WATER SANITATION SERVICES IN SLUMS OF GUJARAT
Settlement Level Assessment, 2010-11

June 2012

Performance Assessment System
In Gujarat

Prepared by: Urban Management Centre (UMC)

URBAN MANAGEMENT CENTRE
in collaboration with ICMA

performance assessment system

Table of Contents

List of Acronyms

CEPT- Centre for Environmental Planning and Technology
GoG- Government of Gujarat
GR- Government Resolution
GUDC- Gujarat Urban Development Company
HHs- Households
MSW- Municipal Solid Waste
NOC- No Objection Certificate
PAS- Performance Assessment System
SLB- Service Level Benchmark
SWM- Solid Waste Management
ULB- Urban Local Body
UMC- Urban Management Centre
WHO- World Health Organization

List of Figures

List of Tables

List of Graphs

Executive Summary

Slums have been an integral part of urbanized areas in the state of Gujarat. Out of 43% urban population in the state[1], around 9% live in slums and the rest 34%[2] live in non-slum areas. These slum settlements are devoid of infrastructure service networks like water supply, sanitation, transportation, etc. The definition of slums itself points at this deprivation (*A slum is a compact settlement with a collection of poorly built tenements, mostly of temporary nature, crowded together usually with inadequate sanitary and drinking water facilities in unhygienic conditions*[3]). Hence, it is imperative that an exercise that aims at taking stock of existing basic infrastructure in cities also address access/coverage of infrastructure facilities in slums. Whereas, Performance Assessment System (PAS) does the same by using equity indicators, these are derived out of information obtained from the urban local bodies (ULBs). Hence, a need was felt to assess water and sanitation infrastructure services in slum settlements by visual inspection/observation and discussions with the slum dwellers.

The assessment covered the following indicators:

Access and coverage in slum settlements – including access to individual water supply connections and waste water networks, toilets and solid waste collection networks in the slum settlements of urban areas.
Service level and quality in slum settlements – including the quality of services received by the households such as: frequency of garbage collection, household to stand post/toilet seat ratio, etc.

The assessment was carried out in all the 1819 slum settlements in 157[4] ULBs in the state of Gujarat. Summary of critical indicators for the three sectors is tabulated in Box 1 along with corresponding values obtained in a household survey conducted under PAS to enable a comparison. Overall, the data results indicate the following:

Box 1- Summary of Findings

Indicator	UMC Slum Survey	PAS Household survey, NIELSEN
% slums having water supply network	91%	NR
% HHs in slums having access to individual water supply connections	61%	60%
% HHs in slums practising open defecation	44%	23%
% slums having underground sewerage network	38%	NR
% HHs in slums having access to individual toilets	45%	59%
% slums having sold waste collection network	77%	NR
% HHs in slums having access to door-to-door solid	49%	37%

[1] Census 2011, Provisional Population
[2] Report of the Committee on Slum Statistics and Census, Ministry of Housing and Urban Poverty Alleviation, National Buildings Organization)
[3] NSSO (National Sample Survey Organisation) Ministry of Statistics and Programme Implementation Government of India, Some Characteristics of Urban Slums 2008-09, NSS 65th Round, 2010.
[4] Babra and Bagasra have no slum settlements and hence the total no. of ULBs for the purpose of this survey is 157.

waste collection		

NR- not reported

- For water supply services, inspite of presence of water supply network in 92% slum settlements, only about 58% households have individual connections. This indicates that, while capital investments have led to increase in network, the same remains underutilized due to the lack of last mile coverage. The lack of individual connections can be attributed to the financial challenges associated with acquiring a new connection and also the fact that many of the slums are located in the urban periphery making it difficult to extend infrastructure for individual water connections.

- In case of sewerage and sanitation services, high reliance on septic tanks/soak pits is observed due to lack of sewerage network. Toilet coverage in slums has increased considerably due to consistent efforts of the state government that concentrate on construction of individual and pay and use toilets on cost sharing basis (For more information refer to Box 4). However, the augmentation of sewerage network has failed to keep pace with the number of toilet blocks being constructed and hence; the sewerage network coverage is present only in about 38% slum settlements which is much lower than individual toilet coverage i.e. 56%.

- Door-to-door collection in slum settlements still remains a distant reality with only 49% households enjoying door-to-door collection. This can be due to staff crunch in the relevant department and lack of will to spread solid waste management (SWM) services in slum settlements in absence of assurance to pay service charges. Low coverage of SWM services is also the reason that the survey found only about 21% slum settlements clean.

- Other cross-cutting issues getting highlighted through the survey are inadequacies at service level, like, intermittent supply in individual tap connections, high household to stand post ratio and household to toilet seat ratio, infrequent solid waste collection, etc. Rampant inequity is also observed with huge differences in city-wide and slum coverage of basic services.

- Also, districts of **Porbandar** and **Surendranagar** exhibit comparatively lower values than other districts for all the critical indicators i.e. household water supply connection coverage, percentage households having access to toilets and door-to-door solid waste collection coverage. The data for cities of **Pethapur, Halol** and **Borsad** also points at the extremely low level of access to basic services in its slum settlements.

- It was also observed that there is a lack of sensitivity of ULB officials towards specific needs of the urban poor. In a usually staff-constrained local body, having a dedicated staff for urban poor population becomes impossible and hence catering to their needs loses priority among other tasks to be carried out by the ULB officials.

- In absence of availability of census data on slums and in presence of varied definitions/classifications of slums adopted by different cities, the existing categorization of slums by ULBs is very adhoc and hence settlements situated in extreme urban periphery, small sized settlements consisting of 7 to 10 households and settlements in tribal areas are also classified as slums. Access to services in these areas is usually very low, thus reducing the overall service provision in slums in a particular ULB.

Chapter 1- Introduction and Methodology

1.1 Introduction

Performance Assessment System (PAS) is a five year (2008-13) program dealing with developing and implementing a performance assessment framework for water and sanitation in the states of Gujarat and Maharashtra. The program aims to develop a set of performance indicators to assess performances of ULBs with respect to water and sanitation services in all 400 cities and towns of the two states. The aim of the program is to develop better information on water and sanitation performance at the local level. This in turn can be utilized by the state and local governments for extending services to all the Urban Local Bodies (ULBs) and assist them in becoming financially sustainable.

PAS aims to assess aspects of access and coverage, service level and quality, costs and affordability, complaint redressal and health using a set of indicators.

1.2 PAS in the state of Gujarat

In the state of Gujarat, Centre for Environmental Planning and Technology (CEPT), and Urban Management Centre (UMC) are working towards implementing and mainstreaming the performance assessment system in 166 ULBs. The PAS indicator framework also merges with the Government of India's Service Level Benchmark (SLB) indicator framework. The above mentioned indicators are obtained through relevant data collection from the concerned departments of the ULB.

1.3 Demand side perspective

As a component of the PAS programme, a household survey called 'Performance Assessment System for Urban Water Supply and Sanitation' was conducted by NIELSEN to capture the user side perspective. This acted as a baseline to measure the progress against a set of identified indicators. The household survey included aspects of access and coverage, service level and quality, costs and affordability, complaint redressal and health. This survey had defined representation in terms of city typology (different classes of cities), and the representation in terms of population, as representation of population inhabiting slum and non-slum population localities in different classes of cities. References to findings of this study are made from time to time in the report.

1.4 Settlement level slum assessment under PAS (Dec 2010- July 2011)

The settlement level slum assessment (henceforth referred to as 'Slum Assessment') was conducted with the following objective and methodology.

Objective - Rapid assessment of provision of water supply and sanitation services in slum settlements located in 157 municipalities in the state of Gujarat.

Methodology- The methodology adopted for rapid assessment was as follows:

- A preliminary meeting was conducted with the chief officer and community organizer to understand the overall status of slums and the number and spread of the same throughout the city.
- A settlement map was prepared with assistance of the community organizer in order to chart out an optimum route for visiting all the slum settlements in the city.
- A concise questionnaire, derived out of the PAS checklist was used to obtain information on critical indicators for the slum settlements. (For slum questionnaire, refer to Annexure A)
- UMC team visited all the slum settlements and filled in the questionnaire with inputs from focused group discussions with the slum dwellers as well as first hand observations.
- The data was later collated and analyzed.

The following report elaborates the findings of the above mentioned in terms of the following indicators:

Access and coverage in slum settlements – including access to individual water supply connections and waste water networks, toilets and solid waste collection networks in the slum settlements of urban areas.
Service level and quality in slum settlements – including the quality of services received by the households such as: frequency of garbage collection, household to stand post/toilet seat ratio, etc.

Chapter 2- Slums in the State of Gujarat

2.1 Introduction

43% population in the state of Gujarat resides in urban areas, making it one of the highly urbanized states in India. Also, 20% of urban population in Gujarat resides in its slums compared to 26% nationally.

2.2 State Scenario

According to the slum assessment, the **average percentage of slum population across ULBs is reported to be 23.25%** which is very close to that for the state (20%) and a little lower than the **national urban slum population of 26%.** ULBs in Class A&B have lower % slum population as compared to Class C&D as observed in the table below.

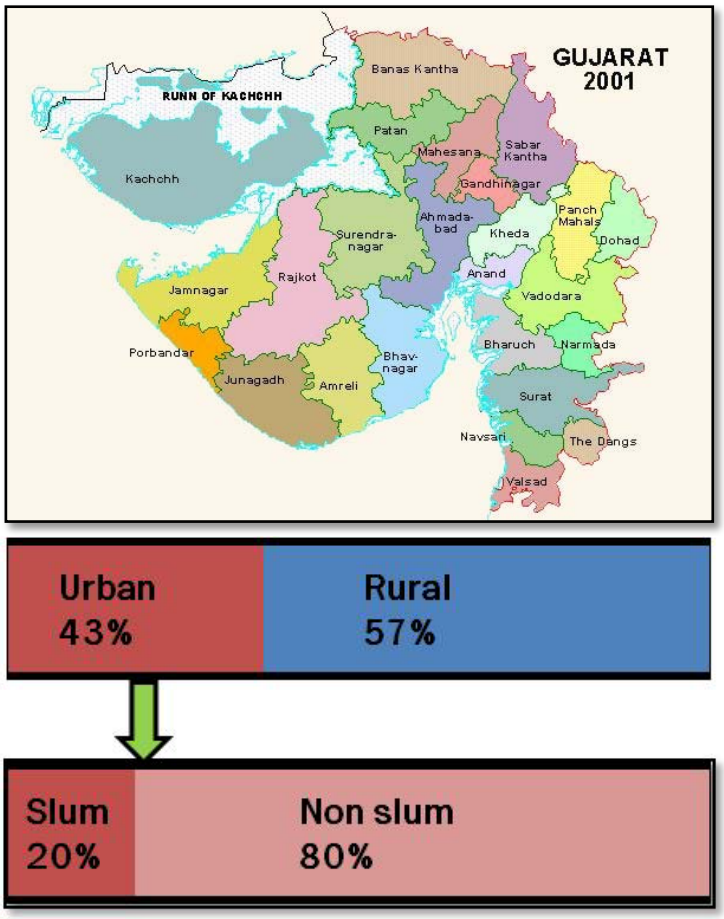


Figure 1- Percentage of urban and slum population in Gujarat. (Source- Report of the Committee on Slum Statistics and Census, Ministry of Housing and Urban Poverty Alleviation, National Buildings Organization)

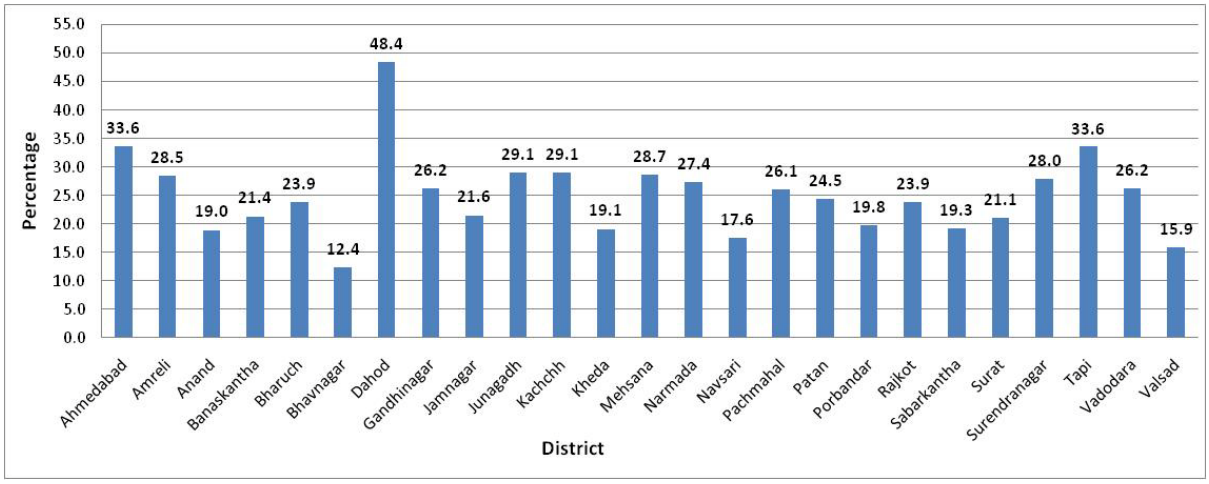
Table 1- Percentage slum population across cities/towns in Gujarat

Cities	% Slum Population
Class A	21
Class B	20
Class C	26
Class D	26
Average	**23.25**

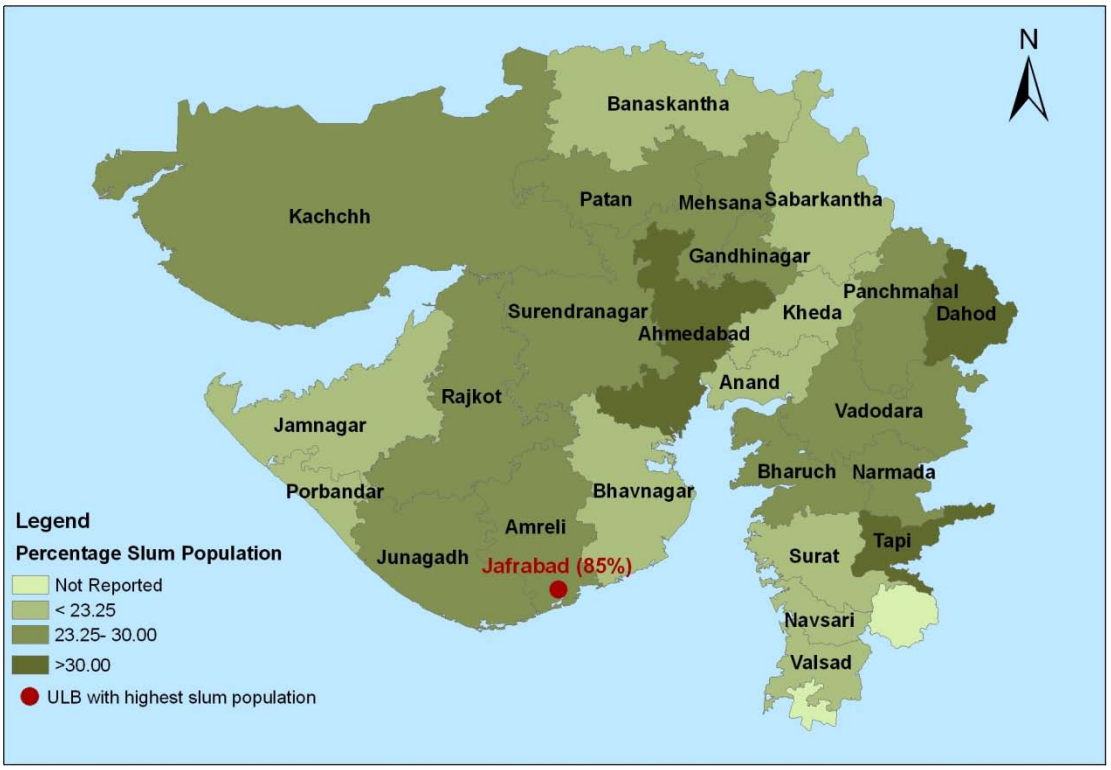
District wise analysis reveals that the percentage **of slum population is lowest in Bhavnagar district of Saurashtra region (12.4%), followed by Valsad (15.9%), and Navsari (17.6%). Dahod and Tapi, the east and south-east districts of Gujarat respectively exhibit high incidence of slums.**

Jafrabad in the district of Amreli has the highest percentage slum population of 85 followed by Barwala in the district of Ahmedabad which has percentage slum population of 71.

Graph 2.2 – Percentage slum population in districts of Gujarat



Map 2 – Map showing percentage slum population in districts of Gujarat



2.3 Class A ULBs

The average % slum population in Class A ULBs is observed to be 21, wherein, Botad, Anand and Morbi are some of the ULBs having low percentage slum population i.e. 3.5%, 5.2% and 8.4% respectively. Godhra with 40% and Jetpur with 37.8% are ULBs with highest percentage slum population among the Class A ULBs.

2.4 Class B ULBs

The average percentage slum population in Class B ULBs is around 20%. Dholka, Himmatnagar, Palitana, and Unjha exhibit low percentage slum populations compared to other Class B ULBs and Viramgam, Anjar, Dahod and Keshod have higher percentage slum populations among Class B ULBs.

2.5 Class C ULBs

On an average, Class C ULBs have 25% slum population. Sanand, Gadhada, Chaya, Limbdi and Ranavav have low percentage slum populations as compared to other ULBs whereas, Jafrabad, Jhalod and Dehgam have higher percentage slum populations among Class C ULBs.

2.6 Class D ULBs

Among the Class D cities, Dharampur, Pethapur, Sahera, Savali, Thasra have low slum populations compared to Barwala, Kalawad, Patadi, and Vijapur which have higher percentage slum population.

Chapter 3- Condition of Water Supply in Slums

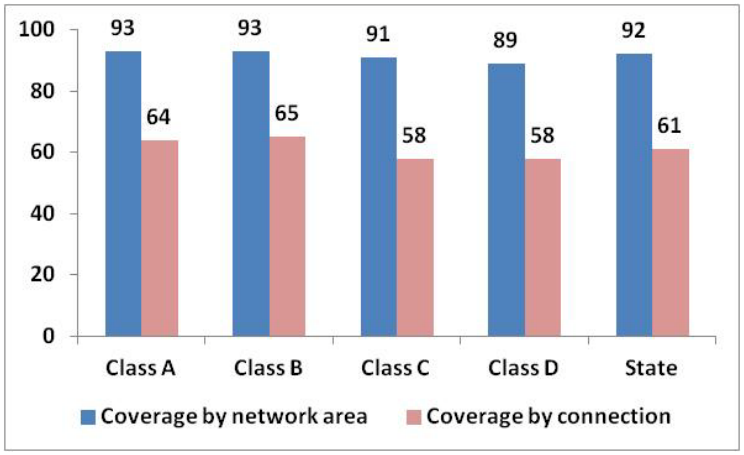
3.1 Introduction- Access and Coverage of Water Supply Services in Slum Settlements

Access and coverage of water supply in slum settlements has been analyzed through coverage of individual water supply connections at the household level. It is defined as total number of households in slum settlements that are connected to the water supply network with direct service connections, as a percentage of the total number of households in that particular slum settlement.

3.2 State Scenario

The benchmark for water supply service has been set as having individual water connections for all households in the ULB, including slum settlements. The overall state scenario in terms of water supply network coverage in slums is fairly good going by the findings which show that, **91 out of the 157 ULBs have 100% water supply network coverage in its slum settlements.** This means that 91 municipalities in the state supply water to all its slums either through individual connections or stand posts[5].

Graph 3.2 – Water Supply Coverage in Slum Settlements, State Scenario



Graph 3.2 shows class-wise average of water supply by individual connections (in pink) and by network (blue) in slums. **Thus, even when the average network coverage is as high as 92%, the average individual household coverage is as low as 61%.** The PAS household survey too concludes that only about 60% households in slum neighbourhoods have access to individual water supply connections[6].

This shows that, presence of water supply infrastructure is not a challenge in slums, but providing last-mile household connectivity is. This trend is visible across all classes of cities without any significant variation. Similar pattern is also observed in non-slum settlements in ULBs of Gujarat.

The state-wide urban coverage of water supply connections reported in Census 2011, is much higher at 76%[7], this points at the inequitable distribution of services among slum and non slum households.

[5] Whereas, water supply through public stand posts is not considered in the overall coverage percentage in the SLBs, for the purpose of slum survey analysis, a slum settlement is considered to have water supply network coverage even when it is limited to just public stand posts.
[6] Performance Assessment System for Urban Water Supply and Sanitation, NIELSEN
[7] Census of India 2011, Houselisting and Housing Census Data Tables- Gujarat

Another alarming observation is that of dependency of high number of slum households on public stand posts. A quick calculation of household to public stand post ratio for ULBs falling in the bottom 10% in terms of individual household connections is depicted in Table 3.2

Map 3 – Map showing water supply connection coverage in districts of Gujarat

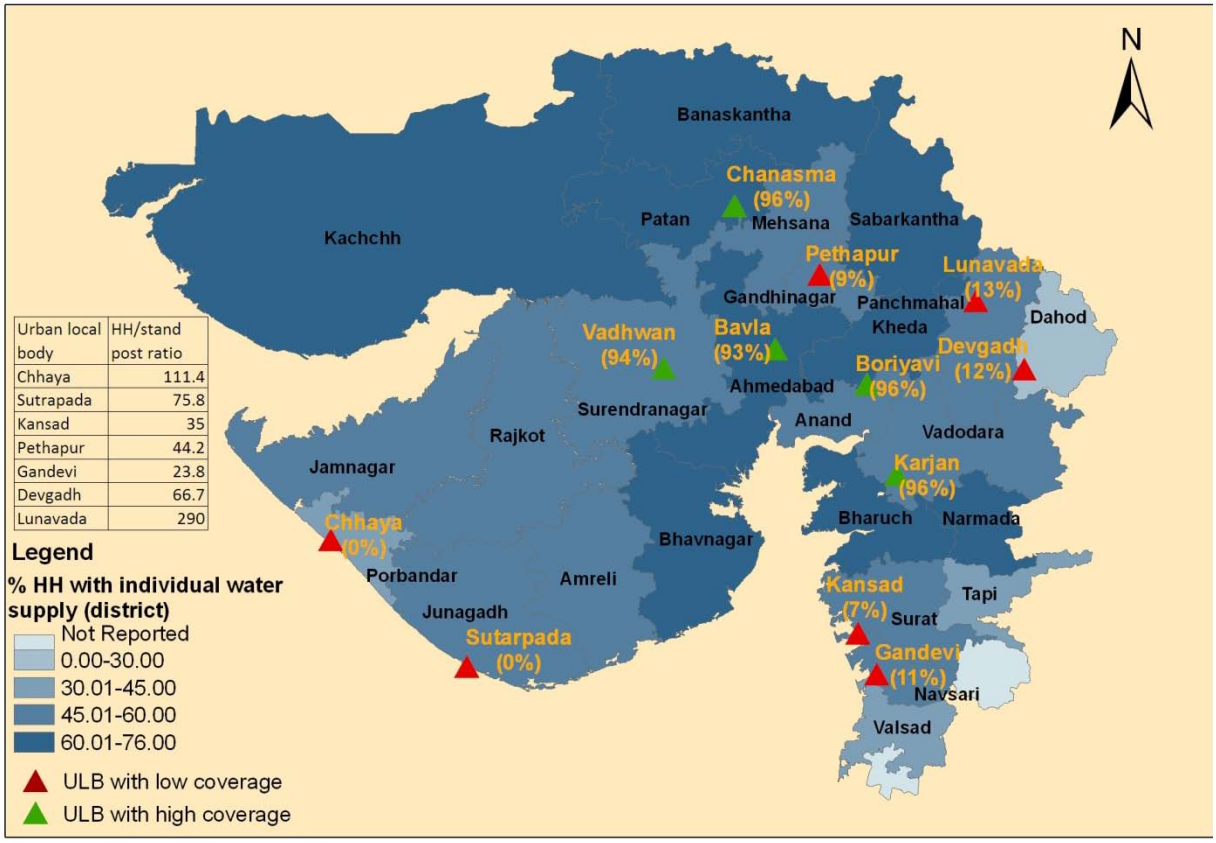


Table 3.2- HH/stand-post ratio of ULBs having extremely low connection coverage.

S.N.	Urban local body	Percentage household coverage	HH/stand post ratio
1.	Chhaya	00.0	111.4
2.	Sutrapada	00.0	75.8
3.	Kansad	06.9	35.0
4.	Pethapur	09.2	44.2
5.	Gandevi	10.9	23.8
6.	Devgadh	11.5	66.7
7.	Lunavada	13.0	290.0
8.	Dahod	14.0	87.5
9.	Borsad	15.7	70.0
10.	Bhayavadar	17.9	112.2
11.	Veraval	22.0	777.8
12.	Paradi	22.3	14.0

Box 2- HH/stand post ratio as specified by various standards

- 'The number ....and the number of users per tap should be in the range of 25-125. (WHO, International Centre for Community Water Supply)
- 'One source for 20 families' (Basic Minimum Services Under Minimum Needs Programme, 9th Five Year Plan, Government of India, 1997-2002 (1999)
- 'One tap for 150 persons' (A Compendium of Central Schemes for Urban Development, Urban Transport and Public Health Engineering, Urban Affairs and Employment, GoI (1996)
- 1 Water supply post for 15 HHs (75 persons) - Bombay, 1 Water supply post for 10 HHs (50 persons) - Madras, 1 tap for 75 persons- Kochin (Service Norms for Slum Up gradation Programme, as Suggested under the World Bank Funded Projects)

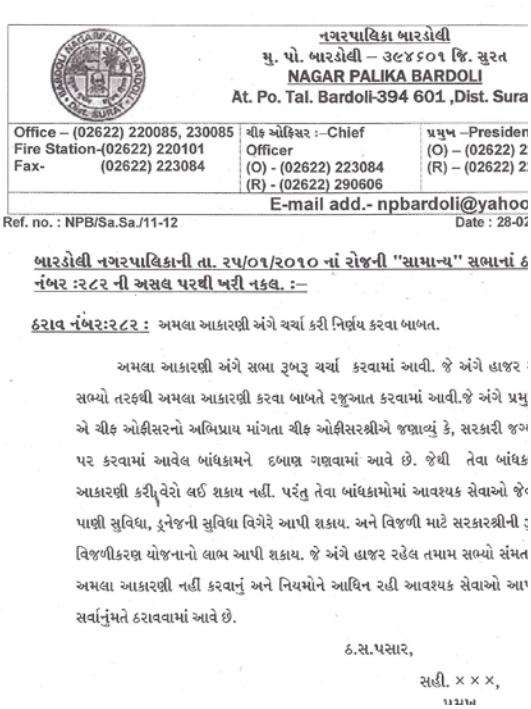
As observed in the table, Sutrapada[8], and Chaya have no individual household connections in slums. Chaya has HH/stand post ratio as high as 111 as compared to the standard ratio of about 15 (See Box 2). All the other ULBs listed in the table have HH/stand post ratios much higher than those specified by various standards. Paradi is the only ULB that has low household coverage in its slums, but has enough number of stand posts to cater to the remaining slum population.

Box 3- The 500 NOC Scheme

AMC launched the 500 NOC Scheme in 2002. As the name suggests, it aims at providing slum residents with a 'No Objection Certificate' (NOC) that enables them to apply for legal individual sewerage and water connections for their dwellings. '500' relates to the amount the applicant has to pay to get the NOC (This amount was later revised to Rs 1,500 as demand grew).

The NOC certificate did not mean Building Use permission.

Box 4- General Resolution No. 282, Bardoli Nagar Palika



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બારડોલી નગરપાલિકાની તા. ૨૫/૦૧/૨૦૧૦ નાં રોજની "સામાન્ય" સભાનાં ઠ
નંબર :૨૮૨ ની અસલ પરથી ખરી નકલ. :–

ઠરાવ નંબર:૨૮૨ : અમલા આકારણી અંગે ચર્ચા કરી નિર્ણય કરવા બાબત.

અમલા આકારણી અંગે સભા રૂબરૂ ચર્ચા કરવામાં આવી. જે અંગે હાજર
સભ્યો તરફથી અમલા આકારણી કરવા બાબતે રજુઆત કરવામાં આવી.જે અંગે પ્રમુ
એ ચીફ ઓફીસરનો અભિપ્રાય માંગતા ચીફ ઓફીસરશ્રીએ જણાવ્યું કે, સરકારી જગ
પર કરવામાં આવેલ બાંધકામને દબાણ ગણવામાં આવે છે. જેથી તેવા બાંધક
આકારણી કરી વેરો લઈ શકાય નહીં. પરંતુ તેવા બાંધકામોમાં આવશ્યક સેવાઓ જે
પાણી સુવિધા, ડ્રેનેજની સુવિધા વિગેરે આપી શકાય. અને વિજળી માટે સરકારશ્રીની
વિજળીકરણ યોજનાનો લાભ આપી શકાય. જે અંગે હાજર રહેલ તમામ સભ્યો સંમત
અમલા આકારણી નહીં કરવાનું અને નિયમોને આધિન રહી આવશ્યક સેવાઓ આ
સર્વાનુંમતે ઠરાવવામાં આવે છે.

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One of the most plausible reasons for low household coverage in slums is financial constraints. The one-time connection cost for a new water supply connection in the ULBs of Gujarat ranges from Rs. 410 to as high as Rs. 1500. These charges are applicable to both slum and non-slum applicants. Also, there is no provision/mechanism for paying this connection cost in instalments for slum households. Apart from this, extremely small-sized slum settlements consisting of 50-100 households are located on the urban periphery where it is technically difficult to extend connection infrastructure. **Thus, high connection costs and the size and location of slums impair last-mile individual water supply connections in slums.**

Issues of land-tenure and unclear title are only beaureacratic in nature as all the slums are now covered under the new property tax assessment and hence can easily produce a property tax receipt as a proof for new water supply connection. In situations where they are unable to do so, the ULB readily accepts ration card/other appropriate document as a proof. Moreover ULBs are also making efforts to address this issue through innovative mechanisms like Ahmedabad's unique '500 NOC Scheme, (See Box 3) and Bardoli's resolution to provide water connection despite the status of the household. (See Box 4)

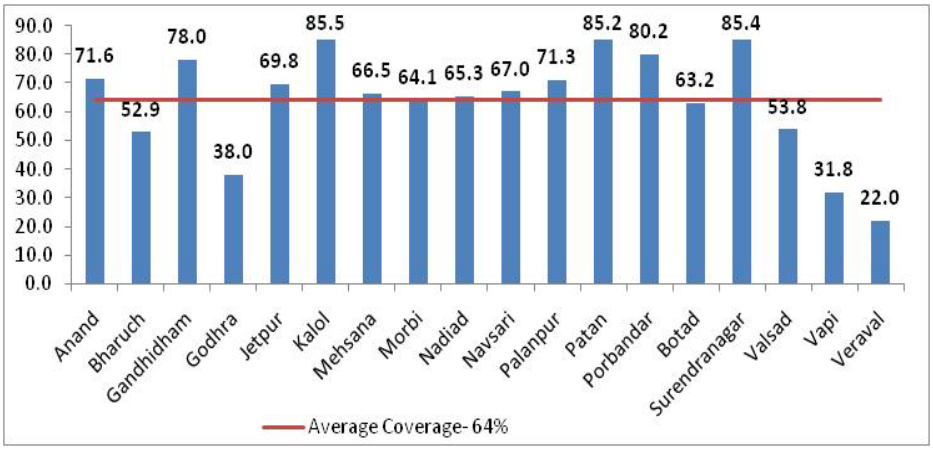
Thus, designing innovative mechanisms to address the high cost of new water supply connections and financing the spread of water supply infrastructure in the peripheral urban areas can greatly increase household coverage of water supply services in slum settlements.

[8] Sutrapada has no individual connections in the entire city. The citizens are served by public stand posts.

3.3 Class A ULBs

The average coverage of connections for slums in Class A cities is 64% with the lowest values in Veraval and the highest in Kalol, Surendranagar and Patan, as illustrated in Graph 3.2

Graph 3.3 – Water Supply Coverage in Slum Settlements, Class A ULBs



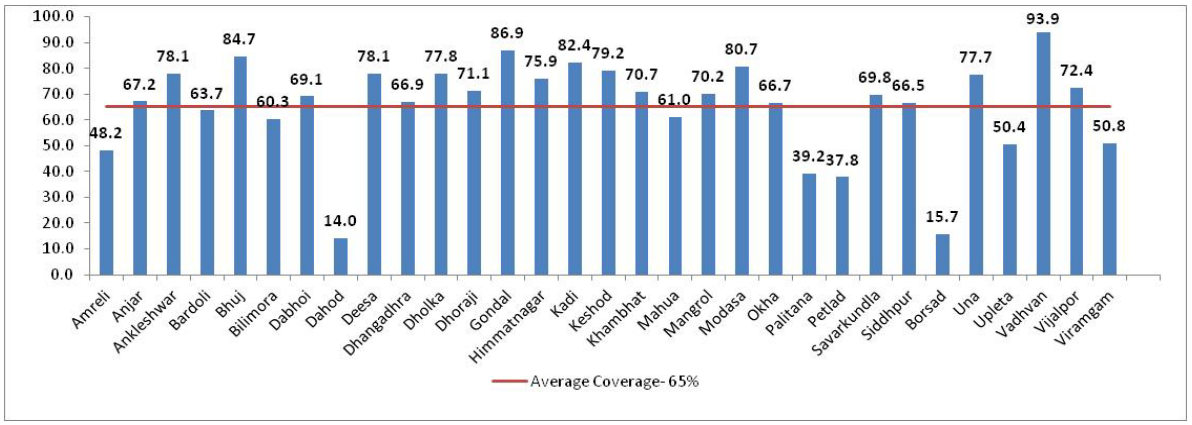
In Veraval, the water supply network coverage is 64%, whereas connection coverage is as low as 22%. This further affirms the above mentioned conclusion that with the water supply network already present, there is a need to increase last-mile connectivity in terms of household connections. In case of Patan, 21 out of 48 slum settlements have 100% household coverage. **Whereas frequency of water supply in connections is daily in case of Kalol and Patan, the same is intermittent in case of Surendranagar where water is supplied for only 4 days in a month.**

3.4 Class B ULBs

Graph 3.4 shows that the average coverage of water supply connections in the slums of Class B ULBs is 65%. Among Class B ULBs, Vadhvan has the highest percentage of connection coverage in its slums at 94%, where 3 out of 6 slums have 100% coverage. Vadhvan also has 100% water supply network coverage in its slums. **However, the frequency of supply is very low at around 5-6 days in a month.** Dahod exhibits low connection coverage at 14% and high HH/stand post ratio at 87, inspite of network coverage of 78%. **This exposes the dearth of individual connections combined with high HH/stand ratio that greatly aggravate the water supply situation in slums.** The lack of network coverage in Borsad in further reflected in low connection coverage of about 16%.

Figure 2: Water storage in a slum of Borsad

Graph 3.4 – Water Supply Coverage in Slum Settlements, Class B ULBs

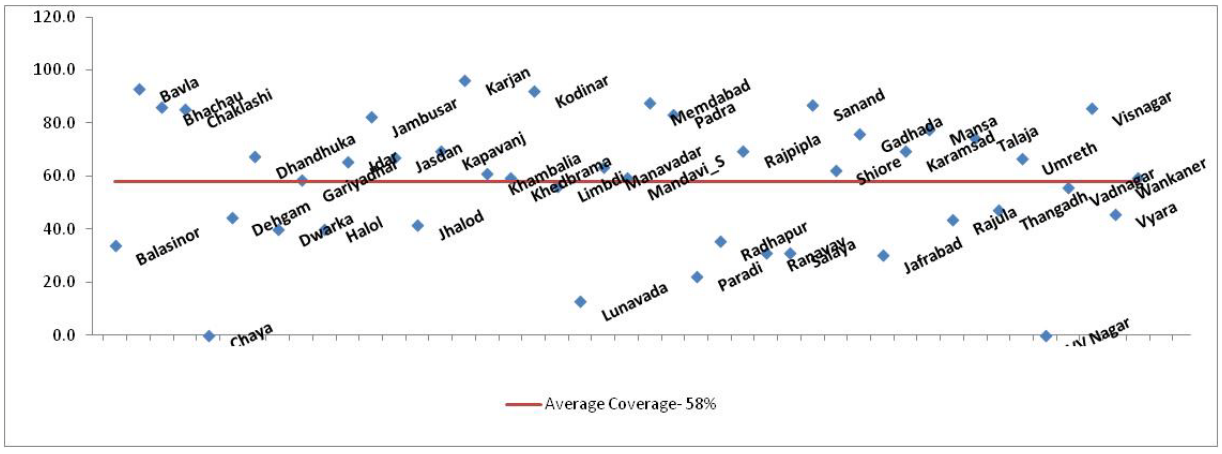


The city-wide coverage of household connections in Dahod and Borsad is 94% and 63% respectively, pointing at inequitable services across the city.

3.5 Class C ULBs

Average water supply connection coverage in Class C ULBs is at 58%. Graph 3.5 shows that 17 out of 45 Class C ULBs exhibit connection coverage in slums below average value of 58%. Karjan at 96% and Bavla at 93% are two ULBs having highest connection coverage in slums among the Class C ULBs. Even the frequency and duration of water supply is good in both Karjan and Bavla. Water is supplied daily in the slums of these ULBs for atleast 2 hours (4 hrs in case of certain slum settlements in Karjan).

Graph 3.5 – Water Supply Coverage in Slum Settlements, Class C ULBs



Slums in Chaya have 0% connection coverage even though the network coverage in the same is as high as 80%, re-establishing the need for providing household connections by ULBs. Also, Chaya exhibits high HH/stand post ratio at 111. Lunavada too exhibits low connection coverage at 13% and extremely high HH/stand post ratio at 290 inspite of 100% network coverage. Contrasting this, Lunavada has a city-wide connection coverage of 86%. It is important to note that, whereas, Graph 3.4 shows 0% connection coverage in **V.Vidyanagar, the connection coverage is actually 100% with**

all the households having water supply connection in slums, however these connections are privatized and hence do not reflect in the data provided by the ULB.

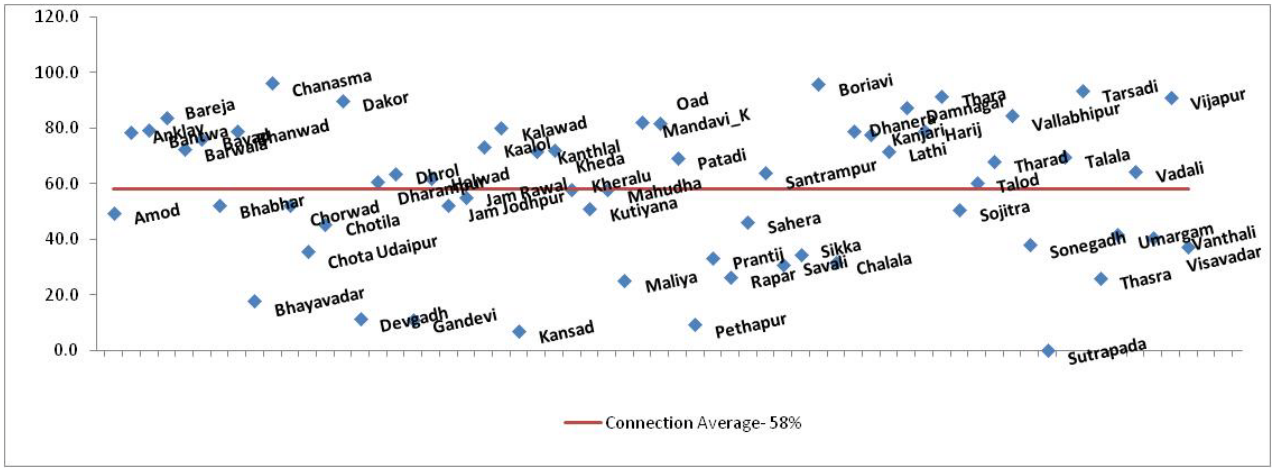
3.6 Class D ULBs

Average coverage of water connections for Class D ULBs is same as that for Class C ULBs at 58%. As observed in Graph 3.6 the distribution is more variable with almost 40% ULBs having less than average coverage and another 30% enjoying more than 75% connection coverage. Sutrapada has 0% connection coverage even though it has 100% water supply network in its slums.

Sutrapada municipality does not provide any water supply connections at the household level. The entire city is dependent on **64 stand posts**, out of which 23 are spread across 14 slum settlements

Chanasma and Boriavi at 96% have high connection coverage combined with daily water supply for atleast an hour.

Graph 3.6 – Water Supply Coverage in Slum Settlements, Class D ULBs



Box 5- Unhygienic Condition of Public Stand Posts in Slums

It is observed that slums in all the cities except for Ranavav, Sahera, Amreli, Palitana and Vanthali have public stand posts to serve a high number of households devoid of individual connections. However, these stand posts are often in a dilapidated and unhygienic condition as shown pictorially below and hence raise serious questions on the impact of same on the health of the slum dwellers.

Public Stand Post in Harij

Public Stand Post in Talaja

3.7 Ranking of cities on the basis of water supply connection coverage in slums (Top 5 and Bottom 5 Cities)

Top 5 Cities in terms of water supply connection coverage		
Name	**Class**	**Connection coverage**
Boriavi	D	96%
Chanasma	D	96%
Karjan	C	96%
Vadhvan	B	94%
Bavla	C	93%

Bottom 5 Cities in terms of water supply connection coverage		
Name	**Class**	**Connection coverage**
Kansad	D	7%
Pethapur	D	9%
Gandevi	D	11%
Devgadh	D	12%
Lunavada	C	13%
Sutrapada and Chhaya have 0% connection coverage		

It is surprising that, slums in the D class cities of Boriavi and Chanasma enjoy highest connection coverage among all the 157 cities in the state, followed by C and B class cities of Karjan and Vadhvan respectively. On the other hand, D class cities of Kansad, Pethapur, Gandevi and Devgadh are also among the cities having the lowest connection coverage. This clearly spells out the variation in level of service among class D cities.

Chapter 4- Condition of Sanitation in Slums

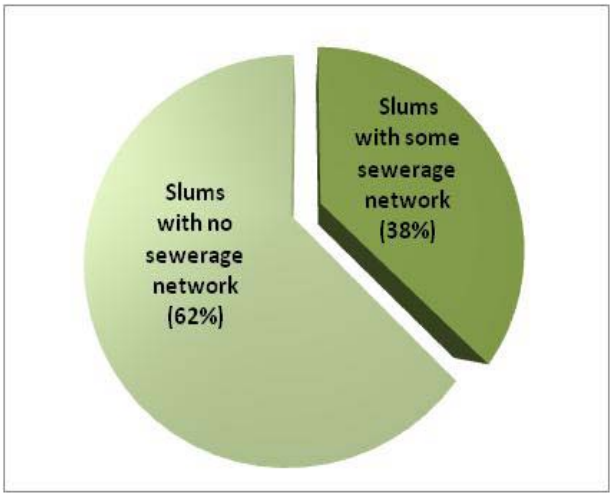
4.1 Introduction- Access and coverage

Households with access to toilet in slums
Household-level coverage is defined as households having individual toilets within their premises or having access to a community/pay and use toilet as a percentage of total households in the ULB.

Coverage of sewerage connections in slums
This indicator denotes the extent to which the underground sewage (or sewerage collection) network has reached out to households in slum settlements.

4.2 State scenario –overall scenario at state level

Graph 4.2 – Access to sewerage network in slums- Gujarat



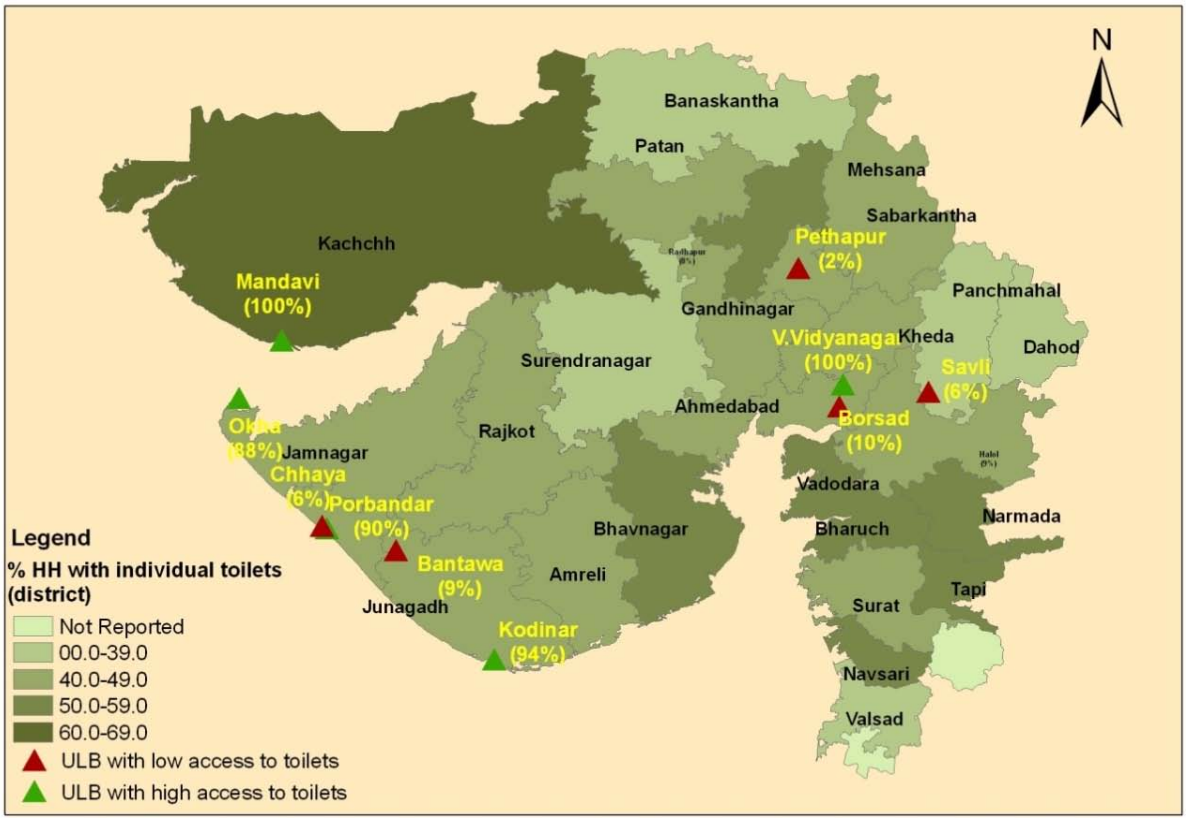
59 ULBs (38%) have some extent of underground sewerage network in its slum settlements. Only 3 out of 157 ULBs have 100% sewerage network coverage in slum settlements. These are Class C ULBs namely, Bacchau, Gahada and V.V. Nagar. In absence of a centralized sewerage system, cities have open drains for collection of grey water while individual households have soak pits or septic tanks for disposal of black water**. In terms of toilet coverage, only about 49% households in slums have individual toilets on their premises. The PAS household survey reports a much higher 60% individual toilet coverage in slum settlements.**

This, inspite of various schemes already being undertaken by the Government of Gujarat (GoG) like **'Nirmal Gujarat Shauchalay Yojana'** and subsidies to construct **individual and pay-and-use toilets** shows that the ULBs need to set aggressive targets to construct more individual and pay-and-use toilets in slum settlements to increase access to clean sanitation services to urban poor in the cities.

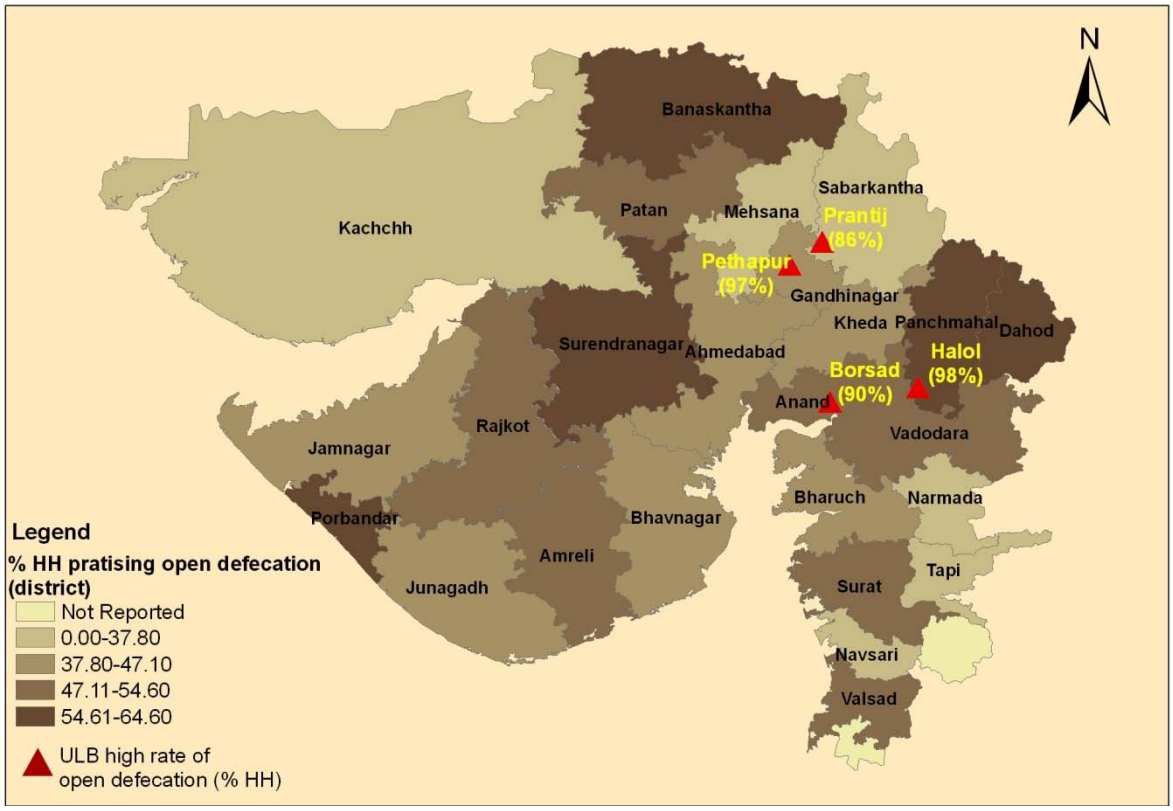
The access to toilet facilities (individual and community/pay and use toilets) is about 56% out of which only about 7% reported to be using community/pay and use toilets.

The state-wide coverage of individual household toilets in Gujarat is a good 88% according to Census 2011.

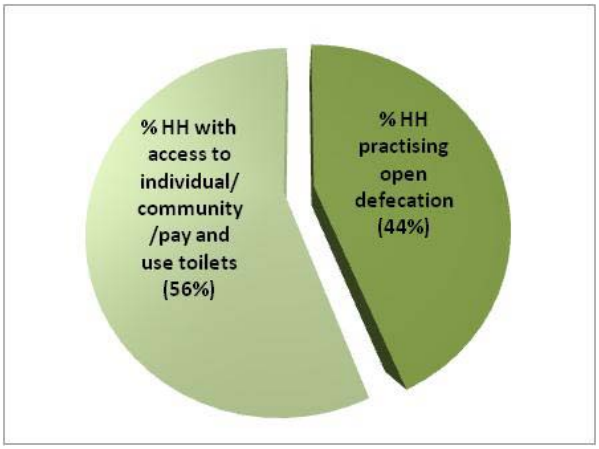
Map 4 – Map showing coverage of individual toilet in districts of Gujarat



Map 4a – Map showing prevalence of OD in districts of Gujarat



Graph 4.2a – Access to toilets Vs open defecation- Guiarat



Another phenomenon with respect to sanitation in slum settlements is the alarmingly high percentage of population practising open defecation. **Around 44% households in the state practice open defecation** posing threats to both cleanliness of slum premises and individual health. The PAS household survey reports almost half i.e. around 23% in the state defecate in the open. Lack of proper disposal facility for toilets also leads to high open defecation. Case in point is Sanand wherein, close to 99% households defecate in the open inspite of 21% households having access to individual or community/pay-and-use toilet. This can be attributed to the fact that, 94% of the toilets facilities have no disposal system.

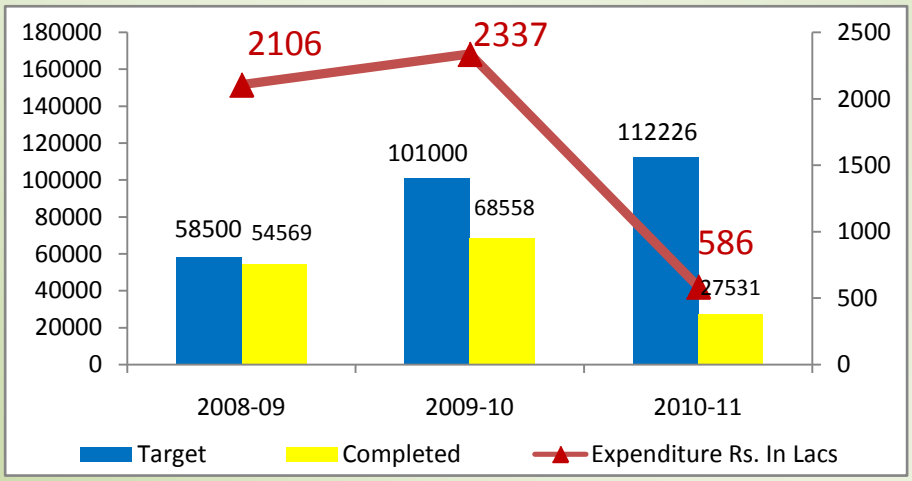
Another critical reason for rampant open defecation in slums **is lack of awareness about health and environment impacts of practising open defecation.** Hence, awareness generation and IEC campaigns should be encouraged along with improvements in sanitation infrastructure by the ULBs.

Box 6- Central/ State Govt. Scheme to Improve Access to Toilets (Individual and Pay and Use)

Nirmal Gujarat Shauchalay Yojana

Nirmal Gujarat envisions the state to be 'Open Defecation Free' by the year 2010. Further to this, a scheme for low-cost toilet blocks was implemented according through GR Nos. SSS- 102000-231-DH dated 17-06-2002 and SSH-102000- 231 (2) – DH dated 09-06-2002, the same was revised and reintroduced as the 'Nirmal Gujarat Shauchalay Yojana' through GR. No. **-102008-1305-DH dated 24-10-2008 by the Urban Development and Urban Housing Department, Government of Gujarat.**

Under this scheme, the designated implementation agencies i.e. NGOs need to adhere to the UNDP Design norms for construction of new toilets. Estimates for construction of alternative designs are provided in Annexure A. The total financial assistance available under the scheme estimated according to current Schedule of Rates (SoR) is Rs. 4500. The following graph shows the pace of implementation of the above mentioned scheme in terms of target achieved and expenditure from the year 2008-09 to 15th December 2011.



Assistance for maintenance of Pay and use toilets- Nirmal Gujarat

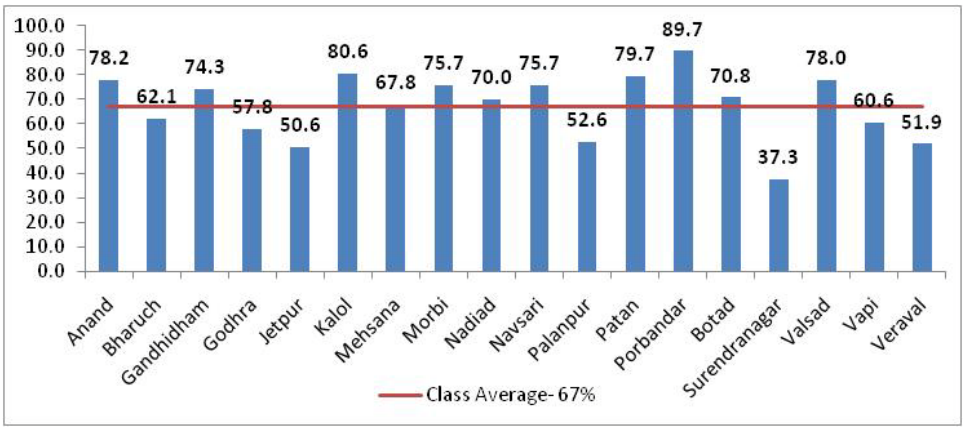
Under Nirmal Gujarat, from January 2010, an assistance of Rs. 3000 per pay and use toilets has been sanctioned for the maintenance of 116 pay and use toilets in the slum areas

Construction of Pay and Use Toilets- Gujarat Municipal Finance Board (GMFB)

Also, GMFB sanctions pay and use toilets in urban areas, both slum and non- slum to enable access to toilets and increase coverage. From the year 2005-06 to 2010-11, around 1033 pay and use toilets were sanctioned, out of which 866 toilets have been constructed. **Out of 866 pay and use toilets, 419 are located in slums and 408 in non-slum areas.**

4.3 Class A ULBs

Graph 4.3 – Toilet Coverage in Slum Settlements, Class A ULBs



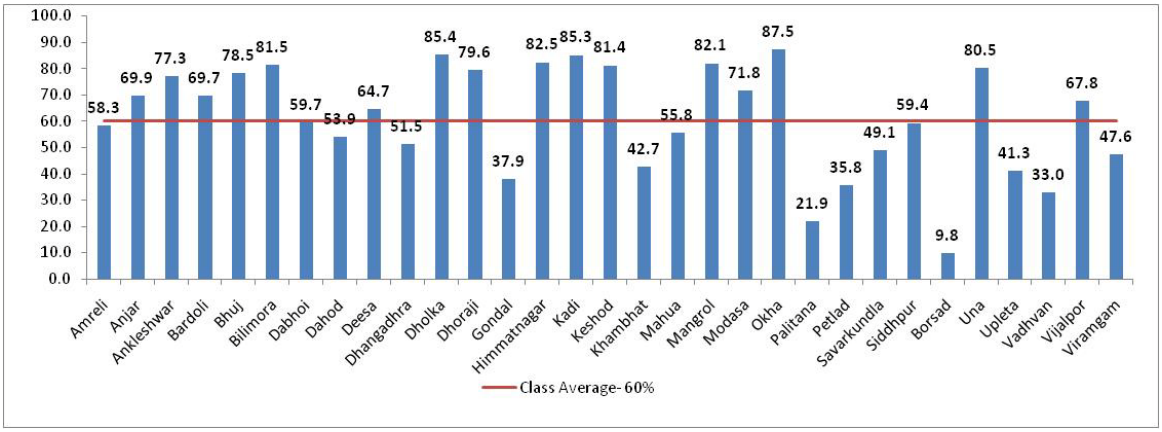
As shown in Graph 4.3, the data from slum settlements of 18 Class A ULBs shows that, all except for Surendranagar have greater than 50% toilet coverage. This also establishes further the low **rank of 407th out of 423 obtained by Surendranagar in the 'National Ranking of Class A cities on Sanitation' conducted by Ministry of Urban Development for the year 2009-10.** The city-wide toilet coverage in Surendranagar is a fair 69%. Porbandar has the highest toilet coverage at 90% followed by Kalol with 81% toilet coverage. Even the household to toilet seat ratio for both community and pay-and-use toilet in these ULBs is less than the prescribed standard of 10[9]. Porbandar ranks 145th in the sanitation ranking following Mehsana which ranks 128th.

Half of Class A cities have 0% sewerage connection and high dependence on soak pits in slum settlements; Kalol has highest sewerage network coverage at 96% followed by Navsari at 77%.

Surendranagar exhibits lowest coverage of toilets at 37.3%, has high open defecation rate of 63% and high household to community toilet seat ratio of 26.

4.4 Class B ULBs

Graph 4.4 – Toilet Coverage in Slum Settlements, Class B ULBs



As seen in Graph 4.4, average coverage of toilet in the slums of Class B ULBs is 60%. About 44% of ULBs have toilet coverage less than the class average. Unjha has 0% toilet and sewerage network coverage, along with no pay-and-use or community toilets.

[9] Service Norms for Slum Up gradation Programme, as Suggested under the World Bank Funded Projects

Borsad has low **toilet coverage of 10%** which consists only of individual toilets along with sewerage network coverage of 33.33%. Whereas the survey data shows that there is one community and pay-and-use toilet each in the slums of Borsad, **number of households dependent on the same is 0 as their premises are locked.**

The city-wide coverage in Borsad is 90% which is way higher than its slum settlements.

Figure 3: Locked community toilet in Borsad

Okha has highest toilet coverage in its slums i.e. around 88%. However, due to lack of any sewerage network coverage, all of these toilets are connected to soak pits. Okha is followed by **Kadi and Dholka having 85% toilet coverage in their slums.** Both these ULBs also have good **individual toilet coverage of about 75%** and hence less dependence on community/pay-and-use toilets. Connection of individual toilets to sewerage network is also greater than 60% in both Kadi and Dholka.

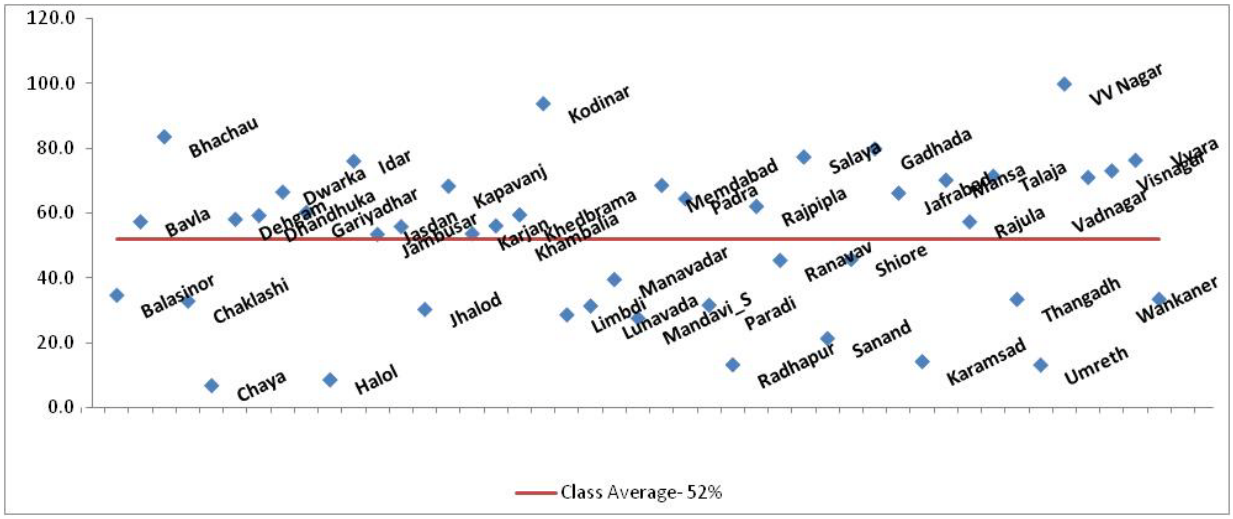
Again, almost half i.e. 14 out of 32 Class B ULBs have 0% sewerage network in their slum settlements stressing on the importance of spreading the sewerage network in these settlements.

4.5 Class C ULBs

The average coverage of toilets in Class C ULBs is 52% as observed in Graph 4.5. Again, 40% ULBs have toilet coverage less than the Class average in its slum settlements. **ULBs of Chaya and Halol with 6.9% and 8.7% toilet coverage** respectively have the lowest toilet coverage among Class C ULBs. Chaya has no community/pay-and-use toilet and even though Halol has 1 community toilet, there are no households using the same. **This has again resulted in high percentage of open defecation in both Chaya (84%) and Halol (98%).**

Chaya and Halol have a city-wide toilet coverage of 83% and 58% respectively, which is much higher than coverage in their slum settlements.

Graph 4.5 – Toilet Coverage in Slum Settlements, Class C ULBs



V.Vidyanagar has the highest toilet coverage of 100% not only among Class C ULBs, but also among all the 157 ULBs where all the slum households have individual toilets which are connected to an underground sewerage network and hence 0% open defecation rate.

Figure 4: Locked community toilet in Gadhada (L) and lack of maintenance evident in pay-and-use toilet in Gadhada (R)

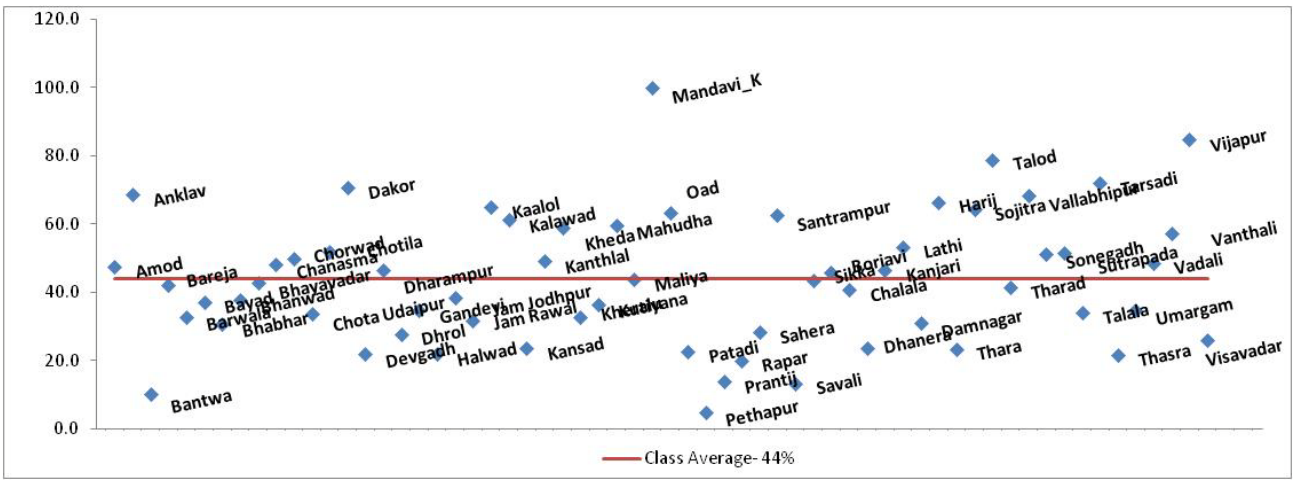
60% Class C ULBs have 0% sewerage network. Bhachau, Gadhada and V.Vidyanagar **have 100% sewerage network with more than 80% toilet coverage. However, Gadhada has a high rate of open defecation, inspite of presence of 3 community/pay-and-use toilets. This can be attributed to lack of maintenance as observed pictorially.**

4.6 Class D ULBs

The average coverage of toilets in slums of Class D ULBs is 44%, distributed equally among below and above average cities. **ULBs of Pethapur and Bantwa with 4.0% and 10.8% toilet coverage** respectively have the lowest toilet coverage among Class D community/pay-and-use toilets and high open defecation rate. Both have only 1 community/pay-and-use toilet and high open defecation rates.

Bantwa and Pethapur have a city-wide coverage of 70% and 78% respectively, as compared to extremely low coverage in its slum settlements.

Graph 4.6– Toilet Coverage in Slum Settlements, Class D ULBs



Mandvi. K. has the highest toilet coverage of 100% where almost 80% slum households have individual toilets, most (82%) of which are connected to an underground sewerage network and hence 0% open defecation rate.

Box 7- Locked Community/Pay-and-use Toilets- A common sight in Slums!

The coverage of toilets in slum settlements across various classes of cities is below average and community/pay-and-use toilets are inadequate in number. Open defecation is a widespread practice under these circumstances. It was also observed during surveys that most of the community/pay-and-use toilets were in an unclean state, while there were others that were locked. This clearly points at severe lack of maintenance of community/pay-and-use toilet facilities in slums. Hence, while new infrastructure is being created in slum settlements, it is imperative to maintain the existing ones and hence increase the coverage of toilets.

Locked community toilet in Harij

Locked pay-and-use in Mansa

Locked community toilet in Jafrabad

Locked community toilet in Talaja

4.7 Ranking of Cities on the basis of access to toilets both individual as well as community/pay-and-use in slums (Top 5 and Bottom 5 Cities)

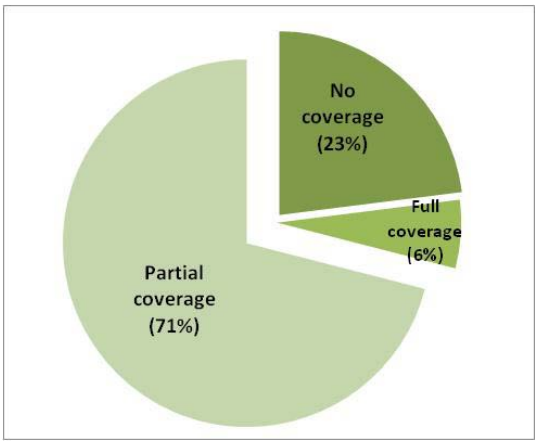
Top 5 Cities in terms of access to toilets		
Name	**Class**	**Connection coverage**
Mandvi K	D	100%
V.V. Nagar	C	100%
Kodinar	C	94%
Porbandar	A	90%
Okha	B	88%

Bottom 5 Cities in terms of access to toilets		
Name	**Class**	**Connection coverage**
Pethapur	D	4%
Chhaya	C	7%
Halol	C	9%
Borsad	B	10%
Bantwa	D	11%

Again, as observed in water supply connection coverage, slums in D and C class cities of Mandvi K and V.V. Nagar enjoy highest access to toilets among all the 157 cities in the state, followed by A and B class cities of Porbandar and Okha respectively. On the other hand, D class city of Pethapur, followed by Chhaya and Halol, C class cities have the lowest toilet access in its slums.

The implementation of Municipal Solid Waste Management Handling Rules 2000 (MSW Rules 2000) has initiated implementation of door-to-door solid waste collection services in the ULBs of Gujarat. **The Gujarat Urban Development Company (GUDC) is also making efforts towards enhancing the efficiency of door-to-door solid waste collection** in the ULBs through its Municipal Solid Waste Management (MSWM) Project. ULBs like Vyara and Kheda of Gujarat have been widely documented as best practices in efficient MSWM and 100% door-to-door collection respectively. Almost 15% ULBs in the state reported 100% door-to-door collection in the year 2010-2011[10].

Graph 5 – Coverage of door-to-door collection of solid waste from slums- Gujarat



However, the same is not reflected in the slums of these ULBs. As Graph 5 suggests, only about 6% ULBs have 100% door-to-door collection in its slum settlements. Kheda which has privatized the function of door-to-door collection has only about 41% coverage in its slum settlements.

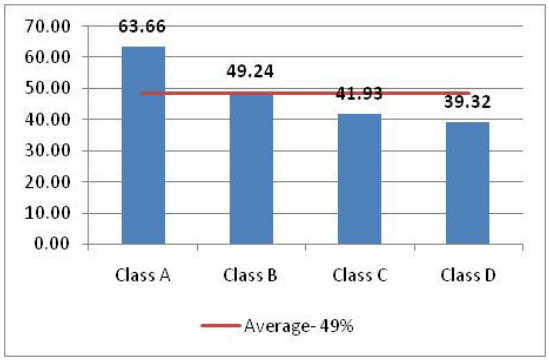
Whereas, collection, transportation, treatment and disposal are all critical aspects of MSW, for the purpose of slum assessment, only household level collection coverage has been studied.

5.1 HH-level coverage of SWM services in 'slum settlements'

HH-level coverage of SWM services in slum settlements is defined as percentage of households that are covered by daily doorstep collection system to the total number of households in the slum settlements.

5.2 State Scenario

Graph 5.2– Coverage of door-to-door collection of solid waste in slums- Gujarat



ULBs across Gujarat are striving to achieve 100% door-to-door collection and are employing an **array of measures to ensure the same like engaging with CBOs/sakhi mandals/NGOs, etc** and using specially designed tri-cycles to access narrow lanes. However, the average coverage of door-to-door collection in slum settlements is about 49% which is a bit higher than that reported by PAS household survey i.e. 37%. Even in slum settlements covered by door-to-door collection, the frequency is as low as once in two weeks. The PAS household survey too validates this as it reports daily garbage collection from only 14% households in slums.

Much variation is observed across class size of cities. 64% households in slums of Class A ULBs are covered by door-to-door collection, while the percentage coverage of door-to-door collection in the slums of Class B ULBs is about 50%. Class C and D ULBs have below average coverage of door-to-

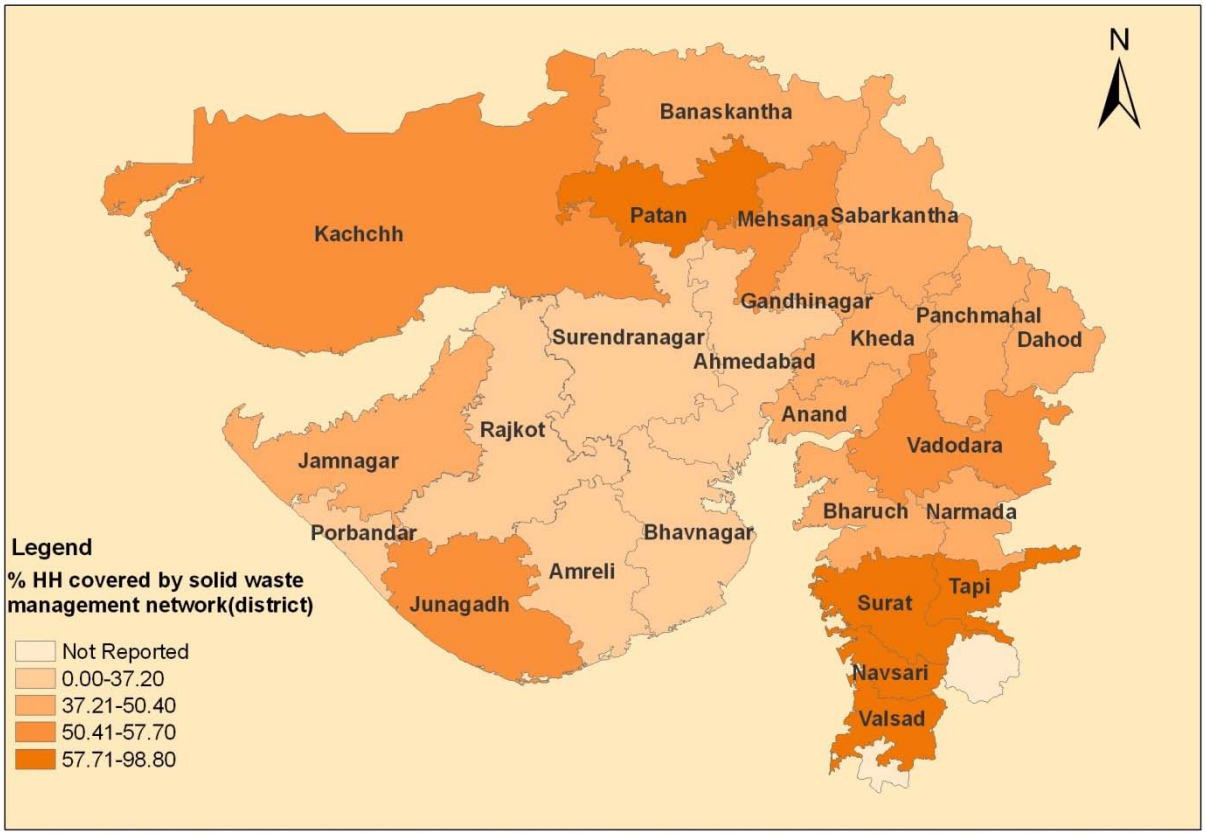
[10] Service level benchmarking target notification- Gujarat, Administrative Staff College of India

door collection in its slums i.e. 42% and 40% respectively. Also, close to a quarter of ULBs have 0% door-to-door collection in its slums.

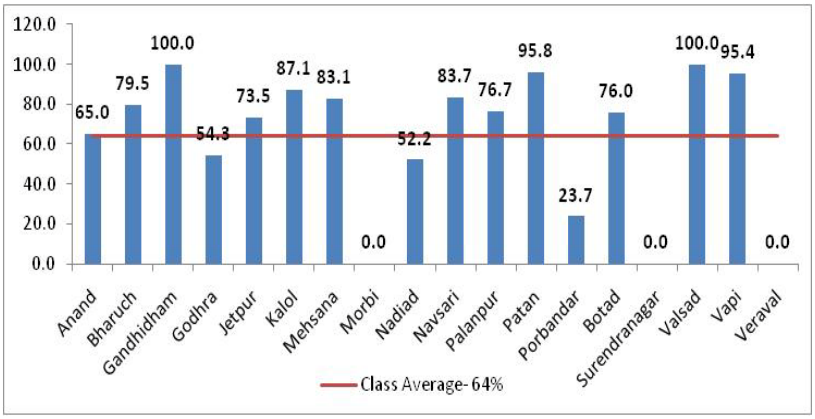
Whereas there is a general awareness regarding door-to-door collection among the citizens living in urban areas, slum dwellers are usually unaware of the concept and hence do not even lodge a complaint in case primary collection is not done from their surrounding areas. This also results in a laxed attitude of ULBs to ensure door-to-door collection from slums.

Hence, there is an urgent need to increase the coverage of door-to-door collection of solid waste from slum settlements in partnership with CBOs/NGOs/Sakhi Mandals along with a rigorous awareness campaign.

Map 5 – Map showing coverage of solid waste management services in districts of Gujarat



Graph 5.3 – Coverage of door-to-door collection of solid waste in slums- Class A ULBs



5.3 Class A ULBs

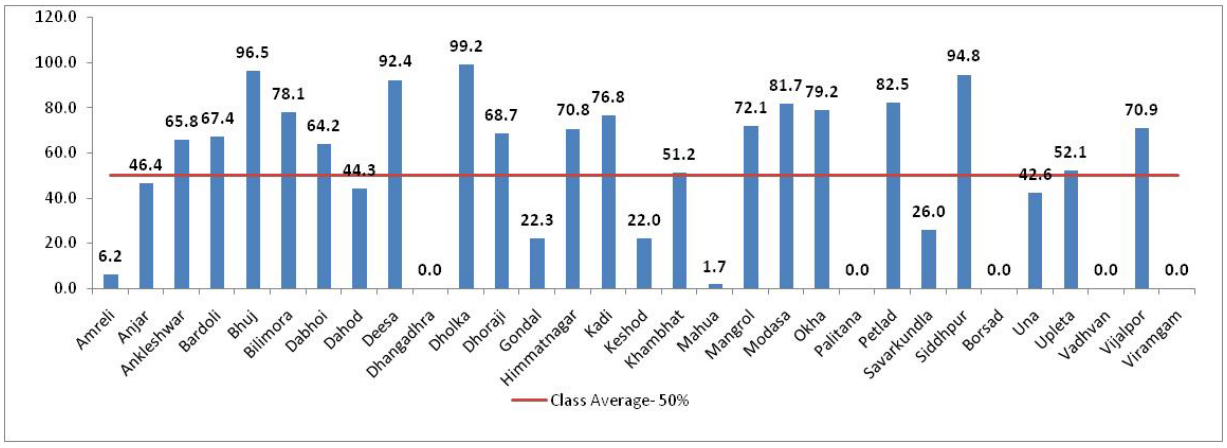
Patan **and Vapi have high door-to-door coverage of SWM services in its slum settlements at 96% and 95% respectively** with the ULB carrying out the function of collection in both the cities. On the other hand, **Morbi, Surendranagar and Veraval have 0% door-to-door collection** in its slum settlements.

Coverage of door-to-door collection in the entire city of Morbi is as low as 36% owing to inadequacy in staff in the ULBs, and the same is reflected in its slum settlements. However, in case of Veraval, the city enjoys about 90% door-to-door collection, whereas its slum settlements have 0% coverage.

Whereas, both Gandhidham and Valsad have 100% door-to-door collection in its slum settlements, the frequency is low i.e. once in two weeks.

5.4 Class B ULBs

Graph 5.4 – Coverage of door-to-door collection of solid waste in slums- Class B ULBs



The average percentage of door-to-door collection of solid waste in slum settlements of Class B ULBs is 50. **Also, close to 50% ULBs i.e. 14 out of 32 ULBs have less than average coverage, out of which 40% ULBs have 0% door-to-door collection in its slum settlements.** Dholka (99.2%), Bhuj (96.5%), Sidhpur (94.8%) and Deesa (92.4%) have % door-to-door collection greater than 90% in its slum settlements. However, the frequency of collection in the above mentioned ULBs is mostly intermittent i.e. once in two weeks. It is observed that in case of Siddhpur, the residents themselves carry out door-to-door collection in 7 out of 12 slums; ULBs are responsible for door-to-door

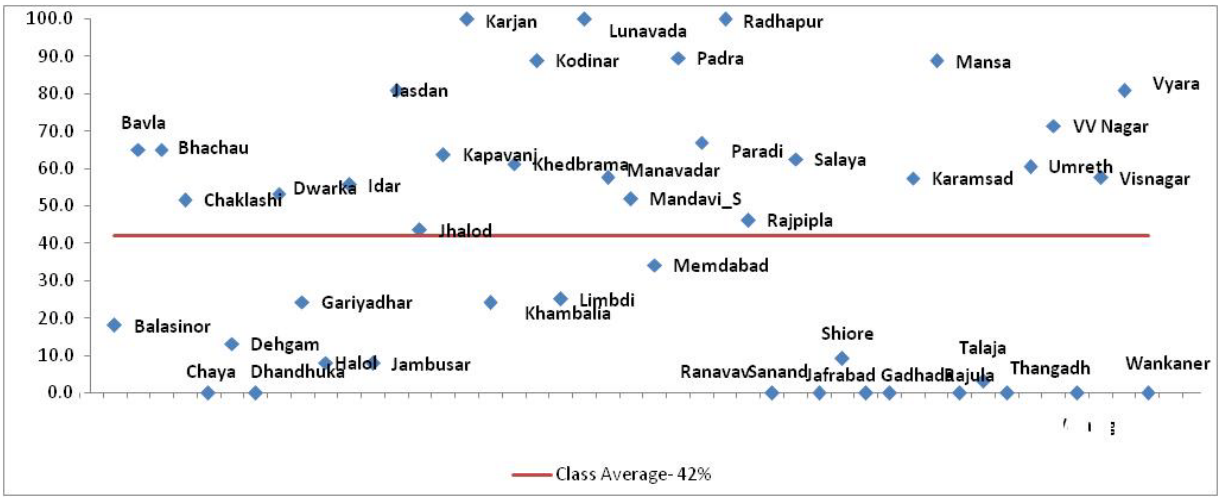
collection from only 2 settlements, whereas the remaining 4 pockets have no service provider. Herein, the frequency of collection in the two slums covered by ULBs is daily.

Figure 5: Secondary collection in the slum of Borsad using tractor

Barring the settlements having 0% coverage, cities of Mahua, and Amreli have extremely low door-to-door coverage of 1.7% and 6.1% in its slum settlements. In both the ULBs, only one out of the total slum settlements is covered by door-to-door collection services. It is interesting to note that in case of Amreli the one settlement covered by door-to-door collection services is the 'Safari Kamdar Area'. The overall city-wide coverage in both the cities is however not that low with Mahua and Amreli having a city-wide door-to-door collection coverage of 74% and 60% respectively.

5.5 Class C ULBs

Graph 5.5 – Coverage of door-to-door collection of solid waste in slums- Class C ULBs



The overall average across slums in Class C ULBs is 42% with as many as a quarter (10) ULBs reporting 0% coverage in its slum settlements. However, the overall city-wide coverage in more than half of these ULBs is greater than 80%, thus highlighting the lack of equity in services.

Other ULBs having extremely low coverage in slum settlements like Halol, Jambusar, and Talaja all have 90% or more citywide coverage. ULBs of Kodinar, Padra and Mansa have high coverage of approximately 90% in its slum settlements. In case of Kodinar, 3 out of 12 settlements have daily collection. Padra and Mansa too have a fairly regular frequency of collection.

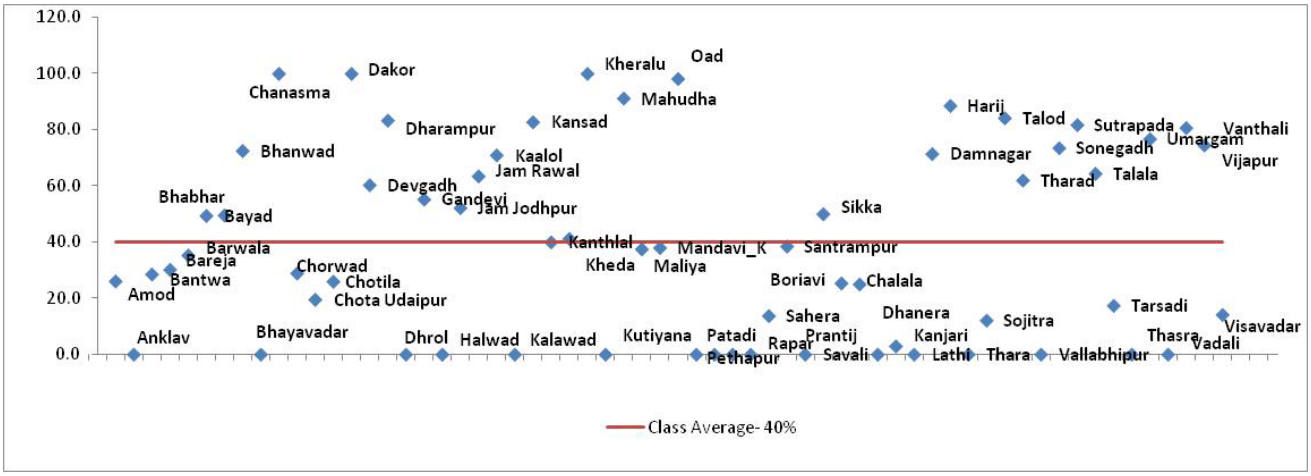
Figure 6: Primary collection in the slum of Mansa using tractor

5.6 Class D ULBs

The average coverage of door-to-door collection in slums across Class D cities is 40%, wherein half of the cities have coverage above the average value of 40% and other half ULBs have below average coverage. Also, out of the 30 below average ULBs, more than a quarter have 0% coverage. Apart from this, Kanjari, Sojitra, Sahera and Visavadar have extremely low coverage in their slum settlements. Apart from Sahera which has a citywide coverage of 52% only al the others i.e. Kanjari, Sojitra, Sahera and Visavadar have a citywide coverage of more than 90%.

High coverage of door-to-door collection is found in the slums of Oad (98%), Harij (89%), Dharampur (83.3), Talod (84%) and Mahudha (91.2%). Out of these, only in the city of Dharampur, all the slums are covered by door-to-door collection and the frequency of collection is daily. It is also important to note that the citywide coverage in the above mentioned cities is less than the slum coverage except in Talod, where the citywide coverage is 100%.

Graph 5.6 – Coverage of door-to-door collection of solid waste in slums- Class D ULBs



Box 8- Door-to-door collection of solid waste- A different perception in slums!

Primary collection of solid waste in non-slum households happens through door-to-door collection. In case of slum households it was observed that baring a few slums, there was an apparent lack of door-to-door collection. Slum dwellers throw their household waste at a designated point which is collected using tractors by the ULBs. **Hence, there is a complete lack of primary collection. Also, the frequency of secondary collection is extremely intermittent i.e. once in two weeks. In some cases, secondary collection happens when a complaint is made to the ULB by the slum dwellers or CBOs/NGOs working in these areas.**

This secondary collection is perceived as door-to-door collection by the slum dwellers. Hence, all the queries/discussions regarding door-to-door collection of solid waste have been

5.7 Ranking of Cities on the basis of door-to-door coverage of SWM services in slums (Top 5 and Bottom 5 Cities)

Top 5 Cities		
Name	**Class**	**Connection coverage**
Oad	D	98%
Bhuj	B	97%
Patan	A	96%
Siddhpur	B	95%
Vapi	A	95%

Bottom 5 Cities		
Name	**Class**	**Connection coverage**
Mahua	B	2%
Kanjari	D	3%
Amreli	B	6%
Jambusar	C	8%
Halol	C	8%

Given that the idea of door-to-door collection of solid waste in slums is a bit skewed, the data on top 5 cities cannot be analyzed. However, in case of bottom 5 cities, Class B cities of Mahua and Amreli and Class C cities of Jambusar and Halol have extremely low coverage.

Chapter 6- Data Comparison and Glimpses of Inequity in Urban Services

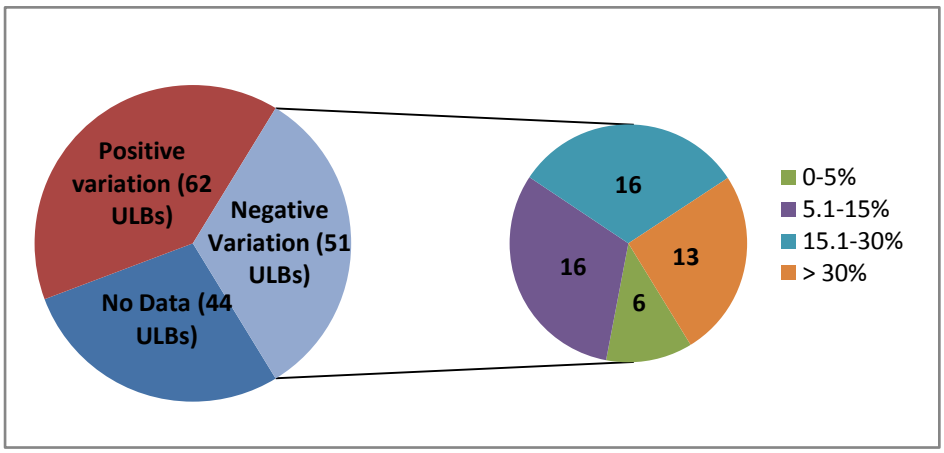
6.1 Comparison of data obtained in HH Survey vs. that reported by the ULBs

Only for about 14% (22 Nos.) cities, the data obtained on all the indicators through settlement level survey matches with that provided by the ULBs.

Different types of variations can be observed between the two data sets as explained below:

Water supply connection coverage- As observed in the pie chart below, out of 157 ULBs, 44 did not report slum data in the PAS survey and hence the same cannot be compared with that obtained in the settlement level survey.

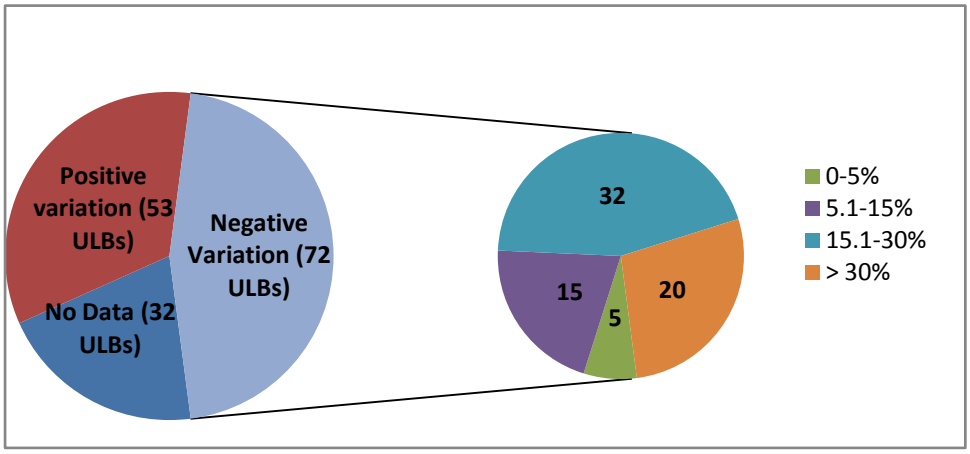
Graph 6.1 – Variation in connection coverage



In 62 ULBs, the water supply connection coverage obtained through slum settlement survey was higher than that reported by the ULB staff during PAS data collection (positive variation). In case of 51 ULBs, the connection coverage obtained through slum settlement survey was lower than that reported by the ULB staff during PAS data collection (negative variation). Also, 13 out of these 51 ULBs have reported negative variation greater than 30%, out of which 4 ULBs have an extremely high negative variation greater than 50%, as shown below:

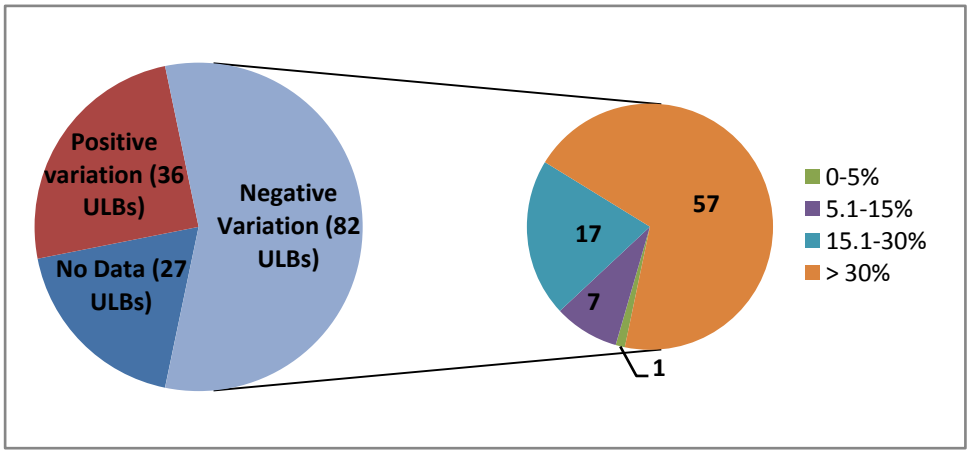
S.N.	ULB	Class	Connection coverage (Settlement survey)	Connection coverage (PAS data collection)	% Variation
1.	Chalala	D	32%	85%	53%
2.	Pethapur	B	9%	60%	51%
3.	Rapar	D	26%	76%	50%
4.	Kansad	D	7%	60%	53%

Coverage of individual toilets- As observed in the pie chart below, out of 157 ULBs, 32 did not report data regarding coverage of individual toilets in slums in the PAS data collection process.



In case of 72 ULBs, the connection coverage obtained through slum settlement survey was lower than that reported by the ULB staff during PAS data collection (negative variation). Also, as high as 20 out of these 72 ULBs have reported negative variation greater than 30%. Cities of Dwarka (C), Bantwa (D), and Pethapur (D) show negative variation of as high as 60%, 61% and 78% respectively.

Coverage of SWM services- Of all the three indicators, highest negative variation can be observed in the SWM sector. This means that the data provided by the ULB during PAS data collection was way higher than the ground situation as reported by the settlement level slum survey.



As high as 57 ULBs reported negative variation of greater than 30%. Also, ULBs of Viramgam (B), Dhanera (D), Palanpur (A), Thara (D), Palitana (B), Kalawad (D), Wankaner (C), Vadali (D) have a negative variation of 100% which signifies that the onsite observed coverage was 0%, whereas that reported by ULB was 100%.

6.2 Inequity in services

Rampant inequality in services can be seen in slum settlements while comparing it with the citywide service coverage data. The highest inequality observed in solid waste management services.

For all the three indicators, more than half the ULBs show lower service coverage in slum settlements as compared to the city-wide coverage.

Also, in case of individual water supply coverage, 61 ULBs report a coverage difference of more than 15% as compared to the city-wide data.

High inequality in coverage can also be observed in access to toilets and solid waste management services too. 70 ULBs have an access difference of more than 15% and as high as 111 ULBs have SWM coverage difference of more than 15%.

Chapter 6- Overall Observations and Lessons Learnt

The slum household survey has helped gain important insights on the overall performance of ULBs in service provision in slums; give an idea about the motivation and aspirations of the supply side i.e. ULBs in enabling increased access to basic services in slums and also exposed some of the systemic issues/challenges in conducting such a comprehensive assessment at a state level. Some of the important observations and lessons learnt are summarized below:

- On the supply side, there is a general lack of interest or motivation in the ULB to enable greater access to services in slum settlements. This can be attributed to the fact that the ULBs are apprehensive about the capacity of the slum dwellers to pay for these services owing to their economical situation. Also, smaller sized ULBs are usually staff constrained and hence non-slum issues gain priority over slum issues.

- There is also a lack of demand for improved water and sanitation services in the slum settlements. Usually, for the slum dwellers, economic stability is a priority over basic services and hence there is no apparent demand generated in the slum settlements.

- Also, the slum dwellers believe that water and sanitation service provision is a duty of ULB and hence it should be provided free-of-cost. Thus, willingness to pay for improved services is usually very low.

- The state of Gujarat has been making pro-active efforts to improve the conditions of slum dwellers by progressive schemes like 'Vyagtigat Shauchalay Yojana' under Nirmal Gujarat. However, there is a need to reconsider the implementation mechanism of these schemes. In a run towards achieving targets, important aspects like quality of construction, materials, and design etc is often compromised resulting into unusable structures (toilet blocks). Other aspects like maintenance are critical too while talking about infrastructure like pay-and use toilets. Formation of community groups to take care of maintenance of toilet blocks ensures functionality of the same.

- Whereas, the bigger cities have a separate cell with dedicated staff to deal with urban poor and slum issues, in case of smaller cities, a 'community organizer' is solely responsible for the same. During the field visits it was observed that the 'community organizer' is often not completely aware of the prevailing conditions in the slum settlements and is unaware of his duties and responsibilities towards the same, clearly pointing at the need to strengthen both the position and capacities of the community organizer.

- Other systemic lessons regarding the timings for conducting the assessment, design of checklist for the same, involvement of local NGOs have also proved to be beneficial overall.

Annexure A

Slum Assessment Checklist

PERFORMANCE ASSESSMENT SYSTEM (PAS) PROJECT SLUM SETTLEMENT LEVEL INFORMATION (Yr 2010-10)				
	Name of ULB		Slum-1	Slum -2
	Name of Slum			

S.No	Description of data elements	*Unit*		
	General Details			
1	Location	(1/2/3/4/5/6)		
	1: Along Nallah (Major Stormwater Drain), 2: Along Other Drains, 3: Along Railway Line, 4: Along Major Transport Alignment, 5: Along River/Water body bank, 6: Hazardous or Objectionable			
2	Slum population	Number		
3	Number of households in the slum	Number		
	Services in slum households at settlement level			
	Water supply	***Unit***		
4	Does the municipality supply water to your settlement?	Y/N		
5	*If Yes, number of households having individual taps/connections*	Number		
6	Number of functional standposts	Number		
7	Number of households dependent on public/community standpost	Number		
8	Number of days of water supplied to the households	Number		
9	Number of hours of supply to the households	Number		
	Sanitation and sewerage	***Unit***		
10	Is your settlement connected to underground sewerage network?	Y/N		
11	*If Yes, number of households having individual sewer connection*	Number		
12	Number of households that have individual toilets	Number		
13	Number of toilets connected to sewerage network	Number		
14	Number of toilets connected to soak pits	Number		
15	Number of toilets connected to septic tanks	Number		

16	Number of toilets connected to open drain	Number		
17	Number of toilets connected to service latrines	Number		
18	Number of toilets which are not connected to any network or disposal system	Number		
19	Number of community toilets	Number		
20	Total number of seats in community toilets	Number		
21	Total number of functional seats in community toilets	Number		
22	Number of households that use community toilets	Number		
23	Number of pay n use toilets	Number		
24	Total number of seats in pay n use toilets	Number		
25	Total number of functional seats in pay n use toilets	Number		
26	Number of households that use pay n use toilets	Number		
27	Number of households that defecate in the open	Number		
28	Are there any complaints regarding sanitation services provided by the municipality?	Y/N		
29	Is there satisfaction of grievances redressed?	Y/N		
	Solid Waste Management	***Unit***		
30	Service provider for door to door collection of solid waste in slum settlements	(1/2/3/4)		
	1: ULB, 2: Private party, 3: residents, 4: No service provider			
31	*If Yes, number of households covered by primary collection of solid waste*	Number		
32	*If Yes, frequency of primary collection of solid waste*	Number		
	1: daily, 2: once in 2 days, 3: once a week, 4: once in 2 weeks			
33	Is waste segregated at source/ household level?	Y/N		
34	Is Slum settlement Clean ?	Y/N		
	Storm Water Drainage	***Unit***		
35	Is the slum settlement connected to the storm water drainage network?	Y/N		
36	*If Yes, level of connectivity to the network*	(1/2)		
	1: fully connected, 2: partially connected			
37	Is the slum settlement connected to open drain network?	Y/N		

38	Is the slum settlement prone to flooding incidents?	Y/N		
39	*If Yes, number of days of water logging*	Number		
	1: <15 days, 2: 15-30 days, 3: > 30 days			
40	Type of road within the slum settlement	(1/2/3)		
	1: CC road, 2: stone paving, 3:No Paving			
41	Are Functional street lights present in the slum settlement?	Y/N		
	Additional Information	***Unit***		
42	Does a CBO/NGO work in this settlement ?	Y/N		
43	Does any Women's Group exist ?	Y/N		
44	Does any Self Help Group exist ?	Y/N		
45	Is there Aganwadi located ?	Y/N		

Annexure B

Sr No	Description	Construction cost (Estimated)	soak pit cost (Estimated)	Total Estimated cost	Difference on choosing the option
1	**Door with four side wall**				
a	Two soak pits	5495	2405	7900	
b	One soak pit	5495	1205	6700	
c	Direct connection with drainage line	5495	505	6000	
2	**Door with Three side wall**				**800**
a	Two soak pits	4695	2405	7100	
b	One soak pit	4695	1205	5900	
c	Direct connction with drainage line	4695	505	5200	
3	**Door with Two side wall**				**700**
a	Two soak pits	3995	2405	6400	
b	One soak pit	3995	1205	5200	
c	Direct connction with drainage line	3995	505	4500	

Note:

- If any labour work or help done by benificeary then less amount collect from additional charges.
- No charges taken for connection on drainage line, however NP /corporations take charges in form of Tax/ User charges.