A FRAMEWORK FOR IMPROVING SANITATION IN URBAN POOR COMMUNITIES

POLICY BRIEF 1
A review of current sanitation and hygiene programmes in India with case studies of effective initiatives
Mahila housing SEWA trust (MHT) is an autonomous organization promoted by SEWA in 1994 with the overall objective of improving habitat conditions of poor women in the informal sector. www.mahilahsg.org

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1.0 Context

Every year, millions of people die from diseases associated with inadequate sanitation and hygiene. Besides its health consequences, sanitation has environmental, economic and social implications for those it serves, especially in the case of vulnerable categories like women, young girls and disabled people. In 2015, 2.3 billion people worldwide still lacked basic services and — among those — 892 million defecated outdoors. Progress towards the Sustainable Development Goal of achieving universal access to sanitation and of ending open defecation has been too slow, particularly in Sub-Saharan Africa and Asia, where 736 and 994 million people, respectively, cannot even benefit from the most rudimentary facilities [1]. With two-thirds of the global population projected to be living in cities by 2030 – many in informal settlements with limited infrastructure – the safe management and disposal of human urine and faeces becomes a critical aspect in improving the quality of life in fast-growing urban environments. Therefore, of particular importance is to integrate safe and inclusive sanitation systems into broader urban development planning.

1.1 Sanitation and hygiene programmes in India

For many years after independence, the issue of urban sanitation – traditionally subsumed under water supply projects – was not given sufficient policy attention and received a minor share of resources compared to sanitation campaigns in rural India [7, 8]. Before the 2000s, the government had launched some initiatives aimed at the provision of sanitary toilets in disadvantaged communities, such as the Integrated Low-Cost Sanitation Scheme (ILCS) [9]. Nevertheless, these were technical, piece-meal interventions that could not fully address the complexity of the problem, especially in informal settlements.

The shift towards a more holistic perspective occurred in 2005, when the Central government initiated the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). The colossal programme was intended to improve infrastructure (e.g. water supply, sanitation, solid waste management, transport, etc.) and to introduce measures on areas such as tenure security and housing in large cities and small towns across 31 states. Particular emphasis was placed on enhancing the provision of services and social amenities to the urban poor, thanks to the Basic Services to Urban Poor (BSUP) component. This was later replaced by the more comprehensive Rajiv Awas Yojana (RAY) programme for the prevention of slums’ formation and the improvement of living conditions in existing settlements [10]. While infusing a lot of capital in the sector, the JNNURM’s funding policy – which was conditional on the implementation of reforms to improve governance in local administrations – slowed down the delivery of new projects and not enough benefits could be passed on to the final beneficiaries of the services [11].
With the enactment of the National Urban Sanitation Policy (NUSP) in 2008, the issue has eventually gained its own policy space. The NUSP was designed by the Ministry of Urban Development to transform cities into “totally sanitised, healthy and liveable” areas and to “ensure and sustain good public health and environmental outcomes for all citizens, with special focus on hygiene and affordable sanitation facilities for urban poor and women [12].” The policy has explicitly recognised sanitation and hygiene as state subjects, further devolved to Urban Local Bodies (ULBs) by the 74th Constitutional Amendment, thus consolidating a multi-tier institutional arrangement (Central-State-City/Town) on these matters [13]. Annex-II illustrates in detail the respective roles and areas of competence of each layer of government.

In October 2014, the Prime Minister of India, Narendra Modi, launched the Swachh Bharat Mission (SBM), otherwise known as the Clean India Mission, gathering all previous governmental schemes under one umbrella, with the objective of achieving a national Open-Defecation Free (ODF) status by October 2019. The programme focuses on the provision of household, community and public toilet facilities, alongside improvements in solid waste management and capacity-building for ULBs. Through this initiative, the government also aspires to bring about large-scale social and behavioural change, increasing the demand for and the use of latrines among the general public [14]. In parallel, the government has launched two other important initiatives, the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and Smart City, which are linked to the SBM in that they aim at the extension, rehabilitation and smart management of water supply and sewerage systems (including solid waste management) using advanced information technology (IT) tools [5].

1.2 Status of sanitation: A note on available data

Conducting an accurate assessment of sanitation coverage in India – based on government’s and other type of data – is a tall order. National and international datasets struggle to be up-to-date with the rapid evolution of urban sanitation conditions and, in some instances, prove to present contradictory conceptualisations of what constitutes a basic or adequate form of latrine facility.

Furthermore, coverage cannot be merely measured by the total number of toilets as many statistics tend to present; rather, it requires evidences on the quality, spread, and effective usage of services. Annex-I provides a list of the sources consulted and the indicators used.

Bearing in mind the limitations regarding the availability and validity of existing information, it is still useful to present some data illustrating the extent of the urban sanitation challenge in India.

For instance, the 2011 Census has collected information on the type of facility for those households which had a toilet within their premises and – in case it was not present – gathered data on whether family members were using public toilets or open areas for defecating. Out of the 78.8 million household units surveyed in urban areas, 18.6% did not have a latrine facility within their premises. As a result, 6.0% of the population used public latrines, whereas the remaining 12.6% was found to defecate outdoors. Among the houses having individual sanitation services, only 32.7% had a connection to piped sewer systems, while the remaining share relied on different types of in-situ treatment or on the physical removal of human waste by men/animals [3].
However, the results obtained from Census 2011 are not strictly comparable with those coming from other datasets such as the Swachhta Status Rapid Survey of 2015, since the definitions and types of latrines referred to are different. For example, in the Swachhta Status Report, the distinction between community toilets, which are meant for use by local residents, and public toilets, which are instead designated to a floating population in public spaces, is clearly spelled out, whereas in Census 2011 the two are not defined explicitly and separately.

From the 2015 survey, it emerges that — on a population of 41,538 urban households — 11.2% do not have sanitary toilets, where the confinement of excreta is carried out without human handling. The survey further highlights that, for the households having access to sanitary toilets (individual, communal or public), the percentage of people actually using the facility is 98.7%. While no direct question was asked as to whether household members went for open defecation, the extent of the practice was measured indirectly, representing those household members using neither household toilet nor shared facilities (7.5%) [4].

There are also large disparities between slum and non-slum residents that need to be taken into account when analysing sanitation coverage in urban areas. According to the third National Family Health Survey (2005-2006), 83.2% of the total urban households and 95.9% of the units not residing in informal settlements have access to improved sanitary toilets (e.g. either flush or pit systems), while the figure for total slum households is only 47.2% [5].

Inequalities within and between cities are also illustrated by the Performance Assessment System (PAS) research programme, initiated by the CEPT University, Ahmedabad. The PAS programme tracks improvements in delivery of urban water and sanitation services in selected areas of India. It follows on the initiative of the Ministry of Urban Development to establish nationwide service-level benchmarks. For example, as reported by the latest data available on Ahmedabad (2016-2017), the percentage of households with an individual connection to the city’s water supply networks is 95.8%, whereas the coverage of water supply is much lower among slum dwellings (75%). Regarding wastewater network services, the figures are 90.7% for non-slum areas and 88% for slum settlements [6].

In the cities of Pune and Ranchi, the differences in provision are even more shocking. In the first case, water supply networks reach only 1.4% of households located in unplanned settlements, compared to a 94.2% overall coverage. In the latter, only 10.8% of slum households have secured individual water supply vis-à-vis the 45.4% of non-slum residents.

There are also significant disparities between slum and non-slum residents on the presence, or lack of, individual household toilets. All the three cities show good overall toilet coverage, although the data does not illustrate whether the facilities in question provide or not for the safe disposal of human waste [6].

As it will come up throughout this brief, the lack of accurate, comprehensive and standardised indicators on urban coverage is one of the first roadblocks to design effective sanitation interventions.
2.0 A framework for improving sanitation in urban areas

Although sanitation has gradually achieved prominence on the urban development policy agenda, culminating in the ambitious Swachh Bharat or Clean India Mission, the country still lags behind in ensuring effective and equitable service provision. A crucial question, then, arises:

**Why has progress towards total sanitation been so sluggish, in spite of governmental schemes; or rather, what conditions need to be met in order to achieve actual improvements in the sanitation sector, especially among urban poor communities?**

Before delving into a critical assessment of India’s current approach to urban sanitation, this policy brief presents a holistic framework for sanitation in urban low-income communities, which is based on an understanding of sanitation as a place-based system that is not merely confined to the presence of toilet facilities. The main argument of the brief is that, if programmes are to work, they must be rooted in local contexts and engage those whom they are designed to serve. Furthermore, driving system change depends on a multi-stakeholder collaboration that brings together government and local residents, as well as private sector organisations, in finding appropriate solutions.
2.1 Sanitation as a place-based system

Thus, a comprehensive framework for action to improve sanitation in urban settlements includes three distinct but interconnected elements: physical infrastructure, sanitation behaviour and community capacity, as schematised in the figure on page 6.

Urban areas are characterised by densely populated settlements, a factor that adds considerable complexity when devising sanitation interventions. Unlike rural contexts, where the focus is on household-level infrastructure (e.g. single wells for water, individual septic tanks and on-site waste disposal systems), in cities, sanitation needs to be conceived as a system capable of efficiently catering to large population densities. Therefore, addressing sanitation issues in urban areas should not solely aim at eliminating open defecation; rather, it implies improving living conditions in highly dense and contested environments.

For these reasons, the aspect of physical infrastructure in urban areas has a broader scope than in rural ones. It relates to the availability of functional and properly serviced toilets, taking into account issues of design, management, maintenance, costs, opening hours, distance from people’s homes, number of toilet seats per user, provision for different needs and safety, especially for vulnerable categories.

Furthermore, it does not only hinge on the creation and maintenance of facilities, but also on their broader linkages to city-wide networks (e.g. proper sewage and water connectivity) and how these are in turn influenced by the location of dwellings and their related tenure rights.

The notion of sanitation behaviour, instead, encapsulates perceptions regarding toilet use and domestic hygiene practices, together with the set of customs, religious beliefs and social norms tied to what represents an extremely intimate part of one’s daily routine. It is important to notice that sometimes behaviour does not have cultural roots, but it develops as a response to poor infrastructure and lack of awareness about its proper use and maintenance. It also encompasses considerations on gender, as women and girls are more exposed to the burden of inadequate sanitation (e.g. risk of sexual violence when toilets are poorly lit at night, added need for privacy during menstruation, greater responsibility for managing the sanitation needs of households, etc.), while still experiencing a general disempowerment that prevents them from taking a central role in sanitation decision-making.

Lastly, community capacity is strictly intertwined with the nature of physical infrastructure in urban areas. Given that sanitation operates as a system at both the city and community level, local residents need to come together to develop a shared understanding of sanitation problems and how they affect collective welfare. It demands concerted efforts from all community members, who have to cooperate and contribute financially to the installation and maintenance of shared infrastructure, including water and drainage networks. Community participation does not simply mean delegating toilet management and maintenance to urban poor groups; it also necessitates an enabling environment whereby even citizens from disadvantaged communities are aware of their rights for specific services and exercise voice and leadership to make demands on their government.
3.0 Does SBM adequately address the needs of poor communities?

The place-based sanitation parameters just laid out provide an indispensable benchmark for evaluating India’s current approach to urban sanitation. However, before doing so, it is useful to give an overview of SBM, government’s current flagship programme, providing some context to the following analysis. Section 3.1 will thus briefly introduce the mission’s guidelines and objectives, paving the way for the following parts of the brief (3.2-3.4), which take stock of how far the mission has been successful in addressing sanitation needs of urban low-income communities in light of the place-based sanitation framework.

3.1 Mission’s overview
The Government of India has earmarked Rs.146.23 billion for the implementation of SBM in urban areas, with an additional Rs. 48.74 billion to be given by states and local bodies. The remaining amount is generated through other sources in the form of contributions by beneficiaries, user fees, funds set aside to discharge Corporate Social Responsibility and investments from the private sector. The bulk of investments is allocated towards an incentive scheme for construction of individual toilets, benefiting any household that does not have access to its own facility or necessitates an upgrading from insanitary to sanitary latrines. The national subsidy amounts to Rs. 4,000 per unit, except for Northeastern and Hilly states, whose designated incentive is Rs. 10,800 per toilet. Where land and space constraints impede the construction of individual latrines, the government provides a 40% grant or viability gap funding (VGF) for each toilet block constructed for groups of residents or entire settlements [14]. Resources are channelled through state governments, responsible for allocating them as part of their annual budget to local administrations and supplementing them with their own funds to match the share of the Central government.

According to state-specific guidelines, ULBs have two options to build individual household toilets: outsourcing the operations to private contractors or entrusting the construction to beneficiaries themselves. The first model has been adopted in cities like Ahmedabad and Delhi, while the second is widespread in Jharkhand, Rajasthan and many other Indian states [15, 16]. In the latter case, the subsidy is generally disbursed in three installments of Rs. 4,000 each [17, 18]. As stated by the Ministry of Housing and Urban Affairs, responsible for the implementation of the urban component of the scheme, Central government subsidies should be transferred directly by an electronic clearing service into the bank accounts of the beneficiary households upon the approval of individual applications by the ULBs [14]. Beneficiaries are then required to track the progress of the construction works by uploading a geo-tagged photo of their toilets on the municipal corporation portal, in order to access state governments and ULBs’ funds [15].

In order to incentivise the adoption of reforms, the SBM policy has established a nationwide rating system, wherein cities are ranked on cleanliness and sanitation parameters and become eligible for awards on the basis of their sanitation status. The Swachh Survekshan Survey was conducted in 2016 and 2017 to verify the mission’s progress in relation to sanitation criteria, such as the number of toilets in individual households and community blocks and the extent of open defecation practices, with an emphasis on the use of ICT tools for implementation and monitoring. The questionnaire collecting data from municipal corporations, direct observations and citizens’ feedback – gives a lower weight to indicators measuring other components of the programme, such as capacity building, education and behaviour change communication campaigns [19].
3.2 Physical Infrastructure
The Swachh Bharat Mission places greater emphasis on individual toilets, which should be provided to 80% of the households that resort to open defecation, as well as to all the units with insanitary and single-pit latrines [14].

3.2.1 Availability of toilets
Since 2014, over four million individual household toilets have been constructed in urban areas, against the five-year target of 10.4 million toilets to be built by 2019. However, lack of space may make household toilets an unreachable solution for many people and other alternatives need to be considered, namely facilities shared by multiple families living within the same ward. Therefore, 280,347 community and public toilets were installed in addition, amounting to 53% of the final SBM objective [20].

Choosing the most appropriate solution requires granular spatial information at the city-level – which most ULBs lack – to assess the number of eligible beneficiaries, the quality and reach of existing infrastructure and the geo-physical characteristics of slum locations. Rather than conducting a mapping of informal settlements, local governments identify SBM beneficiaries via house-to-house surveys or on an application basis, occasionally relying on the involvement of CBOs, NGOs, and other agencies to support their operations [14]. However, these baseline data might be outdated and not representative of the current evolution of slum areas and their population. For instance, in Ahmedabad, municipal councillors used to evaluate toilets’ availability starting from individual queries and data collected during past schemes like the ILCS [15]. As a result, many households from the new slum areas have been initially excluded from the list of potential beneficiaries of the subsidy [21].

Although ULBs have facilitated the construction of an impressive number of facilities under the scheme, the rush-driven nature of the mission’s targets has sometimes led to perverse incentives and low-quality design and installation of toilets. In some instances, private contractors – whose agreement with local administrations is often based on a given quantity of units to be built per area, without further directive – have just built toilet superstructures, without providing it with proper slopes or traps to connect households to sewer-lines [21, 22].

Similarly, certain local administrations have found more convenient to construct community/public toilets in slum areas, where infrastructure-related constraints make it more difficult to provide individual services. This has been the case for Delhi, where the three different corporations (North, East and South Delhi Municipal Corporations) have engaged a number of private contractors to build community and public toilet complexes based on the requirement of each slum cluster. The facilities constructed under this model are in most of the cases pay-per-use toilets, and the private concessionaires are thus entitled to collect advertising and user fees to meet their operation and maintenance (O&M) costs. Since 2014, little to no subsidies have been released for household toilets or connections to sewer-lines in slums [16].

While in some urban contexts, community and public toilets would provide an effective local response to slum dwellers’ needs, users of community facilities often face a range of accessibility issues. These are excessive distance from the household, insufficient number of toilet seats causing long queues during peak hours (especially in the morning) and the absence of a 24x7 service [23].
Accessibility issues skew the preferences of some categories of people (e.g. households with children, adolescent girls, heavily pregnant women, those with limited mobility, etc.) towards defecating outdoors rather than using government-provided services. Affordability of pay-per-use toilets is another major problem. In Delhi, absence of government control has incentivised contractors to levy discretionary charges on generally exempted categories, such as children and elders [16]. Similarly, in Ahmedabad, the fee to access latrine facilities has been set around Rs. 15 per day per male member of the household, an amount which some individuals from the disadvantaged socio-economic groups have found very costly [24].

Analogous considerations on affordability need to be made when the responsibility of carrying out the installation of toilets is delegated to the households themselves. In fact, building toilet facilities requires an upfront investment, which is prohibitive for low-income families. In Jaipur, some slum residents have reported that the cost of simply digging a sewer trench is around Rs. 3,500, whereas the cost of completing an unimproved latrine without a flush is as high as Rs. 10,000 [25]. This sum is significantly higher than what is provided by the government’s subsidy scheme. Moreover, there have been complaints regarding ULBs capacity to ensure that financial incentives are transferred in a timely and hassle-free manner to beneficiary households, as laid out by the Ministry of Housing and Urban Affairs’ guidelines [14].

In Jaipur, for instance, of the 350 households that have constructed individual toilets in the Soot Mill Colony, only 150 have received the first installment of Rs. 4,000 and not a single beneficiary has been able to secure the third and final installment from the Jaipur Municipal Corporation [17].

So far it appears that the SBM has pushed local bodies to achieve an ODF status on paper, rather than reaching slum dwellers and improving hygiene conditions for the urban poor. There have even been instances where local bodies have declared certain wards as ODF zones without having actually reached the target. As a result, last-mile households could not benefit from the subsidy scheme anymore, since funding stops once the area is classified as ODF [15, 23]. Another emblematic case is that of Jaipur, where the municipal corporation has hired an event management company to make sure that the city performs well on the Swachh Survekshan, by seeking to monitor and influence citizens’ feedback [25].
3.2.2 Conditions of toilets

Each beneficiary household is responsible for the operation and maintenance of individual toilet. However, municipal corporations have to carry out periodic desludging of pits to prevent slippage to OD practices [14]. For community and public toilets, it is either the municipal staff or ULB-appointed third-parties, such as private contractors or community members, who take care of the follow-on service and maintenance of the facilities, including their regular cleaning [9].

In practice, the conditions of – mostly community – toilets induce many residents to opt for open defecation, which is perceived as a healthier practice. Indeed, poor cleanliness and up-keep, the lack of proper disposal facilities (septic tanks, sewerage, and so on) and scarce water and electricity supply are widespread conditions among shared sanitation solutions.

In Ahmedabad’s slum areas, for example, Mahila Housing SEWA Trust, in collaboration with the community-based organisations it supports, has identified and visited multiple open defecation spots, surveying over 2,305 participants to understand the reasons for open defecation. The findings have confirmed that in urban areas the practice is largely caused by infrastructure-related considerations. Besides distance and unavailability of toilets, reasons found during the visits include lack of proper water supply and poor maintenance of facilities [22].

As a consequence, the city has witnessed an increasing trend towards demolishing community toilets and replacing them with pay-per-use toilets, which perform better on cleanliness and maintenance status and receive a number of users that is around three times higher than that of community latrines [26].

3.2.3 Access to water supply and efficient wastewater systems

As mentioned previously, an integrated strategy to ensure total sanitation implies not only toilet construction but also access to adequate city-level infrastructure, such as safe water supply and wastewater treatment systems.

Despite the policies in place, the lack of coordination between different implementing agencies and governmental schemes has slowed down progress towards a holistically improving delivery of water supply and wastewater disposal in cities. To date, most Indian urban metros thrive on sewage networks dating back decades, which still dump sewage directly into rivers or canals. Around 70% of urban sewage stays untreated, as 294 out of India’s 816 treatment plants remain dysfunctional. For what concerns water supply, no Indian city provides a regular 24×7 service to its residents, and only around 49% of urban households have access to piped water [27].

This situation is aggrieved by the fact that Indian cities are rapidly expanding outside their municipal boundaries, but these developments have often come about without any planned expansion of infrastructure and services. As the mandate of ULBs is often restricted to municipal limits, the most rapidly growing parts of the cities remain un-served or under-served [20]. As a result, there are large informal communities in peri-urban areas that are excluded from the Clean India scheme due to gaps in infrastructure planning and lack of associated legal and financial instruments [15].
Linked to the previous point is another critical constraint for sanitation service delivery to urban poor communities, that of tenure security. Public programmes in the past have focused on slums with clear land rights, based on the conviction that the urban poor will not invest in house improvements, unless they have security of tenure [10]. Later policy responses – like the NUSP and the RAY – have attempted to delink services from tenure security, while stressing that the provision of water and sanitation does not entitle dwellers to any legal right to the land on which they are residing [12]. In line with this framework, all eligible beneficiaries of household and/or community toilets are targeted under the SBM scheme, irrespective of whether they live in authorised/unauthorised colonies or notified/non-notified slums [14].

However, delinking often does not occur in practice and local governments and service providers are constrained by the limitations of existing systems that remain tied to tenure rights. In Delhi, for instance, applications for household toilets through the corporation online portal are only allowed if the potential beneficiary is in possession of a land tenure certificate. The provisioning of legal piped water supply in Ranchi and Jaipur is conditional on a land-lease contract as well. Similarly, in Ahmedabad, land owners have sometimes opposed the construction of subsidised toilets on their properties. For informal settlements on collectors’ land (i.e. under the state government) or on national properties, such as railways and airports, it is virtually impossible to obtain an authorisation for implementing the scheme or connecting the area to water supply and sewage networks [15, 16, 23].
3.3 Sanitation behaviour

3.3.1 Perceptions and practices related to sanitation and hygiene

One of the obstacles to latrine use is that individuals generally find them repulsive and do not consider them as a healthier option than defecating in the open [28]. Partially, as a result of the poor maintenance status of government-provided latrines, the population has come to see them as smelly and enclosed spaces that need to be frequently emptied in order to avoid drainage backflows and overfilling of pits.

Other salient factors affecting sanitation behaviour are customs and religious beliefs around open defecation. In fact, the practice is associated with the concept of purity in Hinduism, whereby one cannot eat and defecate under the same roof and must defecate as far as possible from the household [28]. As emerged from the survey conducted by MHT in OD spots around Ahmedabad, the presence of a temple inside or near their premises is for some people a valuable reason for not constructing toilets in their households, thus continuing open defecation. It was also observed that the prevalence of such habit in the slums where Muslim communities lived was minimal due to different beliefs on cleanliness and hygiene [24].

For instance, sewer-line blockages in community and public latrines often occur due to people’s tendency of throwing food and sanitary waste in the toilets [29].

This reinforces the need for social and behaviour change communication. The SBM does indeed represent an ambitious project that aims to change people’s perceptions and behaviours towards cleanliness, bringing sanitation at the forefront of national priorities. Prime Minister Narendra Modi has been quite vocal in his public speeches, often appealing to notions of dignity and collective wellbeing to increase the demand for and the provision of toilets [30]. Therefore, the SBM mission guidelines recognise the importance of Information, Education and Communication, and earmark as much as 15% of the total Central allocation for this component, with 12% to be granted to the states and the remaining 3% resting with the Ministry of Housing and Urban Affairs to produce a national media campaign and related standard tools [14].

Nevertheless, IEC expenditure remains low. On 18 January 2017, only Rs. 40 crores (400 million) had been released under this head for the Financial Year 2016-17, which is 17% lower than the IEC releases for FY 2015-16 and less than half of the IEC releases in FY 2014-15 [31]. This is also mirrored by the fact that the benchmark indicators of the Swachh Survekshan place a lower emphasis on behaviour change campaigns for the evaluation of cities, compared to other technical and engineering components of the mission [16].

Furthermore, due to the widespread presence of incorrect sanitation and hygiene practices among low-income communities, the government tends to place the onus of responsibility on residents themselves.
Indeed, one of the national campaign’s central ideas is to ‘shame’ those who defecate and urinate in public rather than using toilets [32]. Given the rushed target-driven implementation of the programme, threats of sanctions, actual sanctions and shaming have been widely used to influence public behaviour in the short-term. Sustained change, though, requires dialogue and collective choice agreements with communities.

The choice of campaign channels as well does not appear to be based on a clear understanding of the target audience and how to effectively reach it and influence its behaviour. In fact, primary campaign tools include generic posters to be displayed around informal settlements, radio ads and jingles [15, 27].

Contrarily, evidence shows that WASH behaviour change requires interpersonal and continuous contact with the intended beneficiaries [33]. Therefore, communication strategies need to take into account what and who community members listen to, trust and respect [28].

Unfortunately, the issue of community engagement has not yet received a dedicated budget among SBM’s components and the task of inducing behavior change at the grassroots level is usually delegated to NGOs, although the government has not envisioned special financial assistance to organisations on these matters [16].

### 3.3.2 Status of women and girls
Sanitation services in India, and the lack thereof, results in significant disadvantages in terms of health, education, safety and well-being for girls and women. For example, many women feel constrained to relieve themselves in the dark for reasons of privacy, thus becoming exposed to rape and sexual assault. Women and girls also express unique concerns over social stigma and discrimination on topics, such as toilet use and open defecation, as well as menstrual health. Many young girls have to drop out of school especially when they reach menarche, as education facilities sometimes do not have adequate toilets [28]. This is compounded by a general disempowerment of women within their families, which excludes them from participating in decision-making while still carrying the burden of caring for the household’s sanitation and hygiene needs.

With time, the Ministry of Drinking Water and Sanitation has recast the SBM guidelines for rural areas so as to incorporate a stronger focus on gender sensitivity, with the objective of taking into account the necessities of women and girls and empower them in different aspects of sanitation programming, from community outreach and health promotion to maintenance management. The ministerial document also argues against some of the behaviour change messages under the current SBM campaign, since they appeal to a narrative of dignity, prudery and respect for women that portrays them as weak and passive compared to men, perpetuating conventional and patriarchal gender stereotyping [34]. Unfortunately, no comparable measures for gender issues have been introduced by the Ministry of Housing and Urban Affairs [15, 16] and the SBM’s submission for urban areas continues not to acknowledge the sanitation needs specific to girls and women, in particular that of menstrual health management.
3.4 Community capacity

3.4.1 Shared understanding of sanitation problems
Sanitation combines private behaviours with very public impacts. In fact, sanitation’s public health benefits only accrue if everyone commits to the elimination of open defecation and unsafe faecal sludge management [36]. However, there is a general lack of awareness among disadvantaged households regarding the effects of lack of sanitation facilities on their collective welfare.

Enhancing shared understanding of sanitation problems affecting communities is not prioritised by government’s programmes. For instance, the guidelines for community engagement under the SBM (urban component) recognise the importance of community committees and platforms only in, so far as they act as linkages with all administrative bodies and schemes for the attainment of government-set objectives, areas such as maintenance and usage of individual/community latrines, or solid waste management [37].

An alternative approach is that of Community-Led Total Sanitation (CLTS), an innovative methodology shifting the focus from subsidised toilet provision to the creation of truly open defecation-free environments, thanks to behaviour change. It is in fact the desire for transformation that propels people into collective action and encourages mutual support and appropriate local solutions, thus leading to greater ownership and sustainability. While there are valuable lessons to be learnt from the CLTS approach, urban areas are faced with a number of additional challenges that necessitate some adaptations to the traditional ‘rural’ focus. From an institutional perspective, there is a greater array of actors involved in urban sanitation with little coordination between them. Most importantly, triggering collective behaviour change at the community level is more challenging as informal settlements are composed of heterogeneous groups with busy, transient, and sometimes homeless populations who do not typically function as a single unit. Space constraints, insecurity of tenure, high population density are all additional factors to consider when intervening in urban settings [39].
3.4.2 Installation and maintenance of community infrastructure

As discussed earlier, a critical factor that is failing to receive adequate operational support under the SBM is the maintenance of sanitation infrastructure. Once projects are completed the ULBs pay little attention to operations and maintenance of the assets created, usually leaving the task to third-party contractors from the private or civil society sector. Many successful slum sanitation initiatives have shown that local residents are best placed to carry out O&M management of infrastructure, provided that community groups are organized and trained.

These findings have been mirrored, for what concerns toilets, by a technical audit carried out by the Urban Management Centre in Ahmedabad. According to the observations made, the status of sanitation facilities is dependent on who maintains it: when self-appointed community members take on O&M responsibilities, the services are significantly more likely to be clean and functional, compared to cases in which the same tasks are carried out by the AMC or by a private company under a PPP agreement [30].

Similar considerations hold true for supplementary components such as sewer and drainage lines: communities need to get together and contribute not only financially, but also by actively participating in the installation and maintenance phases. In parallel, it is necessary to enable residents to exercise oversight’s responsibilities over government and contractors’ operations, as well as over other residents’ actions. According to CLTS manuals, these measures are a necessary precondition to greater community ownership and sustained usage of facilities in the long term [40].

3.4.3 Knowledge about civic rights and government programmes

The ability of a community to take its own actions is also a matter of knowledge. In fact, a major factor hampering community capacity among slum dwellers in India is that they often lack information on the solutions and resources available to them, including government schemes. Unfortunately, by tying their citizenship status to the housing conditions in which they live, the municipality does not facilitate full participation for slum dwellers in the civil, political and social life of the city.

Under the Clean India Mission, for instance, ULBs should execute a campaign to raise awareness on the programme and to boost demand amongst citizens prior to implementation [14]. However, as mentioned earlier, very few ULBs have the inclination, let alone the expertise, for community mobilisation. Examples include the Urban Community Development Department of the Pune Municipal Corporation or the institutionalisation of Community Organisers in Orissa [15].

Therefore, in most of the cases, the task of public outreach is usually left to non-profit organisations like MHT. During its sensitisation meetings in the informal settlements of Ahmedabad, the NGO’s staff members have found that some residents do not know that the municipal corporation can provide toilets to them free of costs. In case they are aware of the existence of the subsidy scheme, they have no information regarding the procedure for availing these facilities [29].

In conclusion, empowering communities to reflect on and address a range of sanitation behaviours, issues and decisions requires first and foremost making residents aware of their civic rights and, ultimately, encouraging them to be pro-actively involved in their expansion.
3.4.4 Effective voice and leadership

Residents of informal settlements, who are both right-holders and duty-bearers via à vis their government, also need to exercise effective voice and leadership, that is the ability to interface with the web of formal and informal institutions and relations making up political life. These qualities are a vital element in the CLTS approach, which encourages the spontaneous emergence of natural leaders who can help the community to get together, achieve consensus and liaise with local administrations to better articulate their demands. The objective is to ensure local self-reliance as the community proceeds towards an ODF status [38].

In this regard, the model promoted by MHT to enhance civic engagement among slum residents is a positive example.

It is important to highlight that since the inception of its activities, MHT has been focusing on capacity building of community-based organisations (CBOs) in slums, reaching 103,250 families across six different states in India. A CBO’s task is to interact with ULBs and other stakeholders to procure better services for them, including improved water and sanitation under existing government schemes. To increase their leverage in the context of urban governance, MHT has encouraged these organisations to coalesce into city-wide federations, called Vikasinis, that provide pro-poor inputs to city-level development plans in the cities where the NGO has its presence. In Ahmedabad, for instance, Vikasinis are now regularly invited by the Ahmedabad Municipal Corporation (AMC) and other organisations to share their insights on urban development and management [40].

AN APPEAL FOR DIGNITY: Krishnaben, a grassroots leader from an Ahmedabad slum makes an appeal to corporate sector and government actors to pay attention to women’s sanitation issues in slums.
4.0 Leading practices in urban sanitation

The brief has so far outlined the essential requirements for improving sanitation conditions in urban poor communities and used them as criteria to evaluate India’s current policy approach. It emerges that the Swachh Bharat Mission is being implemented in a construction-focused and target-driven mode, which is not considerate of the synergic relation between three context-specific elements: physical infrastructure, sanitation behaviour and community capacity. The aim of the following discussion is to review more holistic approaches that have been successful in ensuring equitable access to sanitation and triggering long-lasting behaviour change among communities in India and elsewhere. The collection of cases has been grouped according to the key elements of the “place-based sanitation system” model driving the analysis.

4.1. Physical infrastructure

4.1.1 Developing spatial databases for better decision making: Poverty mapping initiative by Pune Municipal Corporation and Shelter Associates, Pune

As discussed earlier, data available with most of the Urban Local Bodies in India is dated and inaccurate and fails to serve as a tool for planning and implementing any strategic intervention. Innovation and technology can play a pivotal role in guiding decision-makers actions on this subject. For instance, Shelter Associates – a CSO working in Maharashtra and based in Pune – has built up a comprehensive and dynamic database in a Geographical Information System (GIS) format and used it to mainstream low-income settlements into urban planning, tracing sewage networks and allowing for a precise identification of those slums which are not yet connected to the existing infrastructure [42].

With its system of granular spatial data, Shelter Associates has facilitated the construction of over 10,000 sanitation units in the informal settlements of Pune, Thane, Navi Mumbai, Kolhapur, Sangli and Pimpri-Chinchwad [43], as well as allowing for improvements in the drainage networks of four cities across the state of Maharashtra. Further, the NGO’s activities have led to a sustained use of facilities even after the intervention. Realising that government’s programmes do often lack ground-level monitoring and data gathering, the organisation’s long-term vision is to train members of various municipal corporations in Maharashtra on managing and updating the GIS database and institutionalise the system as a policy planning tool [42].
During the 1990s, Shelter Associates carried out a number of initiatives in Pune, developing a system for combining slum surveys, in partnership with a local CBO called Baandhani, with the application of GIS. The organisation’s mission was, and continues to be, providing an information base for inclusive planning and to improve accountability in decision making [42]. It took nine years to scale up the project, leveraging on foundation and funding agencies’ contributions [42]. With the strong support of the incumbent Municipal Commissioner of Pune, the Municipal Corporation agreed to participate in the project starting from 2000 [44]. Shelter Associates’ technology-driven approach promotes the vision of ‘one house, one toilet’ to address the problem of urban sanitation in India, in line with the Clean India mission. In fact, while it mostly uses CSR funding and a cost-sharing model in tandem with beneficiaries to implement its activities and facilitate toilet construction, the organisation carries out the identification of eligible households under the Swachh Bharat scheme, allowing for a more effective disbursement of subsidies [42].

Since 2013, the organisation has started a city-wide sanitation project across Pune, irrespective of whether the NGO was previously working in a particular slum area or not [42]. The first step of the intervention involves infrastructure mapping and data collection, along with a rapid household survey to assess amenities at the individual household level, with the use of basic android devices and a data collection application [45]. The data are then validated by the Pune Municipal Corporation and made publicly available [42].

As a result of Shelter Associates’ activities, approximately 105,800 households and a total of 8,548 community toilet seats across 313 slums have been surveyed [45]. The project has highlighted the issue of uneven and inefficient water supply system in informal settlements across the city, as well as that of inadequate upkeep conditions in community toilets [42, 44]. The emerging spatial and social database has helped the Municipal Corporation to deliver more targeted interventions, with a minimum expense (between 0.7% and 1% of the total project cost) on data-gathering and mapping [45].

DATA LED DECISION MAKING: GIS based spatial databases are used to implemented targeted interventions in slums
4.1.2 Making toilet use aspirational: Samagra pay-per-use toilets, Pune

While safe toilets within the homes are the ultimate goal, community facilities have proved to be the most effective local response in certain urban contexts where space is a big limitation. Innovation and technology can increase users’ demand for community sanitation systems. Samagra Sanitation, a for-profit social enterprise, has partnered with the Pune Municipal Corporation and the Gates Foundation to redesign 48 toilet blocks in different slums of Pune, serving around 50,000 people a day [46]. Each family of slum-dwellers pays a monthly fee in order to receive an ID card, which can be used at any Samagra’s toilets for an unlimited number of times. The revenue collected is used to meet the O&M costs of the facilities, which are managed as franchises by individuals from low-income communities, especially local women.

What makes the project innovative is the unique ‘Loo Rewards’ scheme to attract and retain users, incentivise hygienic behaviour and ensure the sustainability of Samagra’s financial model. In fact, as part of their loyalty programme, customers earn points for using the facilities, which they can redeem for washing and sanitary products, water purification systems, or nutritional snacks from local suppliers [46]. Furthermore, the social enterprise has partnered with the State Bank of India to provide other value-added services along with toilet blocks, including financial services, digital goods (e.g. mobile phone recharge and TV subscription services), insurance and e-commerce products. The model has been successful in attracting and retaining customers. In fact, Samagra is currently making a profit at about 40% of its sites and the CEO has declared his intention to export the model to other cities in India [46].

4.1.3 Delinking tenure from service delivery: the 100 NOC scheme, Ahmedabad

The preceding sections have highlighted that informal settlements often struggle to obtain a connection to the city’s infrastructure networks due to their tenure status. In Ahmedabad, the municipal corporation has introduced an innovative, sustainable and transferable system to delink tenure from service delivery for slum dwellers, the ‘100 NOC Scheme’ (2002) [48]. As the name suggests, the programme grants a No Objection Certificate (NOC) to slum dwellers, with a payment of Rs. 100, which allows them to apply for legal individual sewage and water connections to their houses [9].

All residents in slum areas of not more than 40 square metre (m2) of surface and having some type of residence proof (e.g. ration card, voter ID, or tax or electricity bill, etc.) can apply for the scheme to their zonal offices. The Estate Department is then in-charge of visiting the applicant’s residence to verify whether it complies with the eligibility criteria [48]. Once the application is approved, the NOC is enforced, establishing reciprocal rights and duties between the householder, who renounces to claim ownership over the house structure, and the AMC, which commits to ensure services for a period of 10 years and not to demolish the building in normal circumstances. After receiving the NOC, beneficiaries are eligible for securing individual sewerage and water connection for their households [9].

MHT coordinates processes between the AMC and slum dwellers, facilitating the application procedures, collecting the lists of beneficiaries and training community leaders to follow-up on their applications with the departments involved [18].
By 2011, 4,646 drainage connections and 3,387 water connections had been already provided to slum residents. Over the years, the AMC-MHT partnership has favoured the extension of a bundle of services, including individual toilets, water taps and drains, in over 84 slum settlements with consequent improvements in living conditions and self-esteem among beneficiary households [48]. The extension of infrastructure and services to unplanned settlements has also covered expanding peri-urban in Ahmedabad’s rural-urban fringes where trunk infrastructure was recently laid. MHT leveraged funds from local councillors to extend the infrastructure lines inside the communities.

It then facilitated the application procedures under 100 NOC and trained community leaders to follow-up on their applications with the departments involved.

In Ranchi and Jaipur as well, the organisation has enabled households who lacked tenure security to obtain legal connection to water and sanitation networks. However, this process relies very much on MHT’s lobbying efforts and it has not yet been officially institutionalised by the municipal corporations [15].

BOX 1. A REGULATORY ENVIRONMENT FOR WATER AND SANITATION SERVICES IN PERI-URBAN AREAS, ZAMBIA

MHT’s interventions are decisive in improving the life conditions of people in peri-urban areas (PUAs). In other countries, the government itself has recognised the importance and special requirements of peri-urban areas through legislations. In Zambia, for instance, with the enactment of the National Urban and Peri-Urban Sanitation Strategy (2015-2030), policy-makers have set the upgrading of sanitation infrastructure in peripheral informal settlements – which have been traditionally excluded from urban planning – as a national objective.

Zambia’s comprehensive policy framework for peri-urban water supply and sanitation has been conducive to a solid regulatory environment, with particular attention devoted to the needs of the poor. An independent economic body, the National Water Supply and Sanitation Council (NWASCO), is in place to redress the imbalances in service levels in PUAs and to exercise stronger control over the operations of both private and public providers. The regulator has in fact constituted a special Devolution Trust Fund to provide performance-based funding to utilities, so as to extend water and sanitation services to peri-urban areas. Having the power of determining water tariffs, the body has also set the charges for informal dwellers on a flat rate basis.

Lastly, to enhance accountability to customers, the NWASCO has created a number of Water Watch Groups (WWGs), voluntary associations of community members who monitor the effect of national policies at the local level, as well as issues such as water quality, interruption of service and billing. WWGs also serve as a mechanism for non-adversarial conflict resolution, having the role of arbitrators in on-going disputes between users and service providers and referring directly to the NWASCO, which makes the final assessment of the complaint and, if necessary, either penalises the service provider or publicises the infraction.
4.1.4 Women councillors invest in water-sanitation infrastructure in poor communities

As previously mentioned, India is based on a three-tier administrative setup. Elections to urban local bodies are ward-based, with a minimum of 33% of the positions being reserved for women candidates, in line with the National Policy for the Empowerment of Women, 2001. Indeed, women have had more success in gaining access to decision-making positions in the local government rather than in central legislature, making them a powerful change agent at the city and community level [58].

Successful initiatives sometimes require a close and collaborative relationship with other actors besides direct constituency members. In Jaipur, for instance, MHT’s sanitation activities in the slum of Gaitor Ki Chhatri have found strong support from Snehlata Sharma, one of the 33 female representatives of the city’s 91 wards, between 2004 and 2009. Since 2008, she has been very active in mobilising funds such that residents from the settlement get access to water and sewer networks, positively impacting the lives of more than 500 households in her ward. Her engagement continues as a Pradesh Karyakarta, a member of the executive committee of a leading political party [57].

Furthermore, representing local voices and speaking up for the marginalised – acting as a channel of communication between the communities and the municipal corporations – demands a deep understanding of the local context in which action takes place.

Nafisabanu Islamuddin Ansari, one of the four councillors from the Sarkhej ward of Ahmedabad, has set forth an enlightening example of civic engagement. Trained as a CBO member by MHT, she started working in 2007 with the government to bring water and sanitation services into her area. She led the process of community transformation by organising community members and facilitating the application process for legal drainage and water lines. At the end of 2014, all 945 households in her community had individual water and underground drainage connections, a fact that earned her a seat in the 2015 municipal elections. Coming herself from an underprivileged background, she has never lost sight of the needs of her constituency, working actively towards improvements in basic infrastructure in her area. Given that, in Ahmedabad, each councillor disposes of a personal budget of Rs. 88,000, she has been able to secure around Rs. 20 million for ward development by leveraging on the capital budget of her whole administrative division. With these interventions, 17 slum communities with approximately 2,855 households have been able to avail legal sewer connections and around 1,000 households have now access to water. Moreover, she has also successfully lobbied the municipal corporation to start the construction of a water tank in the Sarkhej area to increase water supply for residents [57].

Local councillors do not only serve as a channel of communication between the communities they serve and the government. They also need to exercise effective leadership skills and facilitate resident participation in all aspects of decision making and in the shaping of services.
Kavita Sangha, who served as councillor for two consecutive tenures (2008-2012 and 2013-2017) in Jharkhand’s capital Ranchi, has energetically involved constituency members to catalyse developmental works in her area of competence. Even prior to that, she was able to mobilise 200 women street vendors and secure their rights when the government acquired a land parcel that had been traditionally used as a market place.

Her efforts have continued during her tenure, promoting housing and sanitation-related activities under the RAY and the SBM respectively. For example, she has played a key role in encouraging and facilitating applications for residents to avail the benefits under the latter scheme: of the 600 applications for household toilet construction forwarded by Sangha, half of them have been sanctioned by the Ranchi Municipal Corporation [57].

“I am not the only one who has won; the residents of the ward who have faith in me have won along with me. I have and will continue to work with same rigour such that all residents, especially the women members, of my ward have access to water and sanitation facilities.”

– Kavita Sangha, Ward Councillor, Ranchi
4.2. Sanitation behaviour

4.2.1 Women and adolescent girls as drivers of change, Ahmedabad

Notwithstanding the crores of rupees in financial subsidies disbursed by the State and Central Governments under the Swachh Bharat Mission, the Government’s strategy has been unable to reach communities in slum areas and tackle well-engrained practices such as open defecation.

To fill this gap, many non-profit organisations have taken up the task of carrying out grassroots advocacy actions regarding correct sanitation and hygiene practices in informal settlements.

For instance, MHT has been working in slum communities in Ahmedabad raising awareness regarding the effects of lack of sanitation on health, life, productivity and safety, through intense one-on-one engagements and also with the support of video screenings, plays and other forms of folk media. Given the strong gender focus of MHT’s mission, women have been particularly encouraged to share issues they have encountered due to the inability of accessing water and sanitation services, the most common being harassment, shaming and other related accidents.

Active female community members, including young girls, have been identified and provided with training in order to become ambassadors of appropriate hygiene and sanitation practices and enhance behaviour change in their local areas, as part of the project ‘Sanitation and Hygiene for Adolescent Girls’ [26].

Teenage girls are frequently overlooked and kept in the house for fear of their safety. For too many, education is out of reach, and becoming married is considered their most important role. Often, these girls feel like invisible members of their own community. Yet, young girls are also curious, energetic, and eager to learn and be helpful. They have ideas about how to make things work better and can introduce new practices into their “first” households and later to their matrimonial households. With the support of MHT, over 40 girls have overcome shyness, fear and skepticism from community members, to get involved in various activities including conducting surveys, participate in surveillance drives and registering complaints and grievances with the government. In addition to producing valuable data and initiating new practices in the slums, involving girls has become an opportunity for new leaders to emerge. Girls are developing confidence, learning public speaking and articulate issues concerning their communities. They are trained to actively engage with communities and generate awareness regarding sanitation behaviour and cleanliness [49].

By December 2016, MHT had trained 922 senior women leaders and 16 Adolescent Girls on CBO formation, maintenance of facilities and other sanitation-related services, directly reaching 1,186 young girls and 4,744 members of their families with the programme’s activities.

Leading sanitation behaviour change through empowered women and girls is a tall order in the challenging socioeconomic environments of India. Although MHT may facilitate the creation of girls’ groups and educate them on their rights and entitlements, its interventions with adolescents often face a major stumbling block, as male members of the family and older community members remain the primary decision-makers.
Sometimes the young beneficiaries have been forced by their families to withdraw from the programme, due to work and school commitments, fear of social stigma, marriage and so on.

The way MHT has tried to resolve these issues has been through parents’ counselling and community mentorship to ensure girl’s engagement and safety throughout the programme, together with focus groups and educational activities to support the girls themselves [22]. Furthermore, MHT has been providing girls with skills in domains where older community members rely on the expertise of youth for, such as technology, in particular mobile applications for data collection [29].

**TECHNOLOGY FOR ENGAGEMENT:** Girls are using ICT tools to collect data and engage in a dialog with authorities on quality of services.

“Before toilets were constructed in my chali, girls found it extremely unsafe to defecate in the open. It used to be worse during menstruation. Construction of toilets has been a great respite for all girls! With MHT, I learnt how to voice my issues, write applications to the corporation office and demand my rights. Initially my mother was hesitant, but today she takes pride in seeing how we are working collectively to improve our chali.”

– Rama (16), SaranyaVaas, Vatva

**4.2.2 Achieving an ODF status using the CLTS approach, Kalyani**

From an area plagued with rampant open defecation, Kalyani, in the state of Kolkata, was transformed into the first ODF town in India in 2009. This was achieved through the implementation of a CLTS model, one of the first pilots in urban areas, which focused on motivating the community to undertake collective sanitation behaviour change, in contrast to earlier top-down approaches [51].

Prior to the project, the municipality had implemented several schemes providing for the subsidised construction of household toilets, investing over Rs. 35 millions with a very low rate of success.
The experience with subsidised facilities has in fact been plagued by many implementation hurdles, namely, low usage, acts of vandalism, poor maintenance, inability to cover all beneficiaries, and most importantly, lack of ownership and total dependence of communities on the external subsidy [52].

While in India, NGOs are taking a lead in undertaking personalised interactions with community members and driving good sanitation behaviour, in Bangladesh, efforts towards an actual sanitation behaviour change have been led by the national government. The achievements that the country has made in reducing open defecation to a single digit in 25 years (from 34% in 1990 to 1% in 2015) are attributable to the recognition that attitudes and behaviours are as important as any technology or infrastructure. Indeed, Bangladesh has approached its sanitation problems recognising that changing social and cultural norms is crucial to eliminate OD practices.

The national sanitation campaign (2003-2006) brought non-governmental organisations, international agencies and decision-makers together to mount what was called a Community-Led Total Sanitation strategy, adopted by the Government of Bangladesh (GoB) in the early 2000s. The starting point that has proven so effective was to discuss and map open defecation sites in the communities, giving powerful images of how close faecal matter dump-sites were to mosques or homes, stimulating reactions of disgust and shame as people understood and visualised the effects of open defecation for the local population. In addition, the themes of pride and prestige have been highlighted as crucial in GoB’s communication campaign, which was remembered by many commentators as an exciting social movement recalling the passion of the collective struggle for national independence. As a result of the programme, the mind-set of the population has changed to the point where most of the people in the country now think that open defecation is not a socially acceptable practice, and while having a household toilet is a status symbol signifying dignity.

Source: [68, 69, 70, 71, 72]

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**BOX 2. DRIVING BEHAVIOR CHANGE TOWARDS OPEN DEFECATION FREE CITIES AND VILLAGES, BANGLADESH**

While in India, NGOs are taking a lead in undertaking personalised interactions with community members and driving good sanitation behaviour, in Bangladesh, efforts towards an actual sanitation behaviour change have been led by the national government. The achievements that the country has made in reducing open defecation to a single digit in 25 years (from 34% in 1990 to 1% in 2015) are attributable to the recognition that attitudes and behaviours are as important as any technology or infrastructure. Indeed, Bangladesh has approached its sanitation problems recognising that changing social and cultural norms is crucial to eliminate OD practices.

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Source: [68, 69, 70, 71, 72]
The Kalyani example also effectively demonstrates the very important role that other actors – besides the direct implementers of sanitation programmes – can play in achieving successful outcomes. These include private contractors and upper-middle-class residents, who have been willing to extend any support to the Municipality for the purpose of improving the cleanliness status of their city [51].

A total participatory approach was adopted, facilitating community sanitation appraisal and analysis through tools like transect walk across the project area, defecation area mapping and calculation of households’ medical expenses.

Trained facilitators have encouraged the participatory planning process, handing over the stick to the interested beneficiaries without the support of subsidies of any kind. After piloting in five slums, the urban CLTS approach spread to other areas of the city, with major achievements. In fact, within two years after the interventions, 44 out of 52 slums were registered 100% ODF. As a result of the project, more than 1,500 slum-dwellers have built and maintained toilets on their own, leading to a reduced incidence in gastrointestinal disorders, especially diarrhoea and worm infestation. Some of these communities had also constructed improved drains, platforms for hand pumps and other such small infrastructure on their spontaneous initiative and with their own resources [52].

COLLECTIVE BEHAVIOR CHANGE
Developing a shared understanding of sanitation problems facing communities is key to inducing behaviour change.
4.3. Community capacity

4.3.1 Developing social capital in poor communities: MHT’s model of empowering women and girls as change agents

The Government of India, as well as the private sector, have so far conceptualised sanitation as a private good at the household-level. However, sanitation operates as a system at both the city and community level. Improving sanitation demands concerted efforts from all community members, who have to develop a shared understanding of sanitation problems, exercise their collective voice and leadership to make demands on their government and contribute financially to the installation and maintenance of shared infrastructure.

In light of these considerations, MHT intervenes in slum settlements to raise awareness amongst residents about their civic rights, on the one hand, and to facilitate the emergence of leaders that can effectively make demands on the ULB on behalf of the whole community, on the other. In Ahmedabad, for instance, the organisation has promoted capacity building for 180 CBOs, led by 21 voluntary women, and collectivised them into a city-wide platform called Vikasini.

Over the years, MHT and Vikasini have enabled access to water and sanitation to more than 82,860 families. Furthermore, they have been able to channelise over Rs. 154 million of public money for provision of basic civic amenities to slum families, as well as mobilising community contributions of over Rs. 193 million for infrastructure development [44].

Pursuing the double objective of enhancing community’s voice and addressing women’s lack of decision-making power, MHT has encouraged the creation of female committees, or Community Action Groups (CAGs), in slum settlements. Each CAG has elected a President and a Vice President, involving adolescent girls as members within their respective areas [28]. CAGs’ members are trained to monitor construction works under the SBM mission, assess the quality of the materials and articulate complaints and grievances with the local government. As a result, they have felt empowered to take collective action and complain about contractors’ work. For instance, when toilet construction was commenced in the slum of Koili Talavadi, the CAG women noticed that the pits being dug were shallower than what prescribed in government guidelines. On noticing these things, they stopped the construction and reported the matter to the Vikasini board members, who invited the corporation to intervene and give the verdict to build the toilets according to the standards [28].

WOMEN AS CHANGE AGENTS: (L) Meenaben, a Vikasini member successfully worked with the AMC to get a drainage in her community, (R) An improved slum after the Parivartan Slum Improvement Program that was implemented by AMC from 1995-2005.
4.3.2 Communities as partners in improvement programs: Slum Networking Program, Ahmedabad

As it has been argued in this brief, the success of sanitation and hygiene programmes depends greatly on local residents’ involvement and the willingness of community members to contribute both practically and financially to infrastructure. It is in this spirit that the Slum Networking Programme (SNP) was launched in 1995 by Ahmedabad Municipal Corporation.

Also known as Parivartan, meaning “transformation,” the project aimed at providing basic services to the targeted slums in the city, including individual water supply connections, individual toilets attached to sewerage systems, paved roads and lanes, storm water drainage, street lighting and social amenities [10]. These developments were favoured by an amendment to the Bombay Provincial Municipal Corporation (BPMC) Act of 1949, which made it obligatory for municipal corporations to spend at least 10% of their own revenues for improving basic services in slums [9].

To incentivise slum dwellers’ active participation in the programme, the AMC agreed to provide a ten-year non-eviction guarantee to all beneficiary households, which was later subsumed under the 100 NOC scheme. This was supposed to increase the willingness of communities to contribute towards capital cost of infrastructure development and to a community-level O&M fund [10]. The total expenditures amounted to Rs. 20,000 per household, to be shared among the local government (which financed about 80% of the total), private donors as well as the NGOs engaged in the programme. The SNP was undertaken only in those slums where all households arrived at a consensus to contribute Rs. 2,000 towards its implementation costs [9].

Since the execution of a pilot project in the slum of Sanjay Nagar (1996-1997), AMC’s partnership with NGOs has evolved substantially to provide community development inputs – including mobilisation and formation of CBOs and their involvement in implementation – and to receive support in the provision of related services such as health, education, micro-credit, and so on [52]. MHT, whose activities included motivating the residents to participate in the project and facilitating collection of household savings in SEWA Bank’s accounts, acted as an interface between the AMC and communities, by training slum residents to supervise the implementation of works, including quality checks and timelines [9].

The programme was discontinued in 2005 with the introduction of the JNNURM, after being successfully implemented in 41 slum communities, benefiting 14,000 households and 43,515 people in total [9]. By 2014, only three slums (of the more than 40 slums under Parivartan project) suffered partial or full relocation as a result of land acquisitions, without however leading the AMC to revoke its NOC scheme [10].
In the absence of state provision and maintenance of infrastructure, community-based solutions are a viable alternative, provided that local residents take ownership of the resources available to them. Known as one of the most successful NGO sanitation programmes, the Orangi Pilot Project constitutes a major example in these regards. Started in one of the largest unplanned settlements of Karachi (Pakistan) during the 1980s, the initiative was led by the Orangi Pilot Project Research and Training Institute (OPP-RTI) and guided by a local participatory development activist, Dr. Akhtar Hameed Khan.

The programme entailed a low-cost sanitation scheme which enabled poor households to construct and maintain modern sanitation with their own funds and under their own management. The ‘component-sharing model,’ as it came to be known, placed responsibility for installing household and lane-level sanitation infrastructure on the residents, while municipal authorities were in charge of building and maintaining secondary infrastructure including mains, disposal and treatment, with no cost-sharing or matching subsidies. The OPP-RTI contributed to the project by providing low-cost materials and basic technical training to households.

In 1982, the project was performing so well that it caught the attention of the United Nations Centre for Human Settlements, which wanted to get involved and equip the community with drainage systems. However, there was considerable disagreement between the OPP project team and UN consultants, who pushed for using more expensive materials and hiring professional contractors to carry out construction works. As a result, the Orangi settlement was divided in two, with the UN providing drains in half of the area and OPP-RTI taking over the other half. In 1989, seven years later and after an expenditure of $625,000, it was agreed that the alternative strategy of the United Nations was not successful and the OPP-RTI was once again allowed to work in the entire settlement. By 1993, 97% of the areas in which the organisation had been active since 1982 had installed lane sanitation (3,285 lanes in all), whereas 1,689 lanes had been built in the areas included only after 1989, with a total investment of $2 million – around $19 per house. Besides the visible improvements in sewerage and drainage systems, the infant mortality rate fell from 128 per thousand live births in 1982 to 37 per thousand in 1991, which was considerably faster than in other areas of Karachi and Pakistan. For these reasons, the OPP low-cost sanitation programme has been replicated in 257 locations outside of Orangi all over Pakistan, with a final investment of $1,611,629 and a total number of 43,618 beneficiary households outside of Karachi.

Source: [73, 74, 75]
4.3.3 Empowering communities to maintain sanitation infrastructure: community-based model in Trichy

As MHT’s experience in Ahmedabad proves that achieving clean and healthy slums requires dedication from local residents and the presence of NGOs supportive of community action, a similar focus has been adopted in the community-managed toilet project in Tiruchirappalli (Trichy), Tamil Nadu.

Until 2000, the Trichy City Corporation struggled to run all community toilet blocks, which were dirty, dysfunctional and not used by slum dwellers. Then, a local NGO, Gramalaya, started building improved community facilities, with the financial support of WaterAid and in collaboration with the Municipal Corporation of Tiruchirapalli. The major innovation introduced was the involvement of women self-help groups (SHGs) from the local community in the maintenance of community toilets. Facilitated by Gramalaya, these women organised into groups of 15-20 members each. About two to seven SHGs per slums were established and registered under the Tamil Nadu Corporation for Development of Women, joining together to form Sanitation & Hygiene Education teams (SHEs) [10,55].

To achieve greater coordination, SHEs gathered under a network of WAVE (Women’s Action for Village Empowerment) Federation.

SHEs’ role is to take upon the responsibility of slum sanitation and hygiene, particularly through the management of community toilets on a pay-per-use basis. SHE teams use a token system, with charges of Rs. 1-2 per use and free access for children, elderly and physically challenged individuals. SHGs’ members also help to convey behaviour change messages by selling soaps, shampoo sachets, oil, etc., in the sanitary complexes they run, along with creating awareness among users on health and personal hygiene during their activities [54].

Initially, the community was reluctant to pay user fees, as residents feared that the money would be misused. Gramalaya was able to break this inertia by involving community members right from project formulation and by listening to their concerns. The main issues that emerged from reaching out to slum residents included the lack of connectivity to city infrastructure and the absence of services facilitating access for small children.

COMMUNITY GOVERNANCE FOR SANITATION: Structure for management of sanitation in slums of Trichy

- **GRAMALAYA**
  - **WAVE FEDERATION**: 12 EXECUTIVE MEMBERS, 3 OFFICE BEARERS
  - **SHE TEAMS**: 45 TEAMS, 3-10 MEMBERS OF SHGs
  - **SHGs**: 300 GROUPS IN TRICHY, 15-20 MEMBERS EACH
The initiative was, therefore, designed to deliver a range of water and sanitation options, such as the construction of lanes, pipelines and hand pumps. Further, each toilet block built included child-friendly toilets for easy usage by children up to the age of six years [56].

Gradually, the NGO was able to gain beneficiaries’ trust, setting up a transparent and standardised procedure for book keeping and common bank accounts managed by SHE Teams, who currently use them for the upkeep of toilet blocks. Expenses and other relevant documents are submitted by the SHE teams to the WAVE Federation, then to Gramalaya and finally to an external auditor for an impartial review [9]. At the end of every month, the SHE teams and Women Self-Help Groups convene in a meeting to share, together with community members, the account balance for each particular community toilet, as well as success stories regarding health and sanitation-related activities in the slum [54, 55].

Although some local politicians discouraged residents to pay for the communal services, the success of the initiative has nevertheless hinged on the existence of collaborative relations with the Trichy City Corporation (TCC). Community toilet complexes, in fact, require large amounts of water and electricity to maintain hygiene. Initially, the communities managing the toilet blocks were not supposed to pay electricity charges, as these costs were covered by the municipal administration. However, a few years ago, TCC began passing on these charges to local residents. After much lobbying by ward councillors and WAVE, the corporation exempted some community complexes, while others (around 65%) were allowed to pay the domestic rate, which is much lower than the commercial one [10].

Currently, utility charges have been lifted again from WAVE-managed toilet complexes [55]. The WAVE federation of SHGs has also been accorded membership status to the City Sanitation Taskforce constituted by the TCC, providing inputs on wider infrastructure issues and managing to secure connectivity to underground drainage and sewer lines to its facilities [10, 55].

The strong engagement of community members has led to impressive achievements on the ground: as the Swachh Survekshan 2017 reports, Trichy remains on the list of the top 10 cleanest cities of India for the third year in a row [57]. However, the initiative has not only contributed to visible improvements in the health and environmental conditions of informal settlements, it has also been able to address a number of sustainability factors that help providing long-term benefits to the community. These include the instillment of a spirit of diffused trust and cooperation between local residents, together with increased decision-making power on matters of sanitation and hygiene, with strong gendered impacts. These successes have induced the TCC to scale up the project across the remaining slums in Trichy, leading to the creation of over 150 active SHE teams across the city [55].

“

If you get communities to participate in the formulation of the project, if you involve them in every stage, if you ensure transparency and accountability for those you serve, sanitation projects will never fail.

– Sai Damodaran,
Founder and Chair of Gramalaya

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This section identifies the individuals, groups and organisations that have an influence on the sanitation sector and illustrates their capacity to work together towards its transformation.

5.1 Government

The Central government is a major player on matters of sanitation. It influences the sector through three primary means: a) it is the largest funder, b) it sets the overall policy framework, and c) it establishes technical standards and norms. The strong emphasis on sanitation and a clean environment is evident from the focus that the Indian government has given to a set of programmes that include the Swachh Bharat Mission (Gramin and Urban), RAY, AMRUT, Smart Cities and others. This highlights the fact that sanitation is a priority agenda at the national level, giving impetus for change. A similar focus has been adopted by the governments of Bangladesh and Zambia, through the launch of nationwide campaigns or the enactment of enabling legislation.

For instance, the Government of Maharashtra has issued an order in 2005 mandating to local governments that community groups will play an integral role in planning and management of community-toilet blocks in urban slums [10], supporting initiatives such as the community surveys carried out by Shelter Associates in collaboration with the Pune Municipal Corporation.

The responsibility for implementation of urban sanitation is delegated by the Ministry of Housing and Urban Affairs to different administrators at the state, city and ward level. State governments provide funding to independent projects and also support the programmes sponsored by the national government with supplementary financial and personnel resources. Furthermore, states play a crucial role in planning – by developing state sanitation strategies – and in its implementation, by ensuring clear roles and responsibilities to urban local bodies, along with all the necessary resources [60].

Elected councillors represent specific wards in the city’s political arena [57]. As the collection of case studies on women municipal councillors has shown, they can play an important role in championing the cause of sanitation for urban poor communities and can help prioritise the issue within the government machinery, as well as coordinate their efforts with other actors to bring about change.

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ULBs are responsible for planning, policy-making, financing and maintaining sanitation infrastructure, leveraging private investments and coordinating with community institutions in carrying out these tasks. The initiatives from the city of Ahmedabad are used as a case study to learn from, since the Ahmedabad Municipal Corporation has utilised its governing Municipal Act to allocate finances for the improvement of health conditions in the city. This has been combined with an innovative use of an executive order, the 100 NOC scheme, to operationalise a comprehensive Slum Networking project in the city [10].

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5.2 Non-Government Organisations

Non-government organisations (NGOs) have long played a role in delivering sanitation services to disadvantaged communities in urban areas. Besides local organisations, non-governmental partners can also include large international NGOs, which can bring in the expertise, donors and financial aid to engage on the ground, as WaterAid has done in relation to the community toilet project of Trichy.

In contrast with large scale infrastructure-focused initiatives, NGO programmes commonly aim at building linkages between technical interventions and social considerations. In fact, as it has emerged through the different case studies, NGO’s role is not simply limited to providing and operating low-cost infrastructure in slum settlements, nor to rising awareness around government programmes and hygiene promotion. Rather, NGOs’ initiatives have been most successful when they have been able to deploy the necessary context-specific knowledge and proximity to the communities.

These factors have been crucial in partnering with municipal corporations and informing policy planning (as it has been the case for the Pune - Shelter Associates collaboration) and in favouring the mobilisation and capacity-building of local residents, as in the activities undertaken by Gramalaya, MHT or the Orangi Pilot Project-Research and Training Institute in Pakistan.

5.3 Community-based Organisations

MHT’s CBO model, as well as Gramalaya’s SHE teams are an excellent example of the role that community-based organisations can take in ensuring sustainable and inclusive sanitation in poor communities.

Involving CBOs in sanitation projects has many advantages, the first being that they are more capable of delivering services to grassroots groups of slum residents that might not be easily reachable by government institutions. In fact, CBOs have a better understanding of local conditions, as well as more direct links with community members; thus, they more easily manage to achieve consensus with the targeted beneficiaries and ensure their support during the implementation of projects, compared to other “external actors.”

CBOs are key associations that can encourage change in their communities by dispelling misconceptions and exercising influence on its members, by being role models and adopting safe and healthy sanitation behaviours. Therefore, they can become a useful platform for empowering marginalised groups, like women and adolescent girls in the CAG committees in Ahmedabad.

Lastly, community-based organisations can take a leading role in installing and managing sanitation infrastructure, as successfully shown by the WAVE federations in Trichy, together with organising residents and voicing their demands with the government in the manner Vikasinis interface with the Ahmedabad Municipal Corporation.
5.4 Private Service Providers

As the Indian economy began to liberalize in the 1990s, the national government increased the scope for private sector participation, especially in the field of water supply. Currently, the SBM guidelines for urban areas pave the way for private sector engagement in capital and operational expenditures [14]. Therefore, private service providers represent a last important actor to consider when analysing place-based sanitation systems.

Delays in the transfer of toilet subsidies, as discussed in section 3.2.1, highlight the contentious issue of whether the public-sector, and more specifically ULBs, is in the position to meet the targets set by SBM guidelines. Private financing is often proposed as the solution to bridge the funding gap. The government has in fact set up the Swachh Bharat Kosh (SBK), so that big and small corporations can provide help to the mission by donating funds in the form of their Corporate Social Responsibility.

Similarly, many NGOs have started to directly leverage CSR funding for the implementation of their activities. According to a recent report looking at the investments of the 100 companies with the largest CSR budget in India, it emerges, however, that 75% of the businesses were supporting programmes related to infrastructure creation, that is construction of toilets and water facilities, with limited engagement on projects aimed at behavioural change and community mobilization. Another important finding reveals that most of the sanitation programmes funded are concentrated in rural areas [61].

Therefore, CSR initiatives appear to be narrowly centred on projects leading to rapid and easy-to-measure outcomes rather than devoting much needed funding to areas such as community capacity building. In order to channel CSR resources towards neglected areas while still maintaining an alignment with corporate donors’ preferences, MHT, in partnership with the Bank of America Merrill Lynch, has supported the construction of toilets in Ahmedabad rural-urban fringes that, as it has been previously shown, fall outside the scope of AMC’s interventions [15]. A similar focus has been adopted by Shelter Associates, which funds its urban sanitation projects thanks to CSR sources.

it is unclear whether current governance arrangements are making private providers more responsive to the sanitation needs of the urban poor. However, private sector providers can offer a strong platform for developing sanitation programmes in urban areas. Advantages include allowing public institutions to meet mandates in an efficient and cost-effective way and harnessing private sector innovation, speed, and demand creation through business links to communities, as it has been achieved through Samagra’s pay-per-use community toilets. Therefore, increasing private sector involvement in urban sanitation, while maintaining a pro-poor focus, requires strong regulatory frameworks and supportive public institutions like the National Water Supply and Sanitation Council in Zambia, to ensure consistency and standardisation of services from service providers.
6.0 Working towards multi-stakeholder approaches to urban sanitation

The previous discussion has highlighted the fact that change agents seldom act in isolation from one another. In recent years, the term “multi-stakeholder approach” has gained much currency in development circles and the complexity of urban sanitation makes it almost a prerequisite for effective action.

Solutions that are generated with local stakeholders are more likely to lead to appropriate actions, to promote adaptive working practices, and to strengthen the development capacity of local organisations and communities. NGOs like MHT, possessing the right extent of public outreach and context-specific knowledge, can help bridging the gap between public administrations and marginalised sections of the population. The Slum Networking Programme in Ahmedabad constitutes a major example on how local government bodies, non-profit organisations and community members can coordinate their efforts towards the achievement of improved sanitation infrastructure, through a ‘component- sharing model’ which has been proved quite effective in enhancing community ownership during the Orangi Pilot Project as well. Similarly, Gramalaya’s role in Trichy has been that of facilitating the organisation of residents into CBOs, which have been then able to take charge of community-based blocks and become a significant interlocutor of the municipal corporation on matters of water and sanitation.

Furthermore, learning alliances facilitate change by creating linkages between experts, implementers and policy makers. Governments can support the integration and scaling-up of successful practices in urban sanitation, while NGOs, private sector actors and research institutes can enhance the exchange of best practice approaches and experiment alternative solutions to implementation challenges on the ground.

This has been exemplified by the regular and collaborative interactions between the Pune Municipal Corporation and the NGO - Shelter Associates. Also, the effectiveness of multi-stakeholder partnership was demonstrated during the scaling-up of urban CLTS initiatives throughout the city of Kalyani, where the contributions of development practitioners, private contractors and residents were all mobilised under the guidance of an enthusiastic leadership at the local level.

In conclusion, the more representative the partnership is, the better it will capture the organisational complexities of sanitation challenges in the cities. Change towards inclusive and sustainable sanitation systems is possible when stakeholders and agents get together to optimise resources and complement their areas of expertise, making cooperation and collaboration a crucial element in the process of service delivery to the urban poor.
## Annex I: Datasets consulted

<table>
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<tr>
<th>SOURCE</th>
<th>DEFINITIONS/INDICATORS</th>
<th>DATA SOURCES AND METHODS</th>
<th>PRODUCER</th>
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</table>
| 3rd NATIONAL FAMILY HEALTH SURVEY (2005/2006) | • Questions asked as to whether the household shares toilet with other households and, if yes, how many (COMMUNITY TOILETS)  
• Questions asked in relation to the type of facility in the household:  
  FLUSH LATRINE: flush to piped sewer system; flush to septic tank; flush to pit latrine; flush to somewhere else  
  PIT LATRINE: ventilated Improved pit latrine (VIP); pit latrine with slab; pit latrine without slab/open pit.  
  NO FACILITY: Bush/Field; Composting toilet; dry toilet. | Stratified Random Sampling: 109,041 households, 124,385 women aged 15-49, and 74,369 men aged 15-54, covering 99% of India’s population living in all 29 states.  
Three different surveys: Households Questionnaire, Women’s Questionnaire and Men’s Questionnaire | International Institute for Population Sciences (IIPS) - Ministry of Health and Family Welfare (MOHFW) |
| CENSUS OF INDIA (2011) | • Questions asked as to whether there is a latrine facility within the premises:  
  WATER CLOSET: piped sewer system; septic tank; other system.  
  PIT LATRINE: with slab/ventilated improved pit; without slab/ open pit.  
  NIGHT SOIL: disposed in open drain;  
  OTHER LATRINE: night soil removed by human; night soil serviced by animals. | Phase 1: House listing and Housing Census, which collected baseline data about every census house. Each household was also tagged with a house number (distinct from the household’s address) used to track that household in Phase 2 of the Census. | The Office of the Registrar General and Census Commissioner |
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| SWATCHA STATUS REPORT (2015) | NO LATRINE WITHIN THE PREMISES  
public latrine (NO DISTINCTION WITH COMMUNITY); open. | Phase 2: more data was collected from 608,786 villages, 7742 towns, and 5767 tehsils across India’s 640 districts, interviewing a total of 110,139, 853 households. | The Ministry of Statistics and Programme Implementation, via the National Sample Survey Office |
| | Information has been collected at two levels:  
(a) Village/Ward level: AVAILABILITY OF COMMUNITY/PUBLIC TOILETS  
Use of Community/Public toilets  
Type of drainage arrangement  
Method of disposal of drainage/waste water  
Prevalence of open defecation | A stratified multi-stage (from ward to household) sampling design | |
| | (b) Household level: AVAILABILITY OF SANITARY TOILETS*  
Use of sanitary/community toilets by age-group  
Access to water for use in toilet  
* Sanitary toilet is defined to include connection to a sewer or septic tank system, pour-flush latrine, simple pit or ventilated improved pit latrine, with allowance for acceptable local technologies. The excreta disposal system is considered adequate if it is private or shared (BUT NOT PUBLIC) and if it hygienically separates human excreta from human contact. | A Rapid HH Survey was then conducted survey, covering 2907 urban blocks. The number of households surveyed was 41,538 in urban India. | |
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| JOINT MONITORING PROGRAMME FOR WATER SUPPLY, SANITATION AND HYGIENE (2017) | • To make an estimate of safely managed services, information on use of different improved sanitation facilities types (sewer connections, septic tanks and latrines and other) is combined with information on containment, emptying, transport and treatment.  
• The JMP reports estimates for safely managed sanitation when information on excreta management is available for at least 50 per cent of the population using the dominant type of improved sanitation facility (sewer connections or on-site sanitation systems). | Data obtained from the 4th National Family Health Survey (2015-16): refer to the 3rd National Family Health Survey for methods and indicators. | |
| PERFORMANCE ASSESSMENT SYSTEM (2017) | Indicators of interest:  
• Coverage of water supply networks: total households connected to the water supply network with a private service connection, as percentage of total households in the ULB  
• Coverage of water supply connections in ‘slum settlements’: total households in slum settlements connected to water supply network with a private (not shared) service connection, as percentage of total households in all slum settlements in the ULB | Public authorities from 13 states for over 1400 cities submit data to the PAS portal. The PAS also monitors the robustness of data by looking at the collection process and finds a low reliability level of many indicators used at present. | CEPT University, with funding from the ‘Bill and Melinda Gates Foundation’ |
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<th>DEFINITIONS/INDICATORS</th>
<th>DATA SOURCES AND METHODS</th>
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<tbody>
<tr>
<td>• Coverage of toilets: Total number of properties with access to individual or community toilets as a percentage of total number of properties in the city.</td>
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<tr>
<td>• Coverage of connections to sewage network: total number of properties with individual connections to sewage network as a percentage of total number of properties in the city</td>
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<tr>
<td>• Coverage of household connections to sewerage network in ‘slum settlements’: total number of slum households connected to sewerage network as a percentage of total number of slum households</td>
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<tr>
<td>• Coverage of individual toilets in ‘slum settlements’: total number of slum households with individual toilets as a percentage of total number of slum households</td>
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</tbody>
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## Annex II: Analysis of institutional arrangements in urban sanitation

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>ENTITY</th>
<th>FUNCTIONS</th>
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<tbody>
<tr>
<td>Government of India</td>
<td>National Institution for Transforming India (replacing the Planning Commission)</td>
<td>Planning and allocation of central Government funds</td>
</tr>
<tr>
<td></td>
<td>Ministry of Housing and Urban Affairs (former Ministry of Urban Development)</td>
<td>Development of guidelines, schemes, national level policies, funding support, technical assistance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Design and implementation of national-level strategies on sanitation, capacity-building, financial assistance, monitoring and evaluation of urban projects</td>
</tr>
<tr>
<td>State Governments</td>
<td>Urban Development Departments (UDD) and Directorate of Municipal Administrations (DMA)</td>
<td>Technical and funding support for sanitation facilities Monitoring and evaluation of programmes Supervision of municipal administrations Coordination with related state government departments Liaison with the central government and external funding agencies Administrative and financial management of municipalities</td>
</tr>
<tr>
<td></td>
<td>Parastatal Agencies such as Water and Sanitation Boards</td>
<td>Development, promotion and implementation of State level plan, Establishment of standards for sewerage services in the state Service delivery, O&amp;M of sanitation facilities</td>
</tr>
<tr>
<td>Local Government</td>
<td>Urban Local Bodies such as Municipalities and Municipal Corporations</td>
<td>Planning, design, implementation, operation and maintenance of water supply and sanitation services in cities and towns</td>
</tr>
<tr>
<td></td>
<td>Urban Development Authorities (Operate at local/ regional level)</td>
<td>Planning, implementation, O&amp;M of sanitation services</td>
</tr>
</tbody>
</table>
References


[16] MHT Staff Person (2). Personal communication [Skype interview]. 24th January 2018.


[23] MHT Staff Person (3). Personal communication [Skype interview]. 24th January 2018.


References for the case studies from outside India (Box.1-Box.5)


