The Mumbai Slum Sanitation Program

Partnering with Slum Communities for Sustainable Sanitation in a Megalopolis

The World Bank-assisted Slum Sanitation Program aimed to provide high quality sanitation services to Mumbai's slum dwellers. It was a demand-responsive initiative that incorporated a participatory approach to offer incentives to multiple stakeholders to work together to deliver community sanitation.

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Report

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Preface

The city of Mumbai (formerly Bombay) in India has undergone metamorphic changes over the years, because of the rapid population growth and changing character of the city's economy and socioeconomic composition. The challenges involved in providing basic services, particularly adequate housing and related infrastructure, are enormous. Sanitation especially poses daunting challenges since more than half of the city's population of 13 million, that is, 6.3 million people, live in some 2,000 densely populated slum settlements. In these slum settlements, residents have to largely depend on public toilets provided by the government. These sanitation facilities are poorly maintained for the most part, and thus cause serious public health and environmental risks for the entire population of the city. An estimated one in 20 people in these slum settlements are compelled to perform daily ablutions and relieve themselves in open areas. Insecurity of tenure, complex land ownership patterns, technical problems, and other constraints pose formidable obstacles to strategies and programs that aim to address the problem.

The Slum Sanitation Program (SSP)—a component of the World Bank-financed Mumbai Sewage Disposal Project approved in 1995 and implemented by the Municipal Corporation of Brihan Mumbai (MCBM)—is a demand-responsive participatory approach to providing quality sanitation services. The SSP supported a new strategy in urban community sanitation that provided incentives to multiple stakeholders to work together to deliver reliable community sanitation in a flexible manner. An estimated 400,000 slum dwellers have benefited. The initiative helped demonstrate that a fresh partnership effort, engaging all stakeholders and shifting the locus of operation and maintenance to community-based organizations through a Memorandum of Understanding with the MCBM, could produce beneficial results.

Implementing a participatory, demand-based program in a complex urban setting is not without its challenges. Mumbai faces a number of policy and programming issues that need to be addressed if the SSP experience is to be applied in a broader strategy and scaled-up to meet the city's urgent sanitation needs. This document summarizes key features of the SSP implementation challenges and how they were addressed as well as main lessons learned. The SSP experience provides a good example about how sustainable urban community sanitation programs can be implemented effectively. The experience is instructive since this impacts communities' lives not only in Mumbai but also provides lessons for other Indian cities as well as other large metropolitan areas in the developing world.

Acknowledgments

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The study also incorporates valuable inputs from Junaid K. Ahmad, Sector Manager, SASES, I. U. B. Reddy, Senior Social Development Specialist, SASES, Deepak Sanan, Team Leader, Water and Sanitation Program-South Asia, and David Savage, Senior Institutional Development Specialist, SASES, all of whom are with The World Bank Group.

This study would not have been possible without the facilitation and cooperation of stakeholder agencies in Mumbai: the Water Supply and Sanitation Department (WSSD) of the Government of Maharashtra; the Municipal Corporation of Brihan Mumbai (MCBM); Maharashtra Housing and Area Development Authority (MHADA); implementing partner agencies (NGOs and contractors); and, most of all, CBOs and slum communities leading the charge on sanitation.

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Abbreviations and Acronyms

BSDP	Bombay Sewage Disposal Project
CBO	Community-Based Organization
CI	Cast Iron
CTB	Community Toilet Block
D&R	Demolition and Reconstruction
FSI	Floor Space Index
GDP	Gross Domestic Product
GI	Galvanized Iron
GoI	Government of India
GoM	Government of Maharashtra
IHHL	Individual Household Latrine
MCBM	Municipal Corporation of Brihan Mumbai
MHADA	Maharashtra Housing and Area Development Authority
MoU	Memorandum of Understanding
MSDP	Mumbai Sewage Disposal Project
NGO	Non-Governmental Organization
NOC	No Objection Certificate
O&M	Operation and Maintenance
PSC	Public Sanitary Conveniences
R&R	Retrofitting and Restitution
RCC	Reinforced Cement Concrete
sq. km.	Square Kilometer
SRA	Slum Rehabilitation Authority
SRS	Slum Rehabilitation Scheme
SSP	Slum Sanitation Program
ULCRA	Urban Land Ceiling and Regulation Act
WSP	Water and Sanitation Program
YUVA	Youth for Unity and Voluntary Action

Exchange Rate
(Effective April 10, 2006)
US$1.0 = 44.66 Indian Rupees
1.0 Indian Rupee = US$0.0224
(1 billion = 1,000 million)

Background

The Municipal Corporation of Brihan (Greater) Mumbai (MCBM) implemented the World Bank-assisted Slum Sanitation Program (SSP) as a part of the Mumbai Sewage Disposal Project (MSDP) that commenced in 1995. The Slum Sanitation Program was a component of the MSDP project and aimed at "improving the health and environmental conditions in Greater Mumbai including the slum dwellers". It was targeted at about one million slum dwellers (approximately 20 percent of the total Mumbai slum population) living on municipal land at about 10 percent of the MSDP project cost (approximately Rs. 13.2 billion or US$295.6 million).

Under SSP, about 330 community toilet blocks (CTBs) 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. The program was unique in (a) fostering a participatory and demand-led approach in a complex metropolitan sociocultural environment; (b) supporting partnerships between the MCBM, non-governmental organizations, private construction agencies, and slum community groups; (c) initiating innovations and incentives; (d) providing superior technical specifications that help ensure improved service quality standards; and (e) responding creatively to an emerging market for operations and maintenance.

Figure 1: Map Showing Slums of Mumbai

The experience will be instructive for (a) the Government of Maharashtra (GoM) as it moves gradually towards a new urban sanitation policy; and (b) the design of a national city community sanitation project, Nirmal Bharat Abhiyan (an integral part of the national shelter upgradation program, Valmiki Ambedkar Awas Yojana[1]). This summary report provides lessons about sustainable urban community sanitation provision in large, poor urban areas that can be helpful elsewhere in India as well as in other cities in the developing world.

[1] Valmiki Ambedkar Awas Yojana is a Government of India-sponsored scheme being implemented in the states of the country.

Despite Mumbai's general prosperity, about 54 percent of its citizens (an estimated 6.2 million out of the total 11.5 million) live in some 2,000 slums cramped in about eight percent of the city's land area.

Table 1: Comparative Slum Population

Year	Slum Settlements *(number)*	Slum Population *(million)*	Total Population *(million)*	Proportion of Slum Population *(percent)*
1976	1,680	2.8	5.9	47
1983	1,930	5.0*	10.0	50
2001	1,959	6.2	11.5	54

*Includes 0.7 million pavement dwellers.
Source: WSP/World Bank TARU and WEDC Study. 2005.[3] Adapted from Slum Sanitation Survey, Montgomery Watson/YUVA. 2001.[4]

Mumbai: India's Commercial Powerhouse

Spread over 438 square kilometers (sq. km.), the port city of Mumbai (formerly called Bombay) is the capital of the state of Maharashtra in western India and the financial capital of the country. It is home to more than 13 million people and generates a significant proportion of India's gross domestic product (GDP). It is one of the world's largest metropolitan centers with perhaps the second-largest municipality globally. Once a hub of textile, engineering, and chemical manufacturing, Mumbai witnessed an occupational shift in the late 20th century when new jobs emerged in the informal service sector that now employs two-thirds of the city's workforce. The population of Greater Mumbai grew from 8.2 million in 1981 to 9.9 million in 1991 and, by 2001, added another two million people to reach 11.9 million (Census of India, 2001). The immense population pressure on the scarce land available in Greater Mumbai is manifested by an average density of 20,200 persons per sq. km., about 62 times more than the average density of India. Mumbai's unabated growth challenges the government with the need to provide adequate shelter and related infrastructure and services.

Slums Have Also Multiplied

Ironically, despite Mumbai's general prosperity, about 54 percent of its citizens (an estimated 6.2 million out of the total 11.5 million) live in some 2,000 slums cramped in about eight percent of the city's land area. This is believed to be the largest proportion and absolute number of slum dwellers in the world. Increasing rural-urban migration, limited land availability for development, and high land values due to commercial development have challenged public authorities' ability to provide basic shelter and services for its people, especially poor people. Mumbai has an artificially controlled and highly skewed land market resulting in high real estate prices. Price distortions have been influenced by the population density, geographic limits on expansion, and laws[2] that prevent scarce lands from becoming available for public housing and services, and the strong pull of the parallel economy. With demand accelerating and supply restricted because of regulatory, institutional, and other constraints, slum areas have persisted and grown and a large informal housing market has emerged. Slum areas have become the refuge not only of poor people working in the large informal sector but also for better-off families working in the organized private sector and the government.

Though the large numbers of slum dwellers provide the cheap labor that helps drive Mumbai's economic growth, slum areas themselves have been variously viewed over the decades as objects of eradication and demolition till the early 1970s ("a blot on the cityscape"), as targets for clearance and improvement ("tolerated as a housing solution"), as areas where upgradation was attempted (mid-1980s), to the

[2] The State's Urban Land Ceiling and Regulation Act, and the Rent Control Act, are laws intended to prevent concentration of lands in the hands of the few, and to protect tenants, respectively.

[3] The World Bank and WSP-SA had commissioned a study to assess the SSP project design, its approach, and process of implementation with special emphasis on institutional, technical, social, environmental, financial, and monitoring aspects. The study was undertaken by TARU and WEDC in 2005.

[4] Montgomery Watson Pvt Ltd and YUVA conducted a baseline survey of slums in Mumbai, in 2001, on environmental services with special emphasis on sanitation.

Box 1: Slum Rehabilitation Scheme in Mumbai

In a significant departure from the earlier stance on slums, the Afzalpurkar Committee in the early 1990s recommended the use of Mumbai's land as a resource to solve the slum problem. One key feature of this approach is that additional area (permissible Floor Space Index or FSI) would be allocated for construction of tenements that, in turn, would be sold in the market. Funds from such sales were expected to cross-subsidize tenements which could be given free of cost to slum dwellers. Accordingly, modified Development Control Regulations were sanctioned in 1997, and the Slum Rehabilitation Authority (SRA) was formed as an autonomous independent body. The SRA is responsible for reviewing the slum situation, formulating schemes for rehabilitation of slum areas, and implementing the Slum Rehabilitation Scheme (SRS). By capitalizing on the high cost of space, the SRS tries to provide saleable commercial space to the private sector as an incentive to put in capital and build multi-storey rehabilitation housing which could be given free of cost to slum dwellers. The SRS is a self-financed scheme, under which the entire expenditure is cross-subsidized from the sale component (incentive FSI).

From the mid-1990s when the SRA started to April 2005, an estimated 128,000 slum dwellers have benefited from the program, against a target of 800,000. By January 2005, the SRA had received applications for 1,264 schemes; of these, 704 have been approved, involving construction of an estimated 177,000 tenements. Work is in progress in 531 schemes covering 75,500 tenements. Rehabilitation is nearing completion in more than 200 schemes, covering about 33,000 tenements or more than 100,000 slum dwellers (SRA, 2005). In slums where SRS is in progress, households have been resident before 1995, the cut-off date for recognizing legal slum dwellers. The SRS provides for transit accommodation during implementation; the facilities include a dwelling unit, kitchen, water, and individual or common sanitation arrangements. Progress under this scheme appears to be accelerating but has hitherto fallen short of expectation. Constraints include the land market, slum densities, developers' poor or inadequate performance and the scarcity of financially attractive locations.

current phase undertaking their rehabilitation and reconstruction (since mid-1990s) under the Slum Rehabilitation Scheme (SRS).

Notifying slums (under the State's Slum Areas Act[5]) accords legal recognition to their existence and gives slum families the right to "dwell". However, security of tenure over the housing plot or

[5] Under the Maharashtra Slum Areas (Improvement and Clearance) Act, 1956 (Section 4), the Competent Authority may, by notification, declare an area to be a slum area, if it is a potential source of danger to health, safety or convenience to the public due to inadequate or no basic amenities, being unsanitary, squalid, overcrowded or in any respect unfit for human habitation; by reason of dilapidation, overcrowding, faulty arrangements, and design of buildings; narrowness or faulty arrangement of streets, lack of ventilation, light or sanitation facilities, or any combination of these factors; or detrimental to safety, health or morale. After notification, the slum can be taken up for improvement works, rehabilitation, and reconstruction.

Table 2: Distribution of Slums by Land Ownership

Land Ownership	Percentage to Total Slums
Private	48.0%
State government	21.0%
Municipal	17.6%
Central government	4.7%
Indian Railways	0.7%
Municipal and private	2.5%
State government and private	2.2%
Other mixed ownership	3.0%
Grand total	100%

Source: WSP/World Bank TARU and WEDC Study. 2005. Adapted from Slum Sanitation Survey by Montgomery Watson/YUVA. 2001 (1,792 cases).

structure is not conferred, since the government wants to preserve the rehabilitation option under SRS. Actual ownership of lands on which slums are located is quite diverse and thus further compounds the issue (Table 2).

The state has notified most of the slums located on state government, municipal, and private lands (more than 85 percent of total slums). However, Government of India (GoI) agencies (including Indian Railways) have been reticent in allowing notification of slums on their lands lest this sets a precedence. Some slums on other lands (private, government, and mixed ownership) also remain to be notified. As a result, apart from more than 2,000 notified slums, there are 130 non-notified slums in the city, accommodating an estimated 500,000 or more people. Slum settlements that are not notified are expected to be removed or resettled elsewhere—hence, these are not provided with urban services. Even where slums are notified, their access to basic services, in many cases, is limited by the organizational constraints of public agencies.

Although the state's Slum Act empowers public agencies to provide services to all slums irrespective of their ownership, these agencies face a number of technical, capacity, and resource constraints in carrying out their mandate. They are also hesitant in making capital investments unless they receive a No Objection Certificate (NOC) from the land owner, fearing that the investments may be at risk of demolition or waste at a later stage. The Government of Maharashtra also prohibits investments in slums earmarked for rehabilitation under SRS within two years so that resources are not wasted (in building community facilities that will be demolished soon). Deficiencies in the housing and slum policies of the city, complex land ownership patterns, insecure land tenure, technical problems, and other constraints often complicate any initiatives or initial actions by municipal service providers.

Environmental Services in Mumbai Slums

The provision of basic, environmental services in slum areas takes two distinct routes. One is through conventional means, that is, large interconnected networks of water, sewerage and drainage, and solid waste removal, provided to formal housing areas as well as to commercial, institutional, and industrial areas of the city. The other takes the form of feeder lines linking these networks to the periphery of slum areas through a mix of localized, in situ mechanisms. Frequently, however, slum areas do not receive such feeder connections.

Water: Of the various water supply arrangements in Mumbai's slums, the most common is through shared connections or group connections, which cater to groups of five house-holds or more. About half of the slums have this arrangement. In a third of the slums, there are mixed arrangements, comprising individual and shared connections. Only five percent of the slums have individual (private) household connections. Mumbai, unlike other Indian metropolitan areas, is fortunate in not having a major water scarcity problem. However, contamination, low pressure, supply at odd hours, and high access costs are localized problems in slum settlements. A survey in 2001 (Montgomery Watson/YUVA) reported lack of proper water supply arrangements in about 17 slums housing about 100,000 people. In such situations, there is near-total dependence on the purchase of water from informal water vendors, or on obtaining water from long distances.

Solid waste and drainage: Solid waste management has witnessed some initiatives. In addition to conventional garbage collection and transportation options, the city is currently experimenting with local community groups playing a key role in keeping their neighborhoods clean. The city has a network of large and small drains but it is under continuous pressure from unplanned real estate developments and maintenance problems. Slums bear the brunt of overflows and backflows into their houses every rainy season. The July 26, 2005, deluge was particularly severe, revealing again the vulnerability of slum areas.

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 the large proportion of Mumbai's slum areas' population. Very high housing densities, coupled with narrow and winding lanes, pose formidable impediments to the planning and provision of wastewater collection systems. Thus, slum populations have been forced to depend on public toilets to meet their sanitation needs. 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 the slum communities, posing serious public health and environmental risks for the entire city's population.

Three in four slums in Mumbai are dependent on public toilets. An estimated one person in 20 (or about 420,000 in total) is compelled to defecate in open areas; this represents about six percent of Mumbai's slum area population.

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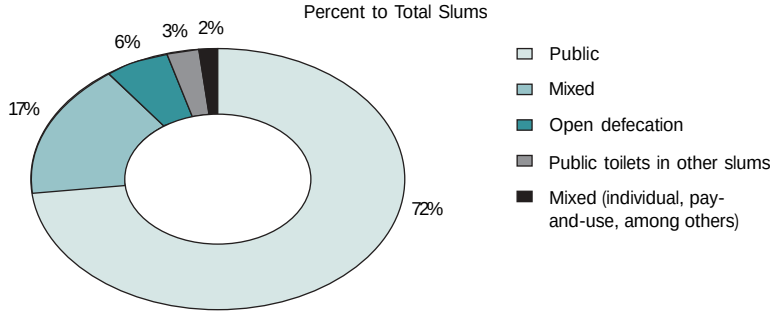
Insecurity of tenure, lack of space, and affordability constraints rule out use of conventional water-borne sewer-based solutions. Even in instances where households are able and willing to invest in appropriate facilities, topography (as many slum settlements are located below the road level or sewer invert level) often poses a barrier. The MCBM is responsible for providing sewerage, public, and community sanitation services to the city, including the slums. In addition, the state's housing development agency, Maharashtra Housing and Area Development Authority (MHADA), is also charged with providing community sanitation infrastructure in slum areas.

Over the last three decades, as a supplement to building a large citywide networked infrastructure[6], Mumbai's response to demand for urban sanitation facilities for the population at large, including slum dwellers, was through provision of:

- Public free-for-use toilets constructed and maintained by municipal agencies.
- Public pay-and-use toilets constructed by MCBM (later, private agencies), and operated and maintained by private agencies.
- MHADA-constructed toilets for use by slum dwellers. However, its mandate and responsibility for operations and maintenance is unclear.

Figure 2: Mumbai Slums—Access to Sanitation Arrangements



Source: WSP/World Bank TARU and WEDC Study. 2005.

Public, Pay-and-Use, and Community Toilets for Slums

Public toilets are available for use by the public-at-large, who usually are required to pay user charges. Community toilets, on the other hand, are meant for use by a specific community of households or an identifiable core group of users. "For this reason, users develop a sense of ownership of the assets and are willing

[6] Part of the city sewerage master plan implemented by 2001 and covering five zones comprises about 1,500 km of sewers including 51 pumping stations, preliminary treatment facilities, and outfalls.

to take full charge of their management." (Nitti and Sarkar 2003.)

Pre-1990s' public toilets: Until about three decades ago, the MCBM had constructed public toilets free of charge and MCBM staff was responsible for their upkeep and maintenance. However, because of poor maintenance, lack of electricity and water connections, as well as indifferent public attitudes, most of these toilets fell into disrepair and only a few functioned properly.

Public sanitary conveniences or public pay-and-use toilets (PTs) using a public-private approach: With the popularization, starting in the mid-1980s, of the 'Sulabh' (pay-and-use public toilets) model in different cities in India, more than 100 toilet blocks (public sanitary conveniences or PSCs) were constructed by the MCBM during the 1984-1991 period. These were given out on management contracts to Sulabh International[7] for 30 years. These toilets, usually located in highly populated public and commercial areas, ran well and showed that people were willing to pay and use good quality sanitation facilities. By the early 1990s, the MCBM, realizing the commercial potential of such pay-and-use PSCs, concluded that it did not need to invest its own resources for construction of the facilities. The task of financing, constructing, running, and maintaining such public toilets was opened to any organization that came forward to implement PSCs on a build-operate-maintain basis. The MCBM provided the necessary permissions and land for building the toilets, approved the building structure and design, and regulated the use of structures (such as for advertisements). These PSCs are typically located in and around commercial areas or areas with a high floating population. They depend on pay-and-use revenues that not only cover the operational and maintenance expenses but are also able to recover capital investments. This approach originally was intended to encourage toilet construction in slums too—one toilet for slums or 'non-commercial potential areas' for every one in commercial areas, using cross-subsidization schemes. This approach failed, however, since the organizations involved restricted themselves to commercially attractive locations only, leaving the slum areas unserved. By February 2005, there were an estimated 1,327 pay-and-use public toilets in the city operated by nearly 155 agencies, according to MCBM.

Community toilet blocks (CTBs) in slum areas: Along with the provision of free public toilets before the 1990s, the MCBM also had a Slum Improvement Wing (from 1969 to the 1990s)[8] that was responsible for various upgrading activities, including the provision of community toilets. These toilets were constructed for use by various slum communities. Funded by the MCBM, the regular maintenance of these toilets was assigned to MCBM's municipal sweepers. Although they were few in

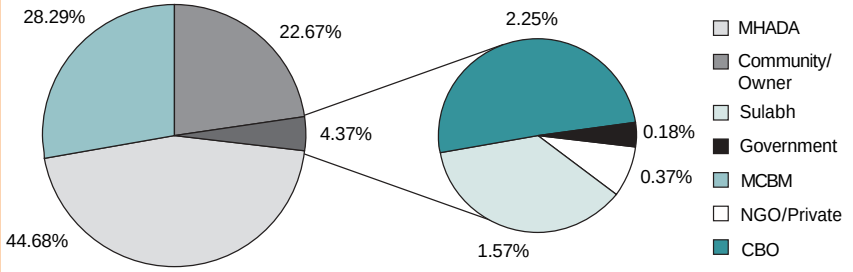
[7] Sulabh International is a national organization that began in the 1970s and, among other things, popularized pay-and-use public toilets that it operated and maintained across many Indian cities.

[8] This Wing was dissolved and its functions devolved to the MCBM municipal ward offices in the 1990s.

number, the toilet facilities also fell into disrepair as the MCBM was unable to maintain and repair them, in part because there was little incentive for the cleaning staff to get the job done. Further, as these toilets were restricted to slums on MCBM land—the MCBM would not finance toilets outside its jurisdiction—it left considerable slum populations without access to sanitation facilities.

In the latter half of the 1990s, sanitation became the focus of a new national policy thrust along with increased government funding. MHADA became the pre-eminent agency constructing toilets in slum areas of urban Maharashtra including Mumbai. MHADA implements the state and central government's funded housing and infrastructure schemes, and discretionary local area development funds of members of parliament and members of the state legislature. The Authority constructed public toilets in Mumbai through the late 1980s. With substantial resources coming to its disposal in the late 1990s and early 2000s, it has by now become the largest public toilet construction agency in the city. By 2001, there were about 10,000 community toilets blocks in the city, of which 45 percent had been built by MHADA, 29 percent by MCBM, 23 percent by communities or charitable organizations, and two percent each by CBOs (or private organizations) and Sulabh. A majority of these toilet blocks have aqua privies (53 percent) for waste disposal, followed by septic tanks (46 percent)—with a small proportion being connected to the city's sewers.

Figure 3: Mumbai Slums—Agency-Wise Proportion of Toilet Blocks



Note: Base—1,959 slums.
Source: WSP/World Bank TARU and WEDC Study. 2005. MW-YUVA Survey. 2001.

The bulk of the community blocks are constructed without community consultation and are, typically, a single level battery of 10 seats for use by adults with separate sections for men and women. These are load-bearing structures with asbestos cement roofing sheets, no provision for water supply or electricity, and aqua privies or septic tanks for waste disposal which often overflow and discharge into the nearest drain. Whether built by MCBM or MHADA, a number of problems erode the potential benefits that these community toilets could provide. About two-thirds of the community toilet blocks (CTBs) are in various stages of disrepair and disuse. Lack of availability of water and no electricity leads to poor cleanliness, restricted time of use, and frequent damage. The operation and maintenance of these toilets has continued to pose significant challenges, since users were not actively involved in the planning and hence have little sense of ownership. This has contributed to their rapid dilapidation followed by public demand for reconstruction. Agencies such as MHADA have responded with their resources but the rebuilt toilets are invariably reconstructed with inappropriate specifications and without users' involvement. Since there is no process of formal handover between MHADA and MCBM, expectations of maintenance are further belied. Thus a cycle of failure is perpetuated, aggravating already bad situations and increasing health risks.

This was the context within which the Slum Sanitation Program (SSP), supported by The World Bank, was conceived. The aim was to help arrest the cycle of failure and misused resources through the provision of reliable, good quality, sustainable sanitation facilities to meet a large and growing desperate need. The SSP faced a formidable challenge of trying to be innovative yet responsive to public demand and preferences.

Introducing a New Approach: The Slum Sanitation Program

The World Bank-financed Mumbai Sewage Disposal Project (MSDP), approved in 1995, was primarily targeted at undertaking special sewerage works in Mumbai and strengthening the capacity of the MCBM to provide sewerage services. The MSDP, approved in 1995, involved a total project cost of approximately Rs. 13.2 billion (US$295.6 million), which was financed in part by a Bank loan of approximately Rs. 8.6 billion (US$192 million). The Slum Sanitation Program 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 one million slum dwellers (approximately 20 percent of the total Mumbai slum population) living on municipal land at about 10 percent of the MSDP cost.

What was Special About SSP?

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, non-governmental organizations (NGOs), and community-based organizations (CBOs) to work together to jointly deliver community toilet blocks in a flexible framework—NGO-led partnership with contractor, and contractor led-partnership with 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, household contribution for membership.
- Entire O&M responsibility handed over to CBO, and CBO signed MoU with MCBM which spelled out the roles and responsibilities of the CBOs and MCBM.
- O&M management—CBO collects monthly pass charges (members) and per use user charges (other visitors).

Key Features and Implementation Challenges of SSP

Participatory and demand-responsive approach: The SSP stipulated that in slums where toilets are to be built, people would be engaged in a consultation process, during which the project and their role in it would be discussed. A key feature was the involvement of slum communities in

A key feature was the involvement of slum communities in project implementation right from the planning stage. The mobilization process facilitated collaborations between NGOs, contractors, and CBOs.

project implementation right from the planning stage. They would participate and be eligible for benefits by making an initial financial contribution toward membership. They would take an active part in planning including site selection and toilet block design. They would also provide assistance and oversight through the construction process. NGOs were expected to facilitate this. The project specified that the choice of technologies and their locations reflected the collective views of the community as a whole. These decisions would be documented in minutes of community meetings.

In each slum settlement a CBO was formed and registered as a Trust or a Society (under the Bombay Public Trust Act). In order to express its 'demand' each family in the target slum area was asked to pay a contribution of Rs.100 per adult (up to a maximum of Rs. 500 per family) as a membership fee. The amount was deposited in a joint bank account (with CBO and MCBM). Construction work began after this process was completed.

After construction of the toilet block, the CBO typically certifies its satisfactory completion and signs a Memorandum of Understanding (MoU) with the Municipal Corporation. The responsibility of maintaining the toilet block is then handed over to the CBO. The MoU specifies that CBOs operate and maintain the toilet blocks.

Considerable effort is required to make the collaborative partnership of NGOs, contractors, and CBOs work effectively. There were inevitable start-up problems but, over time, the mobilization process began to succeed.

There was a marked contrast to the experience of earlier CTBs that were built without any participation of the intended user group.

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 created by community groups.

Launched in 1997, the SSP met with considerable political opposition and institutional reticence in the early stages. The SSP design also did not receive a favorable response from NGOs and contractors and little progress was achieved. These initial difficulties led to considerable rethinking about the strategy; the four-step approach was replaced by an integrated 'compact' contract, either led by an NGO or a contractor. The revised roles were as follows:

a) MCBM was to create an enabling environment that would bring NGOs and the private sector to facilitate participation of slum households, and provide the capital investment to construct toilet blocks.

b) NGOs would mobilize slum communities, facilitate formation of CBOs, provide hygiene education and training on O&M and CBO functioning, and serve as the main catalyst to encourage a partnership between the community groups and CBOs and the MCBM.

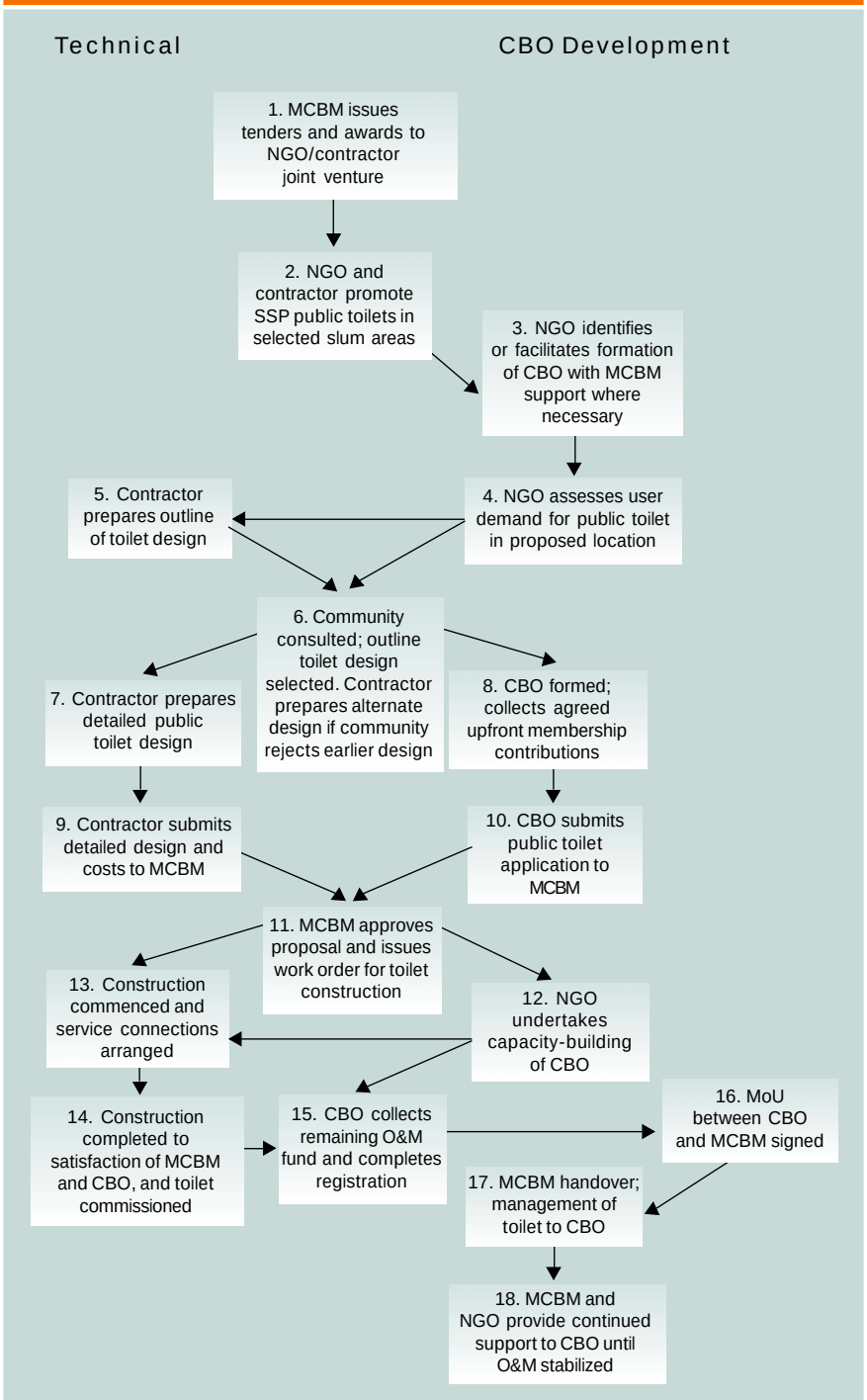
c) Private construction companies were asked to carry out toilet construction, in partnership with NGOs. Alternatively, in the NGO-led consortium, they were responsible for community mobilization and

CBO formation as well as construction. All work was subject to competitive bidding procedures, consistent with government and World Bank guidelines.

d) CBOs were to help enable local community processes, supervise construction and take full charge of O&M 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 because of the presence of competing, supply-driven free service facilities. The real test of this novel approach was predicated upon garnering political support for experimenting with mobilizing interest among slum community households, forming and strengthening registered CBOs, with NGOs and contractors jointly delivering, as a part of an integrated contract, mobilization, planning, design and construction of toilet blocks, in close consultation with community groups. After the construction, the entire responsibility for operations and maintenance would be handed over to the CBO, formalized in an MoU between the CBO and MCBM. In this way, the SSP sought to shift the focus of activities to the CBOs (responding to the community's demand), with NGOs, contractors, and MCBM playing the role of facilitators, as shown in Figure 4.

Figure 4: The Process of Slum Sanitation Project



The Real Challenge

As noted earlier, the SSP approach initially did not find favor with slum communities; they were reluctant to pay upfront membership contributions, especially in the face of free toilets being built by MHADA. NGOs and private construction contractors were not forthcoming, apprehending difficulties in execution. Procedural delays (for example, in water, electricity, and sewage connections) also slowed progress, as did local political opposition at many locations. Confidence started to build amongst communities only after a prolonged start-up of construction of some community toilet blocks, along with a number of revisions and innovations in contracting conditions, a series of consultations and collaboration with NGOs, contractors, and MCBM. Political support also started to emerge with growing evidence of community interest and acceptance of the SSP approach. The initial doubts of municipal councilors were allayed when they witnessed growing demand for the SSP, the willingness of people to help operate and maintaining the CTBs, and the new employment-generating opportunities that were in sharp contrast to the disincentives and environmental degradation resulting from free provision of toilets. The SSP picked up pace by 2001.

Technical Options. In spite of a difficult start, the SSP had demonstrated a capacity to dramatically improve the specifications, quality, and potential service life of community toilets for slum dwellers. The program was sensitive to the constraints that aqua privies posed in terms of waste disposal, and hence sewerage connections were sought wherever feasible. The program successfully tested and implemented a series of technical options to address these constraints, including:

- Sewerage for individual household latrines (IHHLs).
- Retrofitting and restitution (R&R) of existing community toilet blocks (CTBs).
- Provision of new community or group toilets.
- Permission for *chawl* (or slum) residents to build IHHLs.
- Shiftable toilet blocks and connection to sewerage networks.
- Demolition and reconstruction of existing CTBs (including enlarged blocks both vertically and horizontally).

Other important design innovations included special toilets for children, for elderly and disabled persons, and rooms for a caretaker. The latter turned out to be a programmatic and beneficial decision since it fulfilled a need for someone to maintain the facility site full-time—thereby increasing the quality of upkeep and maintenance on behalf of the community.

The majority of toilet seats constructed under SSP were in community toilet blocks—most of them with two-floor reinforced cement concrete (RCC) frame structures with 24-hour water supply (through an overhead tank), an

Table 3: How SSP Toilets Compare with MHADA Toilets

Component/Provider	MHADA Toilet Blocks	SSP Toilet Blocks
Planning and Design		
Planning	Highly standardized design adopted. No community participation in design; community remains a passive recipient	Flexible approach—planning done on the basis of space availability. Community participation in planning and designing is a program rule
Service life	10 years (past experience shows that the service life is about two or three years)	Designed for 30 years. Some blocks may need retrofitting to meet design specifications
Usage norm	One seat for 35 users	One seat for 50 users
Water	Not provided	Compulsory (water connection, underground sump, overhead tank, and lifting pump)
Electricity		Compulsory
Caretaker's room	None	Compulsory for toilet blocks bigger than 10 seats. Where these rooms are not used, they have been put to use for community activities (child recreation center, library, among others)
Number of cubicles	Typical eight-12-seater block	Not fixed, depends on community demand or requirement, space availability
Squatting platform/seats for children	None	Yes
Seats for old and disabled persons		Optional
Provision of bathrooms		One bathroom for every 10 toilet cubicles provided
Urinals		Yes
Privacy for women	Not ensured (many times the men and women sections are not separated)	Ensured
Plinth height	Generally 1.2 meters, as the superstructure rests on septic/aqua privy tank	Flexibility in deciding plinth height
Additional spaces	No flexibility	Caretaker's room can be used for community activities (child recreation center, library, among others)
Structure	Load bearing	RCC framed structure
Waste disposal	Generally septic/aqua privy tank	Preference for sewerage connection
Capital costs per seat	Rs. 23,000-40,000	Rs. 50,000-65,000
Management arrangements	Left to the user group to decide after blocks are constructed by MHADA. Little evidence of formal handing over to MCBM by MHADA for back-up operations and maintenance in case user community is unable to	CBO is the designated maintenance agency. Its involvement is ensured by including the responsibility for creation, training, and handing over O&M management, in the contractor/NGO construction contract
Tariff	Free usage	Typically Re. 1 per visit; for monthly family passholders, Rs. 20 to Rs. 50 per month (mean Rs. 31) for unlimited use by all family members
Operations and maintenance sustainability	Not ensured. Free usage; dependent upon MCBM maintenance and, in some cases, community's initiative to hire/pay a sweeper	Community financed O&M, including corpus,[9] monthly family pass/pay-and-use system; agreement drawn between MCBM and operating CBO with clear division of responsibility for O&M
Monitoring	None	MCBM is the apex agency responsible for monitoring

Source: WSP/World Bank TARU and WEDC Study. 2005.

[9] The CBO corpus is built at the planning and design stage, through upfront contribution from users.

electricity connection for lighting and waste disposal to sewers where feasible or to septic tanks and aqua privies. Typically, with about 10 toilet cubicles, there are separate sections for men and women, additional facilities for children and disabled persons, urinals, and bathing areas. High technical standards for civil construction (with a design life of 30 years) are matched with other features, such as ceramic-tiled floors, aluminum shutters, galvanized iron (GI) water pipes, cast iron (CI) sanitary pipes, circulating areas, and rooms for a caretaker. In short, despite some construction weaknesses and limited technical options, the SSP managed to provide toilets built to high technical standards and that provided reliable service. Communities in time expressed preferences for such toilets and agreed to operate as well as maintain them. Since ownership of lands caused a potential constraint, most toilet blocks were constructed on MCBM and state government lands, and only a handful on private or Government of India land.

By mid-2005, the SSP had constructed over 328 toilet blocks and more than 5,100 toilet seats in slums across Mumbai. The program was executed by three contractor-NGO consortia, selected in accordance with standard competitive bidding procedures; however, nearly two-thirds of the community toilet blocks were constructed by one service provider, also selected competitively. Despite some construction weaknesses and limited technical options, most of the original performance benchmarks or milestones were achieved except at a few sites where ongoing conflicts and contractual challenges delayed completion. At the design stage these facilities were meant to cater to the needs of 250,000 people. Empirical observations suggest that the actual number of users exceeds 400,000 since a large number of additional users, attracted by the good quality standards, is also using these toilets.

Community Groups Operate and Manage CTBs

Management of toilet blocks by CBOs is an important feature of the SSP and has important implications for sustainability. Since the program was predicated upon operations and maintenance (O&M) management by CBOs, the issue of user charges was also left to them. Two forms of user charges emerged in practice. The CBOs collect monthly fees (from 'members' who are holders of monthly family passes typically priced at a mean of about Rs. 31 per family for unlimited use), and per-use user charges (Re. 1 per visit for those who do not have family passes). These charges help defray all expenses related to the upkeep of the toilet blocks including water and electricity charges. All minor repairs are carried out and paid for by the CBOs while the MCBM attends to major repairs and provides network service (for instance, water supply, and sewerage). CBOs maintain membership registers, books of accounts, and minutes of meetings. A study in 2005 showed that, by and large, CBOs have accepted this responsibility and a number of different arrangements for O&M have emerged.

Box 2: Main Management Arrangements

A. CBO members operate and manage toilet block on their own.

B. CBO employs staff (for example, caretakers) to operate and manage the toilet block.

C. CBO contracts a caretaker (individual or family) to manage and operate the toilet block on its behalf.

D. CBO contracts a professional operator to manage the toilet block.

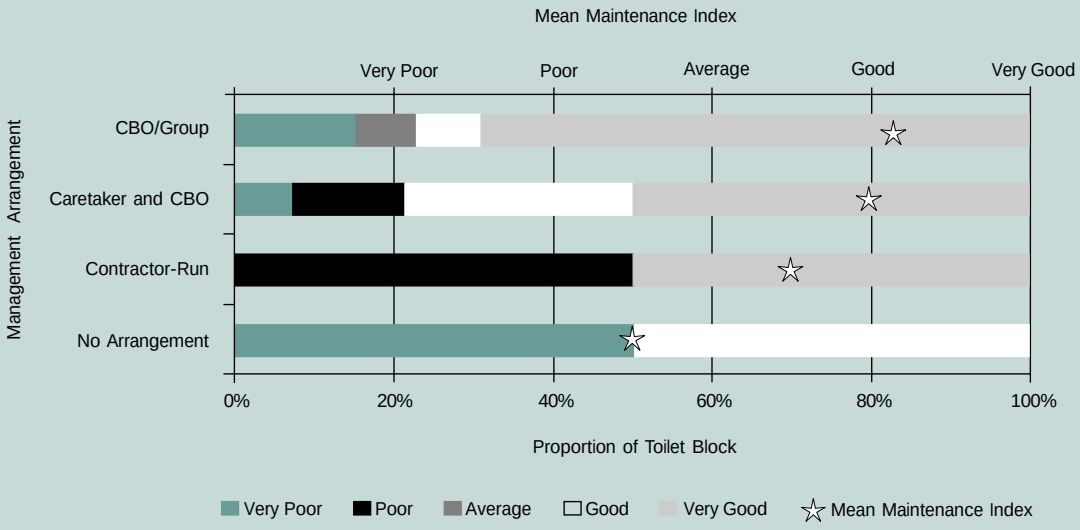
Source: WSP/World Bank TARU and WEDC Study. 2005.

Some CBOs use informal management arrangements for O&M, leading to mixed outcomes. Some toilet blocks seem to be dominated by small groups, and some have also been informally contracted out to professional operators for delegated management without a proper contracting procedure. Few CBOs have sufficient experience to provide proper accounting and transparent financial reporting about costs and revenues. These are areas where CBOs need further support and guidance from MCBM.

By and large, CBOs have proved their ability and interest in managing these toilet blocks. Most important, the experience to date indicates that an innovative new model exists for ensuring future sustainable slum-area sanitation through collaborative operations and maintenance approaches. It is too early to pass final judgment on the comparative performance of different management styles but small-sample studies indicate that:

- Toilets with better technical standards are likely to provide better service to users;
- Facilities managed by CBOs and caretakers show better maintenance standards;

Figure 5: SSP Toilet Blocks' Service and Maintenance Quality



Total Blocks (31): CBO/group (13); caretaker and CBO (14); contractor-run (2); no arrangements (2).
Source: WSP/World Bank TARU and WEDC Study. 2005.

- At some locations, the better-managed and maintained CTBs have become common community spaces for social, economic, and educational activities.

Economic and Financial Dimensions

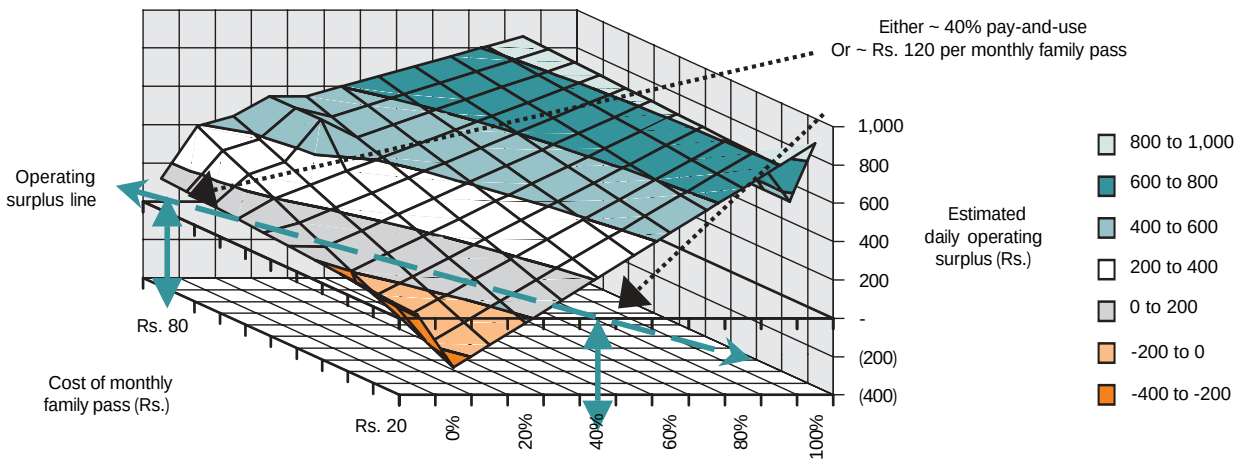
Estimates show that per seat (contract) capital costs under the SSP varied between Rs. 50,000-65,000. About 80 percent of all the required community contributions had been deposited in bank accounts for 317 toilet blocks. There have been a few cases where contractors have reportedly paid the community contributions on behalf of the community, thus circumventing the process of the community being mobilized and expressing demand. Community contributions were supposed to make families eligible for membership but, in practice, in many toilet blocks, the monthly pass for unlimited use by all family members was far lower (in the range of Rs. 20 to Rs. 50 per month; mean being Rs. 31), than the common pay-and-use charge of Re. 1 per visit. Hence, some families who are not members but regular users have to pay a hefty sum per month. This situation had arisen where some were late in joining and the maximum number of membership (at 50 per seat) for the toilet block had been reached.

Box 3: Operational Cost/Revenue Analysis

The analysis of operating loss/surplus was simulated on the basis of a daily mean loading of 1,300 visitors for a 20-seater toilet block at 2005 prices, as presented in Figure 6. The figure presents an operating surplus range that is defined by two variables: the proportion of pay-and-use users (from 0 percent to 100 percent) and the cost of monthly family pass (ranging from Rs. 20 to Rs. 120). The operating results for a typical toilet block ranges from a loss of Rs. 400 to a surplus of Rs. 1,000 per day, depending on where the toilet block lies on this surface. The operating surplus line (in dashed blue) separates those conditions in which a loss is made (orange and grey) from those in which a marginal surplus is made (white) and those in which a moderate and substantial surplus is made (various shades of blue).

Figure 6: Estimated Daily Operating Surplus of 20-Seater SSP Toilet Blocks

(@ 1,300 mean daily loading, 30-year toilet life, 2005 prices)



Boundary issues created problems in some cases; in other cases, small-group dominance and search to maximize revenues also resulted in exclusion of families from taking membership in a CBO.

The CBOs are expected to look after finances for O&M, but not all of them have the capacity or systems to do so. Less than a third of CBOs (of 36 CBOs randomly sampled in a 2005 study) followed the practice of issuing receipts for family passholders on monthly payments, and very few maintained accounts of daily pay-and-use cash receipts. Many toilet blocks are less than a year old and hence have not started receiving utility service bills regularly. Since the current operational costs consume most of the revenue receipts for many of the CBOs, they may encounter payment difficulties once they start receiving water and electricity bills. Some toilet blocks without piped water connections, where the CBOs have to pay for expensive groundwater pumping, are particularly at risk of not being able to pay all the necessary costs. These are areas where CBOs need further support and guidance to take collective decisions from MCBM.

Although the *de facto* life of most of the earlier toilet blocks was at best between five and 10 years, the SSP sought to increase the specifications and potential service life of the toilets to 30 years. This meant higher capital and O&M costs which, however, needed to be seen in the framework of the overall life cycle cost, that is, both capital and O&M costs. A financial model developed under the 2005 study identified the percentage of pay-and-use users to total, monthly pass cost, number of users per day as key variables in O&M. The longer term life cycle cost and the internal rate of return were most sensitive to toilet life (or length of the concession in a contractual scenario), and level of capital subsidy.

From Figure 6, it is clear that surplus is strongly influenced by the proportion of pay-and-use users. A minimum of 40 percent of pay-and-use users is required for an existing toilet block with a monthly family pass of Rs. 20 and close to 100 percent recovery to show an operating surplus. Similarly, it would require a raise in the monthly family pass fee to over Rs. 120 to enable a toilet block with no pay-and use-users to have an operating surplus.

The analysis established that *it is possible for many of the toilets to break-even and even post a surplus if loading and tariff-setting were floated to match with local conditions*.

Land Ownership Issues

The bulk of the toilets constructed under the SSP were in slums situated on MCBM-owned land. A No Objection Certificate was required from the relevant ward office of the MCBM, which would certify that the land was not earmarked for alternate use in development plans and that it was possible to extend water and drainage facilities to the slum. Slums that were proposed to be taken up under SRS in the following two years were excluded from the SSP. Where the land was owned by the Government of India (for instance, Airports Authority of India, Indian Railways) or other private owners (individuals or organizations like the Bombay Port Trust), the respective owners would have to give a clear no-objection before the toilet blocks were constructed. In most cases, there was reticence on part of these agencies to recognize slum settlements on lands owned by them, and hence issue NOCs. In a few instances, the SSP was sought to be implemented on lands owned by these agencies, and some of these fell into dispute. This is an important issue; agreements with Government of India agencies and private land-owners need to be made to facilitate further scale-up of the program.

Achievements of the Slum Sanitation Program

Although the community sanitation challenge in Mumbai is far from being addressed, the SSP experience provides a good roadmap for future development of sustainable programs. The key elements of this roadmap may be summarized as follows:

- One of the earliest obstacles of the SSP—and later its achievement—was to win political support for the program. The supply-driven provision approach was popular when the SSP started. Apart from municipal councilors, other political leaders including local slum leaders as well as members of the state legislative assembly and members of the national parliament had to be convinced that the SSP 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 showed that, apart from gaining entry for demonstration, there was a need to prove the concept in actual practice. Considerable progress was made in this regard. As a result, properly functioning and sustainable community toilets have come to be regarded as a major factor in the city's political dynamics and 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 operations and maintenance, with major repairs and replacements being done by MCBM.
- *Superior technical quality and service levels* attracted people even if this meant higher capital (borne by the MCBM) and O&M (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 O&M 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 showcased the successful partnering of* contractors, NGOs, and CBOs, selected competitively, in delivering good quality sanitation infrastructure facilities, with the MCBM 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.
- A review commissioned by WSP/World Bank in 2005 showed that SSP toilets have demonstrated significant *improvement in levels of maintenance and cleanliness* compared to the existing MHADA and older MCBM toilets.

The Slum Sanitation Program showcased many achievements, for instance, winning political support and forging partnerships, using a participatory demand-responsive approach, providing superior technical quality and service levels, and nurturing latent entrepreneurship capacity in the city.

- Many of the toilets are well used by many more slum residents than anticipated at the early design stage. Also, many have good *potential revenues* if tariffs and costs are managed to suit local conditions and some of the pricing distortions removed.
- The SSP successfully tested a range of *technical options and contracting innovations*, which are available for a potential scale-up of the program or for use in urban sanitation initiatives elsewhere.
- 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 stake-holders acting collaboratively for a more durable O&M regime to help ensure improved access and quality services.

Challenges Ahead

Implementation of a participatory and demand-responsive approach in the complex environment of Mumbai is not without its challenges, especially given the scale and novelty of the structures and community mobilization process. Mumbai faces a number of policy and programming issues that need to be addressed if the SSP approach is to be scaled-up with a view to helping meet more of the future demand for sustainable community sanitation in slum areas.

Policy and Strategic Challenges

- *Land mobilization and notification of slums:* The bulk of slums and slum populations are located on lands with private, mixed, and GoI agency ownership. This poses a key challenge since community toilets in the future will need to be provided in these aforementioned areas and not only on MCBM and state government lands. The state needs to get land-owning agencies to agree to construction of toilets in slums located on their lands. The future general sanitation and health of Mumbai are at stake.
- *Compliance of agencies to Government of Maharashtra policy:* The SSP has triggered a movement towards a new, more sustainable urban sanitation policy through greater collaborative effort locally. However, compliance to these policy guidelines in the past, from agencies such as MHADA, was not forthcoming because of a number of 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[10] program.

[10] MHADA has now agreed in principle to follow the new approach, and has also recruited personnel with community development training to ensure proper mobilization of communities and handover of toilets to them.

- *MCBM to accord priority to sanitation:* Sanitation services are currently divided across the solid waste management department (for Public Sanitation Complexes), ward offices (O&M of MCBM and MHADA toilets), and the SSP itself. A Strategic Sanitation Department with adequate human and financial resources is required to be created within MCBM to take the SSP 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 SSP's participatory and demand-responsive community managed approach. Further, CBOs need encouragement and strengthening in a number of areas that constitute their core management tasks, including mechanisms for viability, tariff-setting, proper accounting and disclosure, social inclusion and representation, and improved formal contracting for delegated management accountable to users. Further, any possibility of 'capture' by a few families and not accounting for pay-and-use revenues, need to be monitored and strongly discouraged.
- *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 become further necessary for scaling-up while being environmentally superior too. Construction weaknesses in some areas need to be accorded greater attention; quality assurance systems should be institutionalized into the management structure and capacities of NGOs and contractors. The use of the community as sub-contractors was a positive step and a key SSP innovation but effective capacity development of sub-contractors 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 by NGOs and contractors, although only a few participated. There is a strong case for involving larger numbers of NGOs and contractors to participate competitively in the program. The later stages of the SSP seem to have generated stronger interest among them. However, building their capacities after learning from SSP experience, and institutionalizing organizational and program management processes, will be a key issue for a scaled-up initiative. This may require vendor capacity development by the government.
- *Better monitoring:* While SSP was implemented using a reasonably good progress monitoring system, a number of improvements are possible in this area. These include improved third-party concurrent monitoring of technical quality (as was tried out in SSP initial stages but later discontinued), and community-level monitoring of program progress including a special focus on monitoring the quality of CBO mobilization.

The above are a few of the key challenges, and there are strategic and institutional options for scale-up. The bottomline will be focusing policy instruments and expanding programming options so that a significant impact can be made on Mumbai's environmental conditions and public health outcomes.

What Do We Learn from Mumbai?

The experience of the SSP in Mumbai holds a number of valuable lessons:

- *Key impediments to success:* Most importantly, 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, there is evidence of some reform movement in Mumbai but the pace of required change is too gradual to date to give hope of seriously addressing the enormity of the challenge. This inevitably leads to *second-best solutions*. Limitations of space and insecure 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 many slum residents, especially the urban poor, who may find it difficult to use pay-and-use public toilets (often with higher user charges than community toilet blocks).
- *Community sanitation must be integral to environment services plans:* The provision of most urban environmental services is carried out within a complex panorama of historic tenurial and housing conditions that influence the mix of sanitation options and attendant employment opportunities. This milieu, in turn, influences any efforts to mobilize households and community groups. As a result, any capital-centered approach that does not fully take the above realities into account is bound to be limited in impact and ultimately fails to provide environmental health benefits to all citizens. The MSDP experience has shown that investments in modern trunk infrastructure cannot become fully effective[11] unless human excreta generated by the more than half of the city's residents is safely collected, transported, and treated. Thus, the original rationale for a citywide sewerage and drainage investment with consequent environmental health gains, was undermined. *In large cities with large slum areas, comprehensive sanitation services to slums cannot be an add-on to sewerage and drainage infrastructure efforts. Instead, slum area services should be regarded as an integral part of the total program for the entire city.*

An interim goal of open-defecation-free cities is a good working starting point, to work toward a vision of clean, healthy, and environmentally sustainable cities. The SSP showed that *a flexible framework involving systematic community consultation achieved significant unplanned and long term gains* even though the initial progress

[11] As the project was to acknowledge later, effectiveness was not only on health and environmental grounds, but not connecting slums to sewers meant that loads in sewers would not be enough to generate adequate flows.

> The use of the community as sub-contractors was a positive step and a key innovation. Effective capacity development of sub-contractors and quality assurance of supervisors will be necessary to leverage this into an effective, larger program in future.

was slower than anticipated. This shows the potential of converting sanitation into a movement less dependent on formalistic planning.

- *Listen to what communities want and forge partnerships:* The Mumbai SSP proved that given the right framework of community engagement, quality service provision, and assurance of reliable maintenance, people are willing to pay—even in poor slum communities that are customarily assumed by governments and service providers as powerless, divided, and economically unable to bear costs. (In fact, they may actually be paying substantial amounts in terms of informal arrangements and prohibitive health costs, as many studies elsewhere have shown.) This confirms experiences elsewhere that close attention needs to be paid to users' preferences. Effective partnerships also need to be encouraged between formal municipal agencies, NGOs, the private sector, and informal community groups sustainable sanitation service delivery. By now, this is also well-recognized by the Water Supply and Sanitation Department (WSSD) in the GoM, which previously harbored reservations. Further, the SSP showed that user charges need to be administered flexibly, that is, left to community groups to decide depending on local costs and revenue requirements. Overall, a key to success in this area is a policy framework that *embraces different stakeholders and provides them incentives to participate, along with careful attention to user households' needs and preferences for which they were willing to pay*.
- *Encourage entrepreneurs:* A particularly helpful aspect of the SSP experience was the emergence of private entrepreneurs willing to provide toilet operation and management services to CBOs. Encouragement and recognition of this potentially valuable market force, even though it may operate largely in an informal and not readily visible manner, is essential for promoting new delivery mechanisms for sustainable sanitation coverage. While this may have been inevitable, given the dynamic and entrepreneurial character of Mumbai, it is also true that programs to promote broad-based community and private sector involvement in sanitation and sewerage have significant beneficial potential. *Sanitation policies will need not only to be informed by such a latent presence of the informal sector, but also provide adequate space and incentives to help in their systematic development and consolidation.*
- *Develop vendors:* On the other hand, the experience of SSP implementation showed that state and program policies often assume the adequate availability of reliable NGOs, contractors, and other facilitating agents. In fact, there can be a scarcity of such agents and this scarcity can create programming bottlenecks and delays. Policies will henceforth need to give adequate consideration to the *development of capacities amongst potential vendors and social mobilization agencies*.
- *Policy development needs proof of concept and buy-in from stakeholders:* Another important lesson was *the process of policy development*. While the MCBM circulars and GoM Orders reflected the elements of sound policy, there was a lag in obtaining compliance from line departments which, during the initial stages, continued to follow older guidelines, often leading to unnecessary conflicts and delays. This experience highlights the need for demonstration or pilot initiatives (like in SSP toilets), persistent engagement and consultation with stakeholders, and appropriate recognition of the institutional incentives and interests that can help promote the overall program. MCBM and GoM have decided that in Mumbai and Maharashtra, respectively, as a matter of policy, community toilets will not be permitted to be built in urban areas if they are not in compliance with the SSP approach.
- *Sanitation initiatives can help promote institutional changes:* In a similar vein, the SSP approach of shifting the locus of all action to the CBOs and user households helped to provoke needed institutional change within the MCBM (for example, according greater institutional priority to sanitation, and creating appropriate organizational structural changes and building dedicated capacity to implement) although this was not an aim of the

SSP. The SSP did not wait for a full-fledged reformation of the MCBM, and experimented with mobilizing community participation to locate sanitation facilities in a manner consistent with peoples' perceived needs. This strategy, in turn, provided grounds for the MCBM to adjust and re-orient, albeit in a limited manner. The SSP cell's role in implementation was crucial. For example, emerging problems on the ground signaled a greater need for maintenance and organizational support to CBOs, and inspired a decision within the MCBM to establish a dedicated cell or department to look after community toilets. *Sanitation initiatives clearly hold the latent potential to spark a series of transformations in institutions*, while closer attention to institutional mainstreaming of environmental sanitation can help cities reap additional benefits.

- *Commercial viability:* The success of a few CBOs in earning surpluses shows that, given management and pricing rules responsive to local conditions, commercial viability is possible for many toilet blocks. In a few cases, some toilet management service providers have taken toilet blocks on contract from CBOs since these have proved to be good business propositions.
- *Departmental divides need to be resolved:* In many large, rapidly growing metropolitan areas around the world, government institutional capacity to respond effectively to dramatically increasing public demand and need for effective sanitation services is found wanting in many respects. This seems to be the case in Mumbai and across the state of Maharashtra, where divergent agency interests, the absence of appropriate institutional

incentives and frequently overlapping jurisdictional and accountability patterns often are at odds with good public policy as well as efficient program execution. Historically, several state and city government agencies have been established with mandates for providing various housing and related urban infrastructure services. With the rapid growth and transformation of Mumbai, these institutional configurations have proved to be inadequate to meet current and future needs. The institutional transaction costs have become excessively burdensome, if not counterproductive, and must be borne ultimately by Mumbai's citizens.There is an urgent need to examine the entire institutional framework carefully with a view to streamlining and redefining functions.

- *Sanitation cannot wait: Sanitation need not wait for institutional and policy changes, important as these may be.* An interim good policy is to start early. The Mumbai experience strongly highlights the desperate need for sanitation as a basic human entitlement that states need to provide for the health and well-being of citizens. The SSP also demonstrated that this can be done, efficiently and effectively, using a learning-by-doing flexible approach within an overall framework of facilitation by municipalities and state actors, grounded in the participation of user communities, and facilitated by a partnership of state and private agents. Governments that can move away from a supply- and coverage-driven approach to unleashing a peoples' movement, with communities as the key players, will overcome challenges faster and in a durable manner.

Moving Ahead: From Pilot to Scale-Up

The SSP has provided a valuable set of experiences from learning-by-doing. Mumbai seems poised to build on this experience by considering more innovative future policies and programs that have greater potential to rapidly achieving open-defecation-free status benefiting not only the slum population but also the city at large. Lessons from the SSP will need to be integrated into the design and implementation of a possible SSP follow-up phase, currently under consideration.

Preliminary Directions for an SSP Phase II

- *Objective:* To extend sanitation coverage to unserviced slum areas/ pockets of Mumbai.
- *Measures:* Provision of 35,000 additional toilet seats in slums lacking proper sanitation facilities.
- Expected benefits are:
  - More than 1.7 million urban poor in slums will obtain access to good sanitation facilities.
  - Overall improvement of public sanitation and environmental health in Mumbai.

[Contracts for Stage I of Phase II which comprised five packages, each containing 1,000 toilet seats, has been awarded by MCBM and work will commence soon.]

Appendix: Slums Studied

Names of SSP 1 Slums	Ward No.	Names of Non-SSP Slums	Ward No.
Ganesh Murti Nagar	A	Sanjay Gandhi Nagar	E
Andhra Association	F North	Bhim Wadi	F North
Bengalipura	F North	Ram Nagar	F North
Bharat Nagar	F North	Dada Bai Chawl	F South
Anna Nagar	G North	Gadi Adda	F South
Kunchi Korve Nagar	G North	Madina Compound	G North
Old B.M.C. Chawl	H West	Mithwala Chawl	G North
Indira Nagar	K East	Chunna Bhatti	G South
B.M.C. Colony, Anand Nagar	K West	Ram Nagar	H East
Liberty Garden	P North	Carter Road Sea Face Society	H West
Malvani Plot 61	P North	Nava Mala	H West
Malvani Plot 68	P North	Jai Hind Cooperative Housing Society	K East
Prem Nagar	P South	Patil Wadi	K East
Durga Chawl	R South	Shanti Nagar	K East
Ekta Nagar-Part B	R South	Tripathi Nagar	K East
Hanuman Wadi	R South	Mahatarpada	K West
Janu Pada	R South	Patel Wadi	P North
Ovari Pada	R South	Seva Nagar	P North
Gajanan Estate	L	Vasari Hills	P South
Qureshi Nagar	L	Ambedkar Nagar	R Central
Sripat Yadav Chawl	L	Anna Nagar	R North
Yadav Nagar	L	Medona Colony	R North
Chikhal Wadi	M East	Laxmi Nagar	R South
Shiv Kripa	M West	Maharashtra Chawl	L
Shivaji Nagar	M West	New Mill Road	L
Kamraj Nagar	N	Shivneri Nagar	M East
Shiv Krupa Society	N	Panchasheel Nagar	M West
Ekveera Nagar	S	Garib Nagar	S
Hariom Nagar	S	Kera Yadav Chawl	S
Mahatma Phule Nagar	S	Morarji Nagar	S
Sai Krupa Nagar	S		
Ali Bahadur Chawl	T		
Azad Nagar	T		
Moti Nagar	T		
New Rahul Nagar	T		
Vishwa Shanti Nagar	T		

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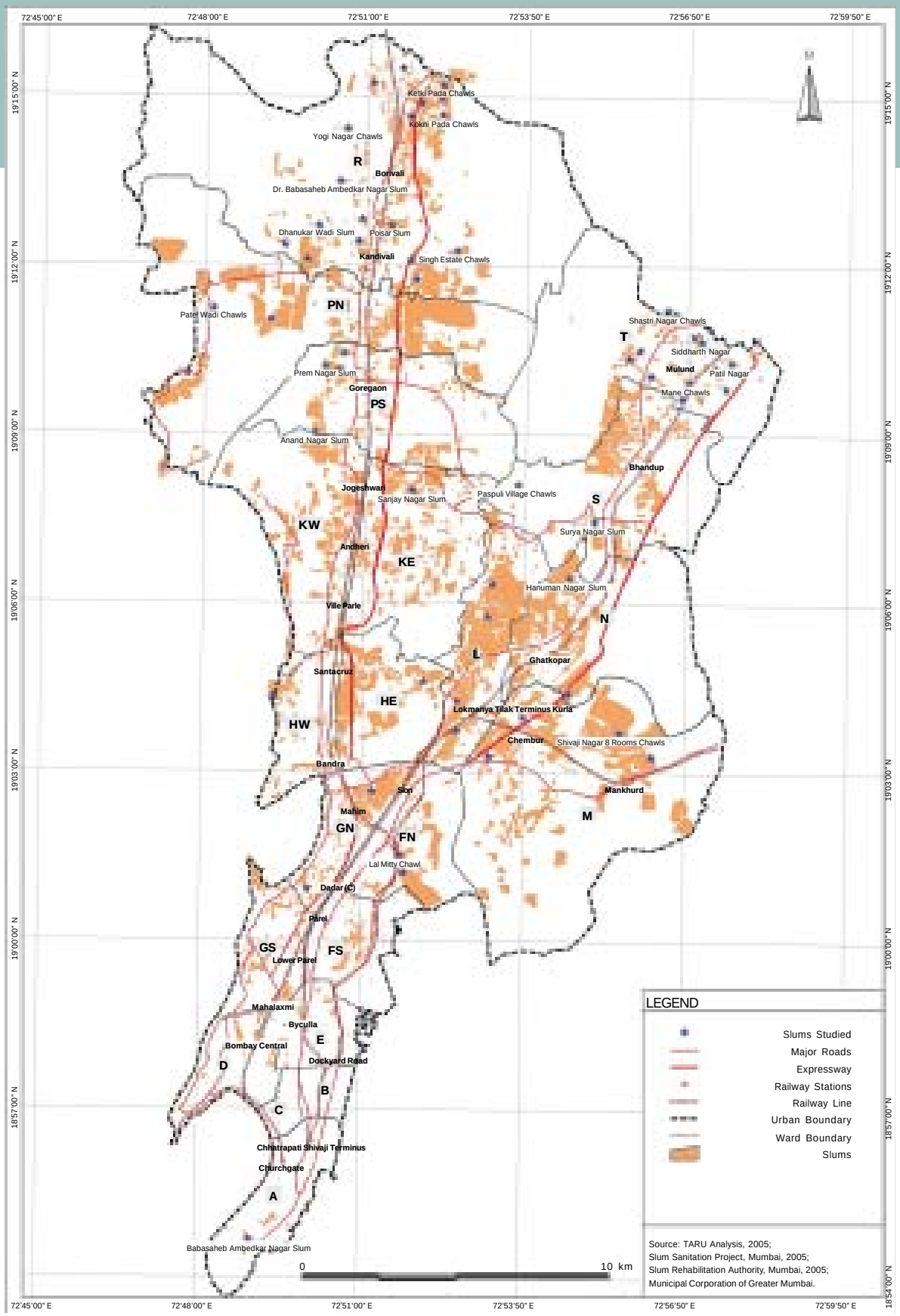
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Kokni Pada Chawls
Yogi Nagar Chawls
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Borivali
Dr. Babasaheb Ambedkar Nagar Slum
Dhanukar Wadi Slum
Poisar Slum
Kandivali
Singh Estate Chawls
PN
Patel Wadi Chawls
Shastri Nagar Chawls
T
Siddharth Nagar
Mulund
Patil Nagar
Mane Chawls
Prem Nagar Slum
Goregaon
PS
Anand Nagar Slum
Bhandup
Jogeshwari
Sanjay Nagar Slum
Paspuli Village Chawls
S
KW
Surya Nagar Slum
Andheri
KE
Hanuman Nagar Slum
Ville Parle
N
L
Ghatkopar
Santacruz
HE
Lokmanya Tilak Terminus Kurla
HW
Chembur
Shivaji Nagar 8 Rooms Chawls
Bandra
Sion
Mankhurd
Mahim
M
GN
FN
Lal Mitty Chawl
Dadar (C)
Parel
GS
FS
Lower Parel
Mahalaxmi
Byculla
E
Bombay Central
D
Dockyard Road
B
C
Chhatrapati Shivaji Terminus
Churchgate
A
Babasaheb Ambedkar Nagar Slum
0
10 km
LEGEND
Slums Studied
Major Roads
Expressway
Railway Stations
Railway Line
Urban Boundary
Ward Boundary
Slums
Source: TARU Analysis, 2005;
Slum Sanitation Project, Mumbai, 2005;
Slum Rehabilitation Authority, Mumbai, 2005;
Municipal Corporation of Greater Mumbai.


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