their own settlements. Established with assistance of CARE, an international nongovernmental organization, working in partnership with Lusaka Water and Sewerage Company and Lusaka City Council, the trusts are now independent water systems, managed by the communities and registered under the Land Perpetual Succession Act of the Laws in Zambia.

A recent evaluation study showed that compared to services delivered by the Water and Sewerage Company, the water trust systems were delivering better quality services in a cost-effective manner. The distance traveled, the time spent collecting water, price of water, and the amount of water used by households are more favorable in peri-urban areas served by the water trusts as compared to those served by the water company. At present, the water trusts are serving a population of 600,000 people in 13 peri-urban settlements.

restructuring in 1993, which has resulted in an enabling policy environment for international nongovernmental organizations (NGOs) to develop and implement innovative community-based management models that uphold the interests of both urban poor communities and governments.

Key Program and Initiative Highlights

Aim and Objectives

The water trusts are community-based service providers for water and sanitation services in Lusaka's

peri-urban areas. The water trusts are independent water systems, managed by the communities and registered under the Land Perpetual Succession Act of the Laws. The water trusts were set up with assistance from CARE, an international NGO under the CARE PROSPECT project and in partnership with other stakeholders (for example, Lusaka City Council and the Water and Sewerage Company). The goal of setting up the water trusts was to build the capacity of local communities to provide water and sanitation services in their own communities and to supplement service provision by the water company. At present, the water trusts are serving a population of 600,000 people in 13 peri-urban settlements.

Program Details

The efficient operations of the trusts lie in an **institutional structure** that has clearly defined roles and responsibilities. The structure comprises board members who are responsible for providing direction on policy and implementation strategies; a management team that is responsible for the day-to-day operations of the trusts such as overseeing the selling of water by vendors or tap attendants, ensuring collection and remittance of funds to the trusts cashiers, and general maintenance of the water systems. Vendors or tap attendants sign a water point operation and maintenance contract with the management, and receive a monthly commission based on 33 $\frac{1}{3}$ percent of total sales. An operation and maintenance system, where the water vendors or tap attendants ensure that any faults are reported in time to the management, and attended to as soon as they are detected, is in place. The trusts continue to train their staff on operation and maintenance and seek technical support from the water company at a fee. Currently only the Water and Sewerage Company has the license to provide water and sanitation services in urban areas and local management institutions like the water trusts provide water using the Water and Sewerage Company's license.

Water trusts and sanitation: While the trusts have considerable options and guidelines for water supply, there are no clear implementation strategies for the provision of sanitation facilities. There is also limited experience among community-based providers on delivery of sanitation services in peri-urban areas. The few attempts by local authorities and NGOs such as CARE

Box 32: Significant Players on the Reform Process

The Lusaka City Council is a core signatory to the water trust accounts. The Council is responsible for resolving conflicts related to water and sanitation. In addition, the Council facilitates the recruitment and appointment processes for management staff and board members, audits books of accounts, and provides legal advice regarding registration of the water trusts in collaboration with the water company's legal office.

The Lusaka Water and Sewerage Company provides technical support to the water trusts and is responsible for repairing any major faults with costs paid by the trusts. The Water and Sewerage Company appoints one member of its staff to represent it on the board, who in turn provides guidance on technical aspects of service provision. Where required, the Water and Sewerage Company provides technical training for management staff. It also undertakes water quality testing and monitoring along with providing advice on the current set tariffs approved by the regulatory board. At present, the Water and Sewerage Company holds the license for the service area and is responsible for the payment of the license fee, which is 1 percent of the total annual billed amount.

The National Water and Sanitation Council is a regulator, and is responsible for monitoring the performance of service providers and for licensing water providers.

have targeted public sanitation amenities, which are not so popular at household levels. The challenge for sanitation service delivery is further enhanced due to a lack of institutional commitment for sanitation and it is not always clear who is responsible. For instance, in Lusaka, the Water and Sewerage Company is the licensed service provider and is mandated to provide water and sanitation services in peri-urban settlements. The Water and Sewerage Company's capacity to respond to sanitation demands, however, is limited and water supply has been accorded a higher priority than sanitation.

The Kanyama Water Trust: A Case Study

Kanyama is one of the peri-urban settlements where the water trust model has been scaled up. The water

Box 33: Role of Key Partners in the Water Trusts

The **board** is made up of representatives from the resident development committees, local authorities, Lusaka Water and Sewerage Company, and selected members of the community. The board is responsible for providing policy direction, developing implementation strategies, sanctioning of procurement, and employment of staff, including the scheme manager. Generally, the board consists of nine members called trustees.

The **management team** is responsible for the day-to-day management of the scheme. The board employs the manager who in turn hires the rest of the staff based on the criteria set by the board. The scheme manager's role is to supervise the operations of the staff such as water vendors or tap attendants (who sell water on behalf of the scheme), plumbers, and cashiers. The manager is answerable to the board.

Vendors or tap attendants are recruited from among community members. The selection criterion is basic numerical and reading skills. The tap attendants or vendors sign a water point operation and maintenance contract with management and receive a monthly commission, which is $33\frac{1}{3}$ percent of total sales. Vendor's encash collections every day at the trust offices located within the area being served. The water is sold in 20 liter containers to individuals or organizations or as a daily entitlement to monthly prepaid customers. Water vendors or tap attendants also ensure that any faults are reported as soon as they are detected. The model allows for an extra pool of vendors to be trained to ensure continuity in case one is not available due to illness or other factors.

is pumped from two borewells, dozed with chlorine gas using online dozers, stored in overhead reservoirs, and distributed by gravity. The necessary infrastructure construction and community capacity building to manage all aspects of water service delivery were undertaken under the CARE PROSPECT project. While the project was envisaged to cover a population of approximately 85,000 people, the Kanyama water trust currently serves approximately 145,500 people. The water trust has a production capacity of 288 m³/hour and a storage capacity of 400 m³. There are 101 standpipe or public connections and 120 yard or household tap connections in the community. Water is supplied two times every day (from 6 am to 11 am, and 2 pm to 6 pm).

Water services are decentralized to four sectors of the compound. The sectors have independent water pressure zones, served by separate water abstraction, treatment or pumping, storage and distribution systems. Each sector has a plant attendant, a plumber or meter reader, and a cashier, who are all employed by the trust on a permanent basis. The trust has engaged 101 water vendors on a temporary basis, who operate the public tap stands, receive revenue from the users, and in turn present it to the cashiers. The priority of the water trusts is to provide water services to community members, through public standpipes. However, in some cases such as the Kanyama water trust, individual household connections have been provided (120 household taps).

Category	Application Fees
Application fees for all categories	Zambian Kwacha 1,000 (US\$0.30)
Connection fees for domestic customers	Zambian Kwacha 100,000 (US\$30)
Connection fees for commercial customers	Zambian Kwacha 200,000 (US\$60)
Security fees for domestic customers	Zambian Kwacha 30,000 (US\$9)
Security fees for commercial customers	Zambian Kwacha 70,000 (US\$21)
Public standpipe tariff: Prepayment	Zambian Kwacha 5,000 per month (US\$1.50)
Public standpipe tariff: 'Pay-as-you-go'	Zambian Kwacha 100 (US\$0.03) per three 20-liter containers
Flat rate tariff for private connections	Zambian Kwacha 40,000 per month (US\$12)

Prior to approving new household connections, a technical team evaluates the hydraulic capacity of the system.

The water trust has differentiated the connection charges between household and commercial use. Security fees are used to hire guards to protect the newly laid pipeline to counter vandalism. The tariff is also differentiated according to whether water is drawn from a public standpipe, or from a private house connection. All the rates set by the water trust are approved by National Water and Sanitation Council, Zambia's water services regulator, who is also expected to regulate attributes of the service delivery. However, there is little evidence that the water trust services are being subjected to effective scrutiny

and the trusts operate a flexible bill payment system. In addition to cash payments at the tap stand, prepayment cards may be purchased at K5,000 per month, giving an entitlement of seven 20-liter containers per household per month, which translates into a discount of about K30 per three containers. However, the 'pay-as-you-fetch' system is more popular, mainly due to affordability limitations.

CARE carried out an evaluation in mid-2004 to ascertain the impact of the PROSPECT project in the target areas. The study compared three peri-urban settlements (Chaisa, Chibolya, and Kanyama) where the project was implemented, with Kalikiliki peri-urban settlement, which did not participate in the project. The evaluation sample consisted of 801 households from the project areas and 300 households from

the non-project area. The evaluation revealed that key service levels of water services provided by the water trusts are much higher than those of levels of service delivered by the water company. The distance traveled, the time spent collecting water, the price of water, and the amount of water used by the household were all more favorable in the peri-urban areas served by the water trust. Further, 76 percent of respondents from the project areas were satisfied with the level of service

offered through the public tap stands. More than half of the respondents (57 percent) rated the hours of operation at the public tap stands as satisfactory. However, 18 percent thought the number of tap stands was inadequate, and 51 percent indicated that water services provided by the water trust were more expensive than before the project. This is not surprising, as 46 percent of the respondents previously obtained water from shallow wells at no fiscal charge.

Key Outcomes

The key outcomes of the water trust model have been:

- Provision of adequate and quality water services to peri-urban areas or communities, which were earlier not served by the Water and Sewerage Company.
- Improved water service delivery for a population of 600,000 people in 13 peri-urban settlements.



- Capacity building of target communities to enable them to provide water and sanitation services in their own settlements to supplement service provision by the water company.
- The water trust model has resulted in increased revenue collection by increased coverage and better collection efficiencies. In Kanmaya Water Trust, the monthly revenue collection is Zambian Kwacha 8 million (US\$2426) with collection efficiency of 90 percent and operating ratio of 80 percent.

Enabling Factors and Constraints

Challenges

The relationships of the water trusts with the Water and Sewerage Company are not formalized in the absence of a signed Memorandum of Understanding (MoU) between the Water and Sewerage Company and the water trusts regarding the use of the former's license for supply of water. The operations of the water trusts are not regulated, thus rendering the uniformity of water quality, accountability, and

transparency standards of service delivery difficult.

As the water trusts are not licensed by the regulator, they do not apportion any of their revenue to the license fee for the service area.

While the water trust model promotes cost-effective and sustainable services, there are still free water sources within the trust's service areas, jeopardizing its sustainability. Sanitation improvements are still notably limited and the challenge is how to develop a partnership between the Water and Sewerage Company



and the city council on issues of environmental sanitation. Currently, there is no formal framework for environmental impact assessment in place for the service provider. Since community members have dug many wells, while sanitation services are limited there are serious concerns about the quality of water and environmental sanitation as a whole.

Recommendations and Lessons Learned

The case study demonstrates that partnerships between communities, NGOs and water service providers are capable of bridging the service delivery gap in poor peri-urban areas. It also brings to light that community-managed models of service delivery can provide better service levels than conventional water utility or service

providers, at least in the short to medium terms. This model has shown that the recognition by policymakers of alternative service providers, such as community-based service providers in water and sanitation service delivery, can ensure better services for urban poor communities.

The development of a clear regulatory framework by the regulatory authority in support of community-based service providers or management systems is vital to render uniformity in water quality, and accountability to consumers and transparent service standards. There is need to formalize the relationships of the trusts with major urban service utilities, for instance with the Water and Sewerage Company. An MoU defining the mode of operations and support for the trusts

can be agreed upon and signed. Support to local initiatives and ensuring linkages to development of national urban water supply and sanitation programs is important.

This case study has demonstrated that the poor can pay for services as long as there is an efficient management system in place, along with accountability and transparency. The study also shows the importance of involving the community at all stages of the project cycle process, as this promotes community ownership, empowerment, and sustainability. Last but not least, the study demonstrates the dire need for support of the sanitation agenda, so as to ensure that environmental sanitation is accorded due attention and commitment for purposes of intended health benefits.

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CASE STUDY 19

Dakar, Senegal

Social Connections and Public Standpipes: Access to Drinking Water in Disadvantaged Areas

Background

The Dakar Region covers an area of 550 km² and is characterized by a high urbanization rate, with over half of the country's urban population living in Dakar.* Dakar has a population growth rate of 4 percent, with an urbanization rate of 96.7 percent (IAGU, 2007) and a population whose majority are young—60 percent are aged below 25 years. Huge disparities mark the demographic load in cities and rural communities in the region. Poverty levels are palpable and vary depending on places of residence, predominantly in the city's outskirts that are often host areas for migrants. The status of the environment largely influences access

to basic water services. Environmental pressure indicators reveal that a significant number of human settlements are located in flood-prone areas. However, in terms of drinking water, Dakar is well serviced, with 90.7 percent of households using tap water. According to statistics provided by ESAM II, the percentage of the population living less than 30 minutes away from a water source is 99.1 percent in Dakar and 96.9 percent in urban areas of Senegal. These accomplishments are largely due to two main improvement projects: the *Projet Sectoriel Eau* (PSE), 1996–2000; and the *Dakar Projet Eau à Long Terme* (PELT) set out in 2000 to satisfy the water needs at an acceptable level by 2011. The 2006 OECD report on

Senegal suggests that access to water through a pricing system per individual service connection and a wider program of water service pipes for social connections within the framework of poverty reduction was significantly improved. With the objective of providing water to at least 88 percent of Dakar's population and 79 percent of households in other towns by 2015, the government installed 105,000 individual social connections in the peri-urban areas of Dakar between 1996 and 2005. However, the report reveals that 24 percent of Dakar's inhabitants and 43 percent of persons in other urban centers still do not have access to public drinking fountains as the prices there are *four times higher than with individual connections*. In disadvantaged

* This case study has been developed by WSP, Senegal country office.

Box 34: Urban Water Sector Reforms in Senegal

Reforms in Senegal's urban water sector took place in a context marked by an increasing social demand for water. They resulted in the creation of a collaborative platform between three entities—a national company, Société Nationale des Eaux du Sénégal (SONES); an operating company, Sénégalaise Des Eaux (SdE); and Office National de l'Assainissement (ONAS)—and the government, on the basis of multiple contracts with significant support from financial and strategic partners in Senegal's water sector.

In the case of the Dakar Region (the capital city of Senegal and its hinterland), the reforms involved promoting access to drinking water among marginalized populations through a policy on subsidized and volunteer social connections. Achievements made within the framework of this policy include individual service connections and the installation of public drinking fountains in residential areas, in keeping with the principles of interactive participation and communication among various stakeholders.

Between 1996 and 2005, 300 km of new pipes were laid, including 168 km of social extensions and 32,642 water service pipes for social connections. The policy has contributed to improved water service in the capital city; a significant number of households have been fitted with taps, and there is reduced dependence on alternative sources such as wells and boreholes. Environmental and sanitation consequences as a result of installation of social connections and standpipes are visible in improved living conditions, the reduction of diseases, and water and sanitation practices.

residential areas, water consumption does not exceed 30 liters per person per day, representing half of the city's average (SONES, 2007).

Key Program Components

Origin of the Program

At the onset of urban water sector reforms, drinking water needs had not been completely met. The situation was worsened by the dilapidated and heterogeneous nature of some parts of the network. In addition, changes in the load and low pressure points in the network led to water shortages in

several residential areas. At that time, shortages were worsened by an increase in water quotas for market gardeners from 7 percent to 9.4 percent.

Urban water sector reforms took place in an environment where there was a high demand for water (social connections and standpipes) in Senegal, particularly in the Dakar Region. The urban water sector reforms, launched in 1996, resulted in the creation of a national company, Société Nationale des Eaux du Sénégal (SONES), that of an operating company, Sénégalaise Des Eaux (SdE), and Office National de l'Assainissement (ONAS). The general objective of these

entities is the provision of improved clean water services in the Dakar Region, with real access to water in peri-urban marginalized areas.

Four contracts form the framework of these reforms:

- The lease contract between the Government of Senegal, SdE, and SONES.
- The concession contract that governs collaboration between the government and SONES.
- The plan implementation contract formalizing the partnership between the government and SONES.
- The performance contract that governs the relationship between SONES and SdE.

As described above, the reform approach was two-pronged. The first step constituted the Projet Sectoriel Eau (PSE) aimed at reducing the water deficit by availing an additional 60,000 m³ per day in Dakar for the period spanning 1996 to 2000. Promoting access to drinking water in marginalized areas through the implementation of a policy on subsidized and volunteer social connections is an essential component of reforms. Funding amounting to US\$9 million was allocated to SONES for the installation of 34,000 social connections for low-income households and 400 public standpipes in peri-urban residential areas. In the long run, the PSE is meant to service 460,000 urban residents, representing an estimated 57 percent of the underserved population.

The second step, which was in the form of PELT, aimed at responding to the population needs by 2011. PELT

seeks to significantly improve the access rate to clean water through its subcomponent on distribution, as well as rehabilitate and strengthen the water supply network.

Work to be conducted under PELT includes:

- Forty-eight thousand water service pipes for social connections: 31,000 in Dakar and 17,000 in secondary towns.
- Two hundred public drinking fountains through World Bank funding.
- Strengthening of 41 km of the water supply network.

In the contracts concluded with SdE and the government, there was no explicit incentive for SONES to apply social tariffs to marginalized populations. SONES authorities have officially explained that they took the initiative of using the pricing formula to improve the company's corporate image, particularly among the neediest of the population (AFD, 2006).

Program and Objectives

Reform objectives and the related water service improvements (composed of standpipes and individual social connections) aim to meet the clean water requirements in Dakar by 2015: at least 85 percent of the population in urban and peri-urban areas should have access to drinking water, and a considerable improvement in the sanitary conditions and living environment must be made, especially with regard to poor settlements located in areas without sanitation.

For social connections, SONES favors the targeting approach based on geographic area selection. It is guided

by the division between two distinct geographic spaces: Dakar city centre (not eligible despite numerous pockets of poverty), and the suburbs that exhibit more structured forms of poverty.

Selection for individual connections is based on specific criteria. The first is the location of the residential area and the occupancy conditions for the land parcel. The second is having a title deed or a residential occupancy permit of a land parcel located in a selected zone. Other conditions include: poverty; the installation of a connection should under no circumstances involve trespassing on private land; it should be located at least 20 meters from the water main; and payment of a deposit of 13,000 CFA F.

For standpipes, a 'two-area' selection criteria seems to have prevailed. The first is an application from communities (which could be, often, an application submitted by local authorities, NGOs, associations, opinion leaders, and so on). The second dictates that a 500 m radius must separate two adjoining

drinking fountains. Municipal authorities intervene in the procedure to validate installation sites, through the issuance of approval forms which they give to beneficiaries.

The tariff structure and levels used since January 2003, the first break-even year for SONES, is given in Table 9.

Respondents interviewed during the impact assessment of reforms (SONES, 2007) still consider the cost of water high, despite the highly subsidized rate of 60 percent on the first tranche of social bimonthly consumption (the first 20 m³). Surveys carried out as part of the assessment in Pikine, Guédiawaye, and the Grand Yoff District Commune indicated that 51.4 percent of homesteads consume between 21 m³ and 40 m³. These belong in the full price, rather than the social, category.

With regard to public drinking fountains, the cost is fixed at 322.31 CFA F/m³ or 263.98 CFA F/m³, depending on whether one resides in a town with

Table 9: Water Pricing for Individual Service Connections (in Force Since 2003)

Pricing used	Tranches per bimestrial period	Price per m ³ (in CFA F)		% of households in sample	Average household size
		Towns with sanitation	Towns without sanitation ¹		
Social price	0–20 m ³	191.32	181.42	26%	9.76
Normal (or full) price	21–40 m ³	629.88	584.23	51.4%	11.96
Prohibitive price	+ 41 m ³	788.67	714.98	22.6%	15.98

Source: SdE and the Household Survey on the Impact Assessment on Urban Water Sector Reforms.

¹ The price differential between the rates in towns with sanitation and those without sanitation represents the amount of sanitation tax collected by the National Sanitation Office of Senegal (ONAS) with the aid of water bills.



sanitation or otherwise. However, the fountain drillers apply a minimum profit margin of 100 percent. This puts households using drinking fountains at a disadvantage, as they often pay a higher price compared to connected households. Indeed, water prices at standpipes have never been the subject of a formal approval though a decree or inter-ministerial order, as is the case with the SONES price schedule. In fact, one of the major effects of liberalization of water prices at drinking fountains is the proclivity of marginalized populations to resort to alternative sources such as wells and small boreholes.

Key Partners in Program Implementation

The profiles of partners involved in the implementation of the policy in the Dakar Region, within the context of urban water reforms in Senegal, are diverse. Various actors have collaborated in the implementing, all sharing a global vision, common principles, and objectives.

- **Financial partners:** The group includes the World Bank, the Nordic Fund, the European Investment Bank, the African Development Bank, KWF, and AFD. Project partners participated in funding at various levels, which corresponded to the reform cycle and related activities.
- **SONES, SdE, and the Government of Senegal:** These are linked by a lease agreement (SONES/SdE/Government of Senegal), a concession contract (Government of Senegal and SONES), a performance contract (SONES/SdE), and a plan

implementation contract (Government of Senegal and SONES).

- **Social facilitation and institutional intermediation organizations:** These organizations bring together grassroots associations, women's groups and NGOs, traditional leaders, residential representatives, and local authorities who play a lead role in activating applications, the policy's participatory communication system, and the process of installation of public drinking fountains.
- **Opinion leaders and resourcepersons from localities identified by the policy:** These partners not only actively participate in disseminating information on the policy, particularly regarding criteria and conditions, but also in the submission and monitoring of applications for individual service connections and public drinking fountains.

Implementation Strategies

The strategic approach used is participatory and voluntary. It encompasses the effective understanding by beneficiaries of the entire cycle involved in the process of individual connections and the installation of public standpipes, and allows for subsidies from the government and its partners.

At the start of the implementation of the policy, SdE and SONES organized an extensive communication campaign—including signs, posters, forums in residential areas, television and radio programs in residential areas and communities with strong involvement of

opinion leaders and elected representatives—building awareness on the criteria and conditions for connections. Traditional authorities and NGOs were actively involved in the implementation of both the PSE and PELT social communication plans. In some cases, local authorities organized sensitization campaigns with the support of residential and political party representatives.

The procedure for the selection of beneficiaries involves the completion of an application form for a social connection, submitted directly to SONES or the SdE sector at the local office and, as an advance deposit, a payment of 13,000 CFA F on completion of the transaction. The key actors in this process are the residential representative, the mayor of the community, SdE agents who monitor the application, and SONES, which

approves the water service pipe for social connection installation. The applicants' eligibility is verified on the basis of defined criteria and information provided by SdE. The validation of applications is then ratified by SONES, which then proceeds to draw up a list of beneficiaries of social connections. This is sent to SdE which, in turn, notifies eligible parties, and comes up with a quotation for the construction and connection of pipes. SdE has a maximum of one month from the date of deposit payment to complete the connection. The main difficulties faced are the payment of the deposit (the 13,000 CFA F); the precarious nature of some residential areas; the high demand for water extensions; the 5 m distance limit for subsidized connections; low pressure areas that are prone to flooding; and the low penetration level of information and communication actions pertaining to social connections.



Results

The 2007 OECD report on Senegal's economic performance highlights the significant progress in the area of access to drinking water for marginalized populations and the positive impact of the social connections policy in the Dakar Region. Between 1997 and 2005, network extension and water service pipes for social connections installation programs contributed not only to a significant growth in water supply to Dakar and its suburbs but, more importantly, to the households with access to tap water. Three hundred km of new pipes were laid, including 168 km of social extensions and 32,642 water service pipes for social connections distributed (see Table 10).

It is also important to note that currently several applications are pending for various reasons: materials have run out of stock, connection work is not done, activities pertaining to water service pipes for social connections have been suspended, and so on.

Between 1995 and 2005, there has been a net increase in household taps in all suburbs, with a sharp rise in the most densely populated department of Dakar, Pikine (from 50 percent to 85 percent in Thiaroye). The percentage of households in Dakar's suburbs that use tap water has increased from 70.1 percent to 84.2 percent. Consequently, the number of households using alternative sources, such as standpipes, dropped from 17.1 percent to 8.2 percent.

The use of wells has also decreased (from 3.9 percent to 1 percent) compared to that of small boreholes

Zone	Sector	Extensions by third party* (km)	Social extensions** (km)	Water service pipes for social connections
Dakar town	Grand Yoff	12.9	2,4	Including Front de Terre and Yoff
	Yoff	53	15	4,636
	Front de Terre	14.4	5.7	1,199
Dakar suburbs	Guédiawaye 1	7.0	2.6	1,162
	Guédiawaye 2	14	16	4,164
	Pikine	5.7	3,3	902
	Thiaroye	32	113	20,579
Total		139	168	32,642

*Extensions funded by consumers.
 **Extensions subsidized by SONES.

Sources: SONES and SdE activity reports, PSE evaluation, and completion reports.

fitted with manual pumps and taps in other homesteads, significantly increased, demonstrating behavior change. The change may be justified, on the one hand, by the propensity of some households with an individual connection to sell water and, on the other, by the drilling of small boreholes in areas where the water table is at the subsurface level and where low-income populations prefer using the latter system for a number of reasons.

According to WHO standards (35 liters per person per day), a compound of average size with 15 to 18 people (study area scenario) requires water consumption of between 31 m³ and 38 m³ on a bimonthly basis. Yet, the impact assessment of urban water reforms for 2000–05 still indicates water shortages. To counter these shortages, households stock up water from drinking fountains and/or small

private boreholes in the areas, especially to satisfy needs other than drinking water (dishwashing, laundry, bathing, and so on).

Water service pipes for social connections have resulted in a decrease in water-borne diseases. Consultation registers at health centers reveal that there has been a significant drop in diarrheal diseases and intestinal parasitic diseases (SONES, 2007).

Challenges

The main issues and challenges linked to the policy on individual service connections and the installation of public drinking fountains in Dakar are reflected in the fight against poverty and the achievement of MDGs, through public-private partnerships, decentralization of access to clean water, and community participation.



Poverty Reduction and Attainment of MDGs

The spirit and approach underlying social connections are in tandem with poverty reduction objectives and efforts to attain MDGs pertaining to clean water. The protection of vulnerable groups constitutes the 'third pillar' of Senegal's poverty reduction strategy as defined in its Poverty Reduction Strategy Paper. Programs implemented by the Government of Senegal in the drinking water and urban water sector (both in urban and rural areas) also include objectives of equity, capacity building, and mitigation of factors leading to social exclusion.

Decentralization and Access to Clean Water

Reform texts, while promoting partnerships, do not clearly define the role of local authorities, in general, in the Water Department. Although communities are not involved in the development of the water master plan, their opinion is indispensable, especially in terms of the appropriate equipment to use for public installations, for



instance, drinking fountains. Further, the links between the water sector and other sectors such as health, natural resource management, urban planning, and housing give elected representatives more visibility within the community of urban water actors. From this perspective, the reforms are bringing to the fore all issues related to the positioning of elected representatives in the community of water actors in Senegal.

Public-Private Partnership versus Confrontation of Public and Private Ideas

The process of installing social connections has created space for the involvement of nonconventional actors (NGOs, associations, agencies, traditional authorities, and so on) and the strengthening of urban water sector in Dakar. The involvement of various actors needs further analysis, such as in relation to the obligations of the national company (SONES) prior to and after the sector reforms.

Community Participation and Municipal Development

The modus operandi for interaction between communities, associations, NGOs, and other partners involved in the water service pipes for social connections policy centers around discussions on funding of local development. Interactions underscore the need to dispel the ambiguity that may have existed between local and municipal development. It is at this level that questions must be raised on why communities are often frustrated during individual connection operations as well as large scale installation of public drinking fountains by grassroots' associations, local committees, NGOs, and associated authorities.

Lessons Learned

The selection criteria used for social connections and the installation of public standpipes have not won the general approval of Dakar's population. Many heads of households do not understand why all those who did not have an individual connection were considered potentially eligible before the reforms were instituted; now with PSE and PELT, households that apply for connections must meet a number of eligibility conditions and criteria. However, despite the mixed reactions among the populations and the initial targeting, extremely good results have been realized.

Water service pipes for social connections have had a great influence on improved sanitary conditions in households. Many previously common illnesses have shown a significant drop, according to registers in health centers.

The cost of water is still problematic, as communities feel that the price of water is too high despite the subsidy applied to the first tranche of bimonthly social consumptions (the first 20 m³). The liberalization of water prices at public standpipes has been widely criticized as it goes against the spirit of reforms by households and funding partners. It would be worth conducting a deep and participatory assessment on the management of public drinking fountains with the involvement of local authorities and associated traditional leaders.

The lack of title deeds constitutes a serious hindrance to accessing individual connections, despite the introduction of flexible measures. In fact, rarely does the land owner give up some of the rights entitled to him by

virtue of the land title (title deed or occupancy permit) and does not always have the resources to commission works in adherence with the technical specifications required by the SdE Water Department. To overcome these problems, it is proposed that the relevant urban planning departments ensure that buildings and compounds for residential occupancy meet the requisite internal network standards. In addition, SONES, in collaboration with SdE, could be more flexible concerning the installation of multiple connections

(building or compound). Demographic targeting should be guided by relevant choices, criteria based on good poverty mapping, indicators for really poor residential areas with family identification and classification process based on social status, the quality of housing, and level of access to basic services including water.

Populations are strongly lobbying for resumed social water service pipes operations following a prolonged suspension. Participatory communication within the program

should be reviewed in line with recommendations of the impact assessment of urban water reforms. SdE sectors should be considered as intermediaries for the transfer of information through traditional communication channels (mosques, churches, public squares, markets, and so on).

Pending applications should be dealt with speedily, which will not only correct one of the most visible weaknesses of the reforms but also ensure good stock management of materials and tailpieces.

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Section 2

Consultations with Urban Poor Communities



Scope and Methodology

Aim

The urban poor living in slums and informal settlements are the most disadvantaged with respect to access to basic services. Urban poor communities are not recognized as legitimate citizens of the city and are considered a 'burden' by utilities and service providers. A majority of such informal communities either completely lack, or have inadequate access to formal systems for water supply, sanitation, and solid waste management. Existing governance structures make it difficult for the urban poor to have a 'voice' in the city's development process or in specific programs targeted at them.

The main aim of the consultations with the urban poor was to record the issues they confronted related to water supply and sanitation. It was considered imperative to take their views on board to fully understand the barriers and solutions to service delivery. The consultations were also aimed at ascertaining their demands and aspirations vis-à-vis provision of water and sanitation services and their inputs on solutions to ensure equitable service delivery, as well as for mainstreaming them within the city's fabric.

Table 11: Slums Covered by the Consultations

City	Slums covered
Mumbai	<ul style="list-style-type: none"> Milan Nagar Cooperative Housing Society, Mankhurd Sathe Nagar Shivaji Nagar, Bainganwadi
Bengaluru	<ul style="list-style-type: none"> Pillana Gardens
Vadodara	<ul style="list-style-type: none"> Jalaram Nagar Baisasur Nagar, Sonia Vihar
Delhi	<ul style="list-style-type: none"> Trilokpuri

Coverage

In order to obtain a representative sample of the urban poor, the consultations were conducted in four major cities, namely, Mumbai, Bengaluru, Vadodara, and Delhi in January and February 2007.

The consultations covered urban poor communities, located on the fringes and outskirts of cities, that have absolutely no access to formal service delivery systems. The consultations have tried to record the voices of women, men, and children whose daily struggle for survival includes facing humiliation and fighting for water and toilets.

Methodology

The consultations were conducted using participatory research techniques including focus group discussions, anecdotal interviews, group interviews, and general consultations. The consultations were facilitated by Geeta Sharma, WSP-SA, supported by Benita Sumita, Consultant, WSP-SA. The utilities (Social Development Unit of Bangalore Water Supply and Sewerage Board) and local nongovernmental organizations (Society for Promotion of Area Resources Centre in Mumbai, Mahila Housing Sewa Trust in Vadodara, and Datamation Foundation in Delhi) helped conduct the consultations in the respective cities.



Overall Findings

Water Supply

- A majority of the slum communities lack access to formal water supply. They collect water from neighboring settlements, buy water from vendors or depend on tanker water supplied by the utilities.
- Women and children spend a lot of their daily time collecting water. To meet household water requirements, several trips have to be made to the water source. Women and adolescent girls who are largely responsible for collecting water complained of breathlessness as well as body aches and backaches.
- The communities that lack access to water supply have to face numerous physical hardships for collecting water. Additionally, they waste economically productive time collecting water.
- Erratic supply or inappropriate timing of water supply creates problems for women who have to adjust their work schedules and sleeping patterns to be able to either get up early in the morning or stay up till late at night for collecting water.
- The quality of water was identified as a problem in all communities. A majority of the communities reported that the initial supply of water was contaminated. The coping mechanisms, however, differed from community to community—some communities disposed the initial water supplied while others strained and boiled it.
- There is high level of aspiration among slum communities to have individual water connections. This also got reflected in a large number of communities that have extended the water pipes till their houses in an attempt to have household-level supply.
- In the interactions, diseases such as jaundice, hepatitis, dysentery, and diarrhea were identified as frequently occurring diseases due to poor quality of water and sanitation.
- Arguments and fights in the queues and children are often bullied and pushed aside by the adults. Women have to adapt to the circumstances; they are forced to use the toilets when the queues are shorter because they are pressured with their household responsibilities and cannot afford to spend so much time waiting.
- That there is poor level of maintenance of the toilet blocks was a universal complaint in all communities. The toilet doors are often broken, latches pulled off, pans are damaged, and there is clogging due to improper use, rendering several of the toilet seats unusable. The houses near toilet blocks have to bear the brunt of the overflowing septic tanks.
- Owing to unclean and overcrowded toilets and lack of electricity in toilet blocks, women often change their body clocks to answer nature's call. They are forced to use toilets either late at night or very early in the morning. In cases where they are forced to defecate in the open, darkness offers a modicum of privacy. However, going out in the night exposes women to social risks. The fear of being sexually

Sanitation

- A majority of the communities have access to community-level toilet facilities. There are a negligible number of individual toilets.
- Inadequate provision of toilets results in long waiting time, especially during the morning hours. This leads to

Box 35: Community Voices

"We can manage without electricity but not without water. There are too many fights that we face every day in our struggle for water..."
(Resident, Pillana Garden, Bengaluru)

"If we get water, many of our life's problems would be solved."
(Resident, Idgah Mohalla, Bengaluru)

"I am unable to cook food on time as there is no water. My husband beats me up if the food is not ready when he gets home. It is not his fault; after all he needs food after a long working day."
(Resident, Idgah Mohalla, Bengaluru)

violated in the toilet blocks at night is very real for young girls and women. It is not unusual for women to encounter drunken men, drug users, and antisocial elements in the toilets at night. The absence of latches on doors, broken doors, and broken roofs create an atmosphere of tension and stress for women when they use the toilets.

- The community toilets are devoid of special facilities for children, due to which the children are forced to defecate in the open.

Poor Users Pay More for Services

The poor pay for services (including water and toilets) at rates that in most instances are much higher than payments made by formal settlements for services. The consultations with urban poor communities brought to light that in some settlements residents pay as much as Rs 300–400 (US\$6–9) for installing illegal connections, including payments to the water mafia, 'valve man', and plumber. Per bucket (15 liters), they pay Rs 10–15 (US\$0.22–0.32) to buy water from

water vendors. In the case of toilet facilities, they pay anywhere between Rs 1–2 (US\$0.02–0.04) per use. They also have to pay for the cleaning of septic tanks.

The hidden costs incurred by urban poor users for medical treatment of diseases caused due to inadequate and poor quality services add to their economic burden. Economically productive time lost while collecting water and waiting in long queues to use community toilets, is an economic loss for the poor.

The Urban Poor Want Connections to Formal Water and Sanitation Systems

The cross-section of the urban poor covered by the consultations included communities or families that are keen to connect to formal supply systems and have individual-level access to water and sanitation services. Many have attempted to connect to formal systems by forming local community groups and extending infrastructure lines to their houses or lanes or by seeking formal connections from utilities or service providers. Their requests to water utilities or service providers have fallen on deaf ears since the utilities do not recognize them as 'legitimate' citizens and potential consumers. While many of their attempts to access formal services have been in vain, the communities are still hopeful that some day they will have equal access to basic services.

Box 36: Community Voices

"My biggest need is safe toilets. All this waiting till it's dark or dawn to go out to defecate is now telling on our health."
(Women from Trilokpuri slum, Delhi)

"When my young daughters go to the toilet blocks, they are teased and ridiculed by the boys. I can no longer let them go alone. They have to wait till I am home and escort them. We dread going there after dark."
(Women from Trilokpuri slum, Delhi)

Box 37: Community Voices

"We have run from pillar to post for the last eight months. We have assurances that water will come in two months but it has been eight months now...how long can we wait? We are left with no choice but to go back to stealing water."
(Resident, Mankhurd, Mumbai)

City-Level Findings

Mumbai

Milan Nagar Cooperative Housing Society is a resettlement colony in Mankhurd, an area located in Mumbai's eastern extremity. Eighty-six families that were earlier residing in Nagpada (Byculla), a squatter settlement, have been resettled here under the Mumbai Urban Transport Project.

The remaining 500 families, a majority of which work in the informal sector (as domestic helps and untrained laborers), continue to stay in Nagpada as they found the resettlement site very far from their work places. In 1989 the settlement was threatened with eviction and asked to vacate the land within 24 hours. The eviction notice helped galvanize the community and people came together to seek proper resettlement. Facilitated by the Society for Promotion of Area Resources Centre, the women of the community became members of Mahila Milan, started self-help groups and took a lead role in identifying sites for resettlement. The women recount that this process was highly empowering.

The families that stayed back in Nagpada continue to struggle for basic

services such as water and toilets. The families use public toilets for which they have to pay Rs 2 (US\$0.04) per use. Water supply is through shared connections, which are illegal extensions from a connection provided to an adjacent building. As many as 50 to 100 families depend on one connection and each family has to pay Rs 200–300 (US\$4–6) for getting these connections (including payments to a 'valve man' and plumber). Every time the taps are disconnected they have to pay for reconnecting. The houses are small (approximately 64 sq ft) and temporary in nature, but the families are large, because of which some members (both male and female) are forced to sleep on the footpath.

The resettlement colony is a complex with eight high-rise buildings with seven floors each. Individual dwelling units consist of one room, loft, and bathing area. While the room has an area of 180 sq ft, the loft is 100 sq ft. The toilets are located outside the dwelling unit in the corridors and are used by three families on a sharing basis. A majority of the families still face problems related to water as the pressure of water supply is very low

and it doesn't reach the higher floors. Despite making numerous representations to the local authorities (ward office of BrihanMumbai Municipal Corporation) and the local elected representative (ward councilor), there is no improvement in the water supply situation and tankers continue to be the only source of water.

Sathe Nagar is a slum with approximately 3,000 houses (approximately 10,000 people).

Shivaji Nagar is a slum located in the Bainganwadi area. Most of the residents are daily laborers or are self-employed. Water is sourced from a nearby reservoir. Usually, families make groups and employ a plumber to create a common or shared water point close to their homes. Approximately 85 percent of the families get water supply in this manner and they pay Rs 75 to 100 (US\$1.6–2) for water supply every month. The remaining families purchase water from a water vendor who sells water in a tanker.

There are two toilet complexes in the slum that were constructed under the Slum Sanitation Program (SSP). Another six toilets have been

Lakshmi, 50, has been living in her newly allotted house in Milan Nagar Cooperative Housing Colony for the last eight months. Her husband is the only earning member of the family with an average daily earning of Rs 200 (US\$4). Lakshmi manages the household and takes care of her children, a daughter and a son.

The area of her house is 180 sq ft and she has a loft and a bathing area within her house. She shares a toilet with two other families. Water is a major problem as the pressure is low and doesn't reach the higher floors. She has to walk long distances to get water, on some days tankers are the only source of water.

Lakshmi is a member of Mahila Milan, a group working on women's issues. Prior to shifting to Mankhurd, Lakshmi lived in Nagpada, a squatter settlement. The community was served an eviction notice and asked to vacate the site within 24 hours. The women of the colony got together to negotiate with the authorities for suitable resettlement. They identified four sites for resettlement (Goregaon, Borivili, Charkop, and Sion) and finally zeroed in on Mankhurd. The entire process was empowering for the women as they learnt about different types of lands and also learnt how to communicate with the authorities. "It took us 15 years to get the government to make these houses for us, 25 km away from where we were living before," laments Lakshmi.

According to her, shifting to the resettlement colony has meant improved access to basic services and a better quality of life although there are still problems related to water supply.

Shehnaz and **Shakira** migrated to Mumbai seven years ago. They are members of Mahila Milan and help conduct surveys and gather information (family photos, ration cards, birth certificates, and so on) on pavement communities/households. The information gathered is used as proof of eligibility by the municipal corporation for resettling pavement communities.

According to these women leaders, water is a major problem in their colony. While there is piped water supply, the pressure is very low and thus while the lower floors get some water, the higher floors get none. The families have requested the authorities for better water supply but till date there has been no improvement. They have made representations to the BrihanMumbai Municipal Corporation and the local corporator, but were yet to get redressal.

Shehnaz says, "We have paid heavily, Rs 5,000 (US\$108) for the connection, and pay Rs 300 (US\$6) per month for the water bill. There have been months when there has been no water supply but we have still received bills. We will not take this lying down any longer."

constructed by Maharashtra Housing and Area Development Authority with MLA⁹⁷ funds. The toilets constructed under SSP have children-specific facilities, with eight such squatting

pans. The ratio of people per seat is very high. The prevalence of open defecation is limited due to the presence of community toilets. In the old toilet complexes, there were a lot of problems. First, it was not secure for women to use the toilet at night due to

Jyoti has three members in her family—her husband, child, and herself. Her husband carries mud and earns Rs 100 (US\$2) per day. From this earning they have to pay approximately Rs 20 (US\$0.40) for water per month and Rs 2 (US\$0.04) per use of the public or shared toilet (Rs 250, or US\$5, per month).

Water is supplied by a private vendor who has installed a motor. In case of power failure the supply is disrupted. The private vendor also charges varying rates for water. They also have to get water from tanker at Rs 1,100 (US\$24) per tanker.

The community uses a public or shared toilet, which has 10 seats on the ground floor for women and another 10 seats on the first floor for men. Approximately 270 families use this facility.

Jyoti says, "The main problem is not water supply or toilets, but the overall poor sanitation condition of the slum. Laying internal roads would save us a lot of trouble during the rains. Women and children would feel more secure at night if street lights are installed. We also need more toilet seats."

The land belongs to the Collectorate, and they have to pay a tax on each plot at the rate of Rs 9,000 (US\$124) for a 15-year period—even when they do not own the plots. The municipal corporation also charges them for collection of garbage.

lack of electricity and absence of doors. Lack of water also limited the use and maintenance of the toilet complex. The maintenance of the old toilet blocks was extremely poor. Children also feared using the toilets as the seats were big and the parents did not send

⁹⁷ Member of Legislative Assembly (MLA).



Rehana has five members in her family and she is the sole earning member. She pays the municipal corporation Rs 100 (US\$2) as rent. They have been residents here since 1985 and have been issued a photo pass as proof of occupancy. The family has access to a group connection for which the group pays Rs 1,500 (US\$32) per quarter. Her monthly electricity bill can go up to Rs 300 (US\$6). Health is a major concern due to poor environmental conditions and she spends up to Rs 150 (US\$3) a month for medical aid.

their children fearing that they could fall into the septic tanks.

Another issue confronting the community is the presence of antisocial elements and political factions who are not happy with the positive developments in the slum.

Vadodara

Most slums in Vadodara have illegal water connections because the city does not have a policy to supply water to slums. Vadodara has a cumulative property tax, which also includes water charges. For plots that have an area less than 25 sq m, the corporation does not levy property tax.

Baisasur Nagar has four rows of houses (approximately 100 houses), which access water through three hand pumps. Most men work as vendors, cycle pullers or watchmen. A family earns on an average Rs 3,000 (US\$64) per month. The land belongs to the state government and so far they have

Sharda Ben is a domestic worker and earns up to Rs 1,000 (US\$21) per month. She faces problems due to poor and erratic water supply. She laments that it takes her half-an-hour to fill two buckets at a time from a handpump that is located about 10 minutes away from her house. In a day, her family requires up to 10–15 buckets and she has to make numerous trips to the handpump. In the morning, she fills water for the morning chores after which she goes for work; she fills up water for the rest of the day after she returns from work. Sometimes, her husband helps her in getting water. She says that when her daughter helps her fill water it is easier.

At times when the handpump becomes dysfunctional, they have to buy water from the owner of a nearby field who has a well. She recounts that it takes even up to a week to fix the handpump.



little reason to fear eviction. Most of the homes have individual toilets, in homes that don't members are forced to defecate in the open.

Because of the lack of water, chores are left undone and women find it difficult to ease themselves. One of their biggest concerns is lack of toilets. Many families, however, can't afford toilets because of the investment required. The other problem that the community faces is water supply, which is very erratic and of poor quality. In a month, expenses toward getting water are as much as Rs 300 (US\$6). Due to lack of water, residents can't maintain proper personal hygiene (they can't bathe regularly, and are able to wash their clothes only once a fortnight) which, in turn, causes many health problems such as skin rashes, boils, and so on. Now, water and sewerage lines have been laid but the connections to the households still remains to be done.

Jalaram Nagar is a squatter settlement. A majority of the residents are migrants from Maharashtra. There is one handpump, which has been provided by the corporation. Prior to the installation of the handpump, the residents had paid Rs 18,000 (US\$387) to install group connections. The group connections are no longer functional. The residents have reported the matter to the city authorities but their complaints have fallen on deaf ears. Most residents have to source water from a nearby society. They spend hours filling water, which is an ordeal for both men and women. With support from Mahila Housing Sewa Trust, residents of Jalaram Nagar have approached the corporation to demand individual water connections. They have also been helped in constructing public toilets, but because the nearby residential society complained to the corporation, a water connection to the toilet complex has not been provided.

Bengaluru

Pillanna Garden, Bharatmata Quarters is a slum with about 170 houses. Most residents are from Andhra Pradesh and elsewhere in Karnataka, and have been living here for the last 25 years. Most residents work as domestic help or make incense sticks at home. The biggest source of income for families is rag-picking.

In the last two years, Maithiri Sarvaseva Samiti, a nongovernmental organization working with the Karnataka Slum Clearance Board, has helped the residents construct their homes. While the total cost of constructing a house is Rs 35,000 (US\$754), the residents had to make an upfront payment of Rs 5,000 (US\$108), followed by installments of Rs 300 (US\$6) per month. Each dwelling unit is 18 feet x 10 feet with attached bathrooms. While houses have been constructed, the

Nagaraj, a rickshaw driver, earns Rs 150 (US\$3) a day. He is the only earning person in his five-member family. He has been living here since 1969 and his family still struggles to access basic services. He has approached the concerned authorities with his application for water and other basic amenities. Initially, he went to the corporation, after which he approached the councillor.

He pays Rs 15 (US\$0.32) to buy a a drum of water (200 liters) from a vendor who comes once or twice a week. Nagaraj prefers an individual connection and is ready to bear its costs.



provision of basic services, including water and sanitation, is very poor.

Access to water is limited and residents take water from a borewell located close to their community. They pay Re 0.50 for 12 liters but the water quality is very poor. There is also a tap, located on the main road, provided by the corporation. The queues for water are very long and people spend hours collecting water. The residents have approached the corporation to remedy their water

woes, and suggest that it is feasible to install at least one tap for three houses. Due to lack of water, the families use public toilets, which are open only till 8 pm. There are no legal electricity connections, residents get together and take illegal connections or extensions from nearby poles. They pay approximately Rs 100 (US\$2) a month for electricity. There are several self-help groups in this colony. Through the savings accumulated in these groups, families have been able to make improvements to their homes.



Delhi

Trilokpuri is a resettlement slum that was developed in 1976. It has 36 blocks.

Primary Concerns

Water

- There is a lack of water supply. Women and children have to fetch water from other places.
- While the community has laid its own pipelines to get water, there has been no supply from the corporation. Such a system has been set up for groups of

25 households and it cost each household Rs 3,000 (US\$64).

- The community is willing to pay anywhere between Rs 150–200 (US\$3–4) if the people are assured good water supply.
- Problems encountered due to lack of water: “We live in unhygienic conditions because of which illnesses are also rife. Money goes into medicines and consulting doctors too.”

Toilets

- The Municipal Corporation of Delhi has provided a few public toilets.

These toilets are overcrowded and poorly maintained, and this forces residents to defecate in the open.

- A lot of families, who can afford to construct individual latrines, have done so.
- Women use the public toilet in the morning and at night. They feel constrained and cannot use the toilet freely; they feel their daughters too cannot use the toilets safely. If they visit the toilets more than one or twice in a day, they are teased by the boys. The women face several medical problems as they are unable to maintain personal hygiene during their monthly periods.

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August 2009

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WSP and National Water and
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