

# Tracing Exclusions in Urban Water Supply and Sanitation

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Nearly 70 years since Independence, a large proportion of urban Indians, particularly the poor and vulnerable groups, are deprived of adequate public provisioning in water supply and sanitation. The discourse of 'urban' is increasingly being captured through the rhetoric of 'Smart Cities', even as urban residents are yet to receive basic services. Albeit late, sanitation has now occupied centre-stage in India's policy framework through the current government's flagship: Swachh Bharat Mission.

This chapter seeks to understand the nature of exclusion from water and sanitation services in India, and proposes a way forward to address these exclusions. The initial section of the chapter argues that it is necessary to expand the definition of water and sanitation as a public good if desired health outcomes are to be achieved. The essay argues that while the abysmal level of provisioning in urban areas means that most of urban India represents some or other form of exclusion, certain vulnerable groups, for instance, urban poor, Dalits and women, face a higher extent of exclusion. These differential exclusions are even more evident if the expanded definition of water and sanitation as a public good is taken into account. Further, these vulnerable groups are hit harder because they are unable to afford alternate, feasible means of self-provisioning,

and also cannot afford the consequent health care costs.

## 1. Water and Sanitation as a Public Good

Water and sanitation are the basis for life, and secure health and dignity for societies. The consequences of inadequate water and sanitation are increasingly being documented and there is consensus about their critical role not only for healthy individuals and families, but also for securing public health for communities.

Lack of access to adequate water and safe sanitation can lead to adverse health outcomes, particularly diarrhoeal diseases, which remain the second-largest cause of under-five mortality globally. Research has also highlighted the role of inadequate sanitation, in stunting, an indicator of malnourishment.<sup>3</sup> Apart from health, there are several other impacts of inadequate access to water and sanitation like a disproportionate burden of water collection being shouldered by women, drop-out of adolescent girls from schools, and so on. Exclusion from water and sanitation adversely affects the safety and dignity of women and girls in cities much more than it does for men. Globally,

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adverse outcomes of lack of adequate water and sanitation have meant that water and sanitation is considered a public good, and the right to water and sanitation is constitutive of many other rights, especially Right to Health, and Right to Life.

Given the public good nature of water and sanitation, it is the obligation of the state to provide these services. The state is responsible for progressively providing access to water and

sanitation, ensuring substantive equality, and ensuring that discrimination does not take place.<sup>4</sup>

### 1.1 Expanding the definition

It is important not to stop at the acknowledgement of water as a human right, but to interrogate more fully what exactly constitutes the right to water and sanitation, and what it would take to secure health

#### **BOX 1: The Global Evolution of Water and Sanitation as a Human Right**

Globally, the evolution of the right to water can be traced back to the 1970s. At the United Nations Mar del Plata Water Conference in Argentina, the right to water to ‘all peoples, whatever their stage of development and their social and economic conditions’ was declared.<sup>5</sup> This conference also resulted in declaring the period of 1980–1990 as the International Decade for Water Supply and Sanitation, during which governments committed to increase access to water and sanitation services. In 1999, the United Nations passed a resolution for ‘Right to Development’ which included the ‘right to clean water’.<sup>6</sup>

The International Covenant on Economic, Social and Cultural Rights, 1966 (ICESCR), ratified by 157 states, does not explicitly recognise the right to water.<sup>7</sup> However, the United Nations Committee on Economic, Social and Cultural Rights issued a General Comment No. 15 in 2002, which recognises the right to water.<sup>8</sup> While the Comments are not legally binding, they often play a substantial role in the interpretation of the Covenant (COHRE). Comment 15 implicitly recognises water, both in Article 11 (adequate standard of living) and Article 12 (mental and physical health).<sup>9</sup> In addition, the Right to Water was explicitly recognised in legally binding international treaties like the Convention on the Elimination of All Forms of Discrimination Against Women, 1979 and the Convention on the Rights of the Child, 1989 and the Convention on the Rights of Persons with Disabilities, adopted in 2006 (UN General Assembly, 1979, 1989, 2006). India is a signatory to all of these covenants and therefore bound to implement them.

In 2010, a UN Resolution formally recognised the right to water and sanitation, and acknowledged that clean drinking water and sanitation are essential to the realisation of all human rights. Following the UN General Assembly resolution, a resolution was passed by the UN Human Rights Council (UNHRC) affirming that the rights to water and sanitation are part of existing international law and confirming that these rights are legally binding upon States. The UNHRC states clearly that ‘states have the primary responsibility to ensure the full realization of all human rights, and that the delegation of the delivery of safe drinking water and/or sanitation services to a third party does not exempt the State from its human rights obligations’.<sup>10</sup>

In 2014, another resolution was passed by UNHRC which reaffirmed the right to water and sanitation, and also considerably expanded the definitions and obligations.<sup>11</sup> The resolution referred to three reports of the UN Rapporteur on Water and Sanitation.<sup>12</sup> Together, these documents form the building blocks for a framework for the right to water and sanitation internationally.

and dignity for human beings. Globally, there has been a gradual expansion of the understanding of water and sanitation as a human right (Box 1).

The UN reports in Box 1 indicate an expanded framework for the right to water and sanitation. The 2014 UN Resolution expresses concerns that the current official figures underestimate the number of people without access to adequate water and sanitation since they do not take into account certain dimensions like quality of drinking water, affordability of services and safe treatment of excreta.<sup>13</sup>

Based on the various UN Reports mentioned above, the following dimensions can be taken together to constitute the right to water and sanitation:

### Water

- **Access:** Access to water sources should be convenient and without physical or cultural barriers. Access must be ensured in a sustainable manner.
- **Sufficiency:** People need to have access to a quantity of water sufficient for all personal and domestic needs, including water required for hygiene.
- **Quality of potable water:** People have the right to drinking water of safe quality standards.
- **Reliable and regular supply:** Water supply must be sufficiently reliable to allow for the collection of amounts sufficient to realise all personal and domestic needs over the day.
- **Affordability:** People have the right to access adequate quantity of water of acceptable quality, at affordable prices.

### Sanitation

- **Access to services:** Sanitation facilities must

be available within or in the immediate vicinity of each household as well as in schools, workplaces, health care settings and public places. Access must be ensured in a sustainable manner.

- **Safety of sanitation facilities:** Human, animal and insect contact with human excreta must be effectively prevented. Regular maintenance and cleaning of toilets is critical too.
- **Safe disposal after treatment:** Depending on the technology, fully functional sewers and treatment plants and regular de-sludging or emptying are necessary for on-site or local systems. Sludge and sewage must be safely disposed of to avoid negative impacts on human health, water quality and the environment.
- **Acceptability:** Sanitation facilities, in particular, must be culturally acceptable. This will, for instance, often require privacy as well as separate and appropriate facilities for men, women, children and the differently abled.

It is vital to highlight the importance of paying attention to the full cycle of sanitation: from adequate access at household level to safe collection and treatment. If the full sanitation cycle is not addressed, then the necessary health outcomes will not be achieved.

It is crucial to appreciate that the above dimensions need to be considered together for securing public health outcomes. If good quality water is available at some distance, adequate water will not be consumed for various purposes and hence health outcomes will be adversely affected. If every household has a toilet, but all the faecal matter and waste water is not safely collected, treated and disposed, the community or the city will not be able to enjoy healthy lives.

These dimensions can be further interpreted and broken into indicator sets and benchmarks.

Minimum quantity is, for instance, defined as ‘lifeline’, i.e., enough for physical survival while quality standards would refer to acceptable physical, chemical and biological characteristics, and so on.

The above-mentioned dimensions that need to form a part of the expanded definitions, however, are not commonly included. The Millennium Development Goals (MDGs), which were the most significant global commitment until recently, had a target to ‘halve the number of people without access to improved water and sanitation’. But it measures progress along limited parameters<sup>14</sup>, falling considerably short of the above definitions. As part of the recently formulated Sustainable Development Goals (SDGs), Goal 6 aims to ‘Ensure access to water and sanitation for all’. The targets under Goal 6 take at least some of the above dimensions into account: safe and affordable water for all, adequate sanitation and hygiene for all, with special attention to women, girls and vulnerable populations, and halving the proportion of untreated waste water.

#### *Right to Water and Sanitation in India*

In India, the right to water and sanitation is not explicitly stated in the Constitution of India but jurisprudence shows that existing provisions have been interpreted to mean that it is a duty of the State to provide access to water and sanitation. The Supreme Court has ruled that both water and sanitation are part of the Constitutional Right to Life (Article 21). The Court has stated that ‘the right to access to clean drinking water is fundamental to life and there is a duty on the state under Article 21 to provide clean drinking water to its citizens’ (A.P. Pollution Control Board II v. Prof. M.V. Naidu and Others, 1999).

While the Central and various state governments have refrained from legally and explicitly committing to the right to water and sanitation, various elements of the expanded definitions find a place in different

government documents, most notably the National Water Policy (2012) and the National Urban Sanitation Policy (2008). In addition, initiatives like the Service Level Benchmarks (SLBs), developed by the MoUD, have set benchmarks that take into account at least some dimensions, for instance, sufficiency, treatment facilities for sanitation, etc. These initiatives are discussed later in the chapter.

#### *Indicators for Inclusion in Urban Water Supply and Sanitation in India*

Based on the definitions above, it is possible to derive an indicator set to measure exclusions. Table 1 presents the above dimensions, and possible indicator sets for Indian cities, and assesses availability of data (Census, NSSO, SLBs, etc.) for each. Data are available only for a few indicators, posing problems of measuring change. This also necessitates exclusive dependence on case studies to measure exclusions along certain indicators.

## **2. Understanding the Nature of Exclusion in Urban Water Supply and Sanitation**

This section illustrates the extent of exclusion from public services in urban India. To begin with, the overall exclusion from water and sanitation services faced by all sections of society is explored, and then the exclusion faced by specific vulnerable groups is assessed. Further, the differential exclusions can be divided into two broad categories: inter-household disparity (differences across households divided by wealth quintiles, caste or religion), and intra-household disparity (differences among households because of differences in ability, gender or age).<sup>15</sup>

### **2.1 Water supply and sanitation in urban india: deficits and exclusions**

There are several deficits in public provisioning in urban India, hence all sections of the urban

Table 1: List of Indicators for Understanding Nature of Exclusion from Right to Water and Sanitation					
No.	Dimension	Rationale for Dimension	Possible Indicator Set (based on available datasets)	Data Source(s)	Remarks
<b>Water Supply</b>					
1	Accessibility	This is the most basic dimension for exclusion, and most commonly used both in India and internationally.	<ol style="list-style-type: none"> <li>1. Location of primary source of water</li> <li>2. Access levels to primary source of water (exclusive v. shared used)</li> <li>3. Time taken to access water (if from outside premises)</li> </ol>	<p>Census/ NSS</p> <p>NSS</p> <p>NSS</p>	<p>Most public datasets measure this variable.</p>
2	Sufficiency	Provisioning of drinking water is not adequate. Availability of sufficient water is required for hygiene.	<ol style="list-style-type: none"> <li>1. Quantity of water supplied</li> <li>2. Households' perception of sufficiency of water for drinking and other purposes</li> </ol>	<p>SLB</p> <p>NSS</p>	<p>Available for only select cities. The data are for per capita water supplied from ULB/ parastatal. Given that there are distribution losses, it is difficult to estimate the quantity of water that households receive. Only a few micro-studies available.</p> <p>Self-Reporting of Perception (not very reliable)</p>

Table 1: List of Indicators for Understanding Nature of Exclusion from Right to Water and Sanitation					
No.	Dimension	Rationale for Dimension	Possible Indicator Set (based on available datasets)	Data Source(s)	Remarks
3	Quality	Good quality potable water is necessary to ensure prevention of water-borne and faecal oral diseases.	<ol style="list-style-type: none"> <li>1. Quality of water supplied (Various indicators like turbidity, absence of pathogens, etc.)</li> <li>2. Primary source of drinking water (Availability of treated piped water supply)</li> <li>3. Households' perception of quality of water</li> </ol>	Census/ NSS  NSS  SLB	Water quality data (determined by various physical tests) are available for only select cities. Most of these tests are conducted from the supply side, and not at the household level.  Proxy indicator of quality.
4	Regularity		<ol style="list-style-type: none"> <li>1. Duration of water supplied</li> <li>2. Frequency of supply of water</li> </ol>	SLB NSS	Available for only select cities.
5	Affordability	Affordability is critical to ensure access.	<ol style="list-style-type: none"> <li>1. Average amount paid per month</li> <li>2. Cost of purchasing water (per litre)</li> </ol>	NSS	Information on tariffs levied by cities is available. But most households depend on alternate sources of water, for which only a few micro-studies are available.
<b>Sanitation</b>					
7	Accessibility		<ol style="list-style-type: none"> <li>1. Type and location of sanitation facility</li> <li>2. Access levels to sanitation facility (exclusive v. shared)</li> </ol>	Census/ NSS  NSS	Available for only select cities; expressed in percentage, which is not very clear.

Table 1: List of Indicators for Understanding Nature of Exclusion from Right to Water and Sanitation					
No.	Dimension	Rationale for Dimension	Possible Indicator Set (based on available datasets)	Data Source(s)	Remarks
8	Safety of Sanitation Facilities	Mere elimination of open defaecation will not necessarily ensure health benefits. The deficits along the entire sanitation chain need to be addressed to enjoy the benefits of sanitation.	<ol style="list-style-type: none"> <li>1. Type of household arrangement for sanitation (Connection to sewerage network/ septic tank/ improved pits/ etc.)</li> <li>2. Safe disposal of Sludge</li> <li>3. Treatment capacity</li> <li>4. Surface and ground water quality</li> </ol>	Census/ NSS    CPCB CPCB	This information indicates the percentage of households with safe sanitation. However, no data exists whether these systems have been constructed to required standards.  No information exists.  Available only for select locations in the city. There is monitoring at neighbourhood/ward level.
9	Acceptability	This is necessary to ensure that the constructed sanitation facilities are actually used.	No information collected		

Source: Compiled by authors; (Census of India, 2011; CPCB, 2013a, 2013b; MoUD, 2011; NSSO, 2013).

**Notes:**  
Census: The census operations are carried out every 10 years; the most recent dataset being of 2011. The census covers every household in urban and rural areas of the country. The housing tables in the census give details of services and amenities at the household level, including water and sanitation.  
National Sample Survey: NSS on drinking water, sanitation, hygiene and housing conditions is carried out every five years, the most recent dataset being of 2012 (69<sup>th</sup> round). This is a sample survey and does not cover the entire population; household multipliers are mentioned to enable extrapolation of the sample data.  
Service Level Benchmarking: After MoUD introduced service level benchmarks for environmental services in 2008, self-reported utilities data from sample cities are compiled on various benchmarks, the most recent dataset being of 2010-11, which reports data on 1,493 cities.

population face some degree of exclusion. This section presents the overall deficits in urban India for water and sanitation, i.e., for the whole population, before turning to vulnerable groups in the next section.

### Water Supply

As highlighted in Table 2, only 62 per cent households had treated tap water as their primary source of drinking water, a proxy indicator for public supply; thus more than one-third of the households do not have access to any form of public supply.<sup>16 17</sup>

Table 2: Primary Source of Drinking Water for Urban India	
	Census 2011
Tap water	71%
Treated	62%
Not treated	9%
Hand pump/tube well	21%
Well	6%
Surface water sources	1%
Bottled water	Not available
Other sources	2%
Source: Census of India (2011)	

The two-thirds of households with access to public services also do not necessarily have the requisite standard of services. Amongst these, about 80

per cent households have treated water within their premises, an indicator of easy accessibility. More importantly, most households are provided with an insufficient quantity of water: the average per capita supply of 73 lpcd (in 1,493 cities) is far below the desired benchmark of 135 lpcd.<sup>18</sup> Average duration of supply is around three hours against the benchmark of 24 hours.<sup>19</sup> According to NSSO (2013), almost a quarter of households are not supplied water daily.

Lack of adequate publicly supplied water leads to dependence on multiple sources of water by most households. Nearly 23 per cent of households also had a supplementary source of drinking water, indicating insufficiency or unreliability of the primary source of drinking water.<sup>20</sup> There are case studies to illustrate that the percentage of households depending on multiple sources of water might be higher, at least in some cities.

Further, nearly a quarter (estimates ranging from 18 million to 23 million) of households do not have access to water supply within their premises, and only slightly more than half the households have access to a water source for exclusive use.<sup>21</sup> On an average, more than half an hour (31 minutes) is spent to fetch water from outside (including waiting time).<sup>22</sup>

The biggest threat posed by dependence on multiple water sources is the possibility of getting water that is contaminated. However, very few studies examine this issue. The few studies that exist do not examine water quality at the household level; however, there is sufficient newspaper reportage to provide evidence of water contamination (see Box 2). While there is a possibility of piped water supply

#### BOX 2

A survey done by Pratham Education Foundation, Montreal University and Harvard Centre for Population and Development Studies in a New Delhi slum found that 42 per cent (284 of 685) of household drinking water samples were contaminated with coliform bacteria.<sup>24</sup>

also being contaminated, piped water systems remain the safest way of ensuring that good quality water is supplied.<sup>23</sup>

Thus, the nature of exclusion from public water supply is multi-faceted, ranging from no access to public supply to inadequate supply due to irregular timings, distance between water source and household, etc. While adequate and robust data is not available for all parameters, it would be safe to say that a substantially large proportion of the population suffers from one or other kind of exclusion. There are substantial coping costs associated with these exclusions, discussed later in the chapter.

### Sanitation

There are several deficits along the entire sanitation chain. At the household level, nearly 10 million (13 per cent) households do not have access to any sanitation facilities, and hence they resort to open defaecation. Another 6 per cent depend on public

or community latrines, and 4 per cent have access only to unimproved latrines.<sup>25</sup>

A high percentage of households (27 per cent) depend on some form of shared facilities, including public toilets, community toilets and shared facilities among multiple households.<sup>26</sup> Shared facilities present their own set of problems: long waiting time, lack of cleanliness, fixed timings and payment, etc.<sup>27</sup>

While individual household toilets remain the most desirable form of sanitation, community toilets are an acceptable solution where concerns like insecure tenure or space constraints make individual toilets difficult and/or impossible. It is necessary to differentiate between public and community toilets. Public toilets are aimed mostly at a floating population, located in public spaces, and are expensive for regular use as payment is usually on pay-per-use basis. Community toilets have captive user groups, and are available for use usually with a monthly pass or at reduced rates, and are hence affordable. However, community toilets

**Table 2: Household Arrangements for Sanitation in Urban India**

Type of Sanitation Facility		Percentage of Households
Flush/ Pour Flush Connected to	Piped sewer system	32.7%
	Septic tank	38.2%
	Other system	1.7%
Pit Latrine	With slab/VIP	6.4%
	Without slab/open pit	0.7%
Night Soil	Disposed into open drain	1.2%
	Removed by human	0.3%
	Serviced by animal	0.2%
Others		NA
Public Latrine		6.0%
Open Defaecation/ No Latrine		12.6%
Source: Census of India (2011)		

are few in number, and available only in a limited number of cities.

The lack of adequate household sanitation facilities constitutes only one form of deficit in the entire sanitation cycle; there are large deficits in safe collection, conveyance, treatment and disposal. As illustrated in Table 2, only one-third of the urban population is connected to networked sewerage systems (mostly in large metropolitan cities, and in rich and middle class colonies), while a much larger proportion of the households depend on on-site systems, primarily septic tanks and pit latrines.

The predominant form of public provisioning in the sanitation chain comprises networked sewerage systems, and centralised sewage treatment plants (STPs) and need to be taken as a proxy indicator of waste water safely treated.<sup>28</sup> For Class I and Class II cities, the treatment capacity is as low as 30 per cent, and the total utilised capacity is only 22 per cent.<sup>29</sup> There are negligible treatment facilities in smaller towns and cities.

While a majority of the population is dependent on on-site sanitation systems, there are hardly any systems and procedures in place for safe cleaning and regular de-sludging of these on-site systems. The most prevalent method of cleaning on-site systems is manual in many places (even if this is banned); increasingly vacuum truck (public and private) are being deployed in some states. Even if the sludge from pit latrines and septic tanks is safely collected, it is mostly dumped untreated in nearby open sites or waterbodies.<sup>30 31 32</sup>

Another set of concerns regarding on-site sanitation systems are inappropriate design, poor workmanship and construction. Inappropriate design and construction practices (e.g., not maintaining adequate distance between pit latrines and sources of drinking water, letting effluent from septic tanks flow directly into open drains) can lead to environmental pollution, and contaminate the water often used for household consumption without any treatment.

Similar to water supply, there are multiple exclusions from safe sanitation in urban India. While the absence of sanitation facilities forces some households to resort to open defaecation, absence of safe conveyance and treatment facilities exposes the entire urban population to health risks through various contamination pathways.

## 2.2 Differential access across groups

The previous section illustrates that a large proportion of households are excluded from public access to water and sanitation in some form. This section focuses on specific vulnerable groups, and examines how these are more excluded than others. Figure 1 and the Annex summarise the key differences in access to water supply and sanitation across different types of groups in urban India based on caste, class, region, religion, gender and type of settlement as compared to the national (urban) average.

### Water Supply

While examining exclusions for various groups along all indicators, the starkest differences are observed across economic classes. Taking the example of access to public supply (treated tap water) for drinking purposes, almost 73 per cent of households in Quintile 5 have access while the number drops to 57 per cent in Quintile 1. Again, only 56 per cent Quintile 1 households have drinking water sources within premises as compared to almost 93 per cent Quintile 5 households. With regard to exclusivity of water source, more than two-thirds of Quintile 5 households have a water source for their exclusive use; the percentage drops to 33 per cent in case of Quintile 1.<sup>33 34</sup>

In case of slum households, while the overall reported access to treated tap water (65 per cent) is marginally higher than the national (urban) average of 62 per cent; the locus of exclusion lies in the

location of the source of drinking water. Only 57 per cent slum households have access to drinking water within premises as compared to the national average of 71 per cent.<sup>35</sup> Within different types of slums also, squatter settlements have least access as compared to notified and non-notified slums. At 35 per cent, the exclusive use is also lower among slum households as compared to the national average (47 per cent).<sup>36</sup>

Exclusion along caste lines is also variably observed in water supply. In terms of access to treated tap water, slight differences are observed compared to the national average; the differences start becoming stark when one compares the location and exclusivity of water source. Only 57 per cent SC and 55 per cent ST households have drinking water within premises as compared to the national (urban) average of 71 per cent. Exclusive use is also lower among SC/ST; 35 per cent SC and 39 per cent ST households have a water source for exclusive use.<sup>37,38</sup>

As with the variations across caste groups, female-headed households have similar access to public sources; however, the availability of a water source within the premises and its exclusivity are lower as compared to the national average and male-headed households.<sup>39 40</sup>

Contrary to exclusion based on caste and gender, no significant differences are observed across religious groups with regard to location and exclusivity of water source. However, differences are observed with regard to access to piped water supply. Almost 70 per cent Hindu households have piped water supply as compared to 64 per cent Muslim households; among other minority religions, 72 per cent have piped water supply.<sup>41</sup>

Similar to disparities based on economic classes, regional disparities are observed along all indicators.<sup>42</sup> Only 41 per cent and 37 per cent of urban households in eastern and north east India have access to public supply of water, while as much as 79 per cent of households in western India have access to public supply.<sup>43</sup> Only 60 per cent of households in eastern India have drinking water

source within premises as compared to almost 86 per cent among households in the western region.<sup>44</sup> Only around 35 per cent eastern and southern households have water source for exclusive use as compared to 55 per cent and 62 per cent in the North and the West respectively.<sup>45</sup>

### Sanitation

Similar to water supply, deficits for sanitation are higher for certain vulnerable groups. Differences are most visible across the economic classes. Dependence on on-site systems increases with decreasing incomes; only 13 per cent quintile 1 households are connected to piped sewer as compared to 57 per cent quintile 5 households. While 98 per cent Quintile 5 households have latrines within premises, the access is restricted to 63 per cent Quintile 1 households. Availability of latrines for a single household's use also decreases among lower income groups; while 80 per cent Quintile 5 households have latrines for household's exclusive use, the percentage reduces to half (40 per cent) in case of Quintile 1.<sup>46</sup>

Slum households have poorer sanitation facilities; only a quarter are connected to piped sewer and another 37 per cent have improved on-site systems. Only two-thirds of slum households have access to a latrine within premises as compared to the national (urban) average of 81 per cent; almost 15 per cent rely on public latrines and 19 per cent resort to open defaecation.<sup>47</sup> Compared to the national average (64 per cent), a lower proportion of slum households have latrines for their exclusive use (38 per cent).<sup>48</sup>

While the overall percentage for households resorting to open defaecation is 12 per cent, the rates are higher for SC (24 per cent) and ST (26 per cent) households. The proportion of households dependent on public toilets for SC (8 per cent) and ST (10 per cent) is also higher as compared to the overall average of 6 per cent.<sup>49</sup> Access to exclusive

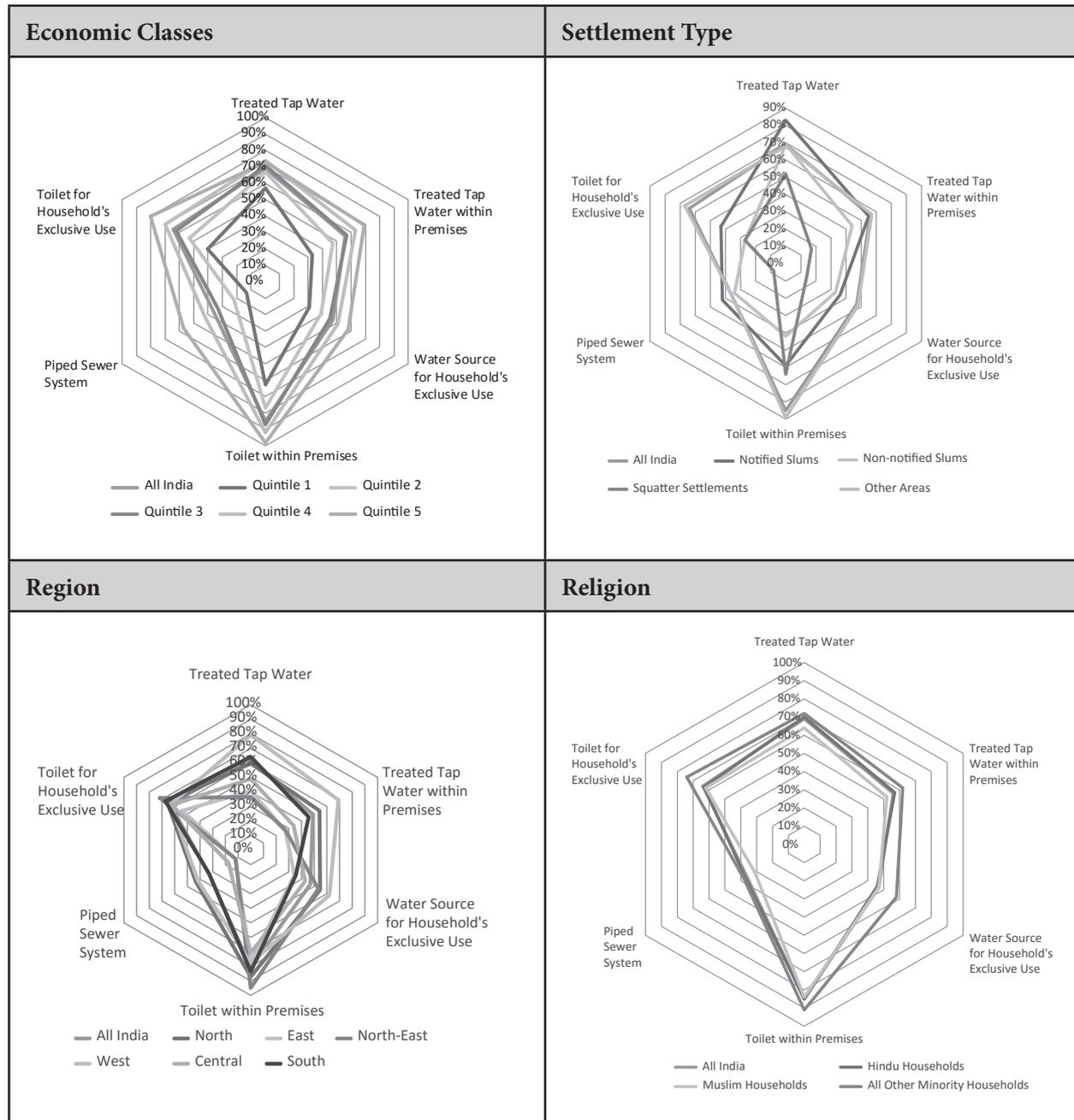
use of latrines is lower: for SC (43 per cent) and ST (56 per cent) households, as compared to the overall figure of 64 per cent.<sup>50</sup>

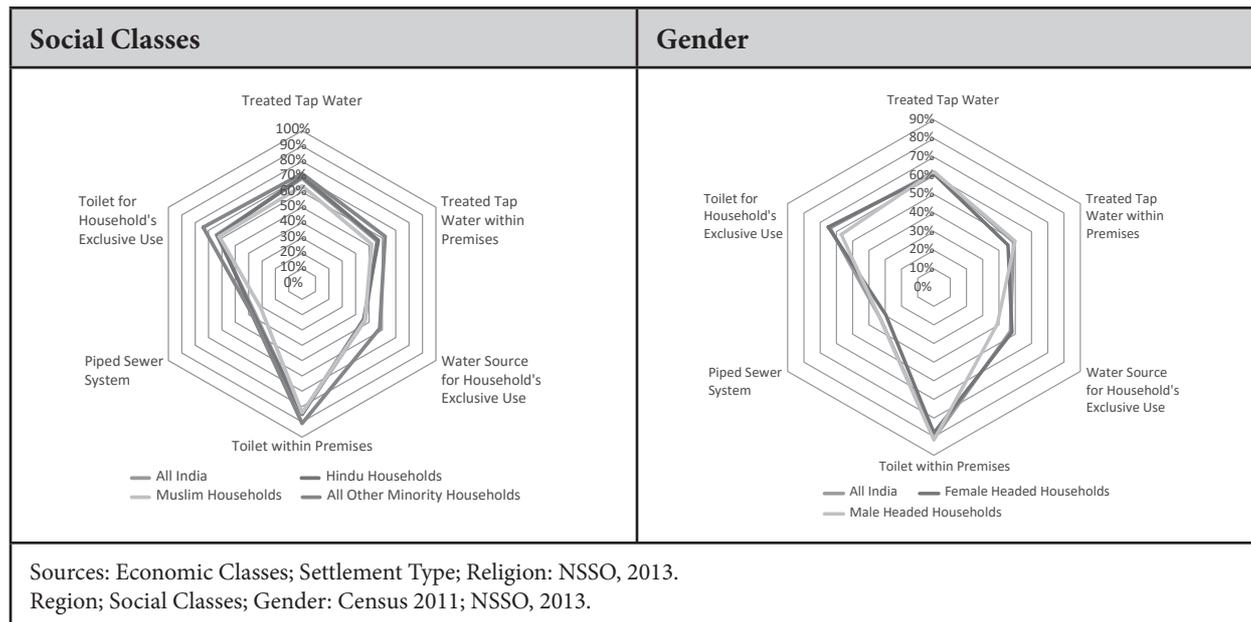
Female-headed households have lower access to sanitation facilities. Almost 65 per cent male-headed households have toilets for their exclusive use as compared to 57 per cent female-headed households. Almost 78 per cent female-headed households have

latrines within premises as compared to 82 per cent male-headed households; at 14 per cent, open defecation is also slightly higher among female-headed households as compared to male-headed ones (12 per cent).<sup>51</sup>

No significant differences are observed across religious groups.<sup>52</sup>

Regional disparities are also observed: open





defaecation in eastern and central parts of the country are as high as 20 and 25 per cent respectively.<sup>53</sup> Only 54 per cent households in eastern India have latrines for exclusive use; at 72 per cent, the figure is highest in the Northeast.<sup>54</sup> Access to piped sewers is as low as 12 per cent in the East and the Northeast; North and the West have better coverage at around 42 per cent.<sup>55</sup>

**Intersectionality: Exclusions within sub-groups**

While the above analysis has been carried out for discrete categories, the above categories often overlap. In urban areas, Scheduled Castes constitute 12.6 per cent of the population. However, it is interesting to note that according to the Slum Census 2011, 20 per cent of all slum residents in urban areas are SC, indicating a higher percentage of SC in the slums. It is estimated that deprivations (with respect to service delivery and quality of service) occur more for women within any category.

**2.3 Access to water and sanitation facilities at schools, workplaces and public spaces**

While the household is the primary site of exclusion for water and sanitation, there are other critical sites of exclusion: schools, workplaces, health care facilities and public spaces.

Nationally, the percentage of primary and upper primary schools having drinking water facility has increased from 83.1 per cent in 2005–6 to 95.3 per cent in 2013–14.<sup>64,65</sup> The percentage of primary and upper primary schools with separate girls’ toilets stands at 84.6 per cent (showing a substantial increase from 37.4 per cent in 2005–6). However, the progress has not been uniform across the country. States with relatively lower percentage of schools with drinking water facilities include Arunachal Pradesh (76 per cent) and Andhra Pradesh (89 per cent). States with relatively lower percentage of girls’ toilets include Jammu & Kashmir (51 per cent), Odisha (62 per cent), Andhra Pradesh (67 per cent), Bihar (67 per cent) and West Bengal (73 per cent).<sup>66</sup>

It is important to note that the mere provision of facilities like taps and toilets is not sufficient. While DISE does not report the usage of facilities, ASER 2014 revealed that boys’ toilets in almost 29 per cent schools were not usable, and in 12.9 per cent schools, the girls’ toilets were locked while in

### **Box 2: Urban Homeless—A Case of Absolute Deprivation**

The Census of India defines homeless people as those not living in census houses, that is, a structure with a roof. According to the Census of India 2011, there are 2.6 lakh homeless households in urban India with a total population of 9.4 lakh persons. However, these numbers are likely to be an under-estimation due to restrictive definitions and difficulty in enumeration.<sup>56</sup> Ironically, there is little data available about the homeless population, since the standard unit of inquiry for water and sanitation is a dwelling unit.

A study by carried out in Delhi and Bangalore divides the homeless population into three categories following the definition put forward by the Supreme Court Commissioners (2012): rough sleepers (sleeping on pavements and in parks, railway stations, etc.); those living in shelters; and those living in self-made temporary structures in public spaces.<sup>57</sup> Everyday experiences, including coping mechanisms, of accessing water and sanitation for each of these categories are slightly different.

Except for a few homeless persons who live in well-equipped and well-managed shelters, access to water and sanitation services among the homeless is hugely inadequate to ensure their human dignity and health.<sup>58</sup> They have access mostly to poor quality, often non-potable water, fetched over long distances, and often including significant costs. The homeless often have to resort to open defaecation, or have access to paid or unpaid public toilets, which are often poorly maintained and afford little safety and privacy, particularly for women and children.<sup>59</sup>

In one of the rare studies on homeless populations carried out by CES in four cities (Delhi, Chennai, Patna and Madurai) across 340 respondents, it was found that nearly 45 per cent of respondents had to access public toilets on payment, and almost 25 per cent resorted to open defaecation. 67 per cent of the respondents accessed drinking water, often not potable and erratic in supply, for free from roadside taps. 13 per cent bought water from tankers, and 12 per cent got it from shops where the cost of a small plastic pitcher of water was around Rs 5.<sup>60</sup>

The lack of water and sanitation services for homeless populations is embedded in wider processes of exclusion and marginalisation, and the denial of basic social entitlements and rights.<sup>61</sup> Homeless populations lack safe shelter, with which the provision of services is closely associated. A majority of the homeless population do not possess documents like ration cards and voter cards, de facto proof of being a citizen in India, because of unavailability of permanent addresses on their part. These documents have, over time, become prerequisites to access services or any other state benefits.<sup>62</sup> Lack of public taps and their unreliability force homeless persons to buy water. Outsourcing of sanitation blocks for operations and maintenance also means that there is a cost attached to using these facilities, even when the court orders say otherwise.<sup>63</sup>

12.6 per cent they were unusable.<sup>67</sup> ASER 2014 also reported that although 86.1 per cent of the schools visited had drinking water facilities, in 10.5 per cent of schools there was no availability of water.<sup>68</sup>

In a study conducted by Jagori in resettlement

colonies of Delhi (2011), girls complained that there were no toilets in their schools. It was reported that teachers had access to toilets but students could not use them. There were only two toilets intended to cater to almost 1,000 girls.

Access to water and sanitation is a critical issue for India's large informal workforce as well; however very few studies on the topic exist.<sup>69</sup> Informal workers usually rely on public or community toilets in localities next to their place of work, which poses larger problems for the female workforce. A study on working women in Bangalore showed that less than half of the respondents had a toilet at their workplace, despite the existence of several pieces of legislation on the matter.<sup>70</sup> Workers in the construction sector were found to be most disadvantaged, having little to no sanitation facilities at work and hence being reliant on public and community toilets. Discriminatory practices exist even among urban, upper class households, with the domestic help in such households facing the brunt of such practices.<sup>71</sup> Domestic help in these households often use separate toilets built away from their place of work. Lack of adequate recognition and separate legislation for domestic workers further worsens their situation.

Public spaces in India generally lack safe water and sanitation facilities. While bottled water has been accepted as an alternative for drinking water in most public spaces, there is no such alternative to a toilet facility. Public toilets in urban India, where they do exist, have mostly been built by urban local bodies or other state agencies. Reviews have shown that these toilets usually suffer from a lack of maintenance and management, and may not even have adequate water supply.<sup>72</sup> Consequently, vulnerable sections of society such as women, children, the elderly and the disabled find it difficult to access or use most public toilets. Although alternative models, including those that brought in private partners (as seen in the case of Sulabh International) or community-based management, have been introduced in several parts of the country, large sections of urban India still suffer from lack of adequate sanitation facilities in public spaces.

There is a huge gap in provisioning of adequate water and sanitation facilities in public schools, markets, work sites and public spaces in general.

This inadequacy, again, is higher for poor and vulnerable populations (including women, children, the disabled and the elderly).

### 3. Differential Impacts of Inadequate Water and Sanitation

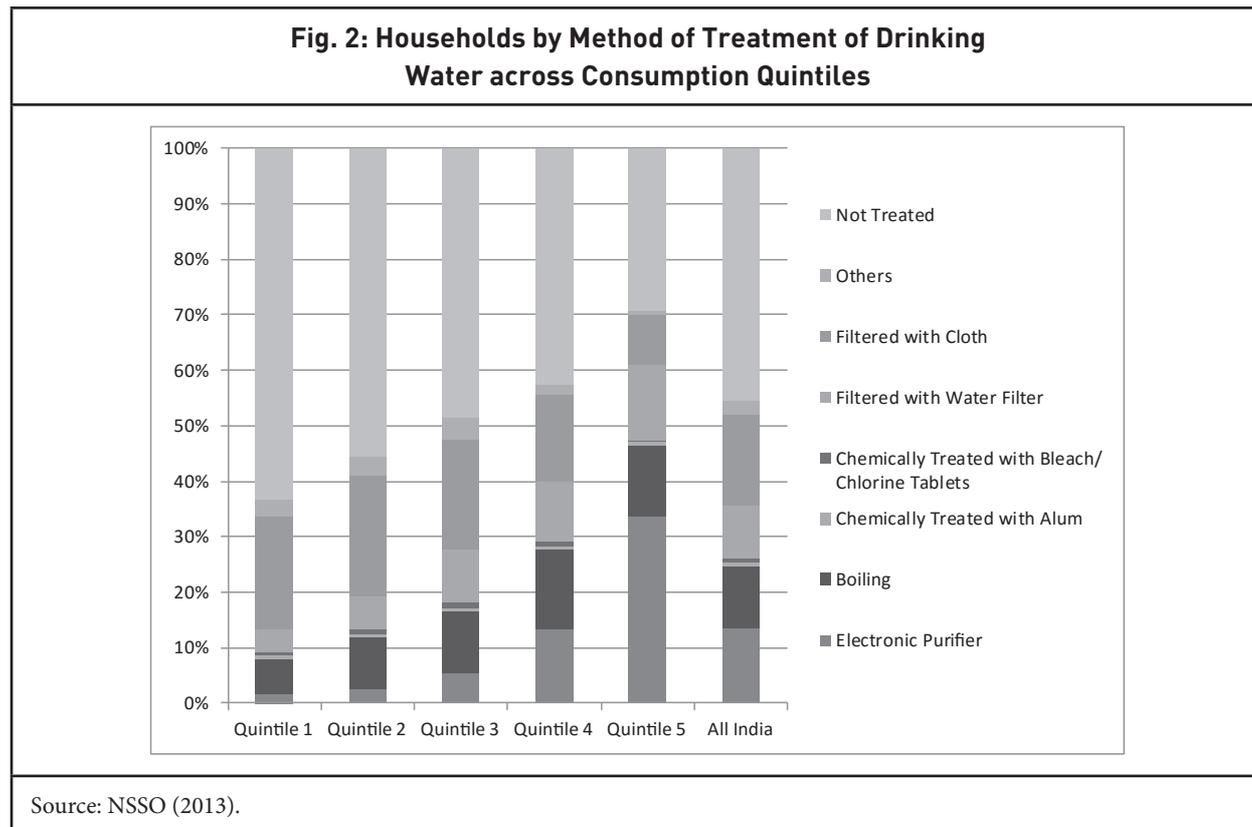
The previous section highlighted the fact that while all sections of urban India suffer from poor public provisioning of water and sanitation, certain vulnerable groups face higher levels of exclusion—especially when measured against an expanded indicator set. This section seeks to present the result of such exclusions in terms of differential impacts. Absence of public provisioning forces all urban households to adopt some form of coping mechanism. While the middle class and rich households are able to afford alternate mechanisms to protect themselves from the lack of adequate water supply, poorer households are often unable to do so, leaving them vulnerable to diseases. Further, these poor and vulnerable households are the least able to afford adequate health care once they fall ill, as highlighted in the urban health chapter of the present volume.

#### 3.1 Differential coping mechanisms and associated costs

Given the inadequate public provisioning, different households adopt different coping mechanisms.

The upper and middle class (Quintiles 3, 4 and 5) have managed to cope with inadequate supply and quality of drinking water through investments in bottled water and/or water purifiers. Almost 11 per cent of households in Quintile 5 use bottled water for drinking purposes compared to only 1 per cent in Quintile 1.<sup>73</sup> Fig. 2 clearly illustrates the differential ability to treat water: nearly two-thirds of households in the lowest quintile do not have any form of household treatment.

The urban poor also pay higher costs for coping



with the lack of public provisioning. In a case study in Delhi, while a typical middle-class household paid a bill of Rs 500 per year (Rs 2.7/cu.m), a household without access to public provisioning spent around Rs 4,000 per year (Rs 25/cu.m).<sup>74</sup> In another study in Dehradun, poorer households with access to public taps spent 6.7 per cent of their income on water, as compared to 1.6 per cent of income for households with access to individual household connections.<sup>75</sup>

Given that water is supplied for a limited period and often irregularly, another commonly adopted coping mechanism is storage of water. Households without financial and space constraints invest in large storage structures like underground sumps and overhead tanks while poorer households can only afford a limited number of pots/cans. Storage is easier for households with access to water within premises; those who fetch water from faraway places

have a hard time carrying those pots and cans, and hence are forced to use less water.

In the absence of public provisioning, the burden of toilet construction falls on the households; those who can afford to do so build their individual household latrines based on their ability to afford them, while others resort to shared or public facilities, or to open defaecation. While there is considerable debate about whether individual toilets are a public or a private good, and who should take responsibility for them, the greater concern is that poor households might need to spend more money than rich and middle-class households to build toilets. This is because while overall costs (including household and public investments) of sewerage systems are higher than on-site systems, household investments for on-site systems might be higher.<sup>76</sup> In India, the combined cost of building a water closet and installing a sewerage connection is

comparable to the cost of constructing a pit-latrine, and lower than that of a septic tank.<sup>77</sup> Furthermore, a majority of households (especially the poor) have to bear the burden of getting the pits/septic tanks cleaned on payment of charges, while sewerage services are provided almost free.

Urban households in the poorest quintile bear the highest per capita economic impact of inadequate sanitation—1.75 times the national average per capita losses and 60 per cent more than the urban average.<sup>78</sup>

### 3.2 Health impacts

Unsafe and inadequate water supply and sanitation facilities have severe health consequences. In 2004, 4 per cent of the global burden of disease and 1.6 million deaths in a year were attributed to unsafe water supply and sanitation, including inadequate personal and domestic hygiene.<sup>79</sup>

These diseases disproportionately impact certain sections of the population, particularly children. As stated earlier, diarrhoeal diseases are the second-largest killer of under five children. About 88 per cent of diarrhoeal deaths are attributed to inadequate sanitation, hygiene and the lack of quality water.<sup>80</sup> About a quarter of global under five diarrhoeal deaths occur in India.<sup>81</sup> Poor sanitation and unsafe drinking water cause intestinal worm infections, which lead to malnutrition, anaemia and retarded growth among children.

Diseases resulting from poor sanitation and unsafe drinking water often lead to children dropping out of school.<sup>82</sup> Meeting the MDG goal (Target 7c<sup>83</sup>) related to water and sanitation would add 272 million schooldays attended by children globally.<sup>84</sup> Each case of diarrhoea is assumed to lead to three days off from school.<sup>85</sup>

In case of women, if open defaecation is the only option available, women go to defaecate early in the morning or wait until nightfall. There is evidence to

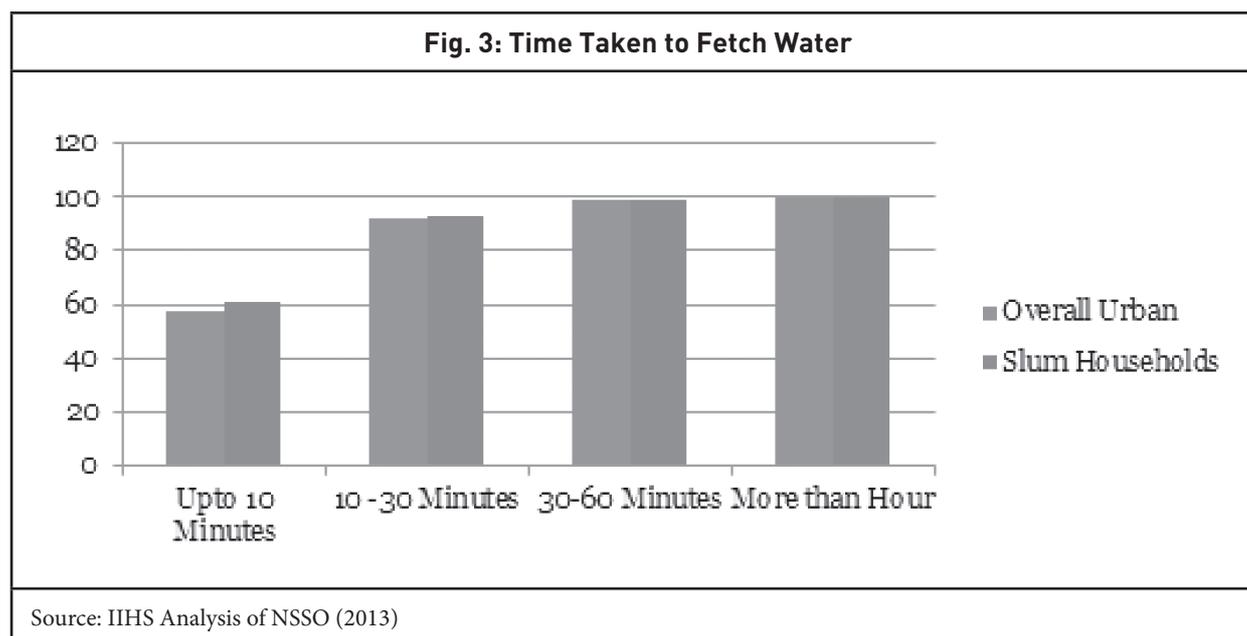
prove that this might lead to several health issues, such as urinary tract infections, constipation, and so on. Many women and girls also restrict their intake of food and drink to lessen the likelihood that they will need to go to the toilet. This affects their health, cognitive development and, if they are pregnant, the health and development of the unborn child as well. Infections due to inadequate water and sanitation are responsible for 15 per cent of maternal deaths. Girls and women face additional problems during menstruation.

Further, the lack of access to safe water and sanitation facilities can directly (e.g., trachoma) and indirectly increase risks of certain kinds of disability.

### 3.3 Economic impacts and loss of productivity

The total annual economic losses due to inadequate sanitation in India is estimated to be Rs 2.4 trillion (\$53.8 billion), equivalent to about 6.4 per cent of India's gross domestic product (GDP) in 2006. The health-related economic impact of inadequate sanitation was Rs 1.75 trillion (\$38.5 billion), 72 per cent of the total impact. Access time and water-related impacts made up the other two main losses.<sup>86</sup>

The lack of access to adequate water and sanitation can disrupt daily routines, and lead to loss of productivity. In low-income households that do not have access to water, time is spent in collecting water from the nearest water source. It is estimated that the time gained by appropriate access to water and sanitation if the MDG 7c is met would be nearly 20 billion working days.<sup>87</sup> There is also loss of productivity due to time spent in fetching water, or waiting in queues at community toilets. Nearly 40 per cent of households need to spend more than 30 minutes daily to fetch water. Conflicts are also not uncommon around public facilities, particularly when water supplies are irregular or limited (e.g., during summer or the pre-monsoon period).



Women play a very strong role in the management and handling of water at the household level. Table 3 shows the distribution of household members responsible for fetching water. In an overwhelmingly large number of households (68 per cent), women are responsible for fetching water. In examples of redeveloped settlements, while many households have access to private latrines, women often have to carry pots of water to the upper floors.<sup>88</sup> The time taken to fetch water can also lead to loss of livelihoods.

The lack of latrines in schools and absence of menstrual health management are impediments for girls attending school post-puberty and increase the likelihood of them dropping out of school.<sup>89</sup> Each year 23 per cent of Indian girls drop out of school due to the lack of functioning toilets and 66 per cent skip school during menstruation.<sup>90</sup>

### 3.3 Safety, dignity and convenience at risk

While travelling to fetch water or to defaecate, women and girls are exposed to the dangers of

rape, assault and molestation.<sup>91</sup> There is evidence of physical injuries to neck and back because of hauling water over long periods of time.<sup>92</sup> In order to ensure privacy, women often prefer to defaecate after nightfall which in turn increases the risk of such dangers. The inconvenience of open defaecation is sharpened during menstruation. In addition, there are concerns about disposing sanitary napkins and other material discreetly. There have been instances of girls being teased and harassed by boys when spotted in the act.<sup>93</sup> The study conducted by Jagori (2011) noted that girls had learnt to control themselves since the school toilets were not clean, and since there was no provision of menstrual waste disposal.

The lack of access to adequate water supply and sanitation facilities that impacts everyone is likely to have a greater impact on disabled people. For instance, in a household with no access to toilet facilities, the disabled person is likely to experience greater discomfort and inconvenience while defaecating in the open. The lack of adequate facilities is also likely to create discomfort for the caregiver of the disabled person.

<b>Table 3: Distribution of Household Members Fetching Water</b>		
	<b>Overall Urban</b>	<b>Slum Households</b>
Male of Age Below 18 Years	1.86	1.58
Male of Age 18 Years or More	21.59	20.45
Female of Age Below 18 Years	3.57	3.95
Female of Age 18 Years or More	68.56	72.28
Hired Labour	2.26	0.1
Others	2.15	1.64
Total	100	100
Source: IIHS Analysis of NSSO (2013)		

### 3.4 Undignified work: manual scavenging and sanitary workers

A manual scavenger is defined as ‘a person engaged or employed... for manually cleaning, carrying, disposing of, or otherwise handling in any manner, human excreta in an insanitary latrine or in an open drain or pit into which the human excreta from the insanitary latrine is disposed, or on a railway track or in such other spaces or premises... before the excreta fully decomposes in such manner as may be prescribed.’<sup>95</sup> Despite being banned under

the Indian Constitution via various laws since 1993, a variety of forms of manual scavenging still exist in Indian cities: cleaning dry latrines, manual cleaning of sewers, manual de-sludging, and so on. According to Census 2011, there are a total of 8 lakh dry latrines in the country that are serviced by humans; almost 2 lakh such latrines are in urban areas.<sup>96</sup>

Manual scavengers in India constitute a caste-based occupation group: these communities are at the bottom of the caste hierarchy as well as the Dalit

#### **Box 3: Case Study of Adolescent Girls in a Bangalore Slum**

The lack of sanitation facilities contributes to increased risk of harassment, assault and ill health, and also leads to multiple constraints on education, privacy and personal mobility.

The lack of access to sanitation facilities in schools leads to adolescent girls dropping out after they start menstruating. Girls were often found to be late for school because of long queues at the community toilet. All this is more pertinent given the fact that the literacy rate among females is 79 per cent as compared to the male literacy rate of 89 per cent. The task of collecting and managing water and its consequent responsibilities often gets gendered within households, where girls are responsible for numerous tasks at home while their brothers and males of the same age do not share the same burden and responsibility for household chores.<sup>94</sup>

**Box 4**

A municipal corporation worker, who has worked as a safai karamchari for the Bharatpur Municipal Corporation in Rajasthan since 2004, described her work:

'It is extremely dirty because the houses here flush the excrement from the toilets directly into the drains. I have to pick out the excreta, along with any garbage from the drains. I have to do it. If I do not, I will lose my job.' (HRW, 2014)

sub-caste hierarchy.<sup>97</sup> The taskforce constituted by the Planning Commission in 1989 estimated the number of scavengers belonging to Scheduled Castes as 4 lakhs (out of 7 lakhs in total) with 83 per cent in urban areas and 17 per cent in rural areas. There were another 3 lakh scavengers from other minorities including Muslims, Christians and tribals.<sup>98</sup> The Ministry of Social Justice and Empowerment in the year 2002–03 identified almost 6.8 lakh manual scavengers; of these, over 95 per cent were Dalits, who are forced to undertake this task in the garb of their 'traditional occupation'.<sup>99</sup>

Census 2011 reports that there are 750,000 families who still work as manual scavengers living mostly in Uttar Pradesh, Rajasthan, Bihar, Madhya Pradesh, Gujarat and Jammu and Kashmir. Surveys carried out by organisations working with manual scavengers estimate the number to be much higher, around 12–13 lakhs, especially because the official estimates do not include railway employees who have to clean excrement from the railway tracks.<sup>100 101</sup>

Scavengers are also called *bhangis*, *dom*, *chura*, *chamar*, and so on, terms which are all considered very derogatory. The existence of this class of workers is closely associated with the Indian caste system which prevails even today, and therefore it is held that the hereditary occupation of scavengers has been scavenging.<sup>102</sup> A very high percentage of manual scavengers (almost 95 per cent) are said to be women.<sup>103</sup>

In many states, manual scavengers are employed by municipalities; it is estimated, as a matter of fact, that two-thirds of the manual scavengers in the country have been employed by municipalities while the remaining one-third still work in private houses. Sanitary workers, i.e., those employed by public or private agencies, often lack protective gear like gloves and proper equipment. Such direct contact with human excreta and other toxic waste has severe health consequences, often leading to vulnerability to faeces-borne illness. Exposure to harmful gases such as methane and hydrogen sulphide often leads to cardiovascular degeneration and other infections like tuberculosis, Hepatitis A, skin diseases and respiratory diseases.<sup>104</sup>

Apart from suffering the humiliation of being engaged in undignified work, these communities face social, political and economic discrimination, and are prohibited from accessing places of worship and basic services like water.<sup>105</sup>

### **3.5 Resource depletion and water pollution**

There are several environmental impacts of the current urban water and sanitation situation in India. First, the lack of sufficient public supply has resulted in severe groundwater pollution in urban areas, particularly in core areas. Further, severe deficits in safe collection and treatment of waste water has resulted in widespread pollution of surface and groundwater. This environmental

degradation affects everybody, but particularly the vulnerable groups because they may not be able to afford medical treatment, and since they are in any case located in vulnerable locations.

## 4. Structures and Processes of Exclusion

As discussed earlier, the level of service provision for water and sanitation in urban areas is inadequate, and hence these services need considerable improvement; urban sanitation needs greater attention than urban water provision. Addressing exclusion is only one of the goals for the urban water and sanitation sector, albeit an important one, while environmental and financial sustainability are other important goals. The reasons and processes for the under-performance of the sector are complex: historical neglect of Operations and Maintenance, the legacy of centralised capital-intensive schemes without institutional incentives, and the lack of context-specific solutions, to name a few. It is beyond the scope of this chapter to examine these causes in detail.<sup>106</sup>

This section turns to examining the structures and processes, and specific aspects of processes that are responsible for exclusion in urban areas.

### 4.1 Gaps in legal and regulatory frameworks

India is a votary to the UN resolution on the right to water. While the Constitution of India does not explicitly provide for the right to water, it is implied by judicial interpretation that the Right to Life and personal liberty includes the right to a clean environment<sup>107</sup> (Article 21), which is strengthened further by the interpretation of Right to Equality before Law (Article 14), and the responsibility of the State as a welfare state (Article 39). The Constitution (74th Amendment) Act, 1994, clearly articulates provisioning of water and sanitation as a responsibility of urban local bodies. These provisions have been used in progressive judgements to ensure the provisioning of these services to vulnerable groups (some of these are highlighted in the recommendations section below).

#### Box 5: Exclusionary Acts and Rules for Service Provision

At places, there is active discrimination in provision of water and sanitation services to certain sections of society.

For example, while the Delhi Jal Board Act, 1998 requires DJB to provide treated water, it explicitly mentions that the Board is *not* required:

‘to do anything which is not in the opinion of the Board practicable at a reasonable cost, or to provide water supply to any premises which have been constructed in contravention of any law or in which adequate arrangement for internal water supply, including internal storage, as may be required by the Board, does not exist.’ (DJB Act, Chapter 3, Clause 9.1A)

Another case in point is Mumbai. The Municipal Corporation of Greater Mumbai Water Rules, 2002 lays out conditions under which water (through stand posts) is supplied to unauthorised hutments and structures. These conditions include: preferably a minimum group size of 15 hutments (in any condition not less than 5); construction prior to 1995 or any other date notified by government in this behalf; and the ineligibility of footpath dwellers, even if they fulfil other criteria.

However, some legal gaps still exist, the single biggest being the provisioning of services to slums without security of title. Often, municipalities do not extend services to settlements located on land without a clear legal title. Three sets of Acts are relevant for ensuring services delivery to households: the relevant Municipal or Urban Local Body Acts, the Slum Acts, and the Acts that govern service delivery, especially when separate from the urban local body. Some of these Acts explicitly prohibit provisioning to properties or households that do not fulfil certain tenurial conditions, and these are in most cases the urban poor and other vulnerable groups. In other cases, the law does not mandate provisioning to such households and this legal gap needs to be closed. While there has been a push to delink tenure from service delivery in recent years, most ULBs find the lack of legal provisions a serious constraint on putting this into practice and hence progress has been limited.

There are other significant regulatory gaps with regard to the treatment of faecal sludge and waste management. The Indian legal system provides for the regulation of water and sanitation through the following acts: Water (Prevention and Control of Pollution) Act, 1974 and specific provisions of the Environment (Protection) Act, 1986. The Pollution Control Board, under the Water Act 1974, is responsible for monitoring safe treatment of waste water, and can take legal action against the municipalities for not treating waste water; however, enforcement is minimal. The 12th Schedule of the 74th Constitutional Amendment while listing 'public health, sanitation conservancy and solid waste management' as one of the responsibilities of the urban local bodies, does not explicitly mandate 100 per cent treatment of waste water. Various Municipalities' Acts also do not explicitly mandate 100 per cent treatment of waste water, or even regular cleaning or de-sludging of on-site installations.

Regulatory frameworks are also missing for private players like private water supply tanker operators, and de-sludging truck operators.

## **4.2 Inappropriate program design and budgetary constraints**

Public provisioning in urban areas has usually been limited to constructing and expanding piped water supply networks, construction of water treatment plants, and to a lesser extent, expansion of sewerage networks and construction of sewage or waste water treatment plants. Under certain schemes targeted at slums, individual water connections and household toilets have been provided to slum households.

Low investment in water and sanitation since Independence has meant that provisioning has always fallen short of demand. Given this, the focus of the programme has often been on the expansion of coverage, using limited parameters and measures like water supplied in litres per capita per day. Except in recent times, little or no attention has been paid to the quality of service and the variations therein, which is especially critical considering how poor services are in settlements of the poor and in non-notified settlements.

While the overall low budgetary allocations to water and sanitation have been a concern, the available funds have been largely used for capital-intensive technological systems. Such programmes address the aspirations of select sections of city populations, and hence there is the contrasting demand for 24x7 water supply in cities, while even basic universal access remains to be assured elsewhere. The articulation of the Smart City paradigm is another such contradiction: the political economy of these divergent strands will play themselves out within a constrained financial envelope, thus potentially crowding out investments that are more equitable in favour of those that benefit a few.

In the absence of universalisation of services and the programmes and schemes providing for large network infrastructure creation, rather than towards defraying the costs of household' access (individual water connections or toilets), the poor suffer the most as private infrastructure and

### Box 6: Government's Responses to Deficits in Water and Sanitation

In earlier years, urban infrastructure programmes focused on area-based development initiatives (like the Megacity scheme) targeted at the larger cities (mainly metros and State capitals), which focused on the development of infrastructure for the delivery of a basic service, for instance, water supply, sewerage or mobility services. The focus on large urban centres was broad-based during the Sixth Plan with the introduction of the Integrated Development of Small and Medium Towns scheme (IDSMT). This scheme has continued since then with adaptive evolutions over time. All these schemes were noted for the broad contours of design or planning required, mostly at the city level, and utilised the town- and country-planning ethos which had given birth to these programmes. Their progress over time indicates a predominant bias to networked solutions for waste water collection, conveyance and treatment; emphasis on physical infrastructure and not outcomes, thus resulting in inadequate networks; underutilised treatment facilities; and pollution of surroundings by waste water and faecal matter.

At the individual household level, a few schemes for poor households were developed in the earlier years (Government of Kerala in the 1970s, City of Bombay in the mid-1970s) by progressive city governments, and housing and slum development programmes necessarily aimed to cover sanitation deficits that needed correction. Apart from this, the Centrally Sponsored Scheme of Low Cost Sanitation for Liberation of Scavengers started from 1980–81, initially through the Ministry of Home Affairs and later on through the Ministry of Welfare. From 1989–90, it came to be operated through the Ministry of Urban Development and later through the Ministry of Urban Employment and Poverty Alleviation now titled Ministry of Housing & Urban Poverty Alleviation. This was perhaps the first national scheme that made provision for households to access sanitation, but the main objective of this scheme was to convert existing dry latrines into low-cost pour-flush latrines and to construct new ones where none existed. However, the new toilets were restricted to households from the Economically Weaker Section (EWS) category.

The launch of the Swachh Bharat Mission (2 October 2014) had the elimination of open defaecation as one of its objectives, and it aims for the coverage of all households without access to household sanitation through a combination of provisions like individual toilets, community toilets and public toilets. It pays attention to special focus groups like manual scavengers, the homeless and migrant labour, and seeks to prioritise households with vulnerable sections such as pensioners, girl children, and pregnant and lactating mothers. While SBM-Urban attempts to be inclusive, the subsidy offered (Rs 4,000 Central + 33% of central share as state share) for an individual household latrine might be insufficient to enable poor households to construct toilets, unless complemented by other sources.

connection costs become unaffordable for them. In sanitation, network systems have been the preferred options, and no attention has been paid to faecal sludge management, thus putting at risk a large section of society that is dependent on on-site sanitation.

The programmes focusing on individual/shared asset creation and service provision target households with a 'house'. In such situations, a lack of safe shelter becomes the primary reason for exclusion of homeless populations. As mentioned earlier, a majority of the homeless population do

not possess documents like ration cards/voter cards, which have over time become prerequisites to access services or state benefits. In addition, a lack of public facilities like public standposts or public toilets, or high costs associated with these facilities, makes access to sanitation even more difficult.

### **4.3 Centralised funding and weak local institutions**

Even while water and sanitation are state subjects, and the 74th Constitutional Amendment squarely places the responsibility for these subjects on urban local bodies, the Government of India plays a major role in decision-making related to them because it is responsible for the single-largest funding in the sector (excluding household investments).<sup>108</sup> Indeed, state governments usually look to the Government of India for funding these services, although a few states have made investments in improving infrastructure using their own budgetary sources. Urban local bodies, with the exception of a few larger municipal corporations, are typically under-funded and under-staffed, and hence dependent on the central and state governments for funding capital and O&M management. The local institutions that are perhaps most accessible to urban citizens are the weakest and most disempowered in these matters, severely affecting capacity and accountability for services delivery.

### **4.4 Lack of customer/citizen orientation and accountability in key institutions**

Urban local bodies as well as water and sanitation utilities have historically been poor in being able to respond to citizen and customer demands and grievances. Lengthy and complex procedures for accessing services and expensive one-time connections often deter poorer households from attempting to access public services, and instead encourage them to seek alternative informal sector suppliers. Water and sanitation service delivery

institutions have traditionally been technology-focused and engineer-driven, with little flexibility to accommodate the demands of constituencies that are not 'legal'. As explained above, poor capacities, accountability structures and processes dog the ULBs in taking cognisance of inequities and exclusions in services they provide.

### **4.5 Exclusionary planning and design features**

There are two issues that cause exclusions. First, the planning norms (or lack thereof) do not provide for access in all the locations where sanitation facilities are needed. Sanitation facilities in public places are grossly inadequate but there are no norms to address these deficits. Most of the facilities in public spaces are not accessible for the elderly and disabled. While Town Planning rules specify norms for the provision of water supply and sanitation in institutional facilities, these are seldom enforced or the norms updated.

The second dimension is that of inappropriate design of water and sanitation facilities and fixtures that render them inaccessible for the disabled, elderly, and children, whether they are private facilities at home, or community and public facilities. Often, community toilets do not have facilities which are accessible to children. Similarly, toilets in schools are not accessible for disabled children. The biggest barriers in installing accessible facilities at home are the poor availability of accessible designs in the market and the inability of the households to afford these designs.

### **4.6 Social norms and discrimination**

Access to water and sanitation may also be restricted because of societal norms and biases. Chaplin (1999) argues that the middle class has monopolised the provision of basic urban services (e.g., sanitation) by the state; as a consequence there is lack of interest in sanitary reform leading to the exclusion of large

### Box 7: New Paradigms and Vision of Urban Development

One of the powerful reasons for low levels of inclusion (not only in water and sanitation, but other services) are the current paradigms and discourses that shape Indian cities. These urban imageries and visions, often borrowed from cities in developed countries, valorise cities as engines of urban growth, present the image of orderly and visually appealing structures, and prioritise urban development interventions that mimic them. These are also images that promise a new regime of cleanliness and public health without taking into consideration the complexity and diversity of Indian cities and communities, leading to particular priorities for urban development and kinds of infrastructure, which might benefit a few privileged urban citizens rather than all.

The current Smart Cities programme in the same way prioritises a set of technological solutions, and the development of specific portions of the city, even as large areas and populations are denied basic services. Will the technology-led smart solutions work for all citizens and enable them to enjoy continuous water and safe sanitation? Or will it just be for a sub-city of residents who can pay for it? Will sewerage systems remain a publicly-funded amenity for some areas while other areas depend on private informal arrangements for conveyance and disposal of their human excreta? These and many other questions have emerged even as we prepare for a new round of investments in Urban India under the Swachh Bharat, AMRUT, and Smart Cities Missions. Moreover, these paradigms result in far more attention being given to large metropolitan cities to the detriment of smaller towns and cities in India.

sections of society.<sup>109</sup> Social norms also impose the burden of fetching water disproportionately on women and girl-children, as already illustrated in earlier sections.

#### 4.7 Physical and spatial constraints

While land tenure remains the single largest issue for provisioning in urban slums, there is also the issue of slum settlements being based in environmentally sensitive or vulnerable locations, for instance, near river-beds or other flood-prone areas. It becomes difficult to provide solutions for these settlements, and water and sanitation provisions have to be made at a distance at best. Further, seasonal flooding and related disruptions could effectively cut off supply of quality water or make sanitation arrangements dysfunctional.

Dense slum settlements pose another set of locational and design challenges: not only is there inadequate space for say, constructing toilets,

but also access to these installations for periodic cleaning is near-impossible. The water pipes zig-zagging through many Indian slums are installed at low elevations to catch the meagre and intermittent supply, which also creates the hazard of water flowing in drains adjoining these pipes mixing with the water in them.

While many of the above exclusions can be traced back to deficits and gaps in physical planning and tenurial complexities, the fact is that generations may be held to ransom, and not even be ensured of basic water and sanitation services or a modicum of public health.

### 5. Making Water Supply and Sanitation Inclusive: Learning from Current Practices

There are sufficient examples in the country to illustrate exclusion from water supply and

sanitation because of structural barriers and inimical processes. However, there are also a few successful initiatives that attempt to overcome these barriers through innovation: the introduction of a path-breaking national policy like NUSP, ensuring security of tenure within the Parivartan programme in Ahmedabad, community participation in Tiruchirappalli, institutional changes and rationalisation of tariffs in Bangalore, and so on. This section, by no means exhaustive, presents a few illustrative examples, which suggest learnings for inclusion.

### 5.1 National Urban Sanitation Policy, 2008

The NUSP (2008) aims to achieve open defaecation-free cities with all urban households having access to safe and hygienic sanitation facilities, including sanitary and safe disposal arrangements. The focus is on universal coverage, and also on the full cycle

of sanitation. The policy stresses on the outcomes of universal coverage and 100 per cent treatment of waste, but does not prescribe a particular method. The emphasis in the policy on mandating universal access and 100 per cent treatment, and recommending delinking of service delivery from tenure security, are indicative of a positive break from previous policies. It also recommends looking beyond conventional sewerage systems, stresses process, and hence recommends the constitution of a City Sanitation Task Force for each city, and the preparation of City Sanitation Plans and a State Urban Sanitation Strategies.

### 5.2 Service Level Benchmarking, 2008

In 2008, the Government of India (MoUD) launched a Service Level Benchmarking initiative for environmental services: water, waste water, solid waste and drainage. It identified a minimum set of standard performance

**Table 4: Service Level Benchmarks for Water Supply and Sanitation Sectors**

Water Supply		Sanitation	
Coverage of water supply connections	100%	Coverage of toilets	100%
Per capita supply of water	135 lpcd	Coverage of sewerage network services	100%
Extent of metering of water connections	100%	Collection efficiency of the sewerage network	100%
Extent of non-revenue water	20%	Adequacy of sewage treatment capacity	100%
Continuity of water supply	24 Hours	Quality of sewage treatment	20%
Quality of water supplied	100%	Extent of reuse and recycling of sewage	80%
Cost recovery in water supply services	100%	Efficiency in redressal of customer complaints	100%
Efficiency in redressal of customer complaints	80%	Extent of cost recovery in sewage management	90%
Efficiency in collection of water supply-related charges	90%	Efficiency in collection of sewerage charges	

Source: MoUD (2010).

parameters for environmental services, defined a common minimum framework for monitoring and reporting on these indicators and set out guidelines on operationalising this framework in a phased manner. The SLBs include several dimensions of the expanded definition including coverage, quantity (sufficiency) and quality of water supply, and continuity of supply, among others. In the sanitation sector, SLBs include coverage of toilets, sewerage network services, collection efficiency, quality of sewage treatment, etc. (see Table 4). It is one of the first attempts at the national level to collect data for an expanded set of indicators.

The initiative aimed at enabling cities to benchmark their current status and measure their progress. It is expected that the initiative will create consensus on desired service standards, enable comparisons across time and cities, highlight and help address issues of data quality, and enable ULBs to self-report. Emphasis is placed on performance improvement planning based on the SLB data that is generated.<sup>110</sup>

### **5.3 Slum Networking Project (Parivartan), Ahmedabad**

Parivartan was a slum upgradation project implemented in Ahmedabad. The initiative aimed at ensuring access to basic infrastructure and social services for the communities living in informal settlements. Launched in 1996, the initiative had two components: physical upgradation (water supply, sanitation, drainage, roads, etc.) and community development.

A key feature of Parivartan was that it had a strong multi-stakeholder partnership framework, and brought together the urban local body, NGOs (MHT, SAATH) and the community. The involvement of the community was critical for the success of the project. One of the key factors for ensuring the households' participation was security

of tenure. Participating slums were provided an assurance by the Corporation that they would not be evicted for the next 10 years. Even though it had no legal binding, this helped facilitate community participation.

The ULB took a lead in financing the programme, ensuring integration with city-wide systems and also convergence with other schemes. The role of the NGOs in the community development aspect of the project was crucial and involved motivating residents to participate in the programme as well as to form community-based organisations (CBOs) and enabling access to livelihood opportunities and micro-credit. The community members contributed towards both capital and O&M costs, and also undertook supervisory responsibilities during construction.<sup>111</sup>

### **5.4 Community-managed toilets, Tiruchirappalli**

The city of Tiruchirappalli has demonstrated that community toilets can be efficiently managed and run by community members and groups. Until 2000, all community toilets here were managed by the Corporation; however, due to poor maintenance, most toilets were dilapidated and defunct. In 2000, a group of NGOs, supported by Water Aid, started working with communities to renovate and take over these community toilets. Following the success of this initiative, the Corporation handed over these toilets to communities, directly or through NGOs.<sup>112</sup>

At present, 167 community toilets are managed by the community and 172 by the Municipal Corporation.<sup>113</sup> While the Corporation-operated toilets continue to be free of charge, the SHG-managed toilets charge a user fee, and are better in terms of cleanliness and usability.<sup>114</sup> The major outcome of the initiative has been that many slums in Tiruchirappalli have been declared open defaecation-free slums.

## 5.5 Water and sanitation services delivery in slums, Bangalore

Starting in 2000, the Bangalore Water Supply and Sewerage Board (BWSSB) started considering the urban poor as potential customers. It provided services to slum households, first through three pilot projects under an AusAID-funded project, and then through a newly created Social Development Unit (SDU). The SDU was an innovative institutional mechanism where personnel from other government departments with experience of working with the urban poor were deputed to the BWSSB to provide an interface between slum communities and BWSSB engineers. The unit focused on social development issues and undertook collaborative work with civil society organisations.<sup>115</sup>

A series of policy changes were further made in the Board to enable service delivery (WSP, 2009):

- Requirement of formal tenure documents for new connections was replaced with simple occupancy proof (to address concerns about land tenure).
- Connection fees were reduced and tariff structure for domestic water use was revised to introduce a lower minimum monthly charge (to address concerns of affordability).
- Shared connections were offered as an alternative.

## 6. Recommendations

According to a UN Resolution, the state has the primary responsibility to ensure right to water and sanitation, even while realising that the right to water and sanitation can only be progressively realised, given the capacities of the state. The state also has the central role in providing services, or ensuring that these are provided and regulated. The state's role becomes very important for the provision of basic services to marginalised populations since these would be the most vulnerable to unaffordable

arrangements by formal and informal service providers. It is also the state's role to protect water sources from contamination. Further, it needs to protect individuals from violations of human rights by third parties, for instance, marginalised communities not being allowed to access certain water sources, or communities forced into inhuman vocations such as head-loading or manual cleaning of human excreta.

While there is a broader set of steps required for improvements in the water and sanitation sector in general, this section focuses on recommendations for the State to address specific concerns of exclusion.

### 6.1 Progressively deepen the framework for urban water and sanitation

While improvements have been made in urban water and sanitation over the past few decades, these have been along select dimensions like increasing the physical coverage of water supply through piped water to households, and constructing individual household toilets. There has been little improvement, or absence of data to track improvement, on certain other dimensions of service provision like reliability, quality and adequacy (e.g., hours of supply, timings, etc.) of water supply, safe conveyance and disposal (e.g., treatment of waste water) for sanitation, and so on.

To ensure improvements along all the dimensions outlined in the present chapter, the framework for water and sanitation needs to be deepened to first understand where the gaps are, prioritise the right set of actions, then measure improvements and increase accountability of the relevant public institutions. There is a need to detail what is measured and documented in the sphere of urban water and sanitation; collecting data on coverage is just the bare minimum requirement. There are initiatives like the Service Level Benchmarking (SLBs) that require self-reporting by ULBs on an expanded indicator set,

but the initiative has not been institutionalised as mandatory, nor is this backed by necessary incentives for improvements along those indicators. To ensure a deepened framework, a series of steps—legal, programmatic, financial—are required, as described below.

## **6.2 Initiate necessary changes for legal and regulatory framework**

### **Delink access to services from tenure security and land ownership**

The most important legal and regulatory changes relate to tenure security, since lack of tenure security remains one of the key barriers to accessing services. As highlighted in the previous section, delinking service delivery from tenure security has been recommended in the NUSP and in the SBM-U guidelines. Further, there are examples of innovative solutions in different cities, for instance, the Parivartan programme in Ahmedabad, and the BWSSB initiatives in Bangalore. However, this delinking of tenure security and service delivery needs to be made explicit and mandated in the relevant Acts and regulations, including Municipal Acts, Slum Acts and Acts and rules governing the utilities responsible for water and sanitation services provision.

### **Mandate 100 per cent treatment of fecal sludge, septage and waste water**

Mandating 100 per cent treatment of fecal sludge, septage and waste water, and ensuring enforcement, will be one of the critical steps likely to have maximum impact on public health. This again needs to be mandated in relevant Acts, with adequate backing in terms of investments as well as corrective or punitive actions for non-compliance.

### **Mandating adequate water and sanitation services in public spaces**

Water supply and sanitation services are often associated with a house or a dwelling unit, leaving homeless and floating populations excluded, and others excluded in places other than homes, for instance, construction sites, schools, roads, railway stations, bus stations, and so on. The right to adequate water and sanitation needs to be extended, enforced, measured and monitored beyond the house as a unit of enquiry and intervention. Accessible, affordable and universal water and sanitation services must be mandated at the neighbourhood, cluster, market, public place, ward, and finally at the city level.

## **6.3 Re-design public programmes and reallocate budgets to ensure benefits for larger sections of urban population**

The total investment in urban water and sanitation has not been commensurate with requirements since Independence, and there is an urgent need to increase overall funding. However, given the substantial gaps between current funding and projected investments, it is imperative to utilise the available funding prudently, and focus on extending services to the entire urban population, particularly to vulnerable groups who have the least coping capacities. This might require public institutions to be willing to adopt appropriate, less capital-intensive technological systems, for instance, non-networked systems as a complement to sewerage systems, or strong demand-management measures against wasting water, such as measures to discourage using potable water for car-washing. The focus of public programmes needs to be on improvements that will benefit all and not a select few, and hence, on building and operating infrastructure that does not create islands of high service levels and high maintenance management, but scaling

infrastructure and services to serve equitably and economically. Invisible sections of society, for instance, the homeless, migrant workers and so on, need to be given due consideration while designing any public programme or scheme.

#### **6.4 Strengthen local institutions**

Local institutions which are accessible to urban citizens need to be strengthened. There is a need to increase accountability of service providers to citizens, particularly the urban poor, and local institutions are best placed to do so. In doing so, the legal, human resource and financial capacities of ULBs and local service providers need to be enhanced. One of the easier ways of strengthening local service delivery and accountability is to help de-concentrate utility or municipal functions with respect to water and sanitation, so that local units and offices are easily accessible and able to respond better to citizens' information and service delivery needs.

#### **6.5 Enhance affordability of services**

While universal access does not necessarily mean providing services for free, it needs to be ensured that services remain affordable. This means that there are lifeline water tariffs for the urban poor. Furthermore, de-sludging services need to be provided to the poor such that they are affordable for them. On the other hand, tariff structures need to signal incentives for conserving water and penalise wastage of water.

#### **6.6 Remove supply-side constraints**

The government should remove supply-side constraints for appropriate goods and services, for instance, disabled-friendly products, de-sludging services and so on, by putting appropriate regulatory frameworks in place that attract a larger pool of service providers. This is likely to augment the overall supply of services and products, making these affordable and accessible for the urban poor and vulnerable groups.

Annex 1A: SUMMARY TABLE OF EXCLUSIONS FROM WATER ACROSS DIFFERENT DIMENSIONS AND GROUPS									
No.	Aspect	Indicator	All-India (Urban)	Economic Classes	Settlement Types	Caste/ Class	Religion	Gender	Region
1.	Accessibility	Location of primary source of water	Nearly 71% households have access to drinking water within premises; only 49% have treated tap water within premises	Stark differences are observed across economic classes; almost 56% Quintile 1 households have drinking water source within premises compared to almost 93% Quintile 5 households	Only 57% slum households have access to drinking water within premises	Significant differences are observed; 57% SC households and 55% ST households have drinking water within premises	No significant differences observed across religions	About 67% female-headed households have drinking water source within premises compared to 72 % male-headed households	Differences are observed across regions; only 60% eastern households have drinking water source within premises compared to almost 86% among households in western region
		Access levels to primary source of water (exclusive v. shared used)	Only 47% have access to source of water for household's exclusive use	More than two-thirds of Quintile 5 households have water source for exclusive use; the percentage drops to 33% in case of Quintile 1	At 35%, exclusive use is also lower amongst slum households	Exclusive use is also lower amongst SC/ST households; 35% SC and 39% ST households have water source for exclusive use	No significant differences observed	39% female-headed households have access to water source for exclusive use compared to 48% male headed households	Only around 35% eastern and southern households have water source for exclusive use compared to 55% and 62% in the North and the West respectively

Annex 1A: SUMMARY TABLE OF EXCLUSIONS FROM WATER ACROSS DIFFERENT DIMENSIONS AND GROUPS									
No.	Aspect	Indicator	All-India (Urban)	Economic Classes	Settlement Types	Caste/ Class	Religion	Gender	Region
		Time taken to access water (if from outside premises)	On an average, more than half an hour (31 minutes) is spent to fetch water from outside (including waiting time)	Differences are observed; while on an average a Quintile 5 household takes 20 minutes to fetch water, Quintile 1 has to spend almost 36 minutes in a day to fetch water.	On an average, slum households take marginally more time than the national average to fetch water (33 minutes)	At 35 minutes daily, SC/ST households take slightly longer to access water from outside	No significant differences observed across religions		At 37 minutes, households in the West take longer than national average to fetch water
2.	Sufficiency	Quantity of water supplied	Average per capita supply of 73 lpcd in 1,493 cities						
3.	Quality	Quality of water supplied (Various indicators like turbidity, absence of pathogens etc.)							

Annex 1A: SUMMARY TABLE OF EXCLUSIONS FROM WATER ACROSS DIFFERENT DIMENSIONS AND GROUPS									
No.	Aspect	Indicator	All-India (Urban)	Economic Classes	Settlement Types	Caste/ Class	Religion	Gender	Region
		Primary source of drinking water (availability of treated piped water supply)	Census 2011 reported that almost 62% households have access to treated tap water; NSSO 69 <sup>th</sup> round reported that 69% households have piped water supply (assumed to be treated tap water)	Access to treated tap water increases with increase in MPCE; only 57% Quintile 1 households have treated tap water compared to 73% Quintile 5	On this indicator, overall slums are reported to be doing better than the national average; 65% households have access to treated tap water	Slight differences are observed; 59% SC households have treated tap water, while the percentage drops further to 54% for ST households	Almost 70% Hindu households have piped water supply compared to 64% Muslim households; amongst other minority religions, 72% have piped water supply	No significant difference is observed	Significant differences are observed; the West has 79% households with treated tap water while the percentage drops to 41% and 37% in case of eastern and north-eastern India
4.	Regularity	Duration of water supplied	Average duration of supply (1,493 cities) is estimated to be around 3 hours daily						

Annex 1A: SUMMARY TABLE OF EXCLUSIONS FROM WATER ACROSS DIFFERENT DIMENSIONS AND GROUPS									
No.	Aspect	Indicator	All-India (Urban)	Economic Classes	Settlement Types	Caste/ Class	Religion	Gender	Region
		Frequency of supply of water	Almost a quarter of households are not supplied water daily	Slight differences across economic classes; 70% of Quintile 2 households are supplied water daily compared to 80% of Quintile 5; higher proportion of Quintile 1 households (76%) are supplied water daily but then they have to go outside to fetch water	Same as national average	No difference observed for SC/ST compared to national average			The North and West have higher proportion of households with daily water supply compared to other parts of the country
5.	Affordability	Average amount paid per month	Almost 55 % households are required to pay for water supply corresponding to limited public supply; an average of Rs130 is paid	Higher income groups pay more on an average	At Rs.110, average amount paid per month is marginally lower than the national average	Similar to national average			At Rs 160, northern households pay the highest for water supply while West and East pay the lowest (Rs 100)
		Costs of purchasing water (per litre)							

Annex 1B: SUMMARY TABLE OF EXCLUSIONS FROM SANITATION ACROSS DIFFERENT DIMENSIONS AND GROUPS									
No.	Aspect	Indicator	All-India (Urban)	Economic Classes	Settlement Types	Caste/ Class	Religion	Gender	Region
1.	Accessibility	Location of sanitation facility	Almost 81% have latrine within premises; 6% rely on public latrines; 13% resort to open defaecation	While 98% Quintile 5 households have latrines within premises, the access is restricted to 63% Quintile 1 households	Only two-thirds of slum households have access to a latrine within premises; almost 15% rely on public latrines and 19% resort to open defaecation	Only two-thirds of SC/ST households have toilet facility within their premises; almost 10% rely on public toilets and almost a quarter resort to open defaecation	No significant difference across religions	Marginal difference observed; 78% female-headed households have latrine within premises compared to 82% male-headed households; at 14%, open defaecation is also slightly higher amongst female-headed households compared to male-headed ones (12%)	Almost 95% households in the Northeast have toilets within premises followed by the North with 87%; only 71% households in the central region have toilets within premises; open defaecation is also highest in central India (25%)

Annex 1B: SUMMARY TABLE OF EXCLUSIONS FROM SANITATION ACROSS DIFFERENT DIMENSIONS AND GROUPS									
No.	Aspect	Indicator	All-India (Urban)	Economic Classes	Settlement Types	Caste/ Class	Religion	Gender	Region
2.	Safety of Sanitation Facilities	Access levels to sanitation facility (exclusive vs. shared)	Only 64% households have access to latrine for household's exclusive use	Exclusivity also decreases amongst lower income groups; while 80% Quintile 5 households have latrines for exclusive use, the percentage reduces to half (40%) in case of Quintile 1	Compared to national average, even lower proportion of slum households have latrines for exclusive use (38%)	Only 44% SC households and 57% ST households have toilets for exclusive use	No significant difference across religions	Almost 65% male-headed households have toilets for exclusive use compared to 57% female-headed households	Only 54% households in eastern India have latrines for exclusive use; at 72%, the percentage is highest in the Northeast
		Type of household arrangement for sanitation (connection to sewerage network/ septic tank/ improved pits/ etc.)	Only 33 % households are connected to piped sewer; another 45% depend on improved on-site system; 4% have insanitary latrines	Dependence on on-site systems increases with decreasing incomes; only 13% Quintile 1 households are connected to piped sewer compared to 57% Quintile 5 households	Slum households have poorer sanitation facilities; only a quarter are connected to piped sewer. Another 37% have improved on-site systems	Piped sewer connectivity is lower among SC/ST households with 27% SC and 24% ST households connected to it	Slight differences across religions observed; 37% Hindu households have piped sewers compared to 31% Muslim households	Almost 30% female-headed households are connected to piped sewer compared to 33% male-headed households	Access to piped sewers is as low as 12% in the East and the Northeast; the North and the West have better coverage at around 42%

Annex 1B: SUMMARY TABLE OF EXCLUSIONS FROM SANITATION ACROSS DIFFERENT DIMENSIONS AND GROUPS									
No.	Aspect	Indicator	All-India (Urban)	Economic Classes	Settlement Types	Caste/Class	Religion	Gender	Region
		Safe Disposal of Sludge							
		Treatment Capacity	Treatment capacity exists for about 31% of waste water in Class I and II cities; actual treatment is lower because of operational efficiencies of STPs; it is estimated that not more than 20% of waste in India is safely disposed.						
		Surface and ground water quality	CPCB reports suggest that most of the rivers in India are polluted; faecal coliform is the single largest point source of pollution						
3.	Acceptability	No information collected							

## Endnotes

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  1. Northern India—comprising Jammu and Kashmir,

- Himachal Pradesh, Punjab, Haryana, Uttarakhand, Uttar Pradesh, Chandigarh and Delhi.
2. Central India—comprising Madhya Pradesh and Chhattisgarh.
  3. Western India—comprising Rajasthan, Gujarat, Maharashtra, Daman & Diu, Dadra & Nagar Haveli and Goa
  4. Eastern India—comprising Bihar, Jharkhand, West Bengal and Odisha.
  5. Northeastern India—comprising Assam, Sikkim, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland and Tripura.
  6. Southern India—comprising of Andhra Pradesh, Karnataka, Tamil Nadu, Telangana, Puducherry and Kerala.
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