Urban Water and Sanitation in Gujarat

A Report Prepared by Urban Management Centre

Submitted to

PAS Project, CEPT University

June 2011

Urban Management Centre

URBAN MANAGEMENT CENTRE
in collaboration with ICMA

UMC: The Urban Management Centre is a not-for-profit organization based in Ahmedabad, Gujarat, working towards professionalizing urban management in India and South Asia. UMC provides technical assistance and support to Indian state local government associations and implements programs that work towards improvement in cities by partnering with city governments. UMC builds and enhances the capacity of city governments by providing much-needed expertise and ready access to innovations on good governance implemented in India and abroad. UMC is a legacy organization of International City/County Management Association (ICMA) and hence is also known as ICMA-South Asia. More details are available on www.umcasia.org

PAS, a five-year action research project, has been initiated by CEPT University with funding support from Bill and Melinda Gates Foundation. PAS aims to develop better information on water and sanitation performance at the local level to be used to improve the financial viability, quality and reliability of services. It will use performance indicators and benchmarks on water and sanitation services in all the 400-plus urban areas of Gujarat and Maharashtra. UMC and All India Institute of Local Self Governance are CEPT's project partners in Gujarat and Maharashtra respectively. More details are available on www.pas.org.in

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Abbreviations	
ADB	Asian Development Bank
AIILSG	All India Institute of Local Self Government
BIS	Bureau of Indian Standards
BOO	Build-Operate-Own
CDP	City Development Plan
CEPT	Centre for Environmental Planning and Technology
CMAG	City Managers' Association Gujarat
CPHEEO	Central Public Health and Environmental Engineering Organisation
DCB	Demand Collection and Balance
DOM	Directorate of Municipalities
EWS	Economically Weaker Section
GIDC	Gujarat Industrial Development Corporation
GMARP	Gujarat Municipal Accounting Reforms Project
GMFB	Gujarat Municipal Finance Board
GoG	Government of Gujarat
GoI	Government of India
GTZ	Gesellschaft für Technische Zusammenarbeit
GUDC	Gujarat Urban Development Company
GUDM	Gujarat Urban Development Mission
GW	Ground Water
GWIL	Gujarat Water Infrastructure Limited
GWSSB	Gujarat Water Supply and Sewerage Board
HH	Household
IAS	Indian Administrative Service
ICMA	International City/Country Management Association
ICT	Information and Communications Technology
IEC	Information, Education and Communication
ISIP	Information System Improvement Plan
JnNURM	Jawaharlal Nehru National Urban Renewal Mission
KCDC	Karnataka Compost Development Corporation
KL	Kilo Litre
KPIs	Key Performance Indicators
LAIs	Local Action Indicators
LPCD	Litres Per Capita Per Day
MC	Municipal Corporation
MoUD	Ministry of Urban Development
MSW	Municipal Solid Waste

Abbreviations	
MT	Metric Ton
NGO	Non-Governmental Organization
NIUA	National Institute of Urban Affairs
NOC	No Objection Certificate
NRW	Non Revenue Water
O&M	Operation and Maintenance
PAC	Project Advisory Committee.
PAS	Performance Assessment System
PIP	Performance Improvement Plan
PPIAF	Public-Private Infrastructure Advisory Facility
PPM	Parts Per Million
RDF	Refuse-Derived Fuel
RMC	Rajkot Municipal Corporation
SLB	Service Level Benchmark
SMC	Surat Municipal Corporation
SMS	Short Message Service
SSLB	Standard Service Level Benchmarking
STP	Sewage Treatment Plant
SW	Surface Water
SWM	Solid Waste Management
TOC	Total Organic Carbon
TPD	Tons per day
UDD	Urban Development Department
ULB	Urban Local Body
UMC	Urban Management Centre
UT	Union Territory
UWSS	Urban Water And Sanitation Services
WDS	Water Distribution System
WSP	Water and Sanitation Program of World Bank
WTP	Water Treatment Plant

Acknowledgements

The Urban Management Centre would like to acknowledge Centre for Environmental Planning and Technology (CEPT) for providing an opportunity to work jointly on Performance Assessment System (PAS) project.

The Performance Assessment Project was initiated in January 2009. PAS aims to develop indicators for benchmark, measures and monitor the performance of the urban water and sanitation services and also improves the overall performance of service delivery systems of all urban local bodies of Gujarat. UMC has engaged in field level data collection and programmatic activities of all ULBs in Gujarat.

During the first year of the project, emphasis was laid on data collection from all 166 ULBs and analysis of the data which serve as a baseline data. This annual report with analysis of Key Performance Indicators of all the three sectors were analyzed and presented in the report.

We are grateful to Dr. Dinesh Mehta, Dr. Meera Mehta, Prof. Mona Iyer and Prof. Madhu Bharti Sharma from CEPT university for their valuable inputs and guidance on the PAS program. We would also like to thanks to members of PAS Project Advisory Committee and Expert committee for their feedback on program.

We also extend our thanks to. Dr. Manju Ghodke, and Dr. Vandana Phadke for their valuable support in data analysis process.

Our sincere thanks to Chief Officer and staff of ULBs for their contribution in data collection during the field visit. We would also like to acknowledge the assistance provided by all our PAS team for working hard on the data collection and finalization of this report.

Manvita Baradi

Director

Urban Management Centre

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EXECUTIVE SUMMARY-ANALYSIS OF RESULTS

Gujarat at a glance

Total Population (in million) in 2001	50.7
Total Urban Population (million) in 2001	18.9
% urban to total state population	35.9
% of urban population in a 'slum settlements' (2001)	18.1% (3.4 million)
Urban Local Bodies	
Number of ULBs (total)	166
Municipal Corporations	6
A Class ULBs	18
B Class ULBs	33
C Class ULBs	44
D Class ULBs	64

Ground Work

Performance Assessment System (PAS) 2008-13 aims to measure, monitor and improve the performance of the municipal water and sanitation services in urban areas. The project includes all 400 urban local governments in the states of Gujarat and Maharashtra of India. The project is financially supported by the Bill and Melinda Gates Foundation, USA. The program is implemented by the CEPT University (CEPT), which is the lead partner, along with the Urban Management Centre (UMC) and the All India Institute of Local Self Government (AIILSG).

The project aims to measure, monitor and improve the performance of the water and sanitation services in urban areas. 159 municipalities and 7 municipal corporations of Gujarat are being studied as part of the project. The PAS indicator framework is aligned with the Government of India's Service Level Benchmark (SLB) indicator framework and the same indicators are generated by the PAS checklist.

In the first round of data collection, information was collected from all 166 ULBs by the UMC project staff in person. Several visits were made depending on the need and interaction requirement at the ULB.

UMC had multi-stakeholder consultative processes to finalize the indicators, parameters and protocols for performance assessment in Gujarat. The UMC team prepared a directory of city profiles for all 159 municipalities of A, B, C, D classes of Gujarat in March 2009.

12 pilot cities were finalized based on the geographical and size variations UMC team visited each pilot city for data collection. A mapping exercise for all utilities was also conducted. Data gaps were identified, and later, the data was validated.

The process for pilot cities was scaled up for the remaining cities in Gujarat after due corrective actions.

Ground Work

The remaining 154 ULBs were divided into eight regions/zones, with each zone sub-divided into 4 clusters of 4 to 5 ULBs each. UMC mobilized two sets of teams—one was a set of internal teams and the other constituted of retired chief officers/ULB engineers. The team visited all 154 ULBs for data collection from January to mid June 2010.

The process adopted for data collection in the remaining 154 ULBs:

- The methodology of data collection is similar to that in the pilot cities i.e. meeting with city officials, film show on PAS program, meeting with department heads for data collection, site visit to important places and wrap-up meeting with chief officers/president of ULB
- The UMC teams made limited visits to WTP, WDS, STP and dumping sites in each of the ULBs. They would also collect information on slums as provided by the ULB. Information pertaining to city and ward boundaries, location of WTP, WDS, STP, water supply and sewerage network, location of slum settlements, etc. will be marked on Google map. UMC team would prepare standard notations for marking these utilities on the Google maps
- Identification and documentation of best/leading practices was also done by the teams

During field visits for data collection, the UMC team mapped the utilities on Google images using standard notations with specific colour codes.

The finance data for all ULBs was received from the Gujarat Municipal Accounting Reforms Project (GMARP) with the assistance of the City Managers' Association of Gujarat (CMAG). The property tax survey and availability of property tax software, which was facilitated by the Gujarat Municipal Finance Board in the year 2005, made it possible to get updated ward-wise property tax details in most of the ULBs.

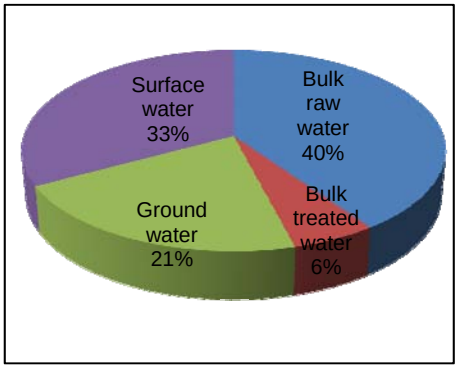
Apart from pilot cities, the team has also analyzed the data of 80 ULBs. The filled-up checklist (hard copy), along with indicators results, was sent to ULBs during February and March 2010 for data validations. During the process, it was also learnt that ULBs are facing difficulties in reading the indicators. UMC has now developed indicator sheet in Gujarati along with a short note on how to read the indicators. A copy of revised indicator sheets in the local language will be sent to all ULBs for validation of data.

The report presents the results across all four sectors and the indicators across all ULBs.

1. WATER SUPPLY

1. Water Supply: Source and Treatment

Sources of water



1.1. Sources of water

The major source of water supply in Gujarat, constituting 46% of the total water production, is through purchase of bulk water (raw and treated) from the Narmada canal. Other sources include surface water (33%) and ground water sources (21%).

Maximum ULBs (43%) are dependent on mixed sources of water supply; 35% ULBs are totally dependent on ground water while 18% are dependent only on bulk purchase.

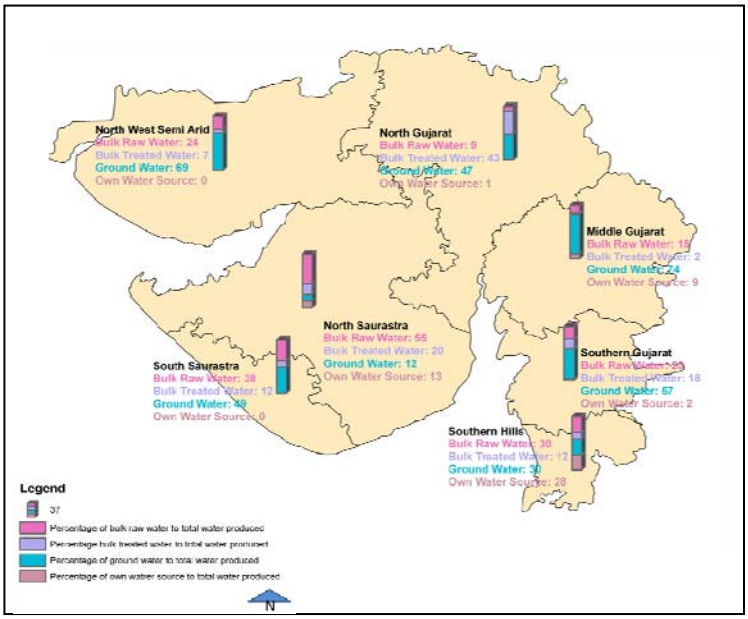
Only 4% cities use their own surface water source, directly from rivers or dams.

Bulk purchase is the main source of water production across all agro-climatic zones. ULBs in South Gujarat were more dependent on own-sources of water supply while dependence on ground water is the highest in Central Gujarat followed by North Saurashtra which is a rainfall-stressed region of Gujarat. As the dependency of ground water is high in these regions, water quality issues are also prominent here. These clearly show the need to look at alternate sources of water in these areas. Cities in Saurashtra are mostly dependent on bulk treated and raw water sources (mainly Narmada).

Source of Water Supply	Number of ULBs	% of ULBs
Bulk Raw Water	13	8
Bulk Treated	17	10
Ground Water	59	35
Own Source	6	4
Mixed Sources	71	43
Total	166	100

Morbi Water treatment plant

Comparative analysis of water supply



State level Scenario

Key Performance Indicators	Unit	Total cities	Mean Count	Nd	Na	Bench	Avg.	SD	Max	Min	Median
Coverage of water supply connections	%	166	162	4	0	100	68	23	118	0	67
Per capita supply of water	LPCD	166	166	0	0	135	77	36	165	11	74
Per capita supply of water at consumer end	LPCD	166	166	0	0	135	88	44	291	14	83
Extent of metering of water connections	%	166	6	0	160	100	1	1	3	0	0
Extent of non-revenue water	%	166	103	63	0	20	30	14	57	5	29
Continuity of water supply	Hrs/day	166	166	0	0	24	2	1	10	0	1
Efficiency in redressal of customer complaints	%	166	165	0	1	80	98	7	100	56	100
Quality of water supplied	%	166	166	0	0	100	96	16	100	0	100
Cost recovery in water supply services	%	166	164	2	0	100	60	46	216	0	47
Efficiency in collection of water supply related charges	%	166	161	5	0	90	50	22	100	2	49
Coverage of water supply connections in slums	%	166	139	25	2	100	53	29	100	0	60

Nd- No data applicable
Na- No data available
Mean Count – The number of ULBs that have reported a reliable value for the indicator
Avg. – Average
SD - Standard Deviation

1.2. Water Treatment

ULBs with water treatment plants

Class of ULB	ULBs With WTP	Total Cities
Municipal Corporation	6	7
Class A	10	18
Class B	14	33
Class C	12	44
Class D	3	64
Total	45	166

Out of the 166 ULBs, 45 ULBs (27%) have Water Treatment Plants (WTP).

Mostly larger ULBs have WTPs which could be attributed to their financial strength and the staff capacity to manage WTPs as well as financial support from Central and State government through ongoing programs like JnNURM. Among municipal corporations, only Junagadh does not have a WTP.

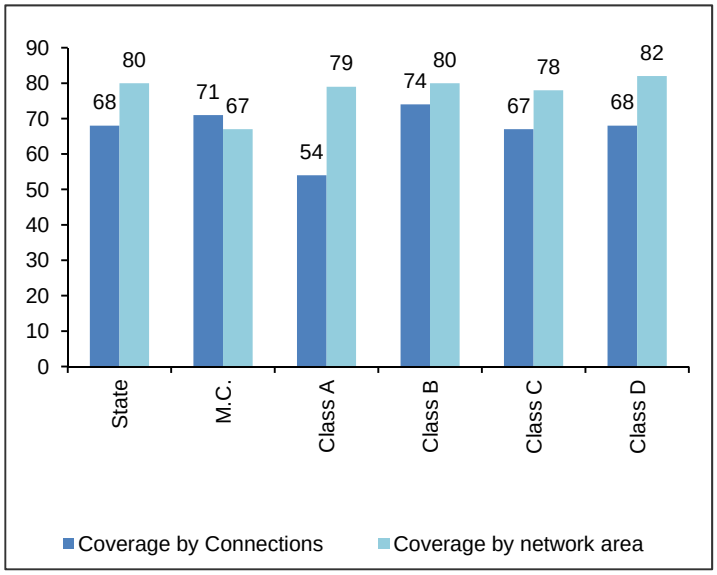
1.3. Access and Coverage

Water Treatment Plant
(City – Kalol)

Water Works - Ramwadi
(City – Kutiyana)

Chlorination unit
(City – Ahmedabad)

Coverage of water supply (%)-Gujarat state

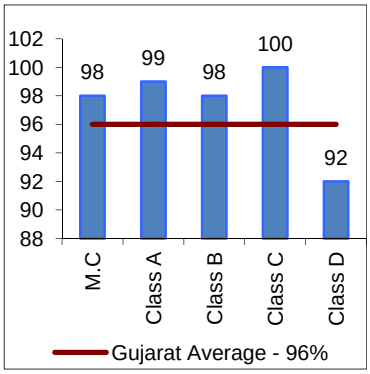


Except 30 ULBs, all the rest are covered 100% by water supply networks. The areas that are not covered by pipelines are provided water through non pipeline means (e.g. tankers).

In Gujarat, reliability scale is considered with Reliability A for all the ULBs that have been provided with property tax software. The software provides the number of HHs with water connections.

However, in a few ULBs where the data in the property tax software have not been updated; and where information on water connections has been obtained from the physical connection register, the data has been considered with Reliability C. 96% of ULBs have data with either Reliability A or C.

Though differences in average coverage of network area and connections might not be apparent in MCs, individual disparities upto 50% are present.



Surat- Best Quality Of Water

Surat Municipal Corporation provides good quality water to its citizens, through its state-of-the-art water-quality surveillance mechanisms. With the objective of improving water quality, the Hydraulic Department of the SMC established various water-testing laboratories with modern instruments and equipment.

Consequently, there was regular and accurate monitoring of raw and treated water. Parameters such as turbidity, chlorine, total dissolved solids, pH, colour, dissolved oxygen, etc. were measured and monitored. ISO 10500 standards were strictly followed.

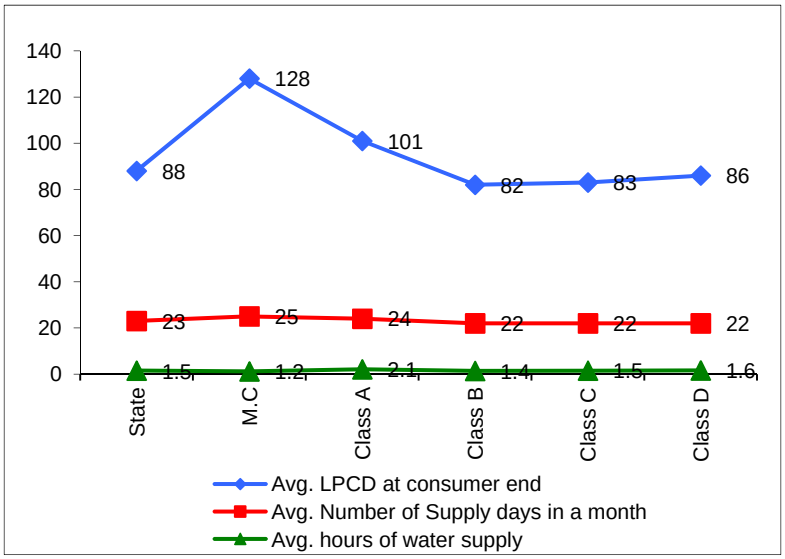
Result: During 2006–07, 99% samples collected on a daily basis were found to be of good quality.

15 ULBs (9%) have crossed the 135 LPCD benchmark and 11 ULBs provide <30 LPCD.

50% ULBs provide at least 83 LPCD water and at least 1 hour/day.

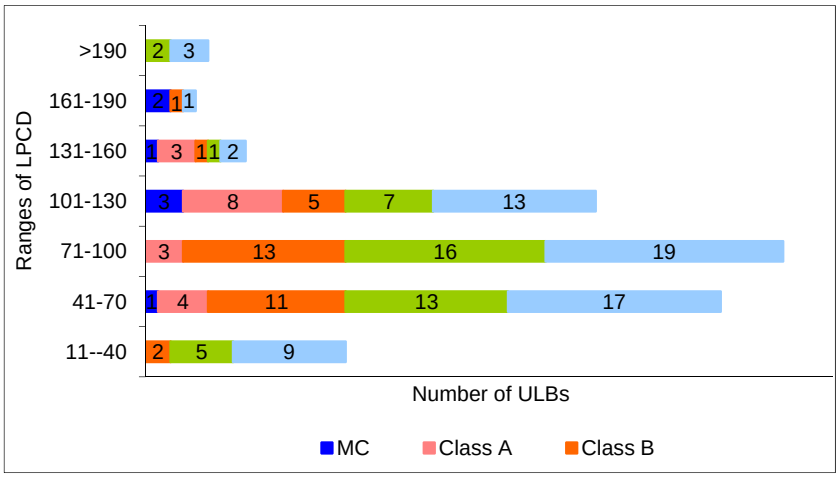
1.4. Service levels and Quality

Quality of water supplied



Service levels for water supply

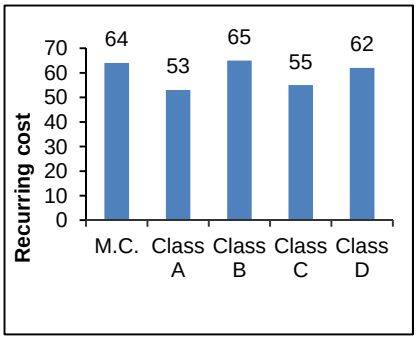
The CPHEEO benchmark stands at 135 LPCD. The state average for per capita water supply is 88 litres per day as against the CPHEEO Benchmark and the SLB national average of 130 litres per day. The average number of hours of water supply in the state is 1.5 hours. The average number of supply days in a month is 23.



Municipal Corporations provide water supply service of 128 LPCD for 25 days in a month. There are no significant variations in LPCD, continuity and number of water supply days in a month across A, B, C, D classes of cities. The variation in service level of water supply is dependent on the agro-climatic zone.

Agro Climatic Zone	No. of ULBs	Avg. Coverage of Water Supply (%)	Avg. Per Capita Water Supply (LPCD)	Avg. Hours of Supply(Hr)	No. of days of supply in a month
Southern Hills	11	64	72	2.3	28
South Gujarat	10	80	107	2.5	28
Middle Gujarat	37	71	97	2.4	27
North Gujarat	39	73	85	1.3	26
North West Semi Arid	6	78	89	1	16
North Saurastra	45	61	85	1	16
South Saurastra	18	60	79	1	16

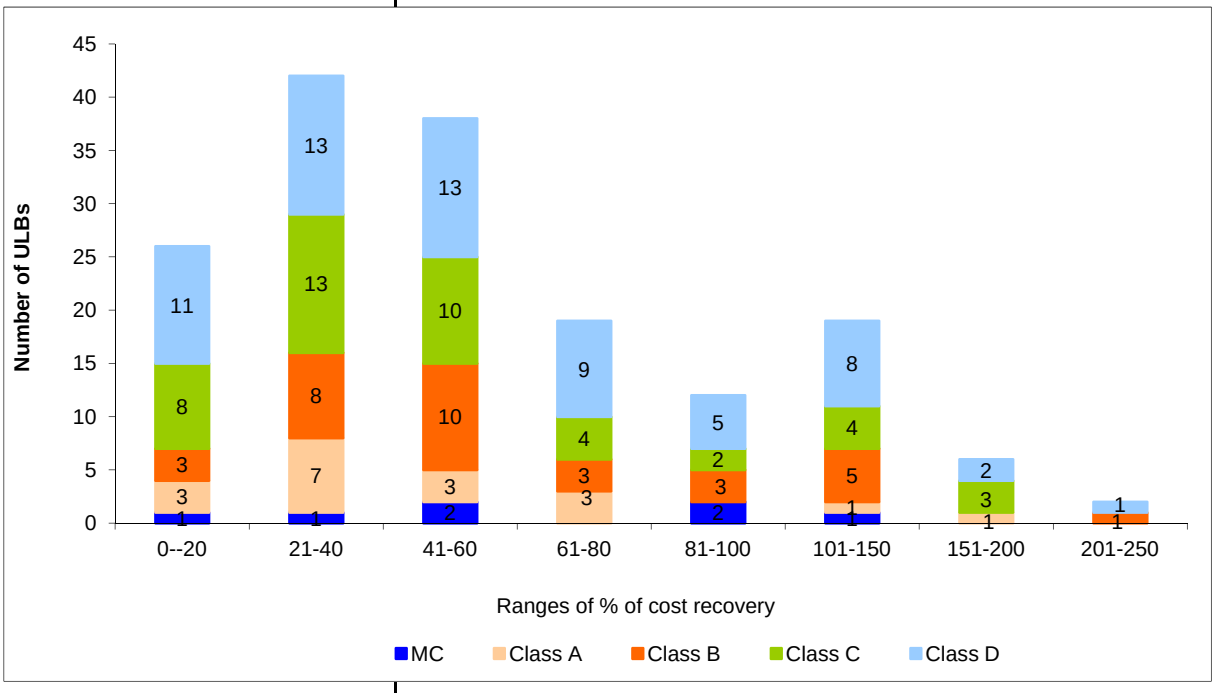
1.5. Financial Management



Even at the national level, One of the mandatory reforms to be undertaken by ULB under the JnNURM program prescribes "the levy of reasonable user charges by ULBs and parastatals with the objective that the full cost of Operation and Maintenance (O&M) or recurring cost is collected within the next seven years".

At the state level, under the Gujarat Municipal Accounting Reforms Project (GMARP), all municipalities have computerized accounting systems with accrual-based double entry system. This has facilitated ease of obtaining financial data from the ULBs using Tally Software.

Financial management of ULB's



26 ULBs cannot recover more than 20% of the costs and this affects the service level quality to citizens as well as means that water supply is being subsidized by other services.

The tariff has high variability ranging from Rs 10 in Amod to Rs 720 for domestic connection in Keshod municipality.

PPP Initiatives for property tax collection in Mehsana municipality.

Mehsana municipality has undertaken a series of initiatives for improving its property tax collection. The municipality initiated provisions of rebate and penalty for tax collection in 2002-2003. In 2005-2006, the ULB invited tenders and selected a private agency for tax collection. The rebate and penalty policy was applied on private agency. This saw the tax collection rise to a maximum of 94% in the year 2009-10.

Leaking Valve, Morbi

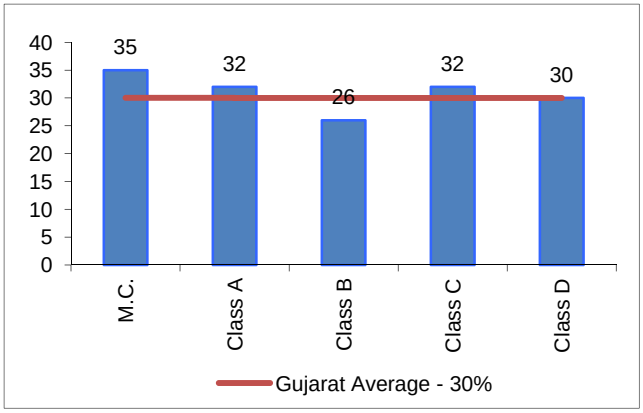
At the state level, the average of cost recovery is 60%. This indicates that only 60% of all expenditure incurred on water supply is recovered through local taxes and charges. A quarter of the 136 ULBs fall under the range between 21-40% of cost recovery. 12 ULBs are good performing as they recover 80-100% of the costs.

The cost recovery in Class A, C and D ULBs are otherwise low except for a few ULBs which report >150 values. Ahmedabad Municipal Corporation has allocated 30% of property taxes as water tax. All other ULBs levy a fixed yearly tariff.

Among all classes of ULBs, the average cost recovery of Class B ULBs is the highest followed by Municipal Corporations and Class D. This signifies that low cost recovery ratios also signify that the ULBs give low priority to operation and maintenance of existing networks.

With limited cost recovery, municipalities which are dependant on ground water sources have high pending arrears as they spend high for water production. The low cost recovery ratios also signify that the ULBs give low priority to operation and maintenance of existing networks.

Efficiency in service operation



1.6. Non-Revenue water

Data from 103 ULBs is available for analysis. At the state level, the average for NRW comes to 30% which is double than the desired national SLB of 15%. The reliability of data for calculation of NRW is D indicating that the same is based on estimation by ULB officials. The average NRW across all class size of cities ranges between 26-35% indicating marginal differences across classes.

1.7. Efficiency in Redressal of Customer Complaints

Redressal Of Customer Complaint (Range in %)	51-60	61-70	71-80	81-90	91-100	NA
Number of ULBs	1	2	5	7	150	1

Grievance redressal system in Surat Municipal Corporation

Surat Municipal Corporation introduced an automated complaint lodging and monitoring system. Under this system, citizens are able to register the complaint through phone, email or post. Complaints get bifurcated based on engineering works and public health and sanitation works. These complaints too are bifurcated on the basis of priority as Emergency, High priority, Medium priority, and low priority. Monitoring of grievance redressal happens at 3 levels- at the zonal officer/department head level on a daily basis; zonal chief/divisional head level and by the municipal commissioner on weekly basis.

In Gujarat state, all ULBs have a system to register complaints either in form of manual register (note book) or some kind of computerized system. The average percentage of efficiency in complaint redressal is 98%, which is higher than the desired national SLB of 90.

150 ULBs have reported that their efficiency of complaints redressal is in the range of 91-100%; out of these 150, 135 redress all complaints within the stipulated timeframe. However, the reliability of data is very low due to lack of maintenance of regular records of complaints redressed; the data provided is based on estimates provided by ULBs. Most of the ULBs in the state have attempted to establish a system to register complaints and to redress them within a stipulated time, as mentioned in the citizens' charters of ULBs. After the GOI's initiative to prepare citizens' charter, various ULBs in Gujarat have undertaken to formulate and operationalize such charters.

The grievance redressal systems range from manual system, where the citizen needs to approach the ULB to register a complaint in a paper form, to ICT application-based, where they can register the complaint through a telephone, SMS or the ULB website.

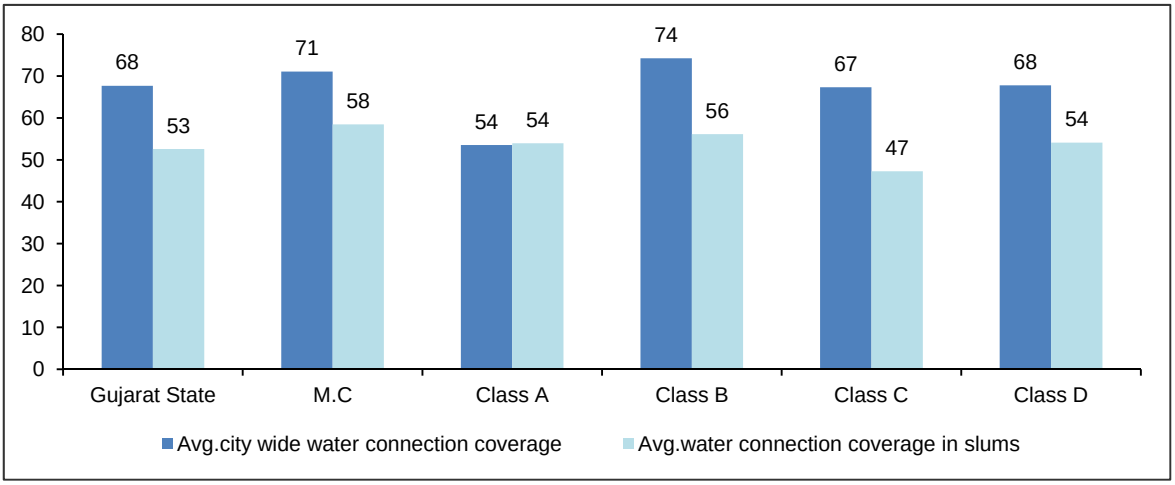
1.8. Equity

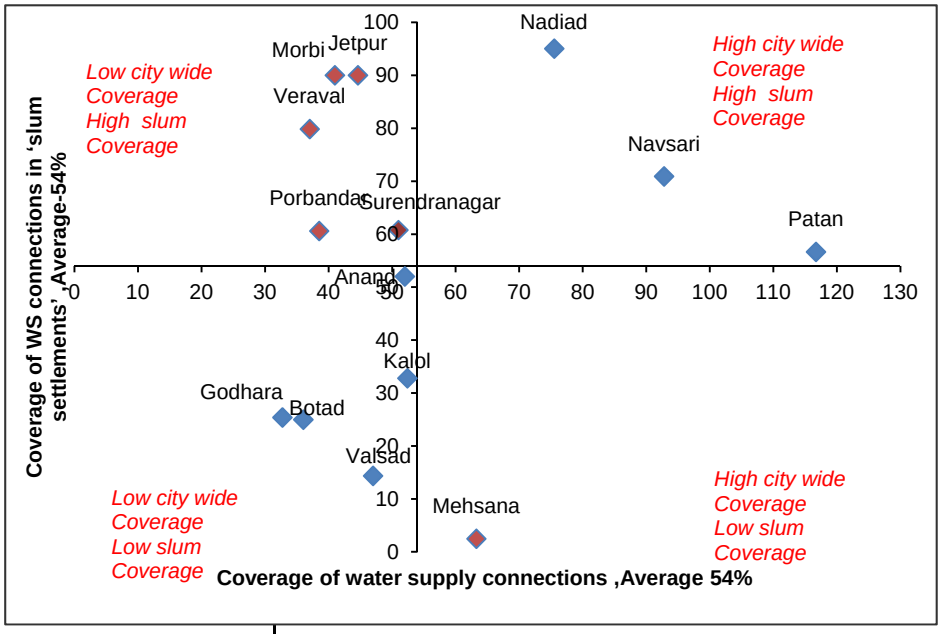
Ahmedabad Municipal Corporation

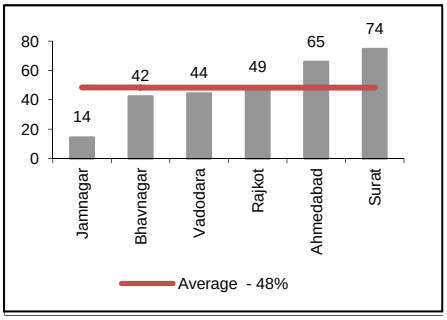
The scheme, previously known as 500 NOC scheme, was launched in 2002 by the Ahmedabad Municipal Corporation. The scheme aims at providing slum residents with a No Objection Certificate (NOC) that allows them to apply for legal individual sewage and water connections for their house.

At the state level, the average coverage of water supply connections in slum settlements is 53%; this is lower as compared to the state level coverage of water supply connections at 68%. There is inequity across all the classes of ULBs, with highest inequity in Class C. The coverage in slum settlements in Class A ULBs is higher than the overall city-wide coverage. The reliability of data is mostly D for coverage in slum settlements.

Coverage of water supply connection in city and slum-Gujarat state







2. WASTE WATER

This is the first time in Gujarat that state-wide performance assessment of urban water supply and sanitation utilities is being carried out. Data are not readily available with ULBs. Most of the data are based on estimations by the ULB staff and hence the reliability band of data is low. Most of the indicator values fall under Reliability D.

Surat has the highest coverage of 75%, Jamnagar has lowest sewerage coverage- mostly households use septic tanks or soak pits. If the latter is true, it could possibly imply contamination of shallow ground water aquifers. Morbi ULB has reported a very high number of illegal sewer connections of around 8,000 in the city.

Sewerage system in the cities – the Final outlet of waste water in open
(Picture : Morbi city)

Sewer line cleaning machine
(Picture – Morbi city)

In Gujarat, reuse and recycling of waste water is not practised. However, Surat Municipal Corporation has initiated the practice and presently, 1% of total waste water collected through sewerage network is being recycled or reused.

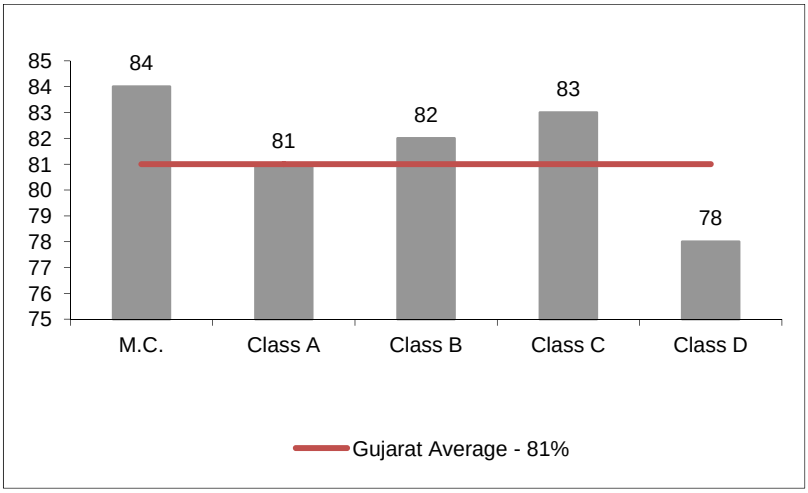
2.1. Access and Coverage

In terms of toilet coverage, almost 81% households have access to individual or community toilets, which is lower than the Service level benchmark (100%). As per the Census 2001, the toilet coverage in urban Gujarat was 81%. Out of 166 ULBs, 6 cities (mainly class D) do not have data pertaining to individual toilet coverage.

Sixty seven ULBs (40%) have some extent of underground drainage (sewerage) network.

All Municipal Corporations have sewerage networks. Data of 110 ULBs are not considered for coverage analysis as information from 99 ULBs is not applicable due to absence of sewerage network and while it is not available from 11 ULBs.

Coverage of household toilets (%) – Gujarat state



2.2. Service levels and quality

Collection efficiency signifies the effectiveness of the network in capturing and conveying it to the treatment plants. One third of ULBs have some kind of treatment facility. 6 ULBs have sewerage treatment plants and 15 have oxidation ponds.

Sewerage – Open Drain
(Picture : Patan)

Drainage Cleaning
(Picture: Kalol)

Sewage Treatment Plant, Singanpore
(Picture: Surat)

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.

Surat and Vadodara have excellent near 100% collection efficiency; whereas Ahmedabad has 65% efficiency and Rajkot has close to 50% efficiency of waste water network. Surat and Vadodara too have more than 100% capacity for sewage treatment. Ahmedabad and Rajkot have 94.5% and 69% capacity respectively.

54 ULBs have a dedicated department for waste water management. The remaining ULBs have a sanitation department that deals with solid waste collection and disposal as well as waste water, together called as 'conservancy services'.

Overall a quarter of ULBs with reported data show <6% cost recovery. A quarter of Class D cities report cost recovery ~1%. 14 ULBs (15%) report >100% cost recovery.

Extent of cost recovery in waste water management

Class of ULBs	Data Available From Number Of ULBs	Average Cost Recovery in Waste Water Management (%)
M.C	7	49
Class A	13	69
Class B	28	38
Class C	22	49
Class D	22	61
Total	92	51

2.3. Financial Management

Operating revenue includes all waste water related income, excluding revenue grants. Operating expenses considered as all expenses under waste water services, excluding loan interest payment and depreciation.

The state average in cost recovery is at 51%, which is low and indicates less revenue income generated against operating expenses under waste water services. 24 ULBs have reported more than 100% cost recovery. 63 do not levy any sewerage /drainage tax. The average efficiency in collection of sewerage-related charges is 50% in Gujarat.

The GoG has also initiated sanitation program under Nirmal Gujarat program and provide tecnical and financial support for construction of toilets for Urban Poor to achieve Swarnim Goal.

Gandhidham, which has the highest coverage of sewerage across all Class A cities, has no coverage in slums.

Upleta has a very low coverage of 15% in slums; and also has a high number (856) of persons per public toilet seat, indicating the need for the ULB to increase number of public toilets in slums so as to improve access to slum dwellers.

Community Toilet,
(Picture: Vadnagar)

Soak Pit in Jantanagar Slum
(Picture: Palanpur)

3.1. Coverage of Toilets in Slums

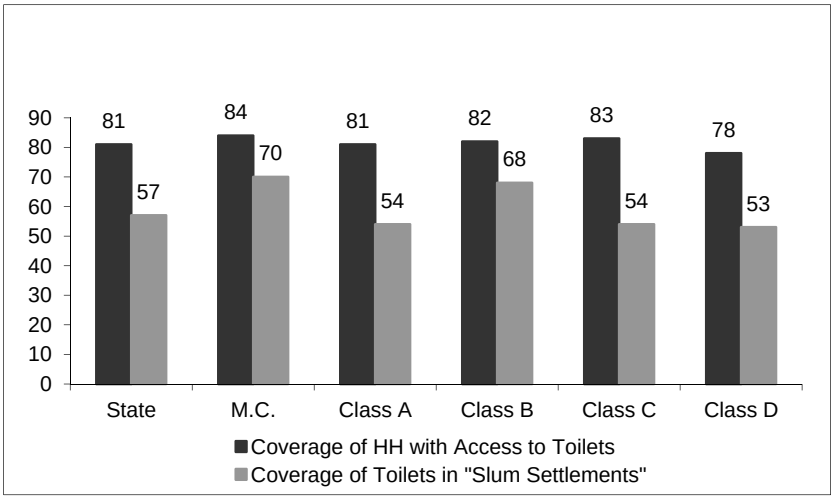
In Gujarat, none of the ULBs has data pertaining to spatial variations in coverage of individual toilets.

The state average coverage of toilets in slums comes to 57%. There is marginal difference across all the classes in terms of ULBs and slum coverage, except a high coverage in Class B ULBs.

As compared to the MC coverage of individual toilets, slums have 14% lesser coverage on an average. Overall, a quarter of ULBs that have reported data show <39% coverage of toilets in slums.

This shows that there is higher dependency on community/Pay-and-Use toilets in slums.

Among Class D ULBs, only 7 have sewerage network and 4 of them have sewerage connections in slum settlements. However, the reliability of data is low in band D.



3.2. State level Scenario

Key Performance Indicators	Unit	Total cities	Mean Count	Nd	Na	Bench	Avg.	SD	Max	Min	Median
Coverage of toilets (indiv + comm)	%	166	162	4	0	100	81	19	100	4	84
Coverage of waste water network services (resi)	%	166	58	8	100	100	51	28	104	3	52
Coverage of waste water network services (resi+non resi)	%	166	57	9	100	100	33	22	92	1	30
Collection efficiency of waste water network	%	166	13	1	152	100	77	30	100	0	92
Adequacy of waste water treatment capacity	%	166	6	1	159	100	101	48	167	32	102
Quality of waste water treatment	%	166	6	1	159	100	90	9	100	75	88
Extent of reuse and recycling of waste water	%	166	5	1	160	20	0	0	1	0	0
Extent of cost recovery in waste water management	%	166	92	12	62	100	51	56	260	0	37
Efficiency in redressal of customer complaints	%	166	146	20	0	80	98	7	100	44	100
Efficiency in collection of sewerage related charges	%	166	61	2	103	90	55	24	100	0	55
Coverage of toilets in slums (indiv+ comm)	%	166	133	31	2	100	57	25	100	2	54
Coverage of sewerage connections in slums	%	166	47	18	101	100	20	24	75	0	7

Nd- No data applicable
Na- No data available
Mean Count – The number of ULBs that have reported a reliable value for the indicator
Avg. – Average
SD - Standard Deviation

4. SOLID WASTE MANAGEMENT

No. of cities with treatment facility

Type of Treatment Facilities	No. of ULBs
Composting	11
Vermi Composting	50
RDF	3
Waste to Energy	1
Community-Based Vermi Composting	1
Total	66

Policy initiative for improved SWM in urban Gujarat by Gujarat Urban Development Company (GUDC)

GUDC formed a committee to address the concerns, and to outline a broad strategy for solid waste management. Under the project, solid waste in all municipal corporations and municipalities will be treated. The government has allocated over Rs. 2,150 m for design and construction of landfill sites, compost plants, purchase of equipment as well as Information.

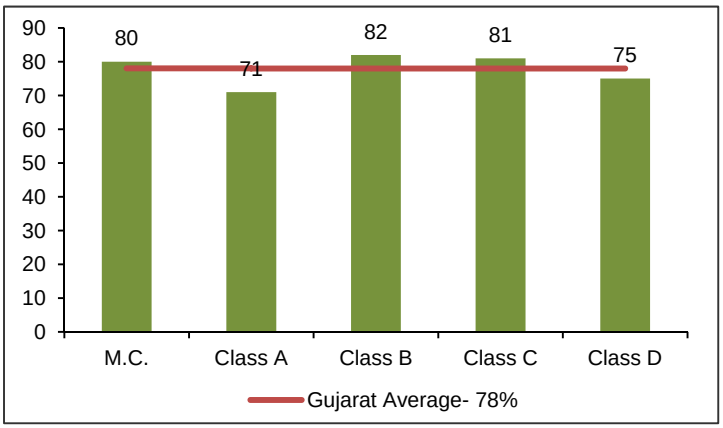
Vermicomposting Plant
(Picture: Jasdan, Kutiyana)

4.1. Access and Coverage

Currently, 15% of the ULBs have reported 100% door-to-door coverage, while partial coverage has been achieved by 82% of the ULBs. Newly-formed ULBs like Bhabhar and Thara (Class-D cities) have yet to initiate the process of door-to-door collection. However, only 12 ULBs have initiated segregation at source[1].

In Gujarat, 66 ULBs (40%) have waste processing facilities such as Composting, Vermi Composting, Refused Derived Fuel (RDF), Waste to Energy and Community-based Composting.

Household-level coverage of SWM services (%) –Gujarat state

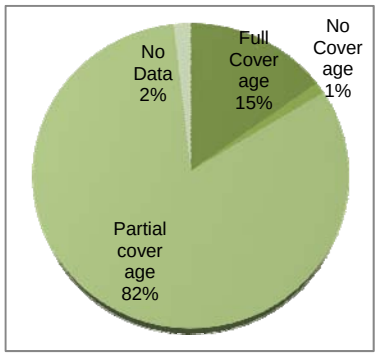


Although all ULBs have identified sites for scientific disposal of solid waste, only Rajkot and Surat Municipal Corporations have operational scientific, engineered landfill sites.

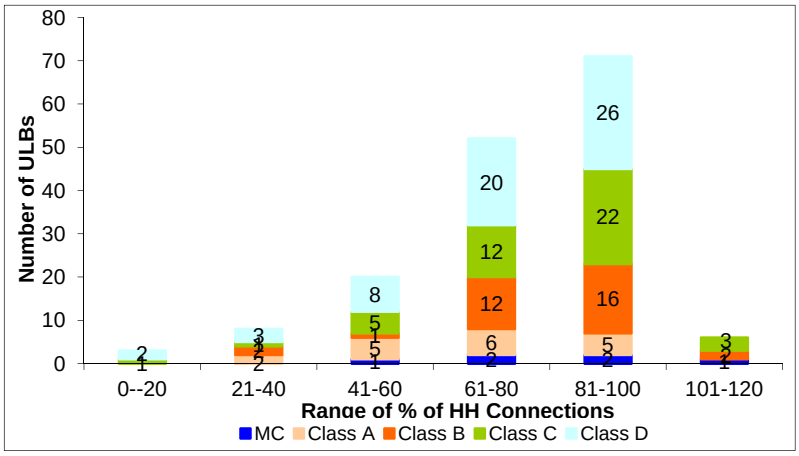
The state average for door-to-door collection is 78%, significantly higher than the SLB average of 48%, but is still lower than the benchmark of 100%. There is not much variation observed across class size of cities. 82% of households in Class B ULBs are covered by door-to-door collection service while the same is 71% in Class A ULBs. Ten ULBs are excluded from the analysis as data are either not available or value is higher than 100%.

1. 10 ULBs are not included in analysis as data are not available or value is higher than the 100%.

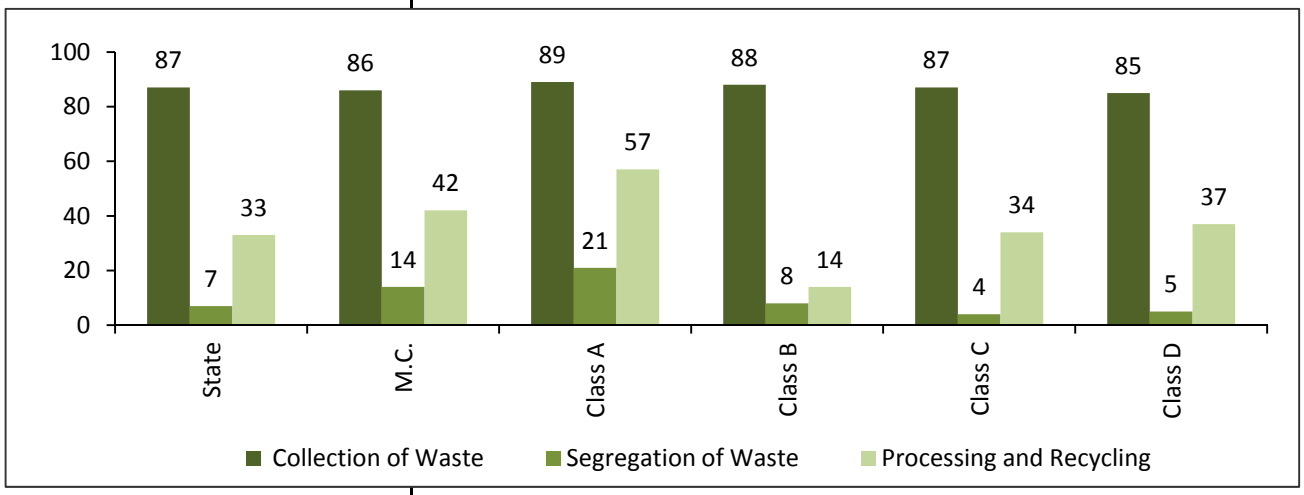
Percentage of household-level coverage of SWM services



Percentage of household-level coverage of SWM services



Solid waste collection, segregation, processing (%) - Gujarat state



Only 7 ULBs, namely Rajkot, Jetpur, Navsari, Amreli, Jaffrabad, Kheralu and Mandvi_S undertake some level of segregation of waste. There is no segregation undertaken by the remaining 159 ULBs.

Maximum number of cities 44% (71 ULBs) have a household coverage ranging between 81-100% coverage. Only 2% (3 ULBs) have a very low coverage in the range of 0-20 percent.

Although the performance of ULBs in the SWM sector is appreciable, improvements need to be made for better data keeping. Data of 87% ULBs fall in category D, which means that no records are maintained by ULBs. Around 10% of the ULBs have a data reliability of B, which means that these ULBs have manual records and that primary collection records are maintained.

The state average of efficiency of collection of solid waste is 87%, which is higher than SLB average of 78%. There is not much variation across the different classes of ULBs. Class A has the highest efficiency at an average of 89%.

Efficient door-to-door collection service, Kheda

In 2003-04, Kheda municipality initiated door-to-door collection and treatment of solid waste.

The municipality circulated pamphlets to citizens to generate public awareness on the necessity of door-to-door collection.

Currently, the door-to-door waste collection has been outsourced for an annual service contract worth Rs 75,000/month for a tenure of four years. The equipment is provided by the municipality on a monthly rental basis to the contractor.

In 2008-09, a vermi compositing site was built and facilitated by GUDC. The site, located four km away from the city, has an installed capacity of 10 tonnes per Day (TPD). the daily treatment of waste is about 1.5 TPD.

The municipality also maintains proper records for door-to-door collection from residential and commercial properties.

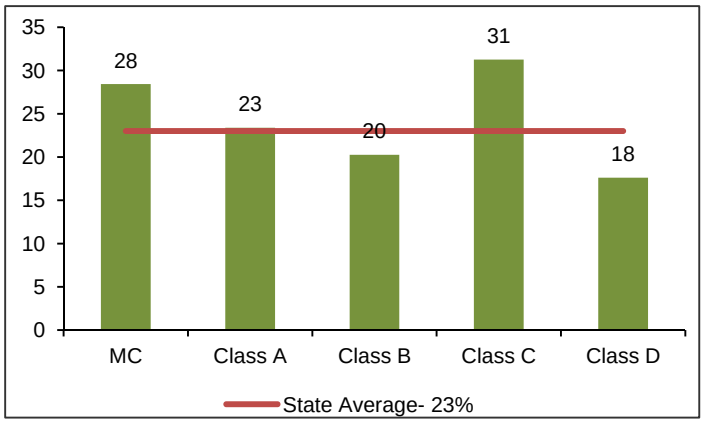
Launch of Door to Door segregated waste collection
(Picture: Khedbrahma)

4.2. Financial Management

The state average of extent of cost recovery in SWM services is 23%, which is comparable with SLB average of 22. There is not much variation across the different classes of municipalities.

Municipal Corporations have a cost receovery of 28%; while Class C municipalities have the highest recovery at 31%.

Extent of cost recovery in SWM service (%) -Gujarat state



Revenue income in the cities of Gujarat is very low because the *"Safai vero"* or sanitation tax was only recently introduced in the year 2008-09 in most of the ULBs. 22 cities have still not levied such a tax. Typically, in most of the ULBs, the revenue expenditure on SWM is very high due to high establishment, operation and maintenance costs of providing the service, while there is low revenue income; hence, cost recovery is low. Overall efficiency in collection of SWM-related charges is low throughout the state.

The state average at 43% is considerably lower than Service Level Benchmark 100%.

Municipal corporations have the highest efficiency of collection of charges at 64%.

Most ULBs have a collection efficiency ranging between 41% and 60%. 9 ULBs collect 81-100% of the SWM charges. 28 have not been included in the analysis due to data not being available.

Solid Waste Management
(Picture: Bhuj)

Across classes of ULBs, municipal corporations have the most adequate staff, having recruited with 81% of the sanctioned staff.

For municipalities, the sanctioned staff is as per the GR No.1089/1122 R, dated: 22/01/2004.

Class A has on an average 67% of sanctioned SWM staff recruited. Class D has the lowest percentage of staff recruited at 43%.

This, along with the fact that many of Class D ULBS have been recently formed, adds to their challenge of provision of services to its citizenry.

An analysis of 150 ULBs reveals that maximum ULBs have staff strength of 41-60% of what has been sanctioned. 12 ULBs have no dedicted staff recruited for SWM.

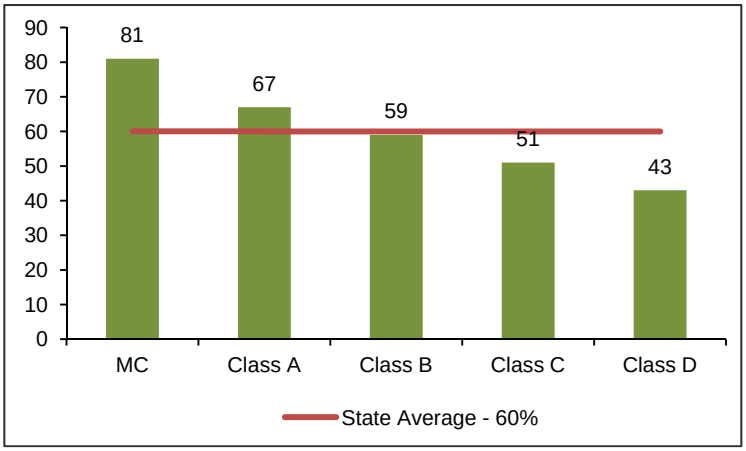
There is not much variation in the average value of complaint redressal across all the classes. The state average for efficiency in redressal of customer complaints (98% is higher to the service level benchmark of 80%).

Class B and C have a marginally high value of 99% redressal efficiency as compared to other classes of ULBs. 7 cities have not been included in this analysis due to data being either not available or not applicable.

4.3. Percentage of Recruited staff to Sanctioned staff

Staff adequacy is an important determinant of the SWM service levels and service quality to citizens. During visits to ULBs, a majority of them have cited lack of adequate and skilled human resources as a reason for low service levels. Many of the ULBs have filled positions by hiring staff on contractual/daily wage basis. However, many of the ULBs that have the lowest coverage, have adequate staff and what is required is improvement in staff management and monitoring. Although many ULBs have resorted to contracting out services in the SWM sector, there remain issues of efficient contract management.

Percentage of recruited staff to sanctioned staff (%) – Gujarat state



Solid waste segregation and collection.
(Pictures: Patan)

4.4. Equity in Service Delivery

Analysis across 131 ULBs reveals that maximum ULBs (48) cover 81-100% of their slum households. 38 ULBs only cover 0-20% of the slum households. 57% of the slum households are covered by a door-to-door solid waste collection system as compared to 78% at the city level.

The maximum difference between service provision at city-wide level and for slums is in Class A cities. The minimum difference is in Class D ULBs.

Service Delivery of different categories of cities.

Class of ULB	% of hh coverage in city	% of hh coverage in slums
Municipal Corporation	80	61
Class A	71	40
Class B	82	60
Class C	81	51
Class D	75	67
Gujarat State Average	78	57

5. WAY FORWARD

- The indicators generated along with analysis and learning have been shared with the state government institutions-GMFB, GUDM and UDD. Executive Summary of the findings and the results has been shared with these institutions.
- Detailed good practice documentation emerging from the indicators would be undertaken and a catalogue would be prepared
- Analysis on indicators would lead to Performance Improvement Plan (PIP)and Information Systems Improvement Plan (ISIP)
- As is evident from the reliability bands of the data collected from ULBs, there is an imminent need for improvement in the way data get recorded at various levels at ULB. Such ISIP would lead to improvements both at the local ULB level as well as at the state government level
- Further, diagnostic studies to review barriers in service improvements across a few selected cities would be undertaken
- The PAS team will provide support to ULBs to develop PIPs for reaching the poor and unserved and increasing financial viability (eg. through efficiency improvements, tariff reforms and increased collection of dues). Support will be provided to about 12% of cities in each size class in developing PIPs. PIPs will outline measures needed to achieve performance improvement targets. The project will also seek to develop strategies to mainstream the role of NGOs and private sector in assisting ULBs in PIP preparation. The better performing cities will serve as 'resource cities' and provide support through peer-to-peer learning and exchange visits
- The teams are planning Round 2 data collection pertaining to the year 2009-10 and 2010-11. The indicators for which the data collection would be undertaken is synchronized with the Govt. of India's Standard Services Level Benchmarking Program. Additional data regarding equity would be collected. It is anticipated in the round 2 data collection that around 25% of the ULBs would undertake self assessment. It is also anticipated that by then, the online module being developed would be ready and a few cities would try the same.

Chapter 1: Performance Assessment System

1.1 Introduction

Performance Assessment System (PAS) 2008-13 aims to measure, monitor and improve the performance of the municipal water and sanitation services in urban areas. The project includes all 400 urban local governments in the states of Gujarat and Maharashtra of India. The project is financially supported by the Bill and Melinda Gates Foundation, USA. The program is implemented by the CEPT University (CEPT), which is the lead partner, along with the Urban Management Centre, Ahmedabad (UMC) and the All India Institute of Local Self Government, Mumbai (AIILSG). PAS program is aligned with the Service Level Benchmarking (SLB) program of the Ministry of Urban Development (MOUD).

Objectives of the PAS program are:

- To develop and implement a performance measurement system for regular and reliable UWSS information
- To design and share results with ULBs, state government agencies, other stakeholders and media through performance monitoring and dissemination system for use in decision making, providing incentives and influencing demand
- To facilitate development of performance improvement plans by urban local bodies with support from state government, NGOs and the private sector

A study of the performance of services such as water supply and sanitation, solid waste and storm water drainage, will help to understand critical nodes in urban areas, such as the urban poor and unserved areas. This performance assessment will help in setting up of systems at state level with detailed analysis of indicators, benchmarks for the services and documentation of good practices, which will be accessible to all ULBs. This monitoring of performance can also be linked with reforms under JnNURM and the required grants for improvement and upgradation of the services can be designed. To encourage better performance, rewards for better performing local governments, can also be introduced.

1.2 PAS in Gujarat

Urban Management Centre (UMC) works closely with city governments and city networks and has experience in performance measurement and analysis of many cities in India. UMC has assessed performance of 166 cities of Gujarat during 2009-10.

The duration of the PAS project is 5 years (2008-2013), in which the performance monitoring will be carried out for each year. This report brings the analysis of the first year data of 2008-09. The PAS indicator framework also merges with the Government of India's Service Level Benchmark (SLB) indicator framework and the same indicators are generated by the PAS checklist.

In the first year of the project, major emphasis was on base line information collection from all the ULBs. However, in subsequent rounds, ULB staff will make a self-assessment of their performance with due handholding. This will be supported with training and verification. Documentation of the process will be a key component. Analysis will be regularly disseminated through newsletters, annual reports and other publications.

1.2.1 Performance Measurement Systems

Performance measurement refers to development and implementation of measurement matrices. It is anticipated that performance measurement will be done throughout the project.

In the first round of data collection, information was collected from all 166 ULBs by the UMC project staff in person. Several tips were made depending on the need and interaction requirement at the ULB. In the subsequent rounds, ULB staff will be trained to make a self-assessment of their performance depending on the response and training outcome.

1.3 State-level framework development (Program inception)

UMC conducted several meetings with the CEPT team to discuss and finalize the indicators and parameters for performance assessment in Gujarat. Several meetings with UDD secretary, GUDM, GUDC, GMFB and DOM were held for discussion on the program.

At the inception of the program, CEPT and UMC teams organized a state-level workshop on the February 27, 2009, to brief various state-level organizations and 11 pilot cities about the PAS program. The workshop was attended by senior state officials as well as commissioners/chief officers and presidents of selected pilot municipalities.

1.3.1 Initiatives of the Government of Gujarat

The Government of Gujarat's emphasis on urban sector began in the year 2005 which was celebrated as the Urban Year as a part of 'Vibrant Gujarat' programme focusing on 'a comprehensive and holistic urban governance vision'. It was in the same year, that attention on urban was further strengthened with the Government of India's JNNURM program extending support to 4 cities in Gujarat (Ahmedabad, Surat, Vadodara and Rajkot). Additionally, the Urban Integrated Development of Small and Medium Towns (UIDSSMT) component under the JNNURM programme also provided small funds for about 60 ULBs in Gujarat. In 2007, GoG decided to consolidate different programs. The first was consolidation of various programs for inclusive development through the 'Garib Samrudhi Yojana (GSY)'. GSY included programs related to access to basic services for the poor as well as the 'Umeed' scheme for training for employment for urban youth. The second was the launch of 'Nirmal Gujarat Campaign' (NCC) which focused on urban environment, particularly sanitation and cleanliness and developing a city level plan for water and sanitation.

The most recent umbrella framework, the Swarnim Jayanti Mukhya Mantri Shehari Vikas Yojana (SJMMSVY) attempts to bring together the earlier efforts along with a more explicit focus on administrative and governance reforms to increase sustainability of urban investments. A new feature of reform linked funding assistance has also been introduced under the SJMMSVY. The reforms focus on: a) administrative reforms to improve cost recovery for different services by reducing costs and improving revenue collection, b) meeting sanitation and housing performance targets for the poor, and c) ensuring regular maintenance and repairs of local infrastructure through appropriate private sector participation.

The initiative of the Government of Gujarat 'Swarnim Siddhi 2010' encompasses its golden goals. GOG has fixed 11 goals **to achieve the objective of Nirmal Gujarat**, with special focus on the urban poor. Following are the fixed goals as stated in the government letter titled 'Swarnim Siddhi 2010: Urban development…' dated 09/06/2009.

1. Supply of 100 LPCD water in 100 ULBs and ensuring 100% disinfection of drinking water in all the ULBs
2. Providing underground sewerage system in 40 ULBs
3. Providing access to toilets in ULBs as per 2001 census
4. Complete coverage of urban area through door-to-door collection system with induction of Sakhi Mandals for operation in ULBs with scientific disposal of waste
5. Construction of *Suvidhayukt* 75,000 EWS houses for homeless families in ULBs
6. Training and employment generation for 75,000 urban poor youth under Umeed program
7. Preparation of one new town planning scheme each in 50 Area Development Authorities in the state
8. e-Governance in the cities of the state
9. Financial management
10. To create own identity (Aagavi Olakh) in ULBs
11. Efficient personal management in municipalities of the state

Specifically, for the poor, GoG has launched two consolidated programs focused on the poor. The first named Shaheri Garib Samridhi Yojana (SGSY) essentially focused on provision of basic amenities to peri-urban areas and in slum settlements, besides other programs related to employment and capacity building for the poor. However funding was limited and the attempt was to bring all existing schemes under one umbrella did not include actual consolidation of funding. The next consolidation was brought under Nirmal Gujarat Sanitation Program (NGSP) with an increased level of funding. For UWSS NGSP focused on subsidies for individual toilets ('Vyaktigat Sauchalaya') to make Gujarat an "Open defecation Free State". In situation where there were space or tenure problems for individual toilets, community or pay-and-use toilets have been included.[1]

1.4 Preparation of city profile of all ULBs of Gujarat

At the onset of the program, the UMC team prepared a directory of city profiles for all 159 municipalities of A, B, C, D classes of Gujarat in March 2009. The process of preparation of the city profile included telephonic discussions with ULB's chief officer/engineer, providing a brief introduction to the objectives of the PAS program and collecting information related to water and sanitation. *The format is presented in Annexure 1, Volume 2.*

1.5 A series of background studies and consultations

- UMC team visited several state government organizations to create understanding of existing performance indicator systems at the local level and the state level, including understanding of information systems and availability of financial data with the Gujarat Municipal Finance Board
- Information collection as baseline data from past projects of NGOs

[1] Sector finance and monitoring For Urban water supply and sanitation in gujarat- A baseline assessment, A report prepared under the PAS Project

- Collection and collation of data from UMC's past projects with Government of Gujarat
- Creation of city directory/city profile as a reference book for understanding the ULB profile before visiting for the PAS program
- Discussions and feedback from ICMA's Center for Performance Measurement as a resource organization
- Understanding of PPIAF mechanism and discussion with Delhi office
- Meetings of the Ministry and the consultant for Ahmedabad city for SLB program understanding
- Meetings with City Managers' Association of Gujarat to understand the Gujarat Municipal Accounting Reforms Program and areas of convergence with the data that have been gathered

1.6 Consultative development of performance measurement protocol

- Performance measurement indicators—development and review: Improvisations were suggested to CEPT based on field interactions and feedback
- Several meetings with CEPT/PAS team on selection of appropriate indicators. CEPT and UMC teams jointly put immense efforts to finalize the checklist. The team would visit cities, provide feedback; discuss internally about the data availability and its collection processes. Several such rounds were conducted and till the end of January 2010, the checklist was revised 12 times. The indicators are presented in the Indicator Framework Annexure 2, Volume 2.
- Developing draft guidance manual for field staff: UMC has prepared a draft of the data collection manual based on pilot checklist which has being revised again due to changes in the final checklist. The manual explains the PAS checklist at length to bring clarity in the data that need to be collected and filled in the excel sheets. This will remove any ambiguity among enumerators for data collection. Details of every cell have been incorporated and thoroughly explained. The manual also explains how to collect data, importance of the data, dos and don'ts of the visits and data collection process. Since there have been many versions of the checklist, the final manual is being prepared by UMC

1.7 Preparation for kicking off the data collection process

To capture the information, a detailed checklist was jointly compiled by partners in an excel workbook that was used for data collection and generation of key and local action indicators. The checklist covers information of ULB pertaining to general demographics, water supply, wastewater, municipal solid waste management, information on slums, finance, etc.

The checklist was translated into Gujarati language for ease of operation on the field. The Gujarati checklist was sent in advance to the municipality after telephonic discussion about the program. The team went and filled up the questionnaire with the help of the municipal staff. The staff cooperated and was excited to receive such support from trained professionals. UMC discussed the need for and importance of such an exercise.

The checklists and other supporting documents collected from the cities on return from the visits are maintained appropriately. UMC has a data base both as hard copies and in electronic form for all 166 cities. This 2009-10 data becomes the baseline information for the program.

The information collected by UMC is used by CEPT for subsequent research and to generate additional analysis for the sector.

1.7.1 Data collection of pilot cities

12 pilot cities were finalized based on the geographical and size variations and in consultation with the state government in February 2009. The pilot cities selected were Ahmedabad (MC), Bhavnagar (MC), Kalol (A), Morbi (A), Bhuj (B), Deesa (B), Upleta (B), Dhandhuka (C), Jasdan (C), Kutiyana (D), and Dhrol (D). Chanasma municipality (C) was added to the list in October 2009.

UMC team visited each pilot city at least thrice, spent lot of time on the field and followed up with ULBs to get the required information. For data on pilot cities, it was also decided to gather information on access to services in slums based on visits and group discussions in each of the slum pockets within the city. Several phone meetings were conducted with contacts established.

The process adopted to collect data on water and sanitation services as mentioned below:

- Meeting with chief officer and department heads. Brief talk on PAS program and objectives of field visit followed by discussion on questionnaire
- Separate interaction with department officials and gathering of data/information
- Mapping on Google Earth Maps—Area specific information such as ward/zone/city boundaries, main water distribution lines, Sumps and ESRs, solid waste dumping site, locations of slums, water logging/flooding area
- Site visit to water sources, water treatment plant, solid waste dumping site, etc.
- Visit to slum settlements for an understanding of access to services to the slum dwellers.
- Wrap-up meeting with chief officer to summarize the extent of data available with ULB and the remaining data which is not available, but can be obtained by doing some exercises.

It was observed during the field visits that most of the ULBs do not have records on service delivery aspects. UMC team provided support to gather information from various levels such as ward/zone. Reliability of data is low, because most of the information is on rough estimation or an assumption based and no records are maintained by ULBs and this strengthens the case for Information System Improvement Plans in ULBs.

1.7.2 Identification of data gaps

The main data issues at the ULB level are as follows:

Population:

- Population for the year 2008-09 is not available at the city level or at the sub-city level (wards or zones). City population was estimated based on ratio method.

Water supply:

- Water production and distribution are based on estimations of pumping hours and efficiency
- Multiple household connections are not recorded separately

- Many cities do not maintain any asset register and hence details of the pumping machinery are not available. This could be sought from the state-level asset management initiative undertaken under the GMARP
- There are no log books maintained to record the number of pumping hours at each distribution facility
- Cities also lack data (length, diameter, age) on various water pipeline networks
- Water quality reports are mostly available for residual chlorine tests. However, the same are not available ward/zone-wise. Cities are also not clear about the sampling regime that needs to be followed for residual chlorine tests

Sewerage

- Most of the cities, especially Class C and D categories, do not have waste water system. Cities under Class A and B categories, where sewerage exists partly, too do not have information pertaining to properties connected with sewerage line, number of properties having access to toilets, length and age of drainage line, etc.
- Incidence of water logging and flooding: Ward-wise location of water logging points is not available. ULBS are able to mention only the name of the place of water logging. They do not have any recording system

Solid waste management

- There are separate solid waste zones in many of the cities which do not coincide with the election/census wards
- ULBs do not have information on solid waste generation

Slum information

- None of the pilot cities, except a municipal corporation, has a record on collection of waste from door to door and other areas such as waste bins, street sweeping, bulk waste from vegetable market, etc. Weighing system does not exist in many cities. The data on waste collection is made on assumptions or on no. of trips deployed to transfer the waste to open dumping site
- The information on land tenure, area, no. of HHs, no. of HHs with direct connection to water network, no. of individual water connections, no. of individual toilets, no. of households with access to SW collection at house level are only based on estimation through quick slum pocket level surveys

Consumer services

- Most of the cities do not have logbooks to record consumer complaints. A few maintain sector-wise records but they do not have further segregation. The number of complaints from a particular ward/zone is also not available. It was also noted that many of the cities were not aware of the citizens' charter.

1.7.3 Mapping exercise

During field visits for data collection, the UMC team mapped the utilities on Google images. For mapping exercise, UMC prepared standard legends with specific colour codes for standardizing the notations across data collection teams.

Since base maps were not available for many cities, CEPT provided 3 copies of Google maps to UMC. The UMC team provided a copy of the map to ULBs for their use, since most cities had never seen the city image and had no updated maps to do their work. The UMC team could mark service details on the map for most cities. Details included: ward/zone/city boundaries, main water distribution lines, solid waste dumping site, main sewer lines, locations of slums and water logging/flooding areas.

Team members also collected other maps, if available with ULBs, during their site visits.

UMC has submitted hard copies of the maps to CEPT which would incorporate the data on the GIS platform.

1.7.4 Financial data

The finance data for all ULBs was received from the Gujarat Municipal Accounting Reforms Project (GMARP) with the assistance of the City Managers' Association of Gujarat (CMAG). The property tax survey and availability of property tax software, which was facilitated by the Gujarat Municipal Finance Board in the year 2005, made it possible to get updated ward-wise property tax details in most of the ULBs.

1.7.5 Data validation

As part of the performance measurement methodology, validation forms a crucial link in checking the data and indicators as are derived from the PAS checklists. For the purpose of validation, UMC teams re-visited Upleta, Kutiyana, Kalol, Deesa, Jasdan, Dhandhuka and Morbi ULBs (pilot cities) to share the outcome of the data obtained from them. The need for filling in required data gaps was emphasized and handholding support was provided in terms of required formats and sources for data collection.

- Presentation and discussion on data filled and resultant indicators with ULB staff and elected representatives
- Three copies of filled-up checklists were provided to the chief officer, elected representatives
- A PowerPoint presentation in Gujarati language highlighting the resultant indicators was shared with elected officials and staff
- The introduction film on PAS prepared in Gujarati was also screened for the elected officials to gain a better understanding of the project
- A short walkthrough of ULB (prepared using JPEG pictures taken by UMC staff during their visits) was shared
- Indicators emerging out of the checklist data were explained to them in detail

The team received positive responses on data sharing. Following are the major responses from pilot cities:

- ULBs appreciated the approach of data validation
- Accepted the outcomes or the values of indicators to a greater extent
- Detailed discussion of reliability scale and coverage
- Willingness to upgrade reliability scales of core indicators

After consultations, changes have been made to the checklists. *Validation reports have been submitted to CEPT.*

1.8 Scaling up of data collection in remaining ULBs:

After the data collection and analysis of 12 pilot cities, the remaining 154 ULBs were divided into eight regions/zones, with each zone sub-divided into 4 clusters of 4 to 5 ULBs each. UMC mobilized two sets of teams—one was a set of internal teams and the other constituted of retired chief officers/ULB engineers.

The process adopted for data collection in the remaining 154 ULBs:

- The methodology of data collection is similar to that in the pilot cities i.e. meeting with city officials, film show on

PAS program, meeting with department heads for data collection, site visit to important places and wrap-up meeting with chief officers/president of ULB

- The UMC teams made limited visits to WTP, WDS, STP and dumping sites in each of the ULBs. They would also collect information on slums as provided by the ULB. Information pertaining to city and ward boundaries, location of WTP, WDS, STP, water supply and sewerage network, location of slum settlements, etc. will be marked on Google map. UMC team would prepare standard notations for marking these utilities on the Google maps
- Identification and documentation of best/leading practices was also done by the teams

The team visited all 154 ULBs for data collection from January to mid June 2010.

1.8.1 Data validation of post-pilot cities

Apart from pilot cities, the team has also analyzed the data of 80 ULBs. The filled-up checklist (hard copy), along with indicators results, was sent to ULBs during February and March 2010 for data validations. Very few ULBs have responded back. However, response is still awaited from ULBs. During the process, it was also learnt that ULBs are facing difficulties in reading the indicators. UMC has now developed indicator sheet in Gujarati along with a short note on how to read the indicators. A copy of revised indicator sheets in the local language will be sent to all ULBs for validation of data.

1.9 PAS photos, videos, film design, shooting and editing

The UMC team has collected audio-video material and documented current situation prevalent in the cities. The PAS introduction film has been prepared to be viewed by the city officials and to elicit buy-in for the program. The response has been tremendous. Seeing is believing. The municipal staff members see the response from other cities, which makes them believe in the program.

1.10 Service Level Benchmarking with the Ministry of Urban Development, Govt. of India

Recognizing the growing importance of improved efficiency in delivery of basic services in our cities, Government of India has launched a series of initiatives aimed at enabling urban local bodies to meet the unprecedented challenges that they face today. These include schemes such as the Jawaharlal Nehru National Urban Renewal Mission, Urban Infrastructure Development Scheme for Small and Medium Towns, Capacity Building for Urban Local Bodies, National Urban Transport Policy, National Urban Sanitation Policy, National Mission Mode Project on e-governance and credit rating of select municipal bodies. As part of the ongoing endeavor to facilitate critical reforms in the urban sector, the Ministry of Urban Development adopted National Benchmarks in four key sectors – Water Supply, Sewerage, Solid Waste Management and Storm Water Drainage.

It is hoped that SLBs developed by the Ministry of Urban Development through consultative process will provide a standardized framework for performance monitoring with respect to water supply, sewerage, solid waste management services and storm water drainage and will enable state-level agencies and local-level service providers to initiate the process of performance monitoring and evaluation against agreed targets, finally resulting in achievement of these benchmarks.

In order to facilitate better understanding of the benchmarking framework at cutting edge level, the Ministry of Urban Development (MoUD) implemented a Service Level Benchmarking Pilot project which was launched at a national workshop on February 6, 2009. The pilot initiative covers 27 cities spread across 14 states and one UT, including 16 JnNURM cities. These consist of a diverse mix of cities, ranging from small towns with population less than one lakh to mega cities of 15 million, cities located in plain as well as hilly regions, with varied climatic conditions and institutional arrangements for service delivery. Under this pilot initiative, two municipalities from Gujarat — Ahmedabad Municipal Corporation and Surat Municipal Corporation — were selected. CEPT-UMC collected data and analysed AMC information while Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH collected SMC's data sets.

There are three key deliverables identified for the first year after the pilot project. These are collation of performance data using the indicators and methodologies outlined in the Service Level Benchmarking Handbook and preparation of SLB Data Book, preparation of Information System Improvement Plan (ISIP) to improve quality of information development and implementation of Performance Improvement Plans (PIPs) based on the above performance data generated.

1.11 Analysis of first round data collection

The UMC team has conducted analysis of the results from data collected in the first year. The analysis of key performance indicators comprises a set of indicators for goals and reforms as indicated in Indicator's framework which includes access and coverage, service levels and quality, financial management, efficiency in service operation and equity. The subsequent chapters present analysis across the sectors of water supply, waste water and solid waste management. The KPIs-class-wise ULBs of all the three sectors are presented in Annexure 2.1, Volume 2.

Apart from Key Performance Indicators (KPIs), additional Local Action Indicators (LAIs) have also been identified and generated through checklist for local government actions to improve performance on selected key reform areas such as equity, non revenue water, water quality and cost recovery. While goals and reforms will be monitored by both higher levels and local governments themselves, indicators for local action are more suitable for local monitoring and for performance improvement planning.

The details of all LAIs have been tabulated sector-wise and attached along with KPIs. LAIs would be analyzed in detail during preparation of city-specific Information System Improvement Plan (ISIP) and Performance Improvement Plan (PIP). The LAIs of class-wise ULBs of all the three sectors are presented in Annexure 2.2, Volume 2.

1.11.1 Reliability

Reliability assessment of KPIs is important when comparison is made across cities and different service providers. Previous efforts in India for performance assessment did not provide reliability scales (e.g. NIUA-CPHHEO 2005 study of 300 cities and MOUD-ADB 2007 utility data book for 20 cities), though the reliability concerns were discussed in detail in the WSP-CRISIL 2007 study of about 16 cities. This was developed further in a systematic manner under the SSLB initiative with reliability scales ranging from A to D for all performance indicators. Given the severe data availability issues, the SSLB approach provides clear directions on assigning reliability levels.

Under the PAS project, the reliability scales have been adapted from SSLB with additional reliability scales developed for the new indicators. An added advantage of this approach is

that it eliminates subjective assessment of reliability estimates. The reliability scale of all indicators of ULBs are presented in Annexure 3, Volume 2.

1.12 Way Forward

The indicators generated along with analysis and learning have been shared with the state government institutions-GMFB, GUDM and UDD. Executive Summary of the findings and the results has been shared with these institutions.

The PAS team will provide support to ULBs to develop PIPs for reaching the poor and unserved and increasing financial viability (eg. through efficiency improvements, tariff reforms and increased collection of dues). Support will be provided to about 12% of cities in each size class in developing PIPs. PIPs will outline measures needed to achieve performance improvement targets. The project will also seek to develop strategies to mainstream the role of NGOs and private sector in assisting ULBs in PIP preparation. The better performing cities will serve as 'resource cities' and provide support through peer-to-peer learning and exchange visits. The teams are planning Round 2 data collection pertaining to the year 2009-10 and 2010-11. The indicators for which the data collection would be undertaken is synchronized with the Govt. of India's Standard Services Level Benchmarking Program. Additional data regarding equity would be collected. It is anticipated in the round 2 data collection that around 25% of the ULBs would undertake self assessment. It is also anticipated that by then, the online module being developed would be ready and a few cities would try the same.

Chapter 2: Water Supply

2.1 Water Supply: Source and treatment

The major source of water supply in Gujarat, constituting 46% of the total water production, is through purchase of bulk water (raw and treated) from the Narmada canal. Other sources include surface water (33%) and ground water sources (21%) (Refer Fig 2.1).

Looking at the dependence of ULBs on sources of water supply, it is seen that maximum ULBs (43%) are dependent on mixed sources of water supply. 35% ULBs are totally dependent on ground water while 18% are dependent only on bulk purchase. Only 4% cities use their own surface water source, directly from rivers or dams, as mentioned in table 2.1.

Fig 2.2 shows the dependence of 159 ULBs on water supply as per the agro-climatic zones[1]. Data from Municipal Corporations has not been included in due to the sheer volume of water produced by them and hence to avoid skewing the overall analysis.

Bulk purchase is the main source of water production across all agro-climatic zones. Own Source also constitutes an important source of water supply for the Southern Hills zone as it is a monsoon-rich region of Gujarat. Dependence on ground water is the highest in Central Gujarat followed by North Saurashtra which is a rainfall-stressed region of Gujarat. As the dependency of ground water is high in these regions, water quality issues are also prominent here.

These clearly show the need to look at alternate sources of water in these areas. Cities in Saurashtra are mostly dependent on bulk treated and raw water sources (mainly Narmada).

Fig 2.1: Sources of water production

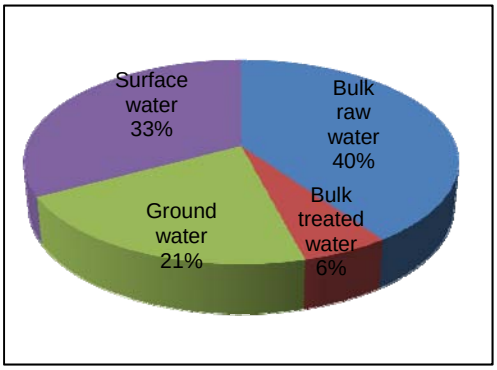
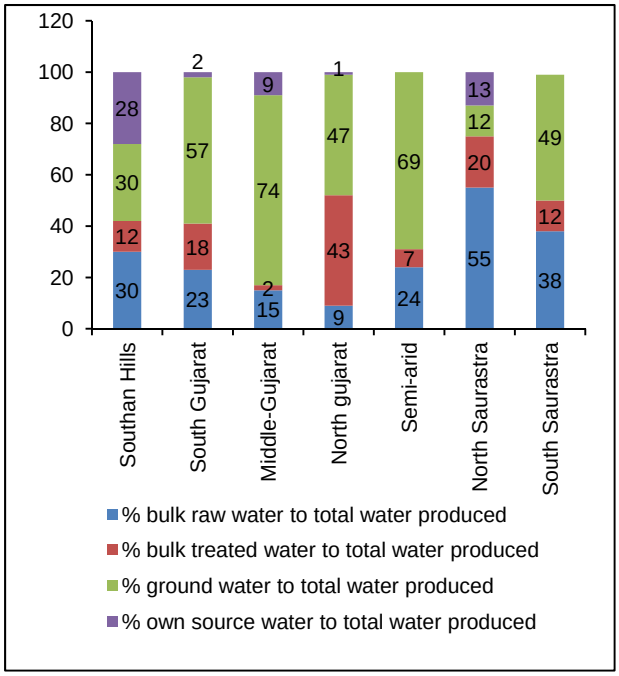


Table 2.1: Sources of water

Source of Water Supply	Number of ULBs	% of ULBs
Bulk Raw Water	13	8
Bulk Treated	17	10
Ground Water	59	35
Own Source	6	4
Mixed Sources	71	43
Total	166	100

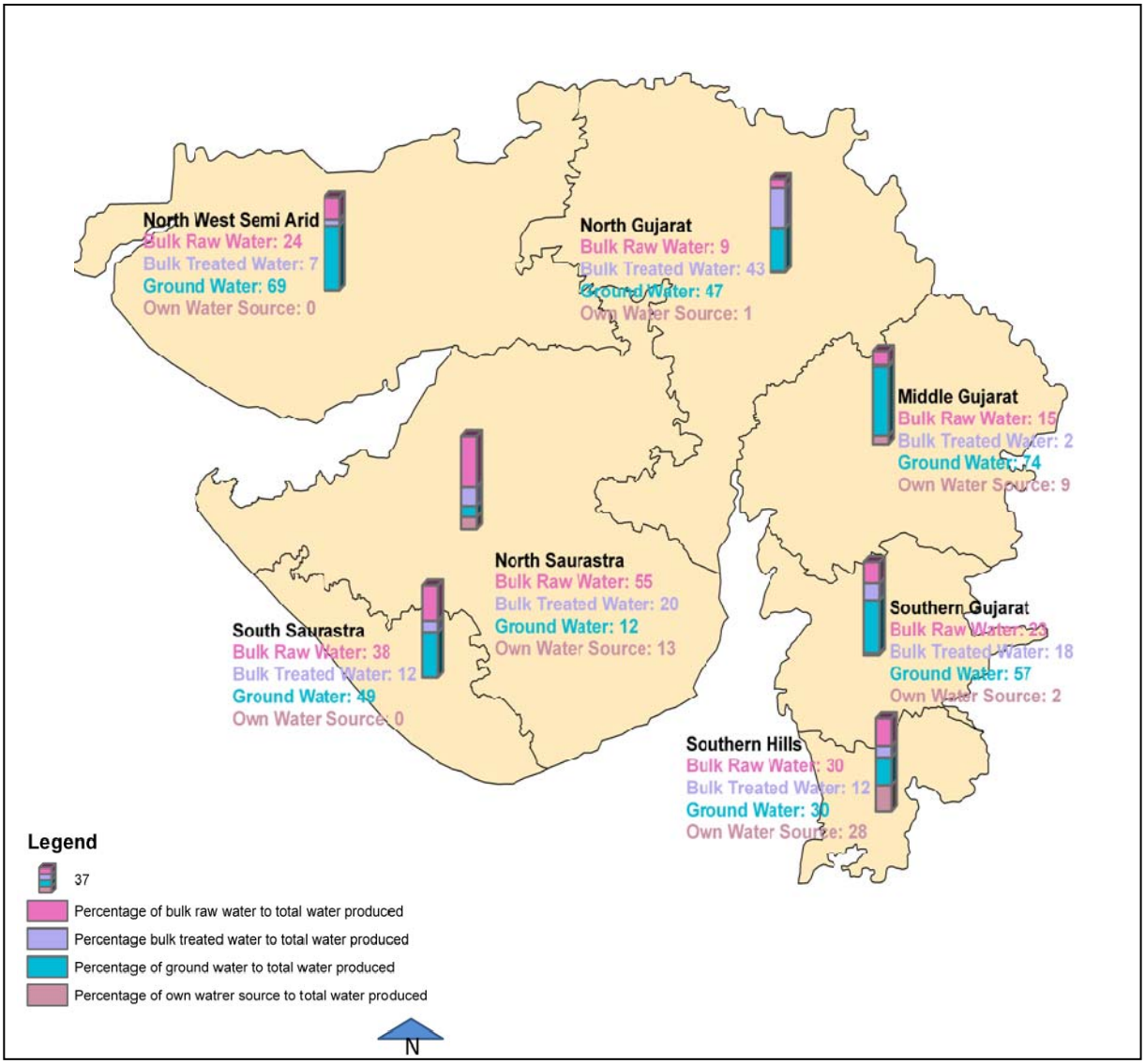
Fig 2.2: Agro-climatic zone wise sources of water production for municipalities



[1] *Gujarat is divided into 7 Agro-climatic zones.*

59 ULBs, which are fully dependent on ground water, were overlaid on the ground resource map of Gujarat[2]. It revealed that maximum dependency on ground water is in Central Gujarat followed by North Gujarat zone (Refer *Map 2.1* and *Table-2.2*)

Map 2.1: Comparative analysis of water supply

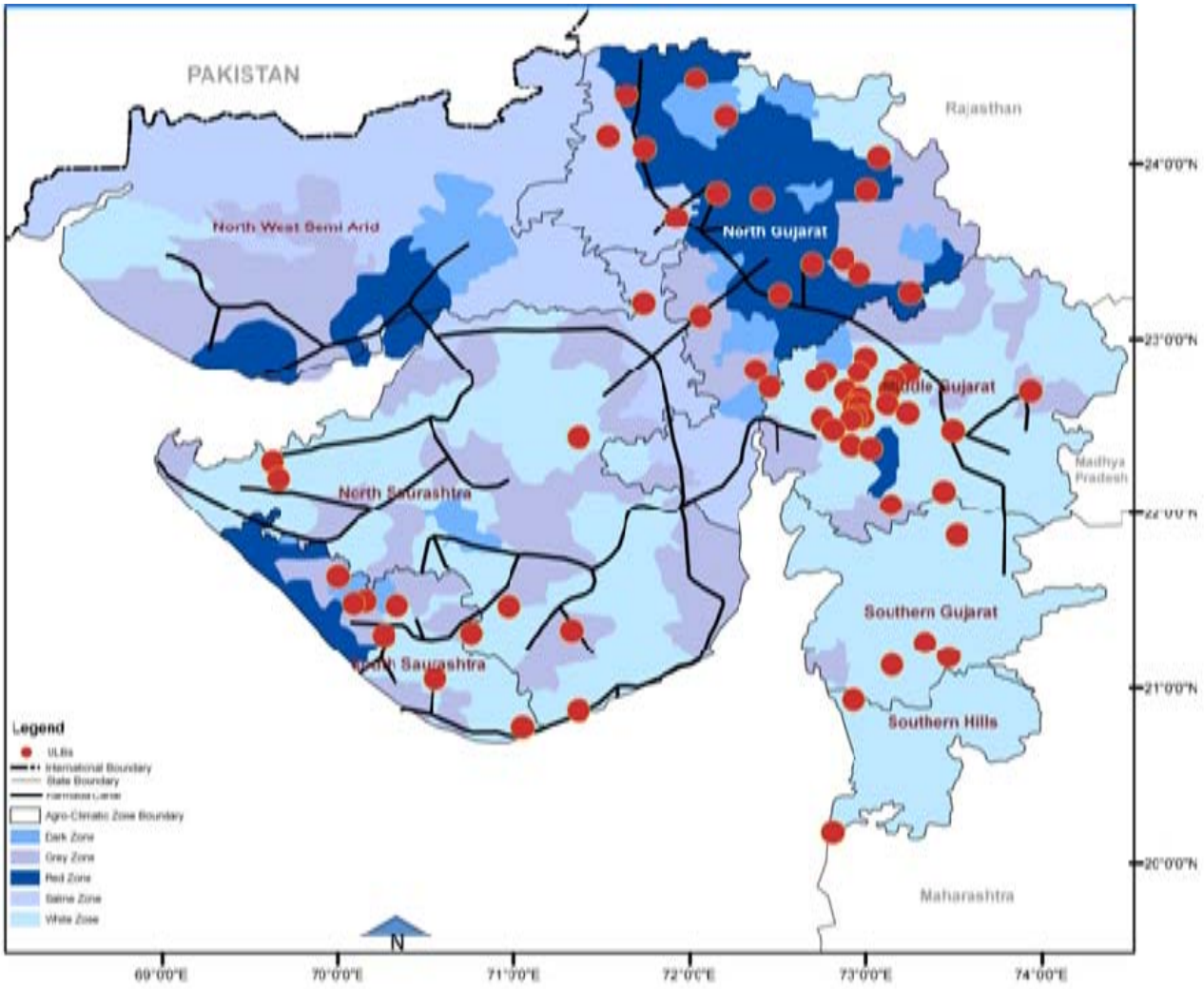


2 Source: *http://www.gwrdc.gujarat.gov.in/Gwremaps/GWRE_B.K..htm*

Table 2.2: Agro-climatic distribution of ULBs dependent on ground water

Agro-Climatic Zone	Number of ULBs
Southern Hills	2
South Gujarat	4
Central Gujarat	24
North Gujarat	16
Semi-Arid	0
North Saurashtra	5
South Saurashtra	8
Total	59

Map 2.2: ULBs dependent on ground water along with the resource availability



Map 2.2 shows that ULBs dependent on ground water falling in the Central Gujarat zone are in a grey or white zone where ground water extraction is feasible. But, 10 ULBs fall in the North Gujarat zone which comes under the red or dark zone where ground water extraction is either restricted or not advisable. This probably leads to not only higher costs of pumping and hence inefficient water supply systems but also health problems due to fluorosis. A quick analysis with the existing Narmada Canal shows that the network canal or pipeline passes through 6 of these 10 ULBs and hence these ULBs could probably shift to a surface water source. A detailed analysis for assessing other sources of water supply for the remaining 11 ULBs needs to be undertaken.

Table 2.3: List of cities in relation to various ground water zones

Category	A	No. of ULB	Name of ULB
Over Exploited (red) >100	Restricted for Ground Water Extraction	5	Idar, Patan, Thara, Tharad, Dhanera
Critical (Dark) 90-100	Not Advisable for Ground Water Extraction	5	Dholka, Mehmadabad, Deesa, Manavadar, Vanthali
Semi-Critical (Gray) 70-90	Need Caution for Ground Water Retraction	7	Bantawa, Savarkundla, Bavla, Viramgam, Kathlal, Keshod, Visavadar
Safe (White) < 70	Feasible for Ground Water Extraction	39	Halol, Bayad, Khedbrahma, Dabhoi, Savli, Bagasra, Anand, Anklav, Boriavi, Borsad, Karamsad, Oad, Petlad, Sojitra, Umreth, Vallabh V. Nagar, Devgadhbariya, Salaya, Talala, Una, Chaklasi, Dakor, Kanjari, Kheda, Mahudha, Nadiad, Thasra, Rajpipla, Vijalpore, Kaalol, Kutiyana, Prantij, Talod, Bardoli, Mandvi, Tarsadi, Chotila, Karjan, Umargam
Saline TDS >2500 ppm	Blending of GW and SW as per need	3	Bhabhar, Patdi, Harij

Water treatment

Out of the 166 ULBs, 45 ULBs (27%) have water treatment plants (WTP). It is seen that larger ULBs have WTPs. This could be attributed to their financial strength and the staff capacity to manage WTPs as well as financial support from Central and State government through ongoing programs like the JnNURM. Among municipal corporations, only Junagadh MC does not have a WTP. Out of 70 WTPs in these ULBs, five WTPs in Upleta, Bhuj, Balasinor, Valsad and Limbdi are non-functional. (Refer Table no. 2.3)

Table 2.4: ULBs with water treatment plants

Class of ULB	ULBs With WTP	Total Cities	% Of Cities With WTP
Municipal Corporation	6	7	86
Class A	10	18	56
Class B	14	33	42
Class C	12	44	27
Class D	3	64	5
Total	45	166	27

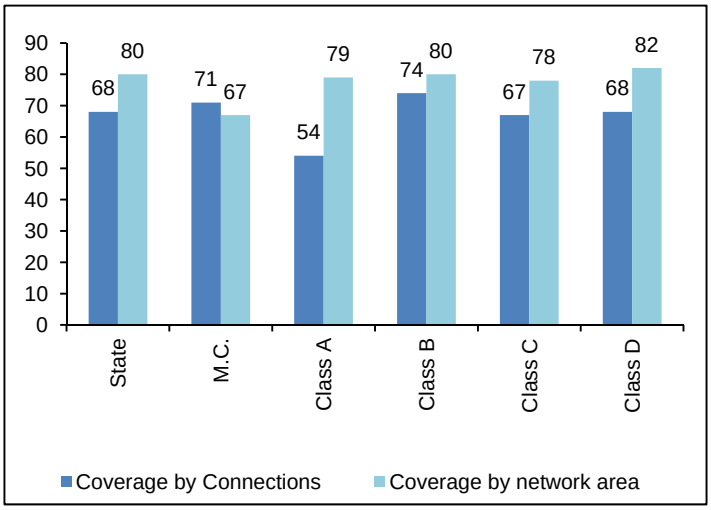
2.2 Access and Coverage

Access and coverage has been analyzed through coverage of individual water supply connections at the household level. It is defined as Total number of households in the service area that are connected to the water supply network with direct service connections, as a percentage of the total number of households in that service area. Service area implies a specific jurisdiction in which service is required to be provided.

a. State scenario

The benchmark for water supply service has been set as having individual water connection for all households in the ULB. Provision of water to citizens through common public stand posts is hence not considered in the coverage percentage. This is a critical indicator for the coverage data at the state level.

Fig 2.3: Coverage of water supply (%) - Gujarat state



Looking at the coverage of water supply network across ULBs, it is seen that except 30 ULBs, all the rest are 100% covered by water supply networks. The areas that are not covered by pipelines are taken care of by municipalities through non pipeline means (e.g. tankers).There are 6 cities in Gujarat which supply water to outgrowth areas.

Fig 2.3 shows class-wise coverage of water supply by connection (light blue) and by network (dark blue). The state average for connection of water supply is 68%, which is lower than the national SLB of 100%. For the current analysis, the average of Gujarat state has been considered as a benchmark. Gujarat has 80% network area coverage. This shows that there is a significant water supply infrastructure and there is a need to increase the connection coverage. Improvement in the connection coverage will further lead to improvement in the financial viability of services.

There is no significant variation across the class of cities either for coverage by connections or by network area. In Class A cities, the network area coverage is 79% while the coverage by connections is only 54%. Hence, there is a need for providing more individual connections.

The plausible reasons for low connection coverage could be

- Long process of giving connections
- Issues with land tenure and hence connections to slum dwellers or with unclear title, building permissions;
- Unwillingness of people to avail municipal connections- situations where they already have borewells on their premises or townships
- Water tarriff structure
- Steep and stringent water connection payment
- Inadequate communication to people about connection details

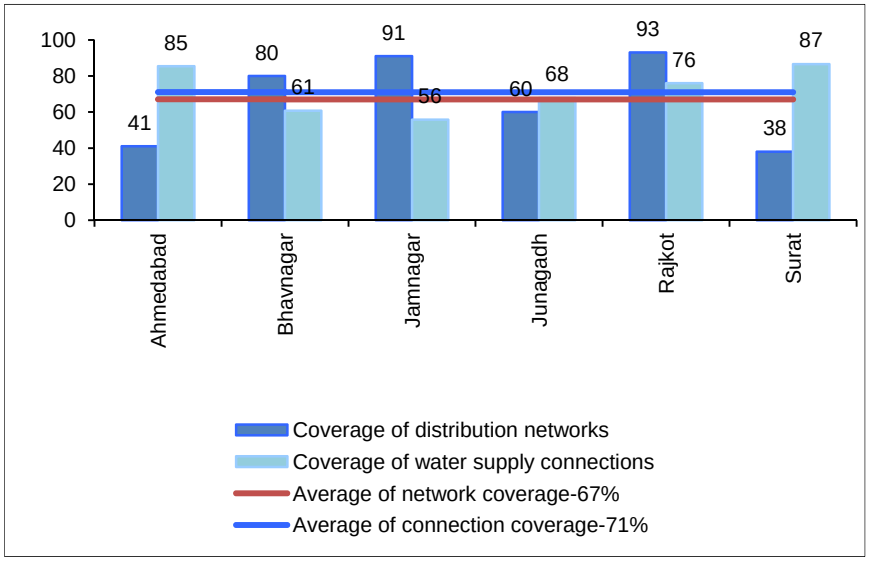
Reliability of data:

In terms of reliability of data for connections, Reliability A indicates that ULBs maintain and periodically update computerized records of the number of households that are served per connection and records of the connections. Reliability B indicates that ULBs maintain records of the number of households while Reliability C indicates that ULBs maintain manual records of the number of properties. Reliability D indicates that the data is based on estimates by ULB without any records. In Gujarat, there has been a detailed property tax survey and new properties added to the ULB also get updated in the property tax software. The property tax record is recorded for every housing unit and also captures whether the unit is served by an individual water connection.

In Gujarat, reliability scale is considered with Reliability A for all the ULBs that have been provided with a property tax software. The software provides the number of HHs with water connections. However, in a few ULBs where the data in the property tax software have not been updated; and where information on water connections has been obtained from the physical connection register, the data has been considered with Reliability C. 96% of ULBs have data with eitherReliability A or C.

b. Municipal corporations

Fig 2.4: Coverage of water supply (%) - Municipal corporations



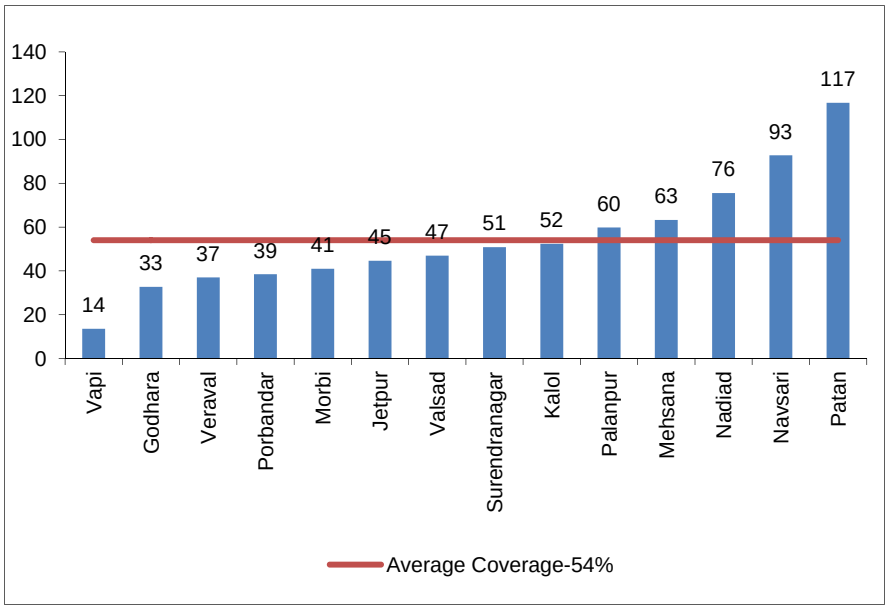
There is no significant difference between the averages of network area coverage and coverage by connections across the six municipal corporations. (*Refer Fig-2.4*)

However, looking at individual MCs, the differences become more apparent. Jamnagar has only 56% households that have individual water supply connections while 91% of its area is covered by piped network. In this situation, Jamnagar needs to increase number of connections. Similarly, Bhavnagar and Rajkot too have higher area coverage as compared to connection coverage. The extent of water supply connections against slum households in Rajkot is only 34%; its overall connection coverage would increase if it provides more connections to slum households.

c. Class A ULBs

The average coverage of connections for Class A cities is 54% with the lowest values in Vapi and the highest in Patan. As illustrated in Fig – 2.5. In Vapi, the water supply network coverage is also low at 33%. This indicates that probably the reason for low connection coverage is the poor water network. There is need for improving its water network and making capital investments along with efforts towards providing more connections.

Fig 2.5: Coverage of water supply connections (%) - Class A ULBs



Vapi municipality has only one source of water supply i.e. the GIDC. There is need for assessing alternative sources of water supply.

The availability of water in Navsari is high as it is located in a region with abundant rainfall. Additionally, Navsari municipality has a monitoring system for identifying illegal connections. These reasons probably lead to higher coverage of water supply connections in Navsari.

Comparing the water supply network coverage with the connection coverage, it is seen that the cities of Godhra, Botad, Veraval and Porbandar have very high (around 75%) coverage of water supply network, while they have poor connection coverage. This again indicates the need for identifying the reasons for poor connection coverage and defining strategies for improving the same.

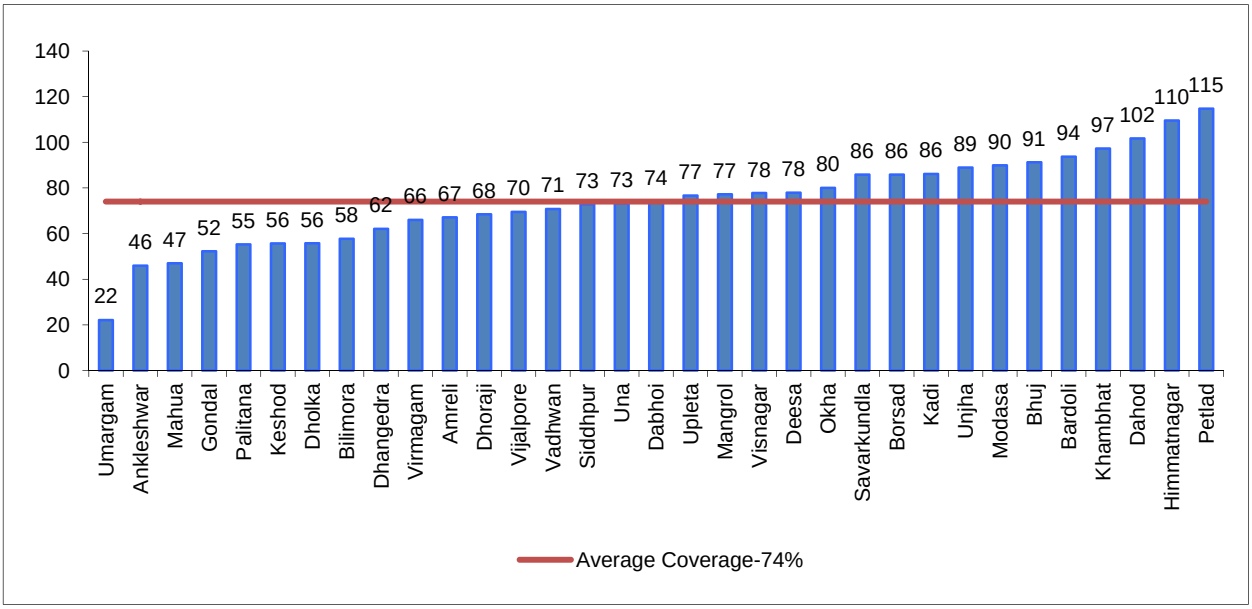
d. Class B ULBs

The average coverage of water supply connections for Class B cities is 74%. Data for Dahod, Himmatnagar and Petladdata shows coverage more than 100%.

Fig 2.6 highlights that there is low coverage in Umargam, Ankleshwar and Mahua ULBs as compared to other B class cities. This is despite the fact that there is 80-100% network coverage in municipalities of Ankleshwar, Palitana, Amreli and Mahua; hence these ULBs need to improve their HH connections coverage.

Modasa, Bhuj, Bardoli and Khambhat have very good connection coverage of more than 90%.

Fig 2.6: Coverage of water supply connections (%) - Class B ULBs



e. Class C ULBs

The average coverage of water supply connections for Class C cities is 67%. A quarter of the cities have coverage below 54%. Jambusar, Dhandhuka and Balasinor ULBs data showed more than 100% coverage.

Fig 2.7: Coverage of water supply connections (%) - Class C ULBs

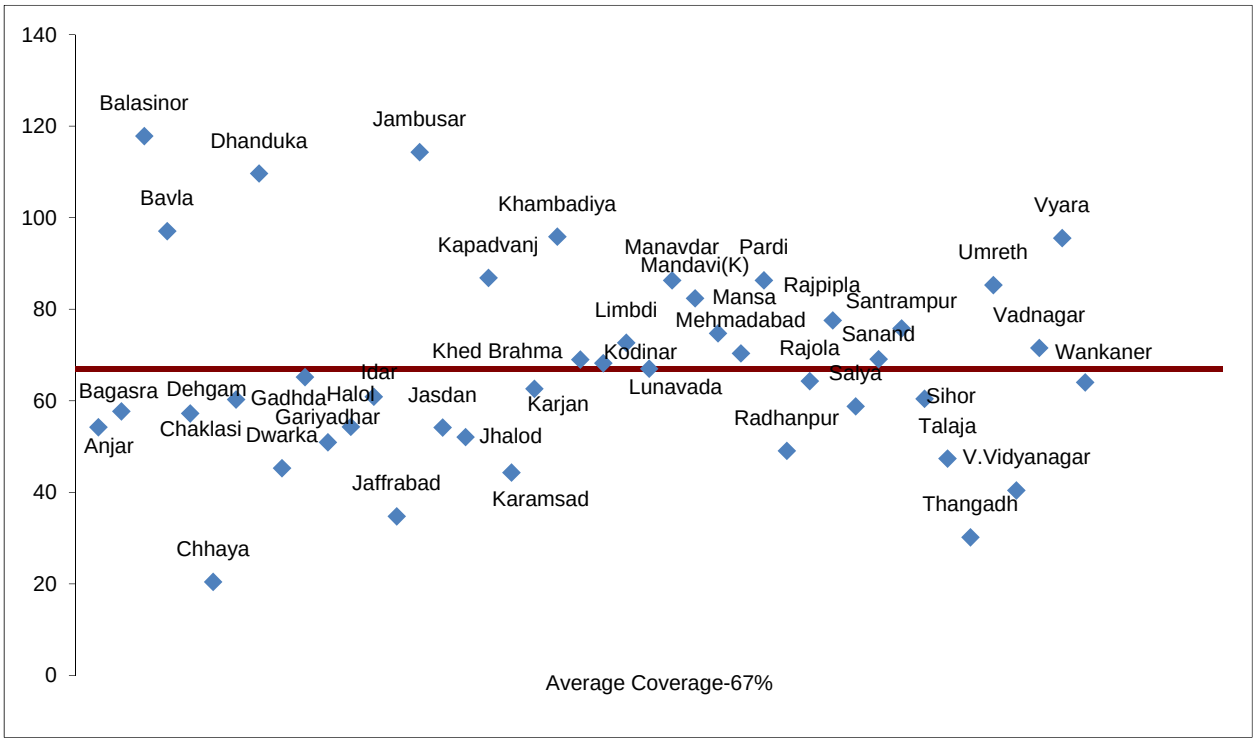


Fig 2.7 clearly highlights that coverage in Chhaya, Thangadh and JaffrabadULBs is lowest (<35%) as compared to other Class C cities. Cities like Chhaya, Talaja, Gariyadhar, Jasdan, Anjar, Halol, Bagasra, Salaya, Karjan and Rajula have below average coverage of water

connections but have very good (~90% or more) network coverage which indicates the need to provide HH connections by ULB.

In Vallabh Vidyanagar, which has predominantly educational institutions run by either private trusts or organizations, the role of provision of water supply is not undertaken by the municipality but by the *Charotar Gramodhar Sahakari Mandali.* It is an NGO formed in 1945, and has been supplying water to the municipality for more than 45 years. This organization provides water for domestic use. The *Charutar Vidyamandal* provides water to college campuses, hospitals, etc. However, the coverage is 40% as mentioned by the ULB. This indicates need to further study the water management systems and role of such a private organization in provision of services.

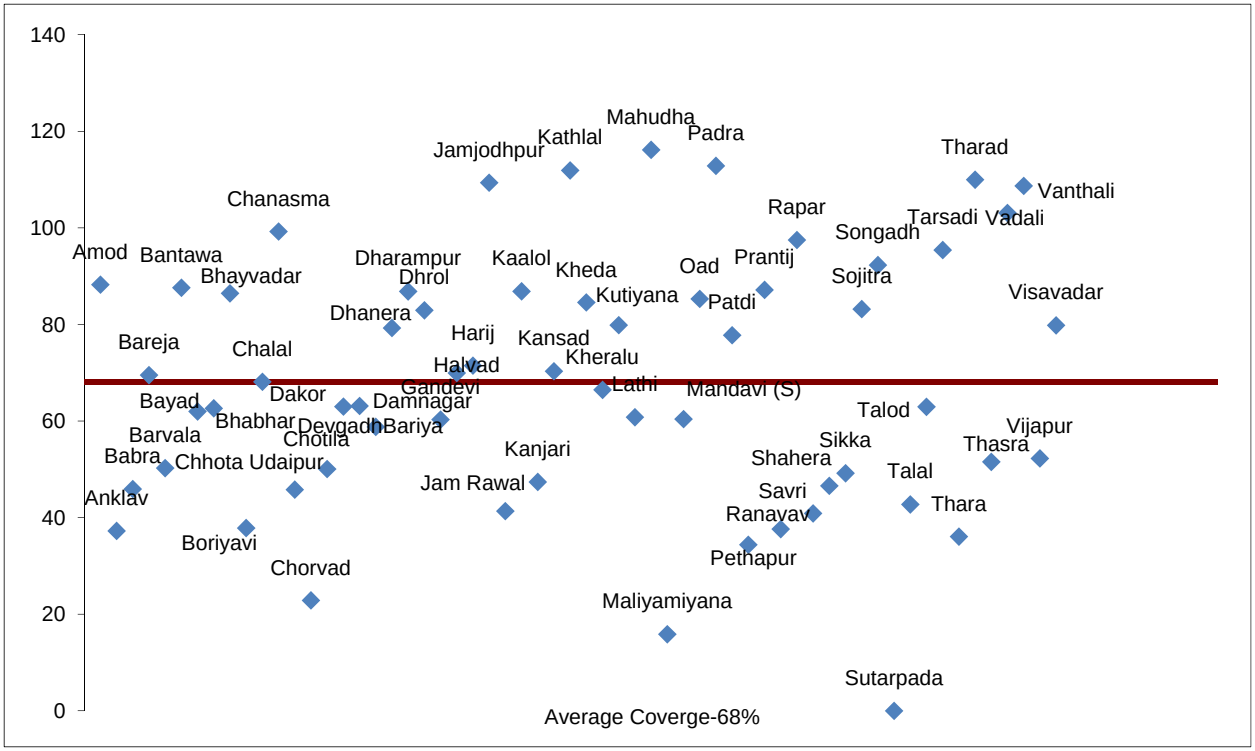
Vyara, Khambhadia and Bavla have good coverage of water supply (~100%) and can be considered exemplary for other Class C cities.

f. Class D ULBs

Average coverage of water connections for Class D cities is 68%, which is equal to the state average. However, the distribution is more variable with a quarter of the cities having less than 49% coverage and another quarter enjoying more than 87% coverage.

Data from Tharad, Vadali, Vallabhipur, Vanthali, Bhachau, Bhanvad, Jamjodhpur, Kalavad, Kathlal, Mahudha and Padra ULBs show values more than 100% coverage.

Fig 2.8: Coverage of water supply connection (%) - Class D ULBs



Sutrapada municipality has not provided any water supply connections at the household level. The entire city is dependent on 64 stand posts. Similar to other class cities, there are many cities which have average or below average percentage of water connection but have nearly 100% coverage of network signifying the need for increasing HH connections.

Songadh, Tarsadi, Rapar and Chanasma ULBs with coverage >92% can be considered exemplary for providing HH level connections for other Class D cities. (*Refer Fig no 2.8*)

Maliyamiyana, Chorvad, Pethapur, Thara, Anklav, Ranavav and Boriyavi have fewer connections compared to other Class D cities. The reason for less number of connections at HH level in many cities, including Maliyamiyana and Anklav, could be the lack of staff. There is no staff in the water supply department of these 2 cities. Pethapur ULB has no staff sanctioned for any sector.

2.3 Service levels and quality

Service levels and quality includes indicators pertaining to per capita supply of water, continuity of the supply and quality of water supplied.

2.3.1 Per capita supply of water at consumer end and continuity

Per capita supply of water at consumer end is defined as total water supplied to consumers expressed by population served per day.

Continuity of water supply is defined as the weighted average of number of hours of pressurized water supply per day for a zone.

2.3.2 Water quality

Quality of water supplied is defined as percentage of water samples that meet or exceed the specified potable water standards and sampling regime, as defined by CPHEEO.

Fig 2.9: Service levels for water supply

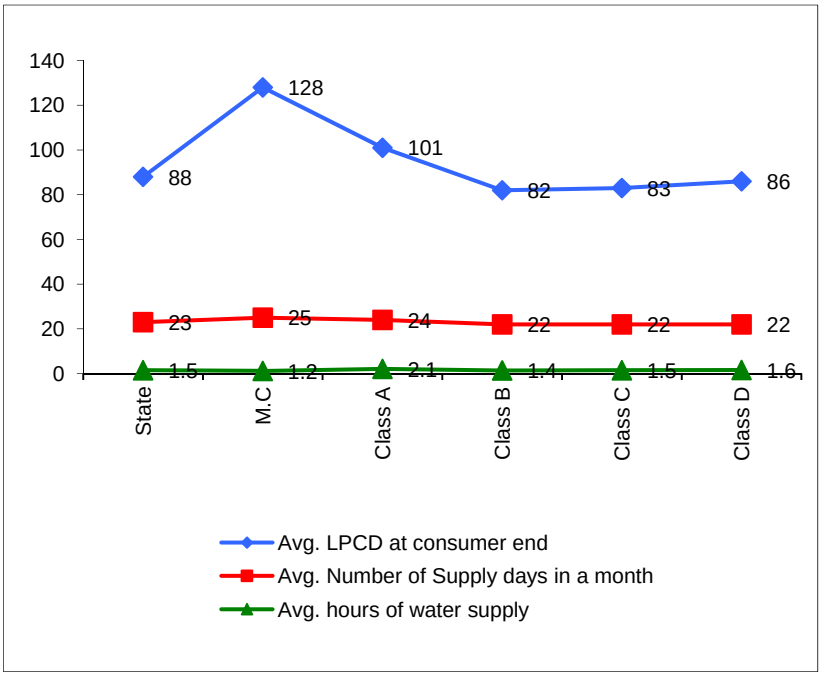


Table 2.5: Agro-climatic zone wise service levels of water supply

Agro Climatic Zone	No. of ULBs	Avg. Coverage of Water Supply (%)	Avg. Per Capita Water Supply (LPCD)	Avg. Hours of Supply(Hr)	No. of days of supply in a month
Southern Hills	11	64	72	2.3	28
South Gujarat	10	80	107	2.5	28
Middle Gujarat	37	71	97	2.4	27
North Gujarat	39	73	85	1.3	26
North West Semi Arid	6	78	89	1	16
North Saurastra	45	61	85	1	16
South Saurastra	18	60	79	1	16

a. State level

Service levels (LPCD and continuity):

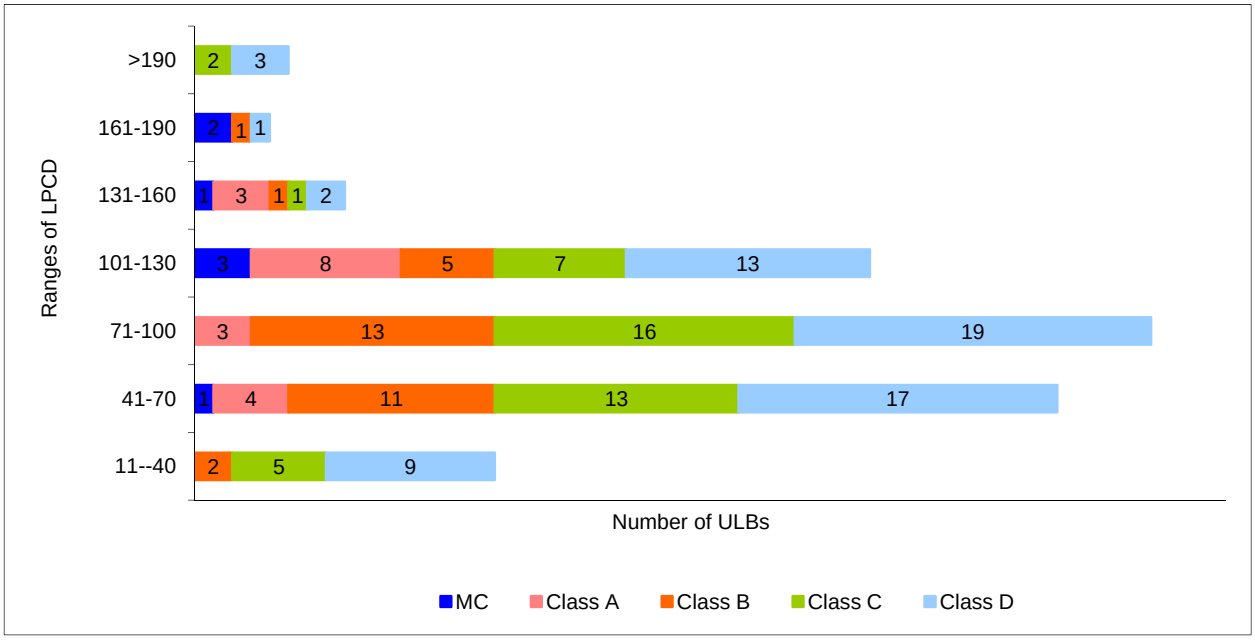
Per capita water supplied indicates the amount of water ULB supplies per person. The CPHEEO benchmark stands at 135 LPCD. Fig 2.9 presents the state average for per capita water supply as 88 litres per day, which is lower than the SLB average of 135 litres per day. The average number of hours of water supply in the state is 1.5 hours. The average number of supply days in a month is 23.

Municipal corporations provide water supply service of 128 LPCD for 25 days in a month, but it is still lower than the 135 LPCDSLB daily. Also, the average number of hours of water supply (1.2 hours) is lesser than other class cities in Gujarat.

Class A cities provide better LPCD at consumer end than other class of cities. There are no significant variations in continuity and number of water supply days in a month across A, B, C, D classes of cities.

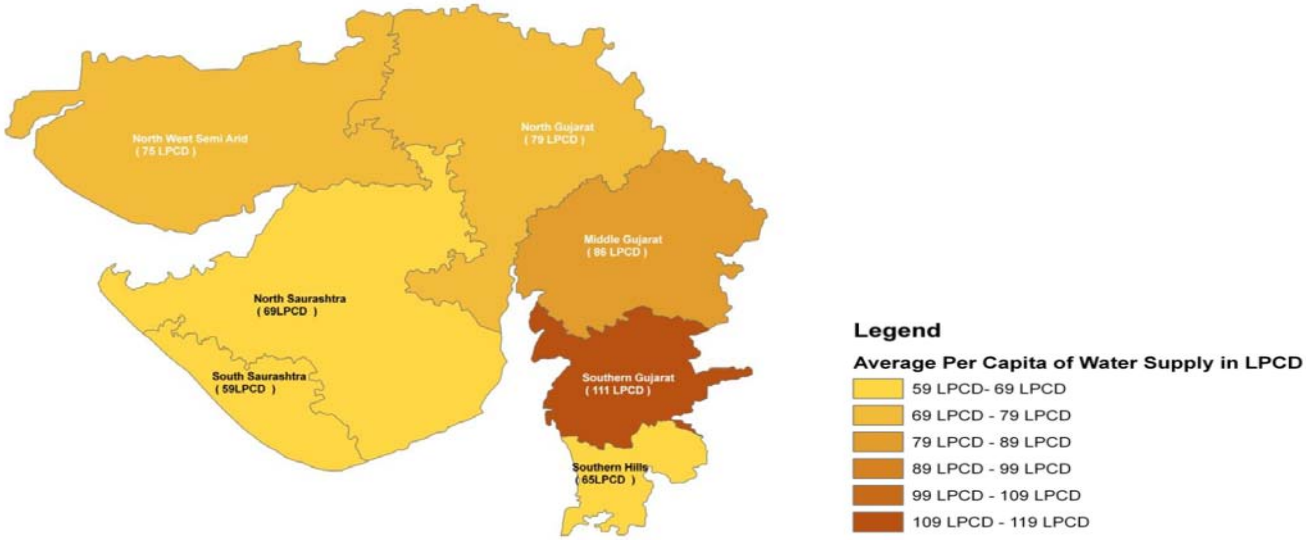
Fig 2.10 illustrates the relative number of municipal corporations and classes across different LPCD ranges. There is a huge variation among ULBs in the LPCD provided, though it is not dependent on which class of ULB they belong to. It ranges from a minimum 14 LPCD in Salya, Mansa, Tarsadi, municipality to 291 LPCD in Maliyamiyana municipality. There are 16 ULBs which provide the lowest LPCD in the range 11-40. 46 cities are in the range of 41-70. Altogether, 62 ULBs supply water lower than 70 LPCD. Only 17 ULBs provide more than 135 LPCD.

Fig 2.10: Per capita water supply (LPCD) - Gujarat state



The agro-climatic zone wise variation in service level of water supply is seen in the *table no. 2.5*. The highest coverage of water supply connections at 80% is in the south Gujarat region. This is followed by 78% in North West Semi Arid. Four out of the six cities of this region have 100% network coverage which can be attributed to the post-earthquake interventions undertaken by Government of Gujarat. However, owing to its location in a water-scarce region, it has the least number of supply days in a month (16) and least number of average hours supplied per day (1).

Map 2.3: Agro-climatic zone wise average per capita water supply (LPCD)



South Gujarat, the rain-rich area of the state, has highest coverage of water supply connections at 80% and has the highest LPCD of 107 for the maximum number of days in a month (28) with highest hours of supply (2.5). Saurashtra has poor service with the lowest

average coverage of water supply, poor LPCD, low hours of supply and less number of supply days in a month

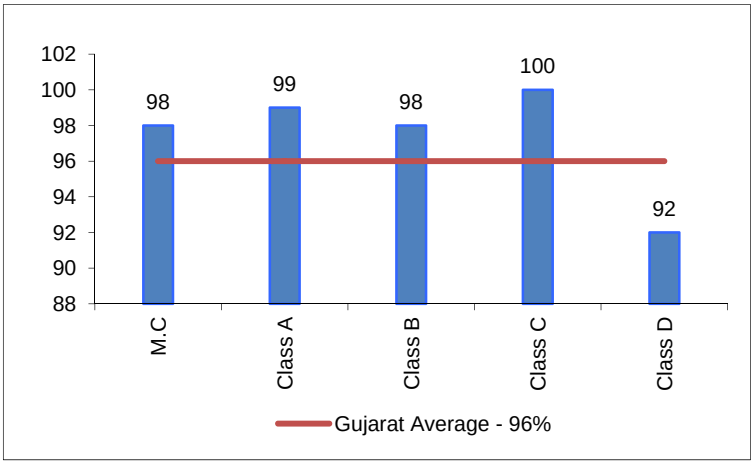
Reliability of data:

For continuity of water supply, all the ULBs have data with either reliability C (33%) or D (67%). Reliability C indicates that the city maintains manual records and reports the duration of supply to each zone. Reliability D indicates that the cities do not maintain any records but report duration of supply for the entire city.

Water quality:

As shown in Fig no. 2.11 across classes of ULBs, the quality of water supplied is reported to be good and that conforms to / exceeds the CPHEEO standards.

Fig 2.11: Quality of water supply (%) - Gujarat state



Reliability of data:

Data from 93% of the ULBs fall under the Reliability D category that indicates that the ULBs do not maintain records and audits for water quality are not conducted. Only 8 ULBs in Gujarat keep manual records for water quality. Qualitative discussions have revealed that most ULBs conduct regular residual chlorine tests at the consumer end, but the same is not recorded. There is need to improve data recording systems for water quality testing.

b. Municipal corporations

Service levels (LPCD and continuity):

Table 2.6: Service levels of water supply in municipal corporations

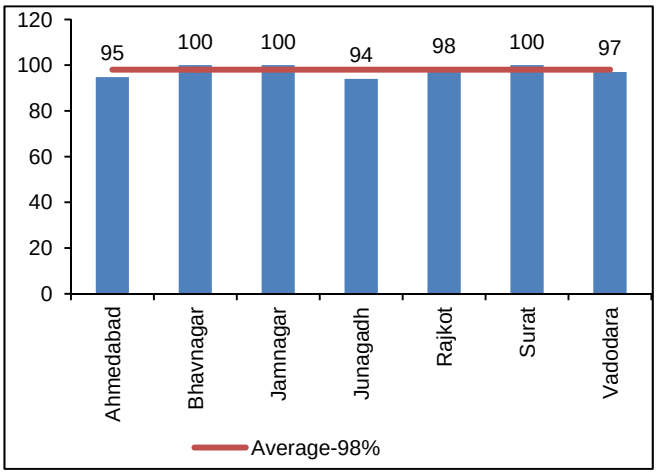
Municipal Corporation	Per Capita Water Supply (LPCD)	Hours of Supply (Hr)	No. of days of supply in a month
Ahmedabad	121	2.0	30
Bhavnagar	112	0.8	26
Jamnagar	116	0.8	15
Junagadh	44	0.8	15
Rajkot	183	0.3	30
Surat	147	3.0	30
Vadodara	174	0.9	30
Average	**121**	**1.2**	**25**

Legend			
Good Performing Cities		Poorly Performing Cities	

The average LPCD in municipal corporations is 121 LPCD, which is higher than all other classes of the ULBs but lower than the CPHEEO standard of 135 LPCD (Cities with Sewerage System).Rajkot MC provides the highest LPCD; however, for less than an hour daily. Surat provides 147 LPCD for 3 hours daily.

Ahmedabad and Rajkot MCs supply water daily to their residents for 2 hours and 0.3 hours respectively. There is least water supply in Junagadh at 44 LPCD. Water is supplied every alternate day in cities of Jamnagar and Junagadh within the Saurashtra region where rainfall is scanty. *(Refer table no 2.6)*

Fig 2.12: Quality of water supply (%) - Municipal corporations



Water quality:

The average quality supplied by municipal corporations is 98%. 94.8% of the samples collected in Ahmedabad conform to the required paramaters by CPHEEO as compared to 97% in Vadodara,98% in Rajkot and 100% in Jamnagar, Surat and Bhavnagar.

Surat Municipal Corporation provides good quality water to its citizens, through its state-of-the-art water-quality surveillance mechanisms.

The SMC faced constraints in monitoring the quality of treated and supplied water after it constructed additional water reservoir and associated infrastructure. Raw water quality was affected in non-monsoon seasons and polluting activities upstream. Water quality monitoring parameters, like turbidity in raw water, were checked once a day. Parameters for supplied water, like turbidity, residual chlorine, pH, hardness, alkalinity, chloride etc., were checked only once a week. The instruments and equipment used for water-quality monitoring were outdated, and the quality of reports and data generated by these instruments was neither reliable nor consistent, and involved manual operations. There was no dedicated staff for quality monitoring. There was only one centralized laboratory at the head waterworks, where the parameters were not regularly checked, and a schedule for sample collection did not exist.

With the objective of improving water quality, the Hydraulic Department of the SMC established various water-testing laboratories with modern instruments and equipment. Four state-of-the-art laboratories at the waterworks and one at the main distribution station were installed, with state-of-the-art technologies and modern instruments and equipment. Staff was specially trained on water-quality monitoring and positioned as microbiologists, technicians, operating chemists, etc.

Consequently, there was regular and accurate monitoring of raw and treated water. Parameters such as turbidity, chlorine, total dissolved solids, pH, colour, dissolved oxygen, etc. were measured and monitored. Microbiological parameters were also monitored at the dedicated microbiological lab. River water quality was measured and monitored through the use of imported deployable instruments. Various test formats and logbooks were maintained for water quality. An agency was authorized to perform external maintenance and calibration, and standardized reporting procedures were defined. ISO 10500 standards were strictly followed.

c. Class AULBs

Service levels (LPCD and continuity):

On an average, class A cities supply 101 LPCD over 2.1 hours of water supply and for 24 days in a month. *(Refer Table-2.7).*

Mehsana and Porbandar Municipalities provide less than 60 LPCD water. Porbandar provides 53 LPCD water for 0.8 hours every alternate day. Though Vapi has no other source of water supply except GIDC, it provides 117 LPCD but the supply for 2 hours daily. Gandhidham, Morbi and Veraval ULBs provide LPCD nearly as much or more than the benchmark of but with less continuity (0.8-2hours) and frequency of water supply. Navsari has the highest continuity of water supply (6.5 hours) most frequently, followed by Anand (4.5 hours) and Bharuch (4 hours).

Table 2.7: Service levels of water supply-Class A ULBs

Class A ULBs	Per Capita Water Supply (LPCD)	Hours of Supply (Hr)	No. of days of supply in a month
Porbandar	53	0.8	15
Mehsana	59	2.0	30
Patan	61	1.0	30
Navsari	66	6.5	30
Valsad	71	3.5	30
Nadiad	85	2.0	30
Bharuch	97	4.0	30
Palanpur	102	0.9	30
Surendranagar	103	0.8	10
Kalol	104	1.5	30
Anand	107	4.5	30
Jetpur	109	0.8	15
Vapi	117	2.0	30
Botad	120	1.0	10
Godhara	122	2.0	30
Morbi	133	1.0	30
Veraval	147	2.0	15
Gandhidham	157	0.8	8
Average	101	2.1	24
Legend			
Good Performing ULBs		Poorly Performing ULBs	

d. Class B ULBs

The average per capita supply of water for Class B cities is 71 LPCD. Himmatnagar, Una, Petlad and Unjha ULBs have values close to the SLB of 135 LPCD. However, Una supplies water for only 1 hour every alternate day, while others supply at least for 2 hours daily. On the other hand, Umargam and Okha supply less than 20 LPCD water for less than an hour daily.

Amreli, Gondal, Mahua and Keshod supply very infrequently with 4, 6, 7 and 8 days of supply per month respectively. Siddhpur, Gondal, Dabhoi and Visnagar supply water for less than half an hour whereas Khambhat supplies for highest number of hours (5.1) daily.

Table 2.8: Service levels of water supply - Class B ULBs

Cities	Per capita supply of water	Continuity of water supply	Number of Supply days/month
Okha	14	0.5	15
Vadhwan	40	1.0	8
Mangrol	41	0.6	15
Savarkundla	43	0.5	15
Gondal	45	0.4	6
Umargam	46	0.7	30
Siddhpur	58	0.3	30
Dhoraji	62	2.0	30
Khambhat	63	5.1	30
Bilimora	64	0.7	30
Dahod	68	1.5	10
Una	69	1.0	15
Vijalpore	70	1.5	30
Modasa	74	1.5	15
Upleta	75	0.8	30
Borsad	78	2.5	30
Amreli	82	2.5	4
Deesa	86	2.0	30
Mahua	86	1.3	7
Dabhoi	88	0.4	30
Kadi	92	1.0	30
Petlad	94	2.6	30
Keshod	95	2.0	8
Palitana	96	1.0	30
Virmagam	96	1.0	30
Dholka	100	1.2	30
Himmatnagar	101	2.0	30
Bardoli	102	2.0	30
Visnagar	104	0.4	30
Unjha	122	2.0	30
Bhuj	127	1.0	15
Dhangedra	131	1.0	30

Ankleshwar	187	1.5	30
Average	82	1.4	22

Legend			
Good Performing ULBs		Poorly PerformingULBs	

e. Class C ULBs

Average LPCD for Class C cities is 83. Water is supplied for 2 hours daily and 22 days in month *(Refer Table-2.9).* Salaya, and Mansa provide only 14 LPCD of water. Service level of Salaya municipality is among the poorest since it provides 14 LPCD water for 1 hour and only 4 days per month. Salaya is 100% dependent on ground water and this could probably be the reason for low supply of water.. Mansa municipality, although supplies water for 2 hours daily, provides only 14 LPCD of water.

There is need to assess the reason for poor water supply service levels in these 2 ULBs to be able to recommend corrective strategies and mechanisms. Umreth, V.Vidyanagar and Chhaya provide higher LPCD (>135) than other Class C cities; with good continuity and frequency of water supply. Notable is the supply at V.Vidyanagar with 9.5 hours of supply daily.

Table 2.9: Service levels of water supply - Class C ULBs

Class C ULBs	Per Capita Supply Of Water	Continuity Of Water Supply	No. Of Days Of Supply In A Month
Salya	14	1.0	4
Mansa	14	2.0	30
Manavdar	23	0.5	15
Idar	27	1.0	15
Lunavada	32	0.8	15
Santrampur	44	1.0	15
Jhalod	47	0.7	15
Kodinar	48	1.0	15
Dwarka	53	0.8	15
Jambusar	55	1.1	30
Balasinor	57	1.8	30
Pardi	59	2.0	30
Halol	64	1.0	30
Rajola	64	2.5	10
Khambadiya	64	0.5	15
Dhanduka	68	0.8	10
Bavla	69	2.0	30
Khed Brahma	70	0.8	30
Gadhda	72	2.0	10
Karamsad	78	2.5	30
Mandavi(K)	78	0.8	30
Jaffrabad	79	1.0	7
Wankaner	80	0.8	26
Kapadvanj	82	0.8	30

Chaklasi	83	4.0	30
Sanand	83	2.4	30
Sihor	85	1.0	30
Anjar	86	0.6	15
Karjan	87	1.0	30
Rajpipla	89	1.4	30
Jasdan	89	0.8	15
Thangadh	93	1.0	12
Limbdi	93	1.0	10
Bagasra	94	3.0	15
Vadnagar	102	0.6	30
Dehgam	103	1.3	30
Talaja	107	1.0	30
Vyara	111	1.3	30
Mehmadabad	113	2.5	30
Radhanpur	114	1.5	15
Gariyadhar	117	0.8	6
Umreth	158	2.0	30
V.Vidyanagar	251	9.7	30
Chhaya	267	0.5	30
Average	83	1.5	22
Legend			
Good Performing ULBs		Poorly Performing ULBs	

f. Class D ULBs

The average water supply for Class D cities is 85 LPCD. These ULBs provide water for 1.6 hours on an average and for 22 days in a month. Tarsadi municipality provides only 14LPCD water for 1 hours for 30 days. So, frequency of water supply is good but quantity is very less, and people have to fill water from the stand posts, since the city has no water connections.

Bantawa municipality provides 20LPCD of water only for 12 minutes (0.2 hr) on alternate days. As per the ULB staff, this is due to lack of adequate storage. The ULB has 1 sump and 1 ESR with capacity of 5 lakh litres and hence is unable to provide water daily. They have adequate water resources so as to provide water up to 100 LPCD. Sikka supplies 96LPCD water for 2 hours only for 4 days. Mandavi city has better service levels compared to ULBs of the same class with a water supply of 6 hours daily and 83 LPCD.

Table 2.10: Service levels of water supply - Class D ULBs

Cities	Per capita supply of water	Continuity of water supply	No. of days of supply in a month
Tarsadi	14	1.0	30
Bantawa	20	0.2	15
Vadali	23	0.8	10
Kalavad	26	1.0	10
Kutiyana	27	0.8	10
Bhanvad	30	0.5	15
Bhachau	34	1.0	15
Sutarpada	34	1.2	30
Vanthali	39	3.0	15
Patdi	41	2.5	30
Kheda	45	3.0	30
Thara	53	1.5	30
Rapar	54	0.9	15
Chotila	55	1.0	15
Vijapur	56	1.0	15
Vallabhipur	57	0.8	10
Kaalol	58	1.3	30
Padra	60	2.0	30
Prantij	60	1.0	30
Mahudha	61	1.7	30
Damnagar	64	0.7	15
Dharampur	64	2.0	30
Harij	68	1.0	30
Devgadhbariya	69	1.5	15
Tharad	70	0.8	30
Dakor	70	2.0	30
Jam Rawal	71	0.8	15
Jamjodhpur	71	0.8	15
Kheralu	73	0.7	12
Shahera	74	1.0	15
Ranavav	77	0.5	15
Halvad	81	0.8	30
Lathi	81	0.4	15
Chhota Udaipur	83	1.5	30
Mandavi (S)	83	6.0	30
Kathlal	84	2.0	30
Barvala	85	2.0	10
Bayad	86	1.5	30
Savri	86	0.6	30
Bhayvadar	90	0.5	15
Oad	93	4.0	30

Sikka	96	2.0	4
Amod	97	3.5	30
Songadh	99	1.0	30
Chanasma	100	1.0	30
Talal	101	1.0	30
Visavadar	101	0.5	15
Babra	101	0.5	15
Chalal	103	0.5	15
Dhrol	105	0.5	10
Gandevi	105	2.9	12
Talod	107	1.0	30
Boriyavi	110	3.6	30
Sojitra	110	9.0	30
Kansad	111	2.0	30
Dhanera	112	2.5	30
Bareja	118	2.0	30
Bhabhar	120	1.0	30
Chorvad	163	0.8	15
Kanjari	164	2.0	30
Pethapur	181	1.9	30
Thasra	194	1.3	30
Anklav	223	2.0	30
Maliyamiyana	291	1.0	15
Average	86	1.6	22
Legend			
Good Performing ULBs		Poorly Performing ULBs	

2.4 Financial management

Financial sustainability of water supply system is measured based on the extent of cost recovery through local charges and taxes. It helps to understand the deficit or surplus of financial resources that the ULB has for operating and managing its water supply system.

The extent of cost recovery (Operation & Maintenance) is defined as the total operating revenues expressed as a percentage of the total operating expenses incurred in the corresponding time period. Only income and expenditure of the revenue account must be considered, and income and expenditure from the capital account should be excluded. Even at the national level, one of the mandatory reforms to be undertaken by ULB under the JnNURM program prescribes "the levy of reasonable user charges by ULBs and parastatals with the objective that the full cost of Operation and Maintenance (O&M) or recurring cost is collected within the next seven years.[3]"

[3] *Source: JnNURM Primer on User Charges; available at **jnnurm**.nic.in/nurmudweb/**Reforms**/Primers/Mandatory/4-UC.pdf; accessed in Sept 2010*

It is suggested that the same can be achieved through:

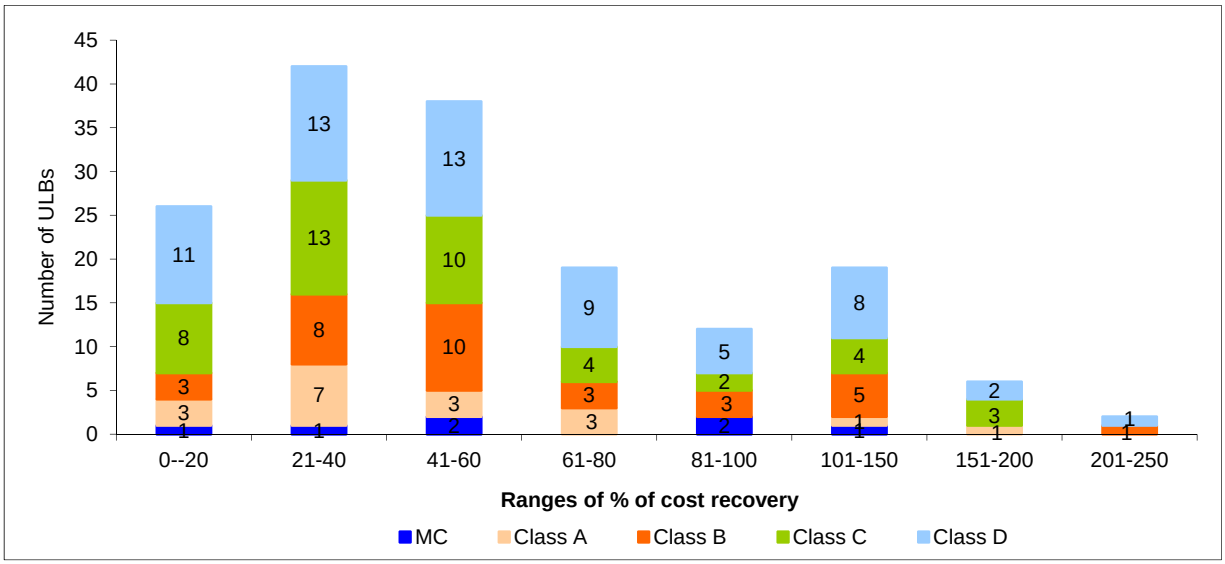
- Increase in coverage (base) of users
- Reduction in losses (commercial and physical losses)
- Improvement in method of measurement of service
- Improvement in billing and collection efficiency
- Rationalizing user charges

a. State scenario

At the state level, under the Gujarat Municipal Accounting Reforms Project (GMARP), all municipalities have computerized accounting systems with accrual-based double entry system. This has facilitated ease of obtaining financial data from the ULBs in Tally Software.

Ahmedabad Municipal Corporation has allocated 30% of property taxes as water tax. All other ULBs levy a fixed yearly tariff. The tariff also has high variability ranging from Rs 10 in Bharuch to Rs 720 for domestic connection in Keshod municipality.

Fig 2.13: Cost recovery (O&M) - Ranges of % of cost recovery



Out of the 166 ULBs, 164 have been considered for this analysis; data for 2 ULBs were greater than 250% and hence have not been considered in calculations. *(Refer Fig 2.13)*

At the state level, the average of cost recovery is 60%. This indicates that only 60% of all expenditure incurred on water supply is recovered through local taxes and charges.

26 ULBs cannot recover more than 20% of the costs and this affects the service level quality to citizens as well as means that water supply is being subsidized by other services

A quarter of the 164 ULBs fall under the range between 21-40% of cost recovery. 12 ULBs recover 80-100% of the costs and 27 ULBs recover >100% of the costs.

Among all classes of ULBs, the average cost recovery of municipal corporation is the highest. The cost recovery in Class A, C and, DULBs are otherwise low except for a few ULBs which report >150 values as illustrated in table 2.11. These exceptionally high values skew the mean. This signifies that low cost recovery ratios also signify that the ULBs give low priority to operation and maintenance of existing networks. O&M budgets would be the first to be affected, with consequent deterioration of pipes, machinery, and service. To be sustainable, an operation must be financially viable.

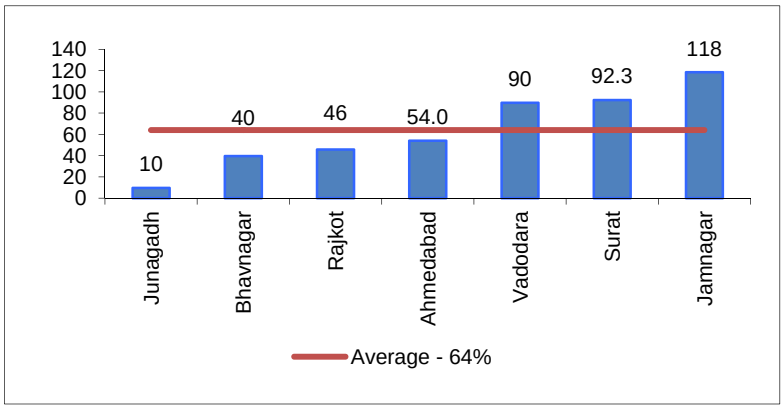
Table 2.11: Class wise Average % of cost recovery (O&M)

Class of ULBs	Average % of Cost recovery
M.C	64
Class A	53
Class B	65
Class C	55
Class D	62
Gujarat	**60**

b. Municipal corporation

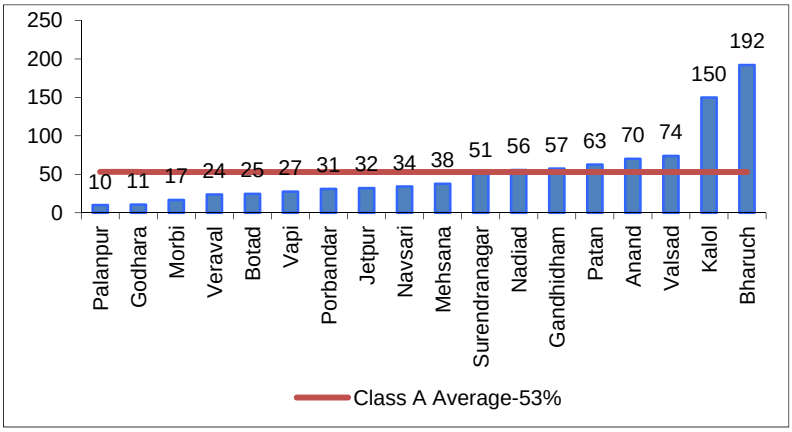
The average percentage of cost recovery of municipal corporations is 64%, which is higher than the other class of cities but far behind the desired national benchmark (SLB) of100%. Jamnagar and Surat corporations have close to 100% cost recovery. On the other hand, Junagadh has very low (10%)cost recovery possibly due to manual system of property tax record keeping and low staff for tax collection purposes. Junagadh MC has introduced a computerized system for tax collection only recently in the year 2009-10.

Fig 2.14: Cost recovery (O&M) - Municipal corporations



As mentioned in Fig 2.14, there is wide disparity among MCs with Jamnagar, Surat, and Vadodara as very good performing ULBs, and Junagadh lagging behind in terms of revenue generation.

Fig 2.15: Cost recovery (O&M) - Class A ULBs



c. Class AULBs

The average cost recovery for Class A ULBs is 53%. The distribution of data for cost recovery is highly varied with the average difference from the mean being 47%. Kalol and Bharuch show very cost recovery values which skew the curve and raise the overall Class average. Hence, the median of 36% is a better representation of the overall performance across Class A cities. Palanpur, Godhra, and Morbi have very poor cost recovery at 10%, 11%, and 17% respectively *(Refer Fig 2.15).*

Low cost recovery in Palanpur can possibly be attributed to very low efficiency of collection of water supply-related charges at 20%. The ULB has high arrears pending with billed arrears to billed demand at 63%. This signifies that the municipality needs to aggressively initiate a tax collection drive, provide incentives for early payment of bills and punish defaulters. The per unit cost of water production in Palanpur is extremely high at Rs 15.56 per KL of water produced. 72% of water produced in the ULB is bulk treated water sourced from Narmada. Godhra, which has the highest water production cost of Rs 17.7 per KL among Class A ULBs, is 100% dependent on bulk water purchase. The poor cost recovery of Godhra ULB could probably be linked with its low water service quality (33 LPCD), and hence low citizen satisfaction and low tax paying tendency.

Patan municipality incurs the highest per unit energy expenditure in water production at Rs 3.7 per KL. This could be attributed to its complete dependence on ground water as a source of water supply to citizens. Alternative sources of water supply need to be explored for the ULB in order to reduce its energy expenditure and further improve its current cost recovery of 63%.

Botad municipality also has low water tax collection efficiency at 8% and high pending arrears collection at 65% and hence should also look at options for improving the same.

PPP Initiatives for property tax collection in Mehsana municipality

Mehsana municipality has undertaken a series of initiatives for improving its property tax collection. In Gujarat, most ULBs generate a consolidated bill for each property containing the property tax, water tax, and sewerage tax. Hence, improvements in collection of property tax bills lead to overall improvements in collection of other utility taxes as well.

The municipality initiated provisions of rebate and penalty for tax collection in 2002-2003. As per the Municipal Rule 275 (Rule - 5), a resolution was passed in the general body meeting of the nagarpalika that mentioned that a 10% rebate would be provided if the payment was made within 30 days of receipt while a penalty of 18% of the bill amount would be levied if payment was made after 90 days of receipt of bill. This saw the tax collection increase from 17.15% to 69.99%. However, due to inadequate staff, the ULB faced problems in tax collection.

In 2005-2006, the ULB invited tenders and selected a private agency for tax collection and the work began on November7, 2005. As per the agreement, the agency has to collect at least Rs15 lakh of taxes per month in the financial year. The agency is paid 3.5% of the collected taxes as per the current agreement. On collection of monthly taxes of more than Rs 15 lakh, the agency will be paid 4% of additional amount collected as commission charges. This saw the tax collection rise to a maximum of 94% in the year 2009-10.

d. Class B ULBs

The average cost recovery of Class B ULBs is 65%. ULBs like Dhrangadra, Vadhwan, and Petlad, where cost recovery is above 90%, are good performing ULBs. Six ULBs, including Gondal, Viramgam, Himmatnagar, Borsad, Unjha, and Mangrol, have shown higher than the 100% cost recovery (112% to 213%).

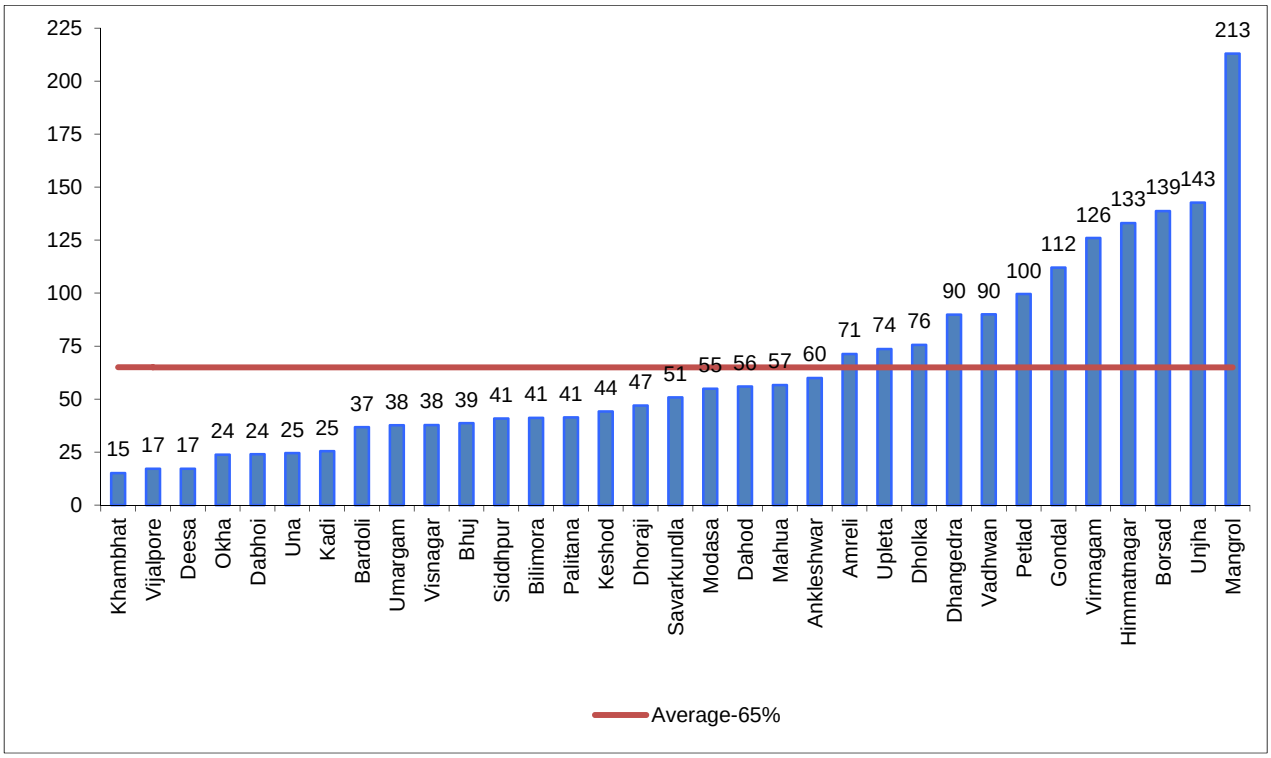
Similar to other class of cities, the distribution of data from Class B cities is very disparate with the mean difference from the average being 45%. Hence, the median of 51% may be considered to represent the overall cost recovery of Class b cities.

A quarter of the ULBs has cost recovery below 38%, including poor performing ULBs like Khambhat, Vijalpore, and Deesa as mentioned above in Fig 2.16.

Deesa and Khambhat municipalities have reasonable collection efficiencies of water taxes at 59% and 53% respectively. Their low cost recovery could be majorly attributed to extremely high costs of electricity of Rs 7/KL and Rs 11/KL in production of water. In Deesa, this energy cost is 80% of the total water production cost while in Khambhat, the same is 96%.

Deesa, located in the water scarce Banaskantha district is 100% dependent on ground water, which is at depth of 500 feet and hence probably leads to huge pumping costs.

Fig 2.16: Cost recovery (O&M)- Class B ULBs



Khambhat has a high percentage of NRW at 50%, indicating that 50% of water produced does not earn any revenues for the ULB. The municipality has mentioned the existence of about 1,000 illegal connections and 685 free connections (to municipal gardens, fountains, temples, etc.) and 22 stand posts in slums which lead to a high NRW. This high level of NRW seriously affects cost recovery. High NRW and low cost recovery ratios are also seen in Okha, Vejalpur and Kadi municipalities.

Along with the need to improve its collection efficiency of water-related taxes, there is also an imminent need to conduct an energy audit for the water supply service in both these ULBs in order to reduce energy costs and improve cost recovery. Additionally, in Khambhat municipality, there needs to be an initiative to legalize illegal connections and reduce dependence on stand posts by bringing more slum households under the water supply net which would lead to decreasing NRW and improving the cost recovery.

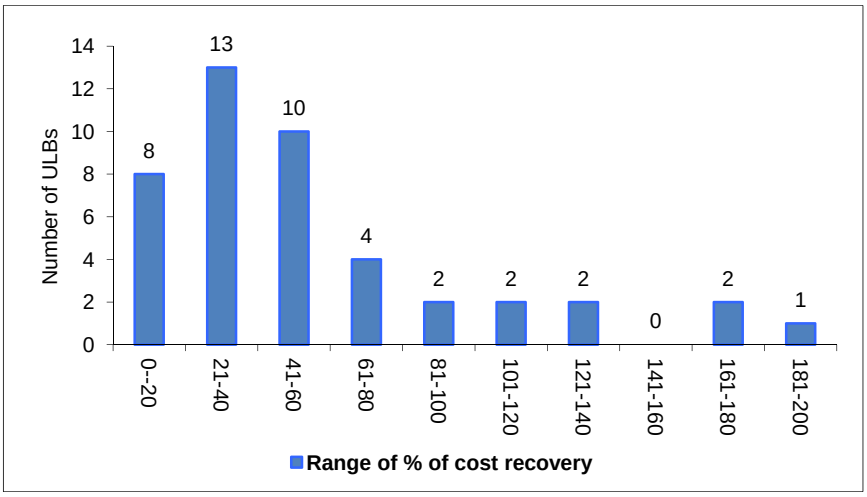
Vijalpore municipality collects 76% of the water taxes that it bills. On the expenditure side as well, its unit cost of production of water supply is not too high. Hence, the low cost recovery in Vijalpore could be due to its low revenue collection in water supply which is attributed to its low tariff structure. The municipality has an annual tariff of Rs 180 per domestic connection, which is very low as compared to other ULBs.

e. Class C ULBs

Out of 44 ULBs, data from 7 ULBs considered for analysis have high reported percentage of cost recovery (115 to 188%).

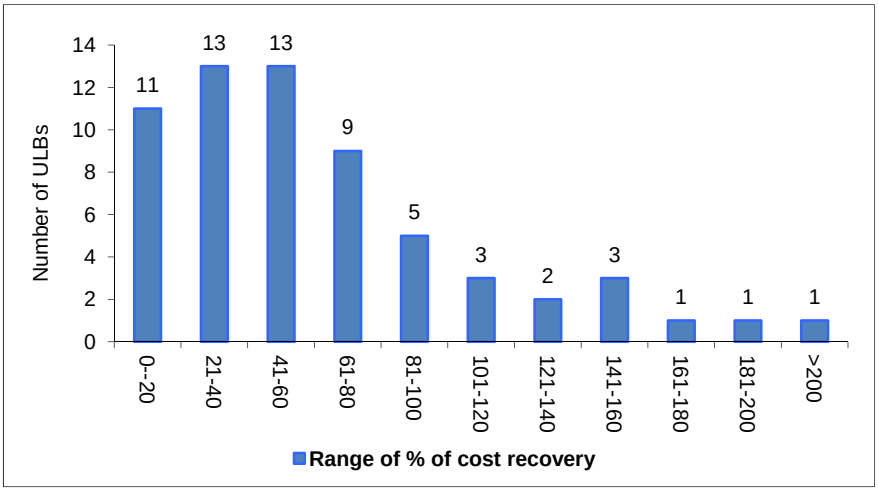
The average percentage of cost recovery from class C cities is 55%. 8 ULBs, including Pardi, Kapadvanj, Sihor, Sanand, Talaja, Jhalod, Salaya, and Radhanpur are poor performing and falls under 0-20% range. Refer Fig 2.17.

Fig 2.17: Cost recovery (O&M) - Class C ULBs



Pardi municipality has the lowest cost recovery in water supply at 6%. It also has the lowest revenue per connection among Class C) ULBs at Rs 34.The unit cost of production of water in Kapadvanj and Salaya is very high at Rs 21 per KL and Rs 19 per KL.

Fig 2.18: Cost recovery (O&M) - Class D ULBs



Sihor and Talaja municipalities have low collection efficiency at 22% and 29%, which probably explains their low cost recovery. These ULBs also have high percentage of arrears. Sihor has 54% of arrears in its billed demand while Talaja has 34% of arrears in its billed demand. This probably explains these ULBs' low cost recovery. Radhanpur has 41% of NRW.

The distribution of data is skewed, with more ULBs having lower cost recovery. In fact, 30% of the ULBs have cost recovery between 20-40%.

f. Class D ULBs

In terms of cost recovery, Class D average has been calculated from data of 62 ULBs as 62 %. 13 ULBs including Dakor, Anklav, Patdi, Lathi, Devgadhbariya, Maliyamiyana, Oad, Damnagar, Padra, Kathlal, Gandevi, Barvala, and Pethapur have reported more than 100% (101% – 875%) of cost recovery.

18% ULBs have the lowest cost recovery in the range of 0-20%, and also highest (>100%) range of cost recovery. The mean difference from the average is 48% which indicates the wide disparity within the data distribution as illustrated in Fig 2.18. Hence the median of 49% cost recovery may be considered as representative of Class D cities values.

2.5 Efficiency in service operation

2.5.1 Extent of Non Revenue Water (NRW)

Non Revenue Water is an important indicator for assessing the efficiency in service operation of water supply system. This indicator highlights the extent of water produced which does not earn the utility any revenue. This is computed as the difference between the total water produced (ex-treatment plant) and the total water sold expressed as a percentage of the total water produced.

NRW also refers to water that has been produced but is “lost” before it reaches the customer. It refers to the amount of water produced that does not earn any revenues for the ULB. This “lost” water could be due to real losses (through leakages, also referred to as physical losses) or apparent losses (theft, illegal connections, free water etc.). High levels of NRW seriously affect the financial viability of water supply provision due to lost revenues, increased operational costs impacting the quality of the service provided.

It is calculated as Non-Revenue Water = [((A - B) / B)*100]; where

A: is the quantity of treated water supplied for a month (million litres per month). It is based on the aggregate of daily water supplied into the distribution system from various sources including ex-treatment plant, treated bulk water purchase, water drawn from ground sources, and any other sources like desalinated water and rainwater harvesting. The quantity of water supplied in bulk to large water intensive industries is excluded from this estimate of total supply.

B: is the total quantity of water sold/billed (million litres per month).

NRW reduction strategies

Reduction of NRW needs a comprehensive strategy and includes, but is not limited to:

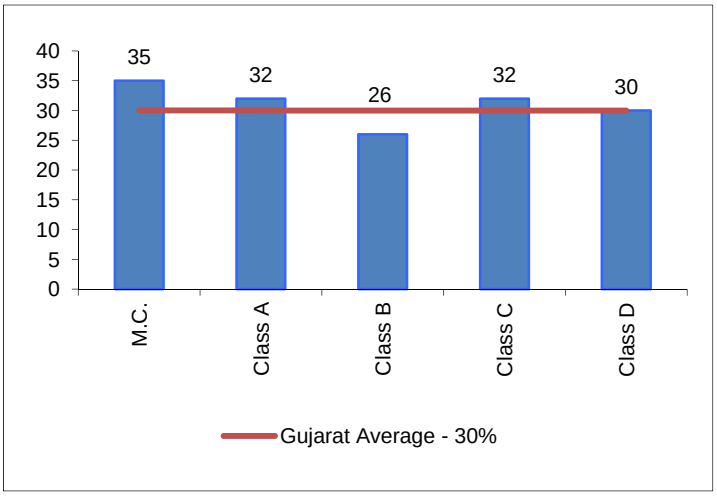
- Undertaking a rapid water audit to prepare a water balance to understand the real magnitude of the problem, and to estimate how much water is being lost, where and why
- Designing a strategy that includes a combination of technical and financial measures along with governance reforms
- Controlling apparent losses by interventions such as updating customer databases, improving billing and collection procedures
- Technical interventions for controlling real losses such as pipelines and assets management, selection, operation and maintenance; pressure management; leakage control
- Initiating metering at all water utilities (water treatment plant, water distribution stations) as well as at consumer end

Water balance (as per the International Water Association)

System Input Volume	Authorized Consumption	Billed Consumption (Metered and Non-metered)	Non-metered Consumption
			Metered Consumption
		Unbilled Consumption	Free to departments and consumers
			Fire Hydrants
	Water Losses	Apparent or Commercial Losses	Theft by Consumers
			Theft by Water Sellers
			Inaccurate Meters
			Data Handling Errors
		Real, Physical or technical losses	Leakages from Transmission or Distribution Mains
			Leakages and overflows from storage tanks
			Leakages on service points to customer meter

a. State scenario

Fig 2.19: Non Revenue Water (%) - Gujarat state



At the state level, the average for NRW comes to 30%; which is double than the desired national SLB of 15%.

The reliability of data for calculation of NRW is D indicating that the same is based on estimation by ULB officials.

Data have been analyzed from 104 ULBs since 62 ULBs did not provide data on water billed/sold.

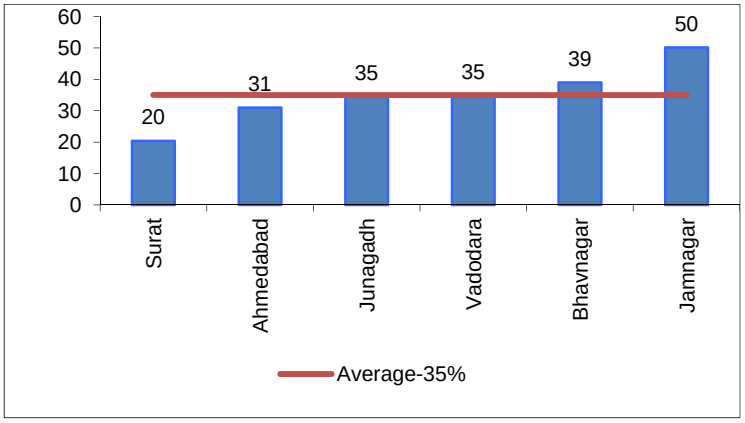
The average NRW across all class size of cities ranges between 26-34% indicating marginal differences across classes *(refer Fig 2.19).*None of the ULBs has any record on the amount of water billed or supplied at the consumer end. This is mainly due to lack of measuring devices such as flow meters, level gauges, etc. However, it is very essential for all ULBs to

have actual data on water produced and supplied to quantify the actual water losses or water sold.

b. Municipal corporation

The average percentage of NRW for corporations is 35% (Fig 2.20). Surat has the lowest percentage (20%) but it is closer to the national service level benchmark. On the other hand, Jamnagar shows the highest percentage of NRW. All other corporations show NRW range between 30 and 50%. Rajkot Municipal Corporation is not considered for analysis due to non availability of data pertaining to NRW.

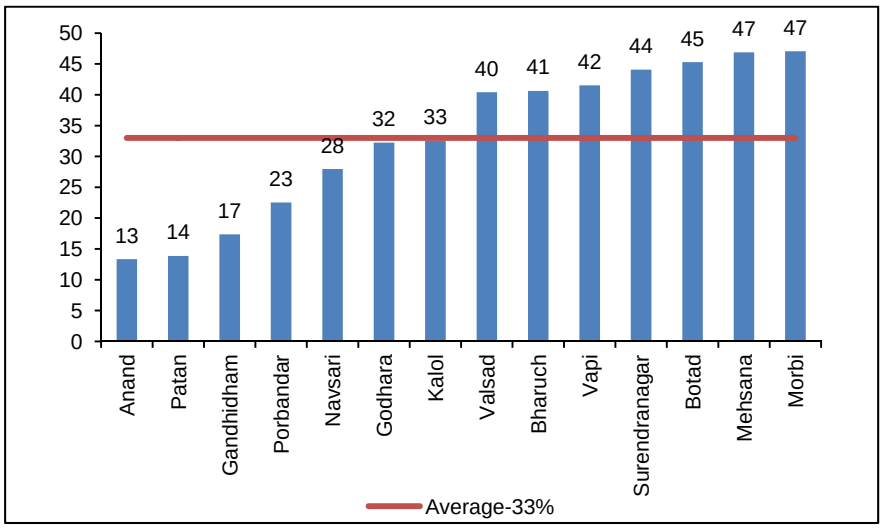
Fig 2.20: Non Revenue Water (%) - Municipal corporations



The highest NRW among MCs is in Jamnagar Municipal Corporation, followed by Bhavnagar MC as mentioned in Fig 2.20. Jamnagar's high NRW could be due to the approximately 9,000 illegal connections and about 205 exempted connections and 72 stand posts across the city.

c. Class A ULBs

Fig 2.21: Non Revenue Water- Class A ULBs

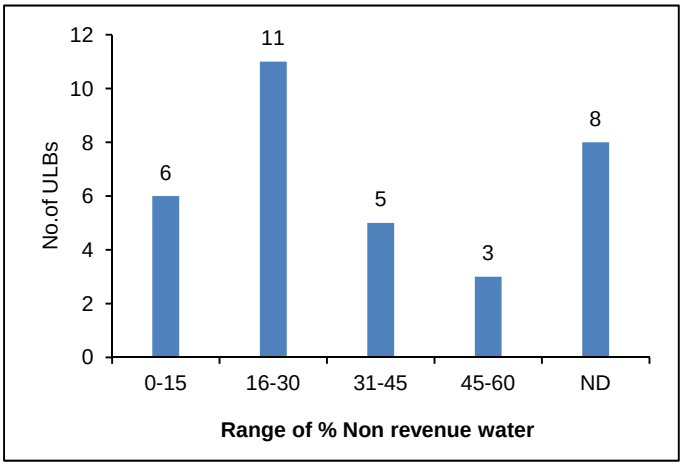


Among Class A ULBs, 14 have been considered for analysis of NRW. Data from 4 ULBs namely Jetpur, Nadiad, Palanpur and Veraval have not been considered due to non availability.

The average percentage of NRW for class A city is 33% as mentioned in Fig 2.21. Anand and Patan show NRW values lesser than the SLB.

Surendranagar, Botad, Mehsana and Morbi have very high NRW and need to work towards a comprehensive NRW reduction strategy. Data provided by ULBs are without any documentary evidence and therefore considered as having low reliability of D.

Fig 2.22: Non Revenue Water - Class B ULBs



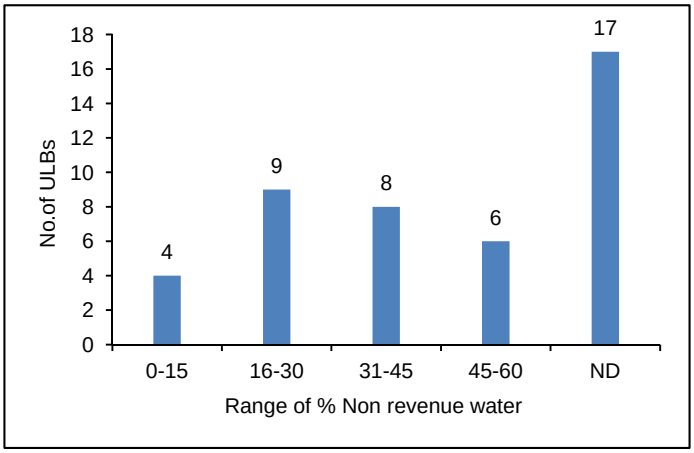
d. Class B ULBs

The average NRW among class B ULBs is 26%. 27 ULBs have NRW values above the national service level benchmark.

Khambhat and Vijalpore have the highest NRW at 50%. In Khambhat ULB needs to undertake an initiative to legalize the illegal connections and reduce dependence on stand posts by bringing more slum households under the water supply net which would lead to decreasing NRW and improving the cost recovery.

NRW values from 11 ULBs, including Dabhoi, Upleta, Dholka, Petlad, Bardoli and Bhuj, are in the range below 15% (Refer Fig 2.22). One fourth of ULBs do not have any estimates on amount of water billed/sold and hence have not been considered for the analysis.

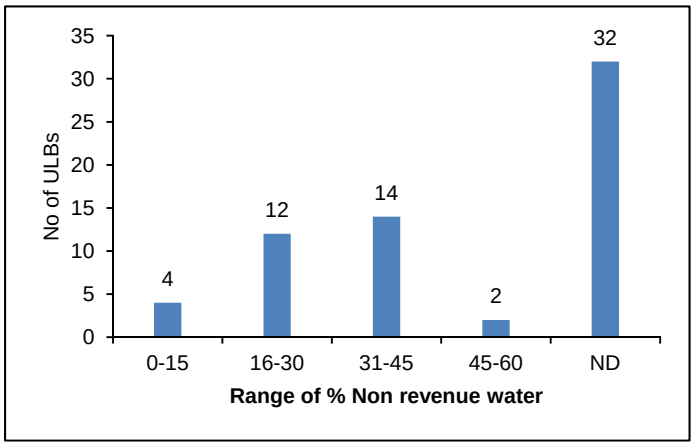
Fig 2.23: Non Revenue Water - Class C ULBs



e. Class C ULBs

The values for NRW of Class C ULBs are in range between 9 and 57%. 17 ULBs do not have relevant data pertaining to the NRW indicator and hence are not included for the analysis. The average percentage for NRW in Class C ULBs is 32.

Fig 2.24: Non Revenue Water - Class D ULBs



Gadhda, Kapadganj, Pardi and Khedbrahma have low NRW ranging from 0 to 15% as mentioned in Fig 2.23. Half of the ULBs have NRW values above 33% showing high losses in those ULBs, with Dehgam, Idar, Jhalod, Karamsad, Mehmadabad and Sanand having NRW more than 50%.

f. Class D ULBs

The efficiency in service operation in Class D ULBs is not very good as they are small towns and many are newly formed municipalities with less infrastructure and limited technical and human resources.

Pertaining to data for NRW, only 50% (32) ULBs have been able to provide estimates for water produced and water sold/billed. Therefore, the reliability of data is very low at D. The average for Class D ULBs is 30%. As mentioned in Fig 2.24, 4 ULBs, including Talod, Prantij, Kheda and Vallabhipur, have NRW values below 15% signifying low water revenue losses. Lathi and Ranavav Municipalities have NRW of 50% and 57% respectively.

Preliminary water audit exercises could help ULBs to understand the critical areas that contribute to high NRW.

2.5.2 Efficiency in redressal of customer complaints

Complaint redressal system is an important function of an efficient, responsive and transparent ULB. The basic purpose behind a grievance redressal mechanism is to provide a platform to citizens to lodge their complaints related to municipal services, voice their opinions and provide feedback.

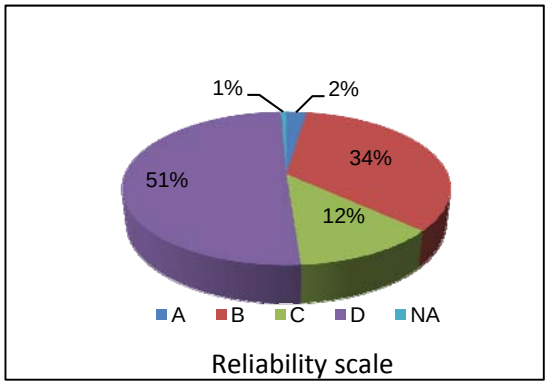
Table 2.12: Redressal of customer complaints

Redressal Of Customer Complaint (Range in %)	Number Of Urban Local Bodies
51-60	1
61-70	2
71-80	5
81-90	7
91-100	150
NA	1

Most of the ULBs in the state have attempted to establish a system to register complaints and to redress them within a stipulated time, as mentioned in the citizens' charters of ULBs. After the GOI initiative to prepare citizens' charter, various initiatives have been undertaken in Gujarat to formulate and operationalize such charters. Through a series of workshops in 1998, under GOI's administrative reforms program, CMAG had developed a model charter that ULBs could adopt for their own context.

These grievance redressal systems range from manual system, where the citizen needs to approach the ULB to register a complaint in a paper form, to ICT application-based, where they can register the complaint through a telephone, SMS or the ULB website.

Fig 2.25: Reliability of data for complaint redressal



The total number of water supply-related complaints redressed within 24 hours of receipt of complaint, as a percentage of the total number of water supply related complaints received in the given time period.

a. State scenario

In Gujarat state, all ULBs have a system to register complaints either in form of manual register (note book) or some kind of computerized system. The average percentage of efficiency in complaint redressal is 98, which is higher than the desired national SLB of 90.

150 ULBs have reported that their efficiency of complaints redressal is in the range of 91-100%; out of which 135 redress all complaints in the stipulated timeframe *(refer Table 2.12).*However, the reliability of data is very low due to lack of maintenance of regular records of complaints redressed and the data provided is based on estimates provided by ULBs.

Kodinar ULB had no complaints related to water supply service. The ULB claims that there is no water supply related problem and they have one of the best services for their citizens. Hence, Kodinar has not been considered for the current analysis.

4 ULBs, namely Surat, Rajkot, Navsari and Petlad, have data with reliability A, indicating that they have good computerized systems for complaint redressal where complaints are segregated and collated from various means.

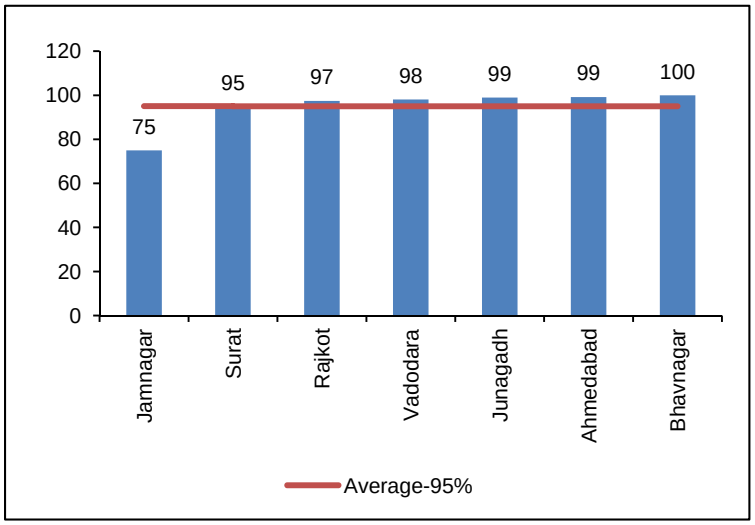
This is followed by 34% ULBs having reliability B which means these ULBs have manual records (register/note book) where complaints from various means are segregated and collated. 51% ULBs reported data with reliability scale D which was based on estimates by ULB officials.

b. Municipal corporations:

The average percentage of efficiency in redressal of customer complaints in corporation is 95%. Other than Jamnagar Corporation, there are marginal differences as shown in Fig 2.26.

However, Surat and Rajkot corporations have better data recording systems, hence their data is with reliability A. Other corporations, including Jamnagar (lowest) and Bhavnagar (highest), have data with Reliability C.

Fig 2.26: Complaints redressal (%) - Municipal corporations



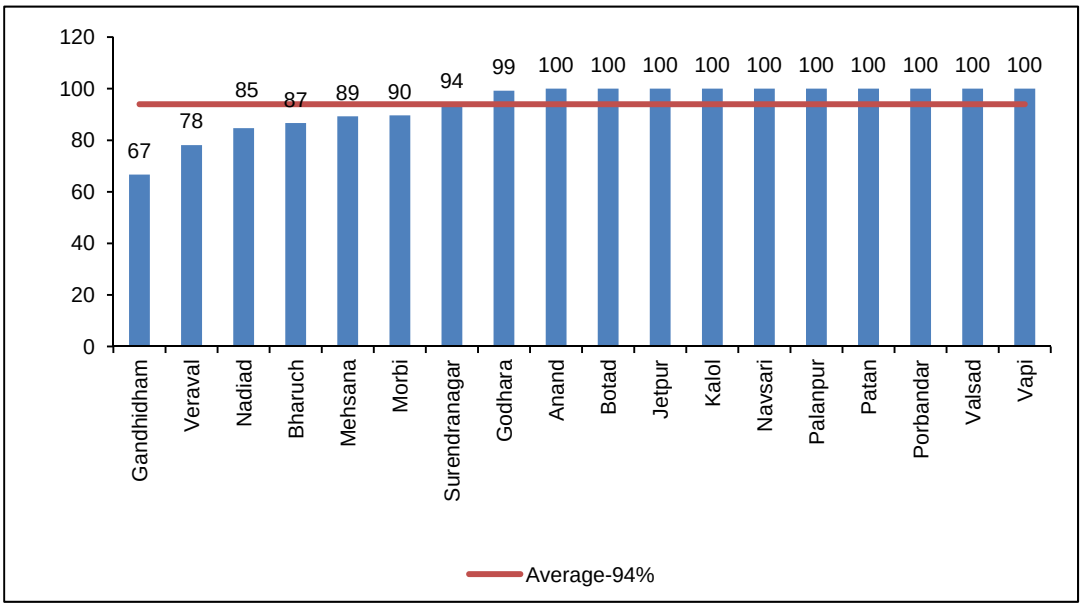
Grievance redressal system in Surat Municipal Corporation

Surat Municipal Corporation introduced an automated complaint lodging and monitoring system in October 2000. The system is supported in Gujarati, Hindi and English languages. Under this system, citizens are able to register the complaint through phone, email or post. They can submit a written complaint. The complainant is then issued a unique Ticket Number to help them track the status of complaint. Complaints get bifurcated based on engineering works and public health and sanitation works. These complaints too are bifurcated on the basis of priority as Emergency (to be attended immediately), High Priority (within 24 hours), Medium Priority (within 48 hours), low priority (within 72 hours) and General complaints (within 7 days). Once the complaint has been redressed, the officer calls the helpline number to update the status of the complaint. Monitoring of grievance redressal happens at 3 levels- at the zonal officer/department head level on a daily basis; zonal chief/divisional head level on every Thursday and by the municipal commissioner on every Tuesday.

c. Class A ULBs

The average percentage of efficiency in redressal of customer complaints among Class A ULBs is 94% as illustrated in Fig 2.27. 10 out of 18 ULBs have reported 100% efficiency, whereas 5 have reported at least above 85%. Gandhidham has reported that it redresses only 67% of all complaints received. In terms of data reliability, only Navsari has reported data with Reliability A, 6 ULBs with Reliability B and 8 with Reliability D.

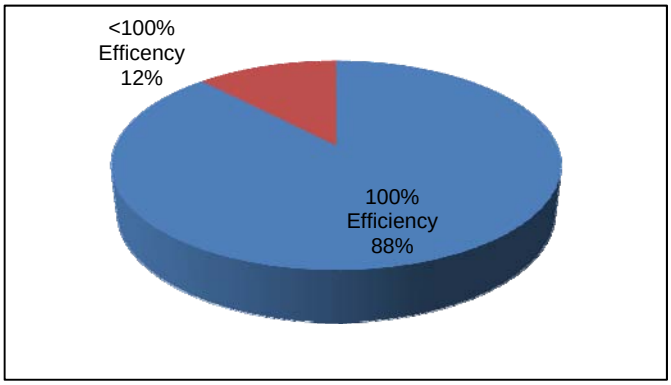
Fig 2.27: Complaints redressal (%) - Class A ULBs



d. Class B ULBs

Fig 2.28: Complaints redressal (%) - Class B ULBs

Among Class B ULBs, the average percentage in redressal of customer complaints is high at 99%. 29 ULBs have reported 100% efficiency in redressal of customer complaints as shown in Fig 2.28.



Bhuj has reported 71% efficiency which is lowest among class B cities. However, the data reliability from Bhuj is B indicating that the ULB has manual records (register/note book) where complaints from various means are segregated and collated.

Petlad municipality has a high reliability of A. Two-third of all ULBs have reported data with Reliability D. This signifies that even though the redressal efficiency is high, reliability is low.

ICT-based complaints redressal system at Petlad municipality

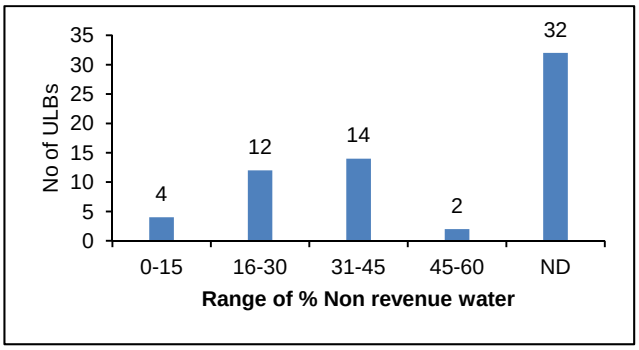
Petlad municipality, a Class B ULB has established an e-registering center with ICT enables services named as **"*Jan Suvidha Kendra*".** Each case/complaint is registered after filling a simple form which has a barcode on it at the time of issuing the form or just before the submission of the form. There is no need to log the name of the applicant at the time of issuance of the form having a barcode attached with it. This measure spares people from waiting in long queues. The applicant is issued a token from the token counter, where the bar code is scanned and its detail recorded appropriately in the computer. The operator at the counter checks the enclosures with computer assistance and tick marks its receipt on the computer screen. The applicant does not need to re-submit enclosures submitted in previous application. The operator performs qualitative check to ensure the complete fill-up of the form and ticks that on the computer. When all the required enclosures are checked, the software issues a bar-coded acknowledgement slip in two copies. One is given to the applicant and the second is attached to the application. The applicant's copy shows up Jan Suvidha Kendra's helpline number, latest delivery date and time. The back office operator at Jan Suvidha Kendra scans the barcode on the application.

The system shows up the concerned office and this way, the received papers are sorted out. A list is generated for acknowledgement by the concerned branch. The case duly recorded is forwarded to the respective department for further required action within the stipulated time frame. The complaints also get recorded department wise as well as according to type and category. The process is monitored by the chief officer on day-to-day basis, and explanation sought from the department if it is delayed. The applicant or the complainant is also informed about the receipt of the complaint and also apprised about the status through SMS. Every department can access the information on pending cases on-line, through SMS query, or by requested printouts. Reminders and alerts are sent to the officers by the system to ensure timely completion of the cases. The chief officer also monitors the pending complaints using his/her own computer.

e. Class C ULBs

Among Class C ULBs, 82% have reported 100% efficiency in redressal of customer complaints. The average value of this class is 98%. Gariyadhar has shown lowest efficiency in customer complaint redressal, followed by Wankaner *(Refer Fig 2.29).*

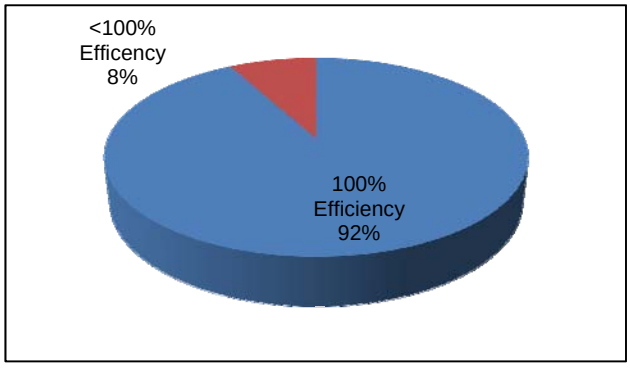
Fig 2.29: Complaints redressal (%) - Class C ULBs



None of the ULBs has data with reliability A, which means that there are no computerized complaint redressal systems in Class C ULBs.

They either have manual recording system or there is no system at all. Nearly half of the ULBs have reported data with Reliability D due to poor complaint redressal recording systems.

Fig 2.30: Complaints redressal (%) - Class D ULBs



f. Class D ULBs

Similar to other classes of cities, in Class D cities also most ULBs (61) report 100%efficiency in redressal of customer complaints. Devgadhbariya has the lowest efficiency at 56% followed by Dharampur at 87%.

Fig 2.30 shows the efficiency in redressal of customer complaints among class D. The average efficiency of redressal among Class D is 99%. 59 ULBs have reported 100% efficiency in redressal of customer complaints whereas Devagadhbariya has reported lowest

efficiency at 56%, followed by Dharampur Municipality at 87%. Remaining 4 ULBs have reported between 87-96% efficiency in redressal of customer complaints. However, the reliability of data varies, as shown in Fig 2.36. Half of the ULBs have reported Reliability D.

2.6 Equity

The coverage of water supply connections in slum settlements is defined as total households with individual tap connections as percentage of the total households in slum settlements in the ULB.

Barriers to provision of water supply services to urban poor in India

A WSP Guidance Note prepared in March 2009 identified obstacles to improving services for the poor. The obstacles have been grouped under six action areas:

1. Give the poor a voice: Voice of the poor is too often not heard and misconceptions about them persist
2. Neutralize vested interests: Water vendors, corrupt public officials and dishonest staff may have a vested interest in preventing better services to the poor
3. Eliminate administrative and legal barriers: Land ownership and tenure issues often create a barrier for provision to the poor; the poor may be unaware of administrative and legal requirements, or find it difficult to understand them and comply
4. Strengthen capacity, autonomy and accountability of service providers, and provide incentives to serve the poor
5. Adopt appropriate financial policies: Tariffs do not cover the full cost of efficient services; poor households find it difficult to pay connection fees upfront and monthly bills; small scale service providers lack adequate finance to extend networks into peri-urban informal settlements
6. Overcome physical and technical barriers: Overexploitation and degradation of water resources affects the poor disproportionately; physical and technical challenges make extending formal piped water networks to informal and unplanned settlements more difficult.

Source: http://www.wsp.org/wsp/sites/wsp.org/files/publications/SA_GUIDANCENOTES.pdf

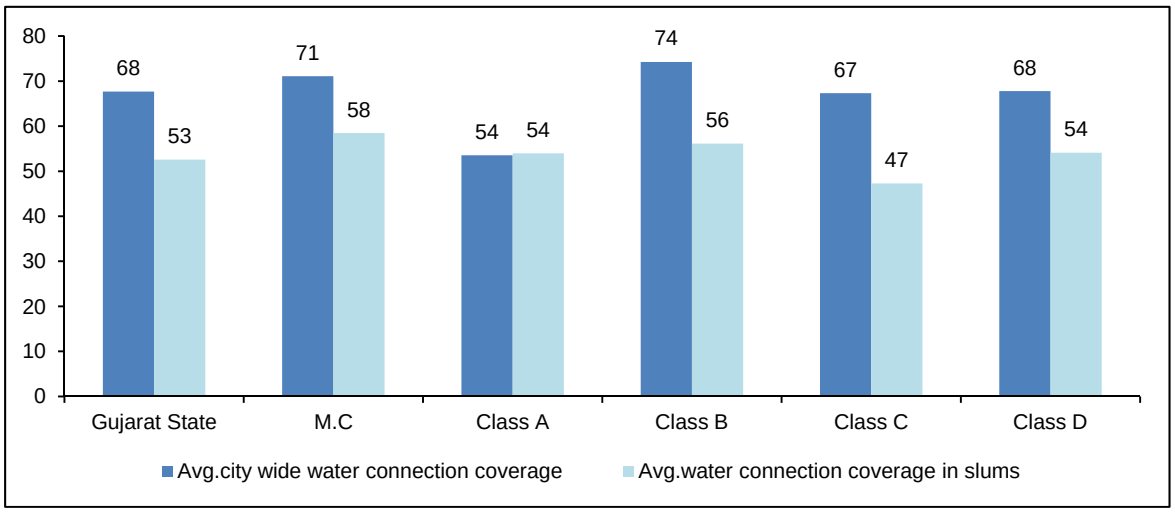
There are technical difficulties as well as land tenure issues leading to provision of water networks in slum settlements.

At the national level, the JnNURM too has included the following mandatory reforms to be undertaken by ULBs for provision of basic services to the urban poor:

- Internal earmarking, within local bodies, budgets for basic services to the urban poor
- Provision of basic services to the urban poor, including security of tenure at affordable prices, improved housing, water supply and sanitation

a. State scenario

Fig 2.31: Coverage of water supply connection in city and slum - Gujarat State

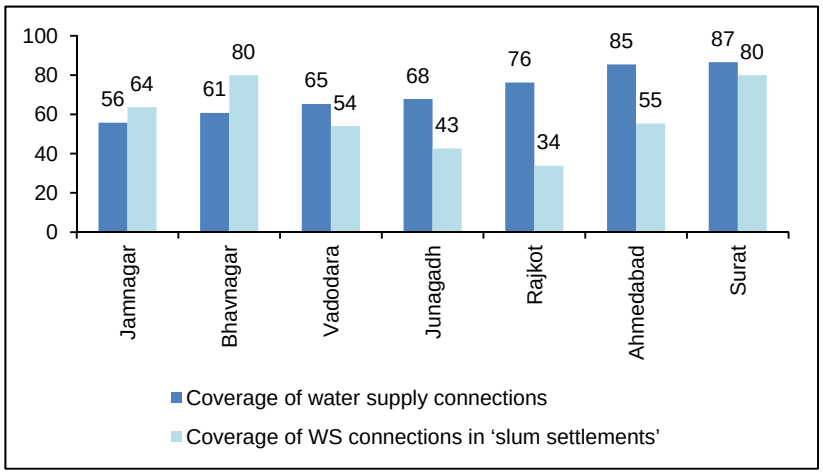


At the state level, the average coverage of water supply connections in slum settlements is 53%, indicating that 53% of the slum households in the ULBs of the state have individual water connections. This is lower as compared to the state level coverage of water supply connections at 68%.

Data of 139 ULBs have been included in this analysis since data of 25 ULBs was not available while 2 ULBs, Babra and Bagasra, claim to have no slum settlements.

There is inequity across all the classes of ULBs. Fig 2.31 shows highest inequity in Class C and lowest in Class D. The coverage in slum settlements in Class A ULBs is higher than the overall city-wide coverage.

Fig 2.32: Coverage of water supply connection in city and slum - Municipal Corporation



b. Municipal corporations

The average coverage of water supply connections in slums for MCs is 58%, which is lower than the average of city-wide coverage. In terms of equity between city-wide coverage and in slum, there is highest inequity in Rajkot and lowest in Surat. Bhavnagar reported slum coverage more than city wide coverage. The reliability of data related to slum coverage is scale D.

Provision of individual water and drainage connections to slum households under 500 NOC Scheme-Ahmedabad Municipal Corporation

The scheme, previously known as 500 NOC scheme, was launched in 2002 by the Ahmedabad Municipal Corporation. As the name suggests, the scheme aims at providing slum residents with a No Objection Certificate (NOC) that allows them to apply for legal individual sewage and water connections for their house. 500 relates to the amount the applicant has to pay to get the NOC.

All the households have to fulfill the following criteria:

1) The applicant should be residing in a slum dwelling of no more than 40 sq m.
2) The applicant should have some type of residence proof, such as ration card, voter ID, or tax or electricity bill or 7/12 utaro (Any one)

The individual applies to the zonal office on a form available for Rs 10. S/he has to submit a proof of residence along with the form. The zonal office issues an 'inward number' to the applicant. (Alternatively, the NGO delivers the application forms (collected from the office on behalf of the applicant) to the community, collects the Rs 10 fee with the completed forms, and Rs 1,500/500 for the NOC. The NGO then delivers the documents to the Zonal Office and also pays the form fee amount and receives inward numbers issued by the office to be handed over to the applicant. Meanwhile, the NGO gives the applicant a temporary receipt which gets replaced by the regular one received from the office).

An officer from Estate Department visits the applicant's residence for verification of the plot size conforming to the eligibility criteria and also prepares a rough plan sketch. (Alternatively, an NGO representative accompanies the official and helps in measurement verification and sketch drawing).

Beneficiaries pay Rs1500/500 to tax department or city civic centre and get NOC receipt. (NGO co-ordinates with Estate Department; they collect a list of beneficiaries and directly pay Rs.1500/500 to tax department and get an NOC receipt. After receiving the proof of the payment made, the office arranges to send a photographer to take picture of the residence along with the applicant holding the 'Inward No.' written on a small slate. This photo Fig is then pasted on the bottom of the pink NOC certificate which the applicant gets laminated to ensure its long life. The NOC is delivered to the applicant who can now apply for water-sewer connection, or use it while getting the existing illegal connection legalized.

c. Class A ULBs

Among Class A ULBs, the average percentage coverage of water supply connections in slum settlement is 54%, which is equal to the average percentage of coverage in ULB. 5 ULBs have reported higher coverage in slum compared to city-wide coverage. The reliability of data is low as scale D.

Kalol municipality has slum connection coverage of 33%; there is only one stand post provided across all the slum pockets and hence the slum population per stand post is high at 19,289.

Data regarding number of water supply connections in slums of Palanpur are not available but it has a large population per stand post. Kalol, Palanpur, Godhra need to improve their coverage in slums as well as provide more number of community stand posts in slums.

Mehsana has a high coverage of water connections at the city level, but has low coverage in the slums. Mehsana reports to have mere 2% connections in slums. This data is based on the City Development Plan (CDP) prepared for Mehsana and hence has a higher Reliability of A. Nadiad, Navsariand Patan have an equitable coverage of water connections.

The slum population per stand post across Class A ULBs varies with the highest values for Palanpur (3574) followed by Godhra (1146), Vapi (536), Surendranagar (476). Mehsana which lies in the 'high city and low slum' coverage quadrant has 303 persons per stand post.

Fig 2.33: Coverage of water supply connection in city and slum - Class A ULBs

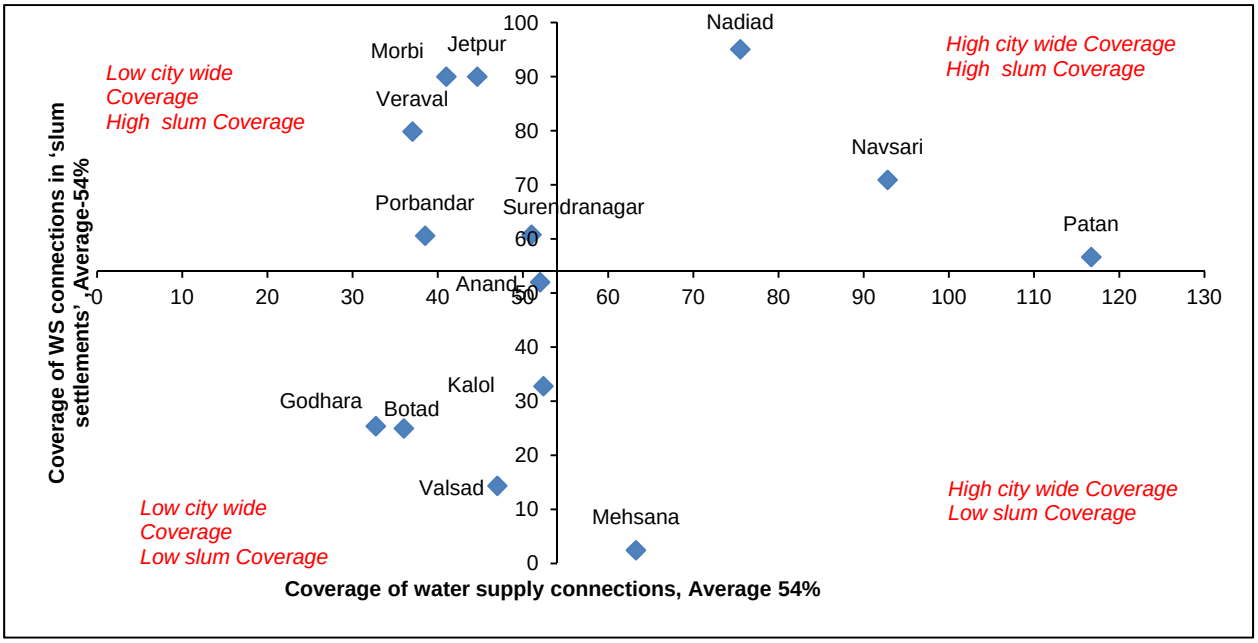
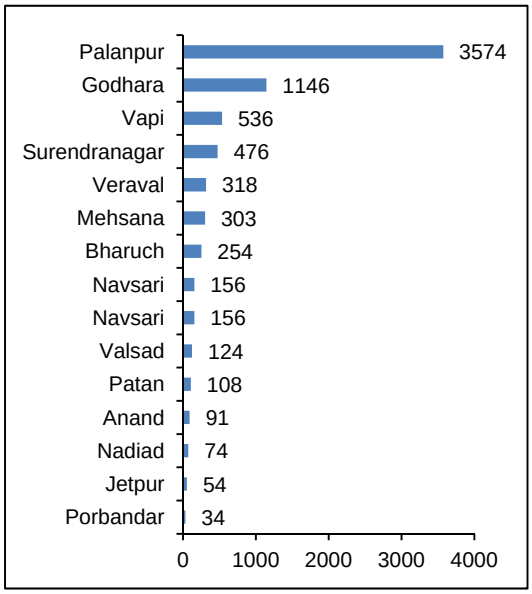


Fig 2.34: Slum population per stand post - Class A ULBs

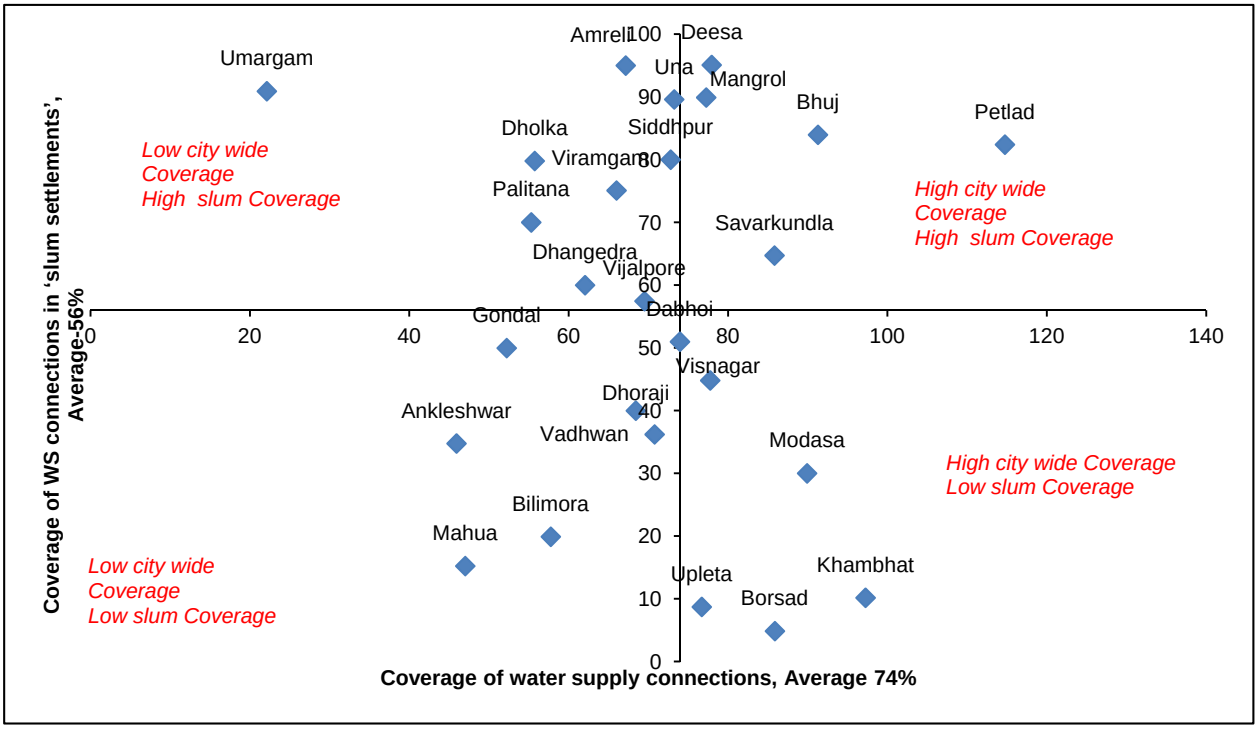


d. Class B ULBs

Among 33 Class B ULBs, 26 have provided information pertaining to the coverage of water supply connections in slums. The remaining 7 have not been considered for analysis due to lack of information on slum coverage. The average coverage of water supply connections in slums in Class B ULBs is 56%. This is lower than the average city wide coverage 74%.

Deesa, Mangrol, Bhuj, and Savarkundla municipalities are most equitable, with a high city-wide coverage as well as high connection coverage in slums. Apart from further increasing connection coverage in slums, Una, Mangrol, Bhuj, and Savarkundla municipalities need to add more stand posts in the slums and reduce the slum population per stand post.

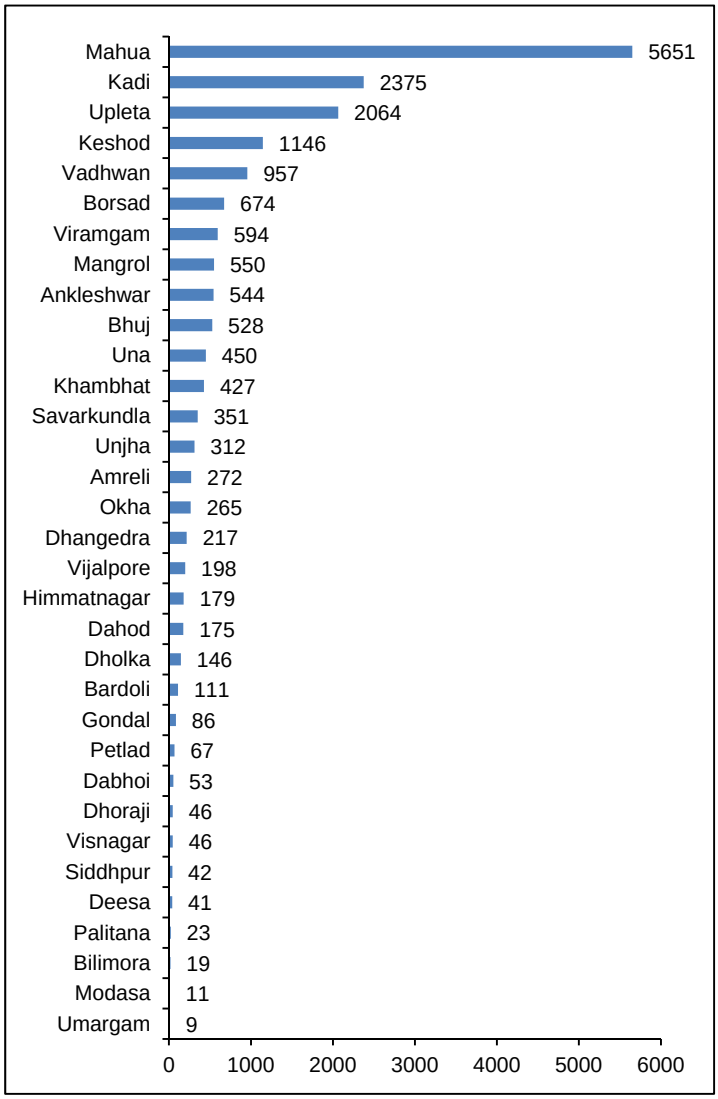
Fig 2.35: Coverage of water supply connection in city and slum - Class B ULBs



Dabhoi, Visnagar, Modasa, Upleta, Borsad and Khambhat have good coverage at the city level, but have low slum connection coverage. Visnagar, Modasa, Borsad and Khambhat have low slum population ranging between 4-8% of the total population. However, Upleta and Dabhoi municipalities have 28% and 23% of their populations residing in slums and hence need to undertake interventions to provide more connections to slum settlements. Additionally, Upleta also does not have adequate community stand posts for water provision in slums; it has slum population of 2,064 per stand post.

Diagnostic studies to analyze barriers to provision of connections in these 2 ULBs need to be undertaken. Umargam municipality has 91% of coverage in slums but only 22% at the city level.

Fig 2.36: Slum population per stand post - Class B ULBs



e. Class C ULBs

Among Class C cities, data from 37 ULBs have been analyzed. 6 ULBs do not have data related to coverage in slum and Bagasra municipality has reported '0' slum population, hence these ULBs are excluded from analysis. The Class C average coverage of water supply connection in slum settlements is 47%, which is significantly lower than the city-wide coverage of 67%.

Manavadar city has reported 100% coverage in slums while Khambadia and Salaya municipalities have '0' coverage in slums against city-wide coverage of 96% and 59%. Manavadar, Bavla, Mandavi and Kapadvanj show good coverage at the city level as well as in slums.

Khambadia, Limbdi and Sanand municipalities have a good coverage at the city level but very low coverage in slums. Sanand municipality has a mere 1% population residing in slums, however, Khambadia and Limbdi, which have 25% and 16% of slum populations, need to improve their coverage in slums.

Khambadia has city-wide connection coverage of 96% and hence, it is recommended that a diagnostic study be undertaken to assess the barriers to improving water connections to slums. Among ULBs with low connection coverage in slums, Jaffrabad, Radhanpur, Halol, Dehgam and Khambadia have very high populations per stand post. The ULBs should consider adding stand posts in slums to ease access to water.

Fig 2.37: Coverage of water supply connection in city and slum - Class C ULBs

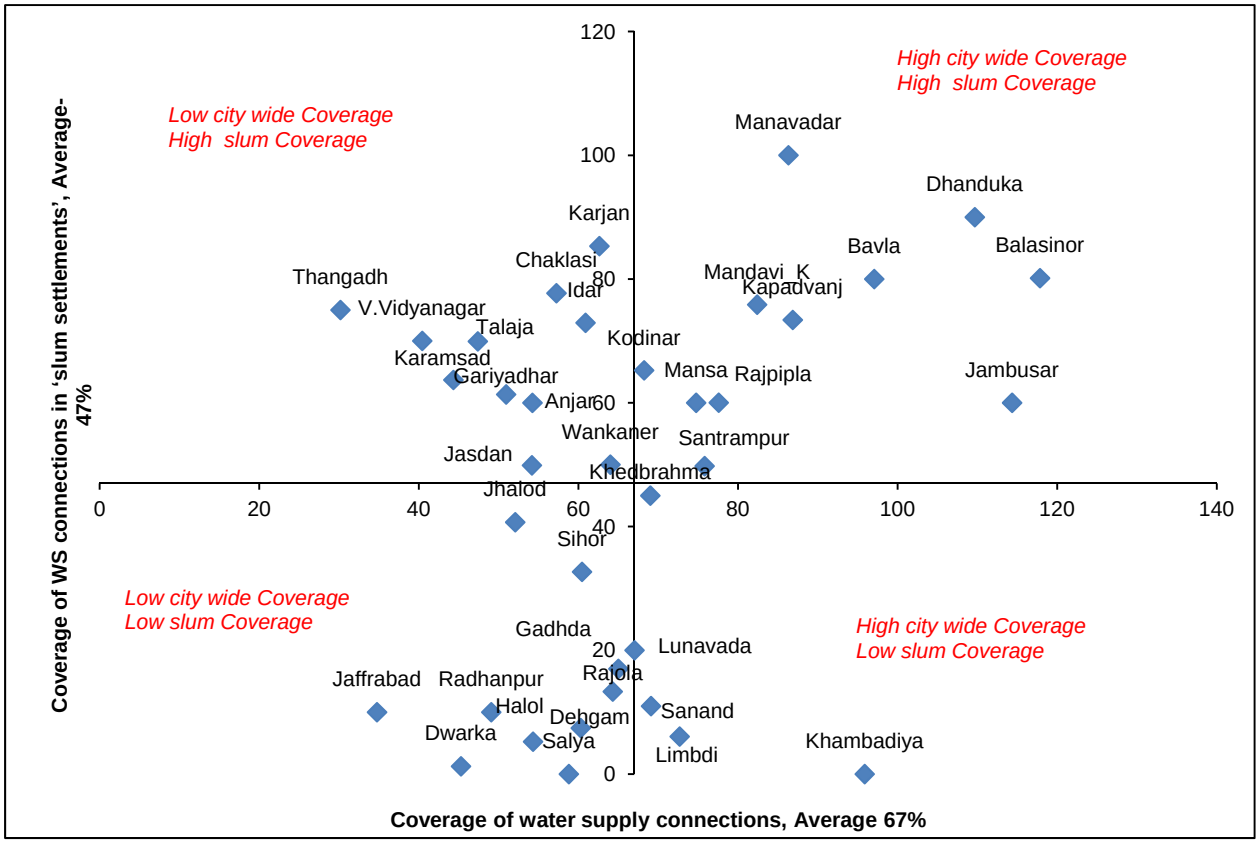
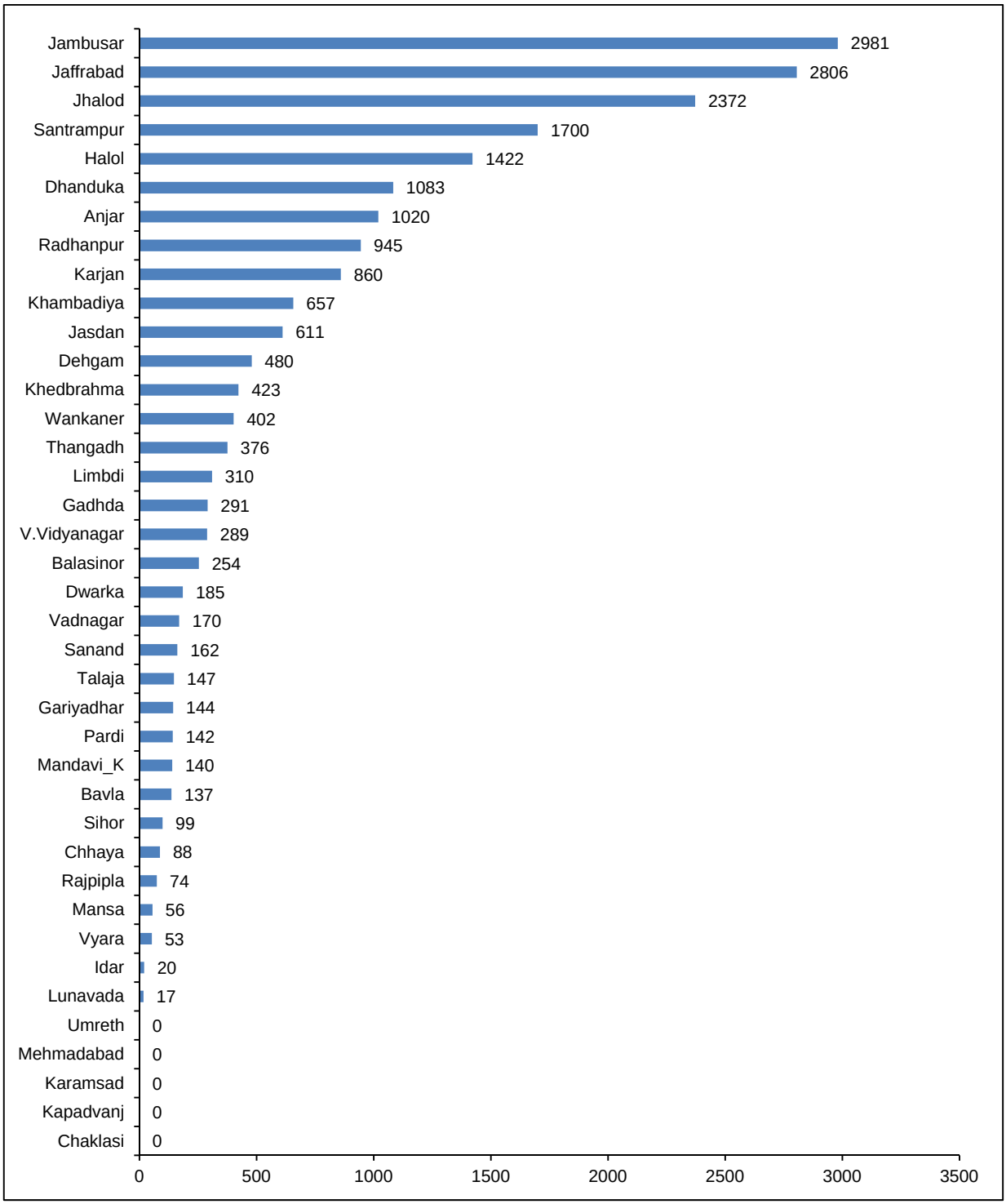
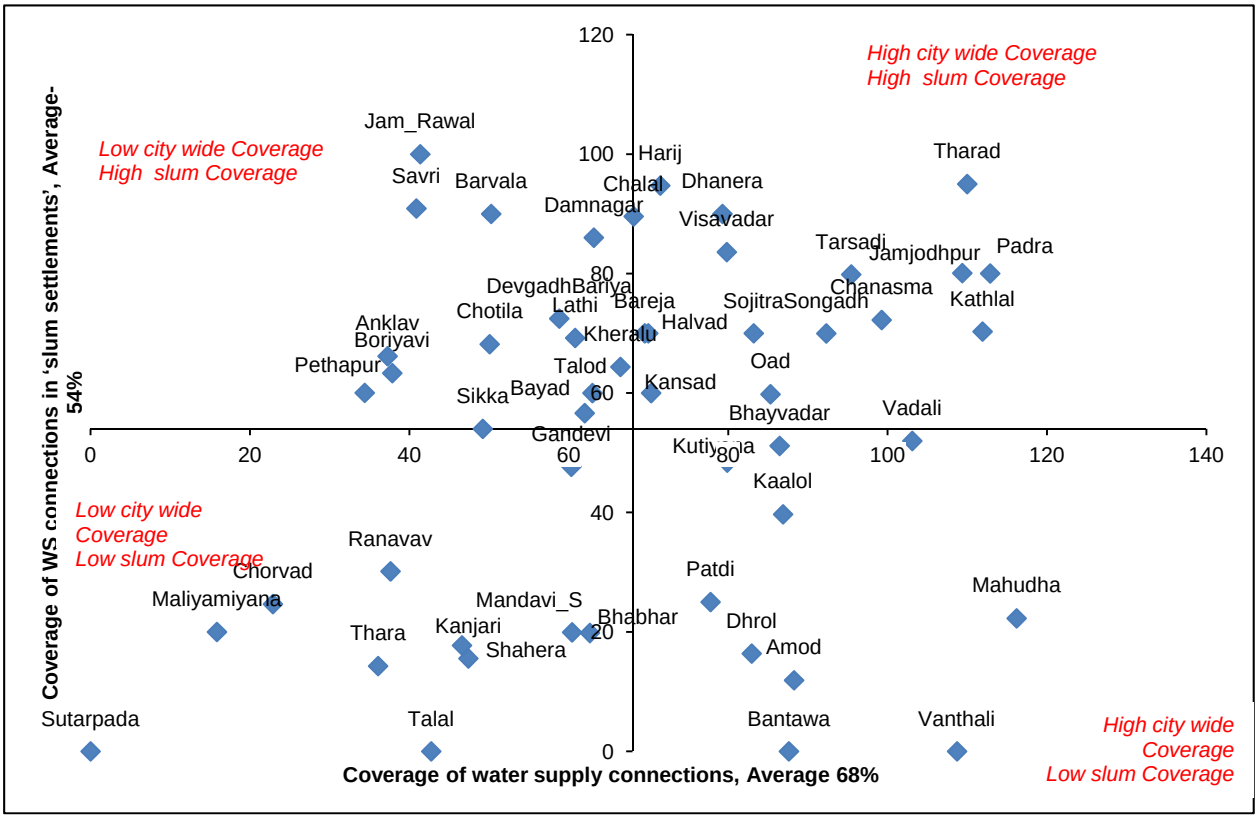


Fig 2.38: Slum population per stand post - Class C ULBs



f. Class D ULBs

Fig 2.39: Coverage of water supply connection in city and slum - Class D ULBs



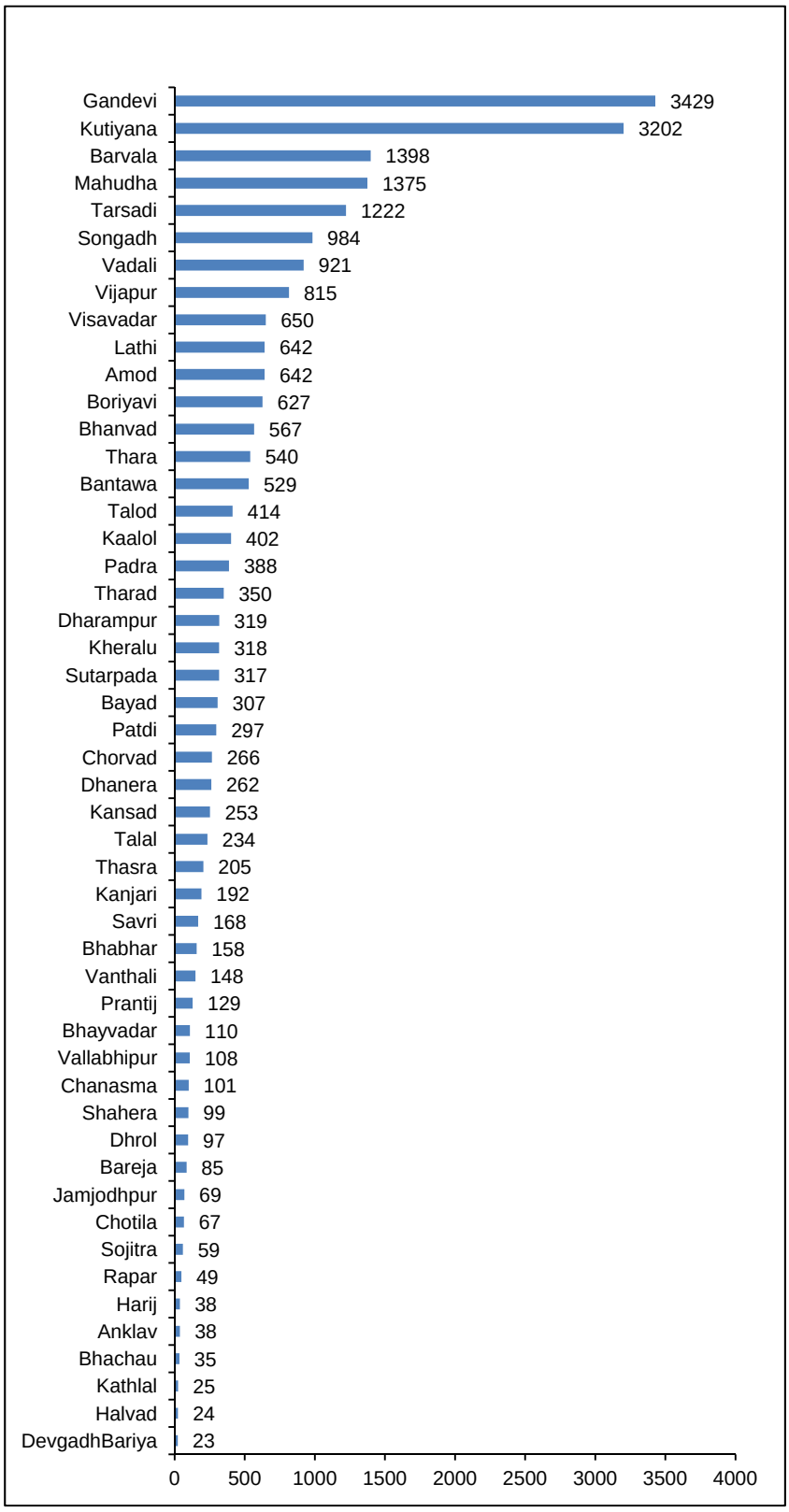
Among Class D ULBs, the average coverage of water supply connections in slum settlements is 53%, which is lower than the city wide coverage of 63%.

Out of 64 ULBs, data for 55 are available and have been included in this analysis, whereas 8 ULBs do not have information on slum coverage. Babra city has reported '0' slum population.

Bantawa city has '0' coverage in slums against 88% coverage at city level, showing high inequity. Sutrapada has zero coverage in both city and slum. The municipality has not provided any water connections and provides water only through public stand posts.

Among the ULBs that have low water connection coverage in slums, there is a huge variance in the number of households with access to a community stand post. It ranges from Thara municipality with 540 persons per stand post, Gandevi with 3,429, Kutiyana with 3,202. This highlights the need to increase community stand posts so as to ease access to water for slum dwellers.

Fig 2.40: Slum population per stand post - Class D ULBs

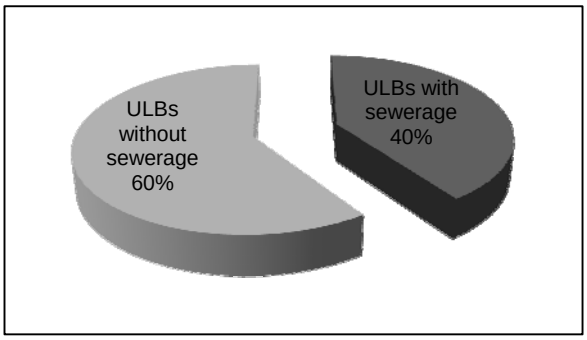


Chapter 3: Waste Water

3.1 State scenario –overall scenario at state level

67 ULBs (40%) have some extent of underground drainage (sewerage) network in their cities. All municipal corporations have sewerage networks. 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.

Fig 3.1: Sewerage Coverage (%) - Gujarat



In terms of toilet coverage, 81% households have access to individual or community toilets. As per the Census 2001, the toilet coverage in urban Gujarat was also 81%.

Out of 67 ULBs that have some extent of underground drainage network (Refer Fig 3.1), a third has some kind of treatment facilities. 6 ULBs have sewerage treatment plants and 15 have oxidation ponds, as illustrated in table 3.1.out of the above, Surat has a tertiary level treatment plant.

Table 3.1: No. of ULBs with treatment facility

ULBs with Sewerage Treatment Plant (STP); Primary and secondary treatment	6
ULBs with Oxidation Ponds	15
Total	21

54 ULBs have a dedicated department for waste water management. The remaining ULBs have a sanitation department that deals with solid waste collection and disposal as well as waste water, together called as conservancy services.

The data on complaints and redressal have been made available from most of the ULBs. Some ULBs have not been able to provide information because of non-availability of records of complaints registered and redressed. It is mainly due to the fact that they do not have a separate department for waste water. Complaints related to waste water are not segregated and get mixed with other complaints at civic centers.

In terms of financial sustainability, data pertaining to the revenue income and expenditure incurred are not readily available with ULBs. Financial data used for analysis are with assistance of the GMARP Project.

In Gujarat, 24 ULBs have reported more than 100% cost recovery. 63 do not levy any sewerage /drainage tax. The average efficiency in collection of sewerage-related charges is 55% in Gujarat. This is the first time in Gujarat that state-wide performance assessment of urban water supply and sanitation utilities is being carried out. Data are not readily available with ULBs. Most of the data are based on estimations by the ULB staff and hence the reliability band of data is low. Most of the indicator values fall under Reliability D.

3.2 Access and coverage

3.2.1 Coverage of households with access to toilet

Household-level coverage is defined as households having individual toilets within their premises or having access to a community toilet as a percentage of total households in the ULB.

3.2.2 Coverage of sewerage connections

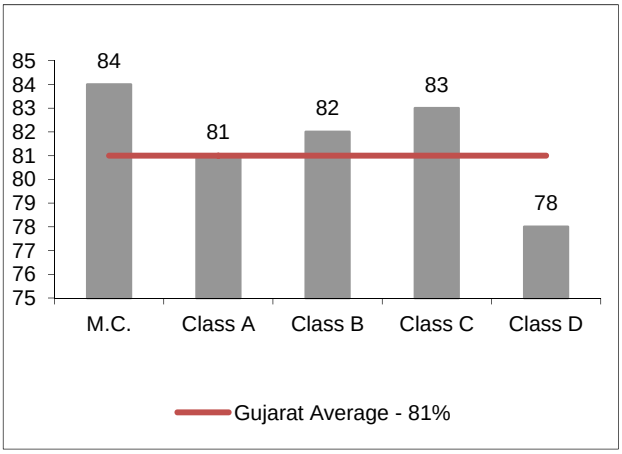
This indicator denotes the extent to which the underground sewage (or sewerage collection) network has reached out to individual properties across the service area. Properties include those in the categories of residential, commercial, industrial and institutional. The service area implies a specific jurisdiction in which service is required to be provided.

a. State level

Coverage of households with access to individual/community toilet:

The average of households with toilet coverage in Gujarat state is 81%, which is lower than the SLB average (89%). There is a low variation across class-wise cities for toilet coverage as shown in Fig 3.2.

Fig 3.2: Coverage of household toilets (%) – Gujarat state



Out of 166 ULBs, 6 cities (mainly class D) do not have data pertaining to toilet coverage.

The GoG has also initiated sanitation program under *Nirmal Gujarat* program and provide technical and financial support for construction of toilets for urban poor to achieve *Swarnim* Goal.

Coverage of sewerage connection:

In Gujarat, out of 166 ULBs, only 67 have sewerage network system (Table 3.2). Data of 110 ULBs are not considered for coverage analysis as information from 99 ULBs is not applicable due to absence of sewerage network and while it is not available from 11 ULBs. The high disparity across the classes signifies that there is poor sewerage infrastructure in Classes C and D.

Table 3.2: ULBs with sewerage network

Class of ULBs	No. of ULBs With Sewerage Network	In Percentage
M.C	7	100
Class A	11	61
Class B	19	58
Class C	17	39
Class D	13	20
Total	67	

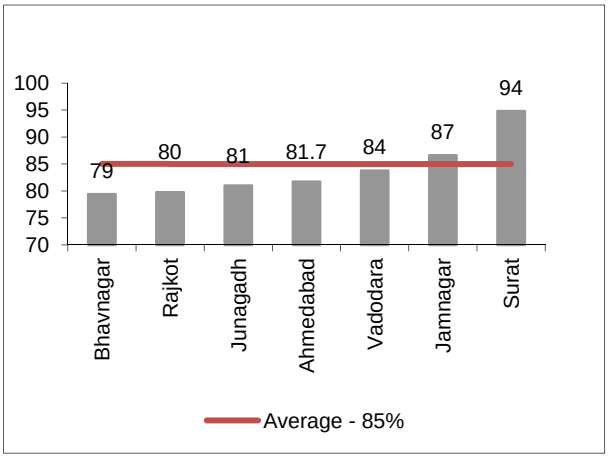
In Gujarat, average sewerage connection for households is 49%, which is lower than the SLB average (56%). There is little variation across MCs and class-wise cities. The reliability of data pertaining to sewerage connection falls under category C & D.

b. Municipal corporations

Coverage of households with access to toilet:

Among municipal corporations, the average of households with access to toilet is 84%, which is lower than the SLB average of 89% (Fig 3.3). Surat has the highest coverage of 95%, whereas Bhavnagar coverage is lowest at 79%.

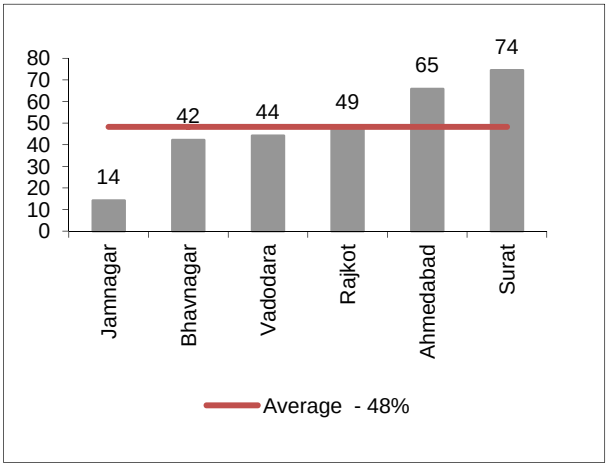
Fig 3.3: Coverage of household toilet (%) – Municipal corporations



Coverage of sewerage connection:

In terms of sewerage connections, data obtained from 6 municipal corporations has been analyzed. Junagadh MC is not considered for analysis due to lack of information on sewerage connections. The average percentage coverage of sewerage among MCs is 48 (Fig 3.4).

Fig 3.4: Coverage of individual sewerage connection (%) – Municipal corporations



The coverage is lowest in Jamnagar corporation (14%) where, out of 12 zones, only two are fully covered and one partially covered. As compared to the high percentage of toilet coverage (87%) in Jamnagar city, it implies that mostly households use septic tanks or soak pits. If the latter is true, it could possibly imply contamination of shallow ground water aquifers. Apart from Surat, which has a very high coverage (74.5%), the other MCs have coverage lower than 70% (average: 48%).

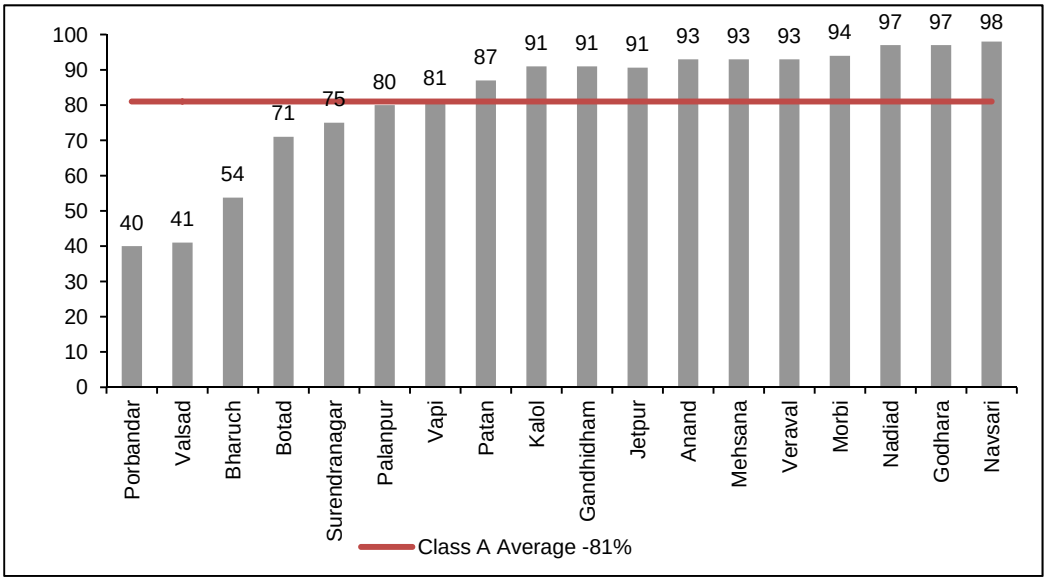
Ahmedabad has a low coverage mainly due to the merger of unserviced new-west zone comprising 17 municipalities and 27 gram panchayats in the year 2006. Prior to the merger, the coverage was almost 95%.

c. Class A ULBs

Coverage of households with access to toilet:

15 of the 18 ULBS have individual/Community toilet coverage of more than 70%. Porbandar with 40% and Valsad with 41% coverage have the least coverage within class A ULBs. These particularly low values skew the data and increase the variability within the class (Refer Fig 3.5).

Fig 3.5: Coverage of household toilet (%) – Class A ULBs

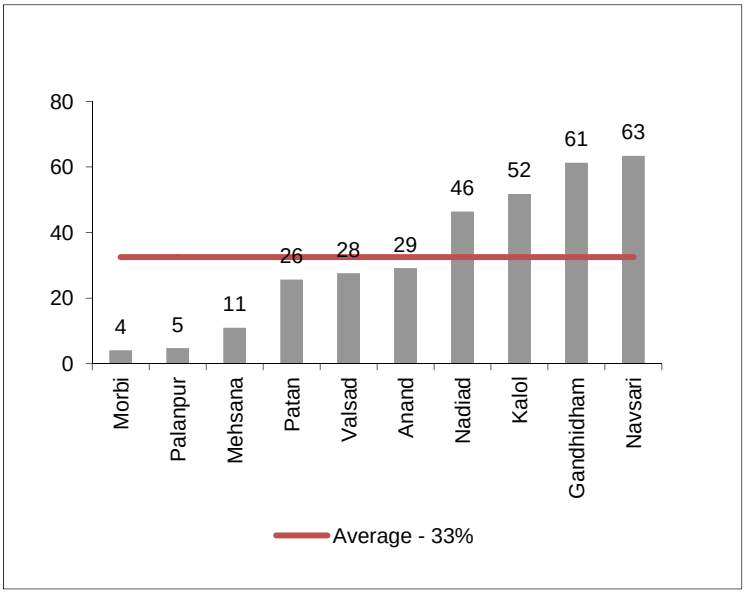


Coverage of sewerage connections:

Data from 10 of the total 18 ULBs of Class A are available for analysis since only these have some extent of underground drainage. There is a strong disparity between the cities, with Navsari at 63% followed by Gandhidham, Kalol and Nadiad as illustrated in Fig 3.6.

Morbi and Palanpur have considerably low percentage of coverage, which is due to partial coverage of sewerage network in these ULBs. Morbi Municipality also reported a very high number of illegal sewer connections of around 8,000 in the city. The ULB should take initiatives to legalize these connections and improve the coverage and cost recovery from drainage services.

Fig 3.6: Coverage of sewerage connection (%) – Class A ULBs

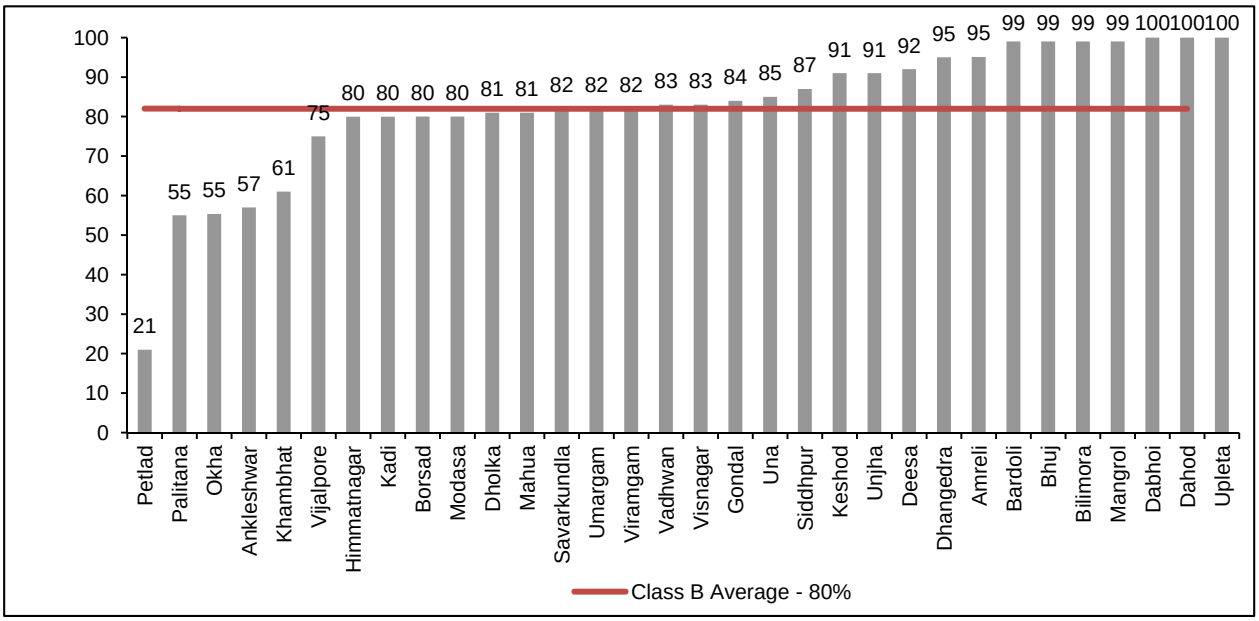


d. Class B ULBs

Coverage of households with access to toilet:

The average coverage of toilets across Class B cities is 82%. Four cities, including Petlad, Palitana, Okha and Ankleshwar have notably lower coverage below 60%. Dabhoi, Dahod and Upleta have 100% households with coverage to individual/community toilets. There are 9 municipalities that have coverage in the range of 90%-99%.

Fig 3.7: Coverage of household toilet (%) – Class B ULBs



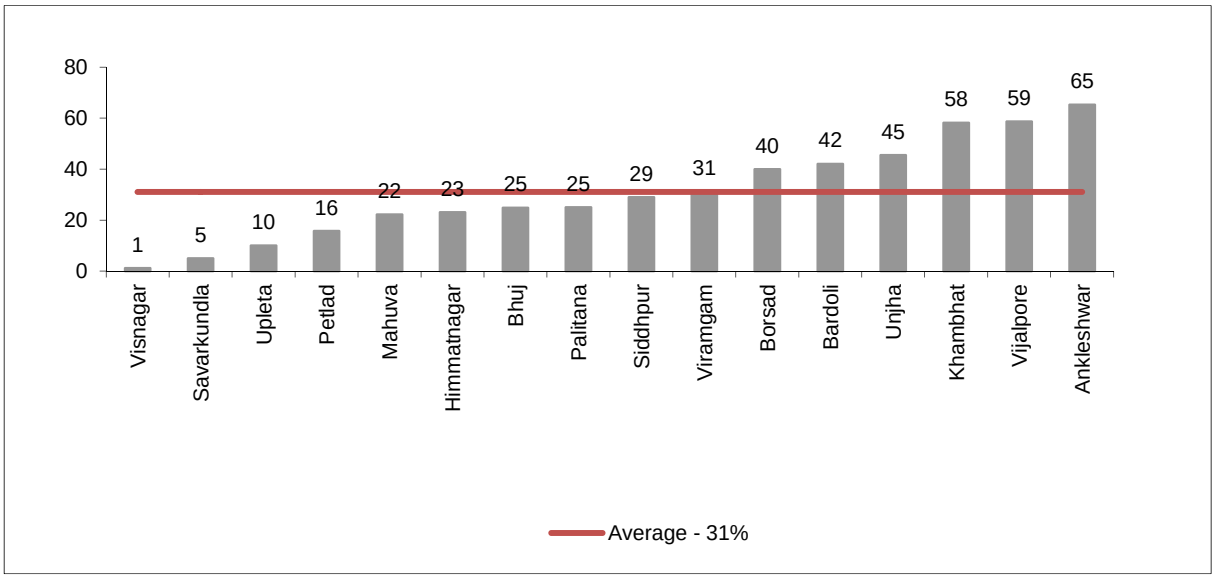
Coverage of sewerage connections:

Regarding coverage of sewerage connections across households in Class B cities, data from only 16 ULBs have been included in the analysis. Data from 14 ULBs is not included as they do not have any sewerage network and the information from 3 ULBs seem unreliable for analysis. Visnagar shows only 1% of sewerage coverage.

Data of Class B ULBs are extremely variable with the coverage ranging from 1% for Visnagar to 65% for Ankleshwar. Since data reliability of sewerage connections is C & D and reliability of toilet connections is D, this probably means that the ULB has underestimated coverage of toilets.

Overall, the data seems to be equally distributed on either side of the mean (31%) with the average difference of the values from the mean as 19% (Refer Fig 3.8).

Fig 3.8: Coverage of sewerage connection (%) – Class B ULBs

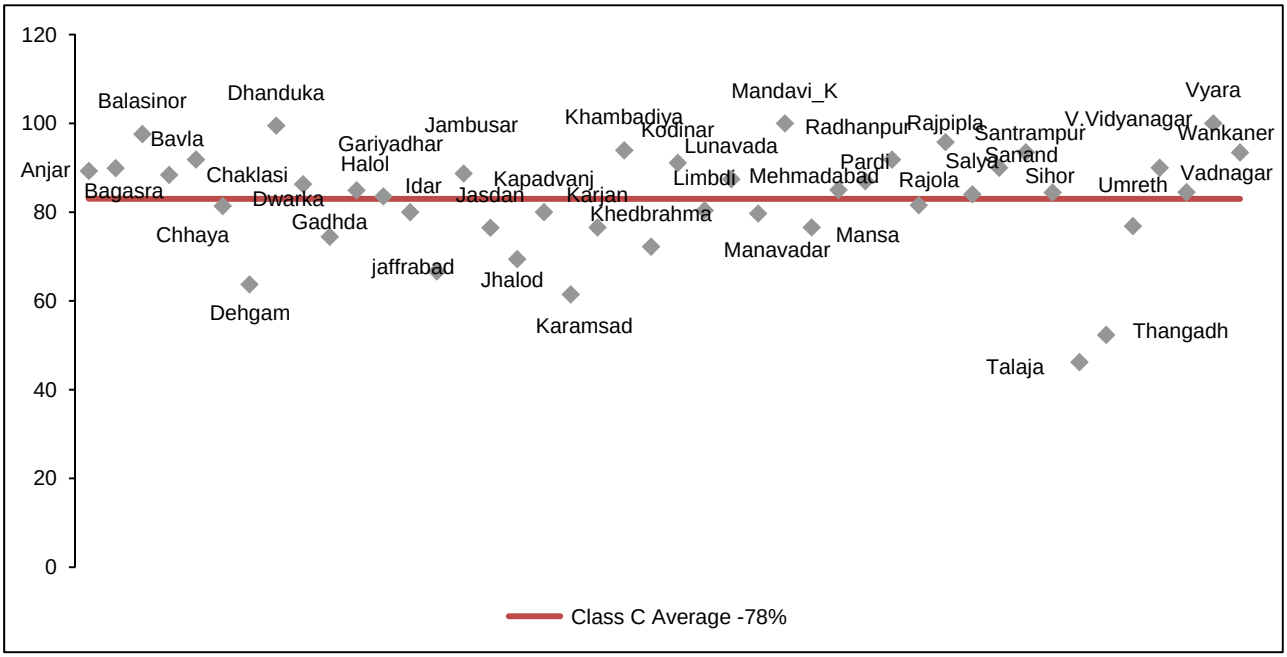


e. Class C ULBs

Coverage of households with access to toilet

Data from all 44 ULBs are included for this analysis of coverage of toilets across households. The average coverage in Class C cities is 78%, which is similar to other class averages. Three quarters of the data lie above 72% and only 7 cities including Talaja (45%), Thangad (50%), Jhalod (58%), Dehgam (59%), Karamsad (61%), Jaffrabad (64%) and Khedbrahma (65%) have values below 72%. (Refer Fig 3.9).

Fig 3.9: Coverage of household toilet (%) – Class C ULBs

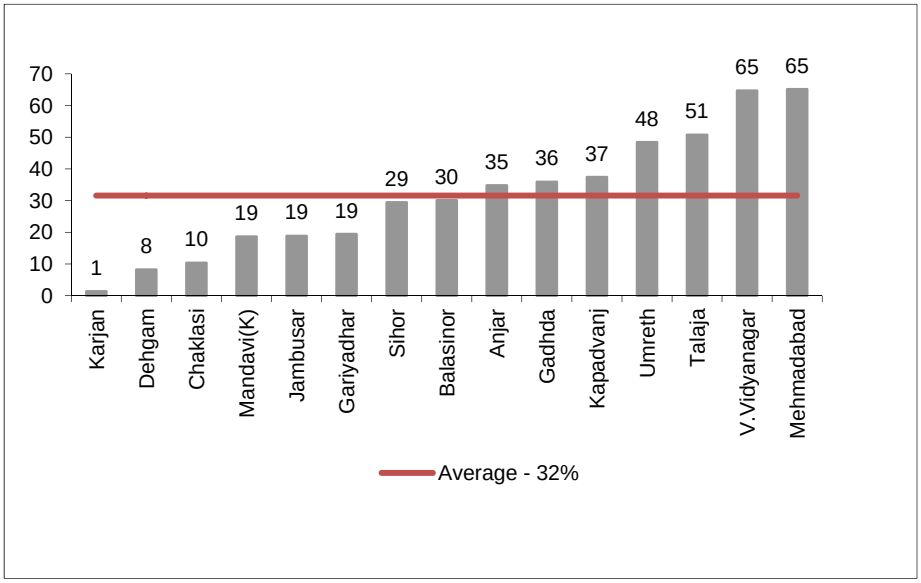


Coverage of sewerage connections:

On an average, 50% of the households in ULBs with reported data (Data from 27 ULBs are not available) have less than 30% sewerage connection in Class C cities. Information from Wankaner and Karamsad is not applicable due to non-existence of sewerage system. Data from the remaining 15 ULBs are included in the analysis. Similar to the scenario from other classes, the coverage of sewerage connections across Class C cities is also variable, ranging from 1% at Karjan to 65% at V.Vidyanagar and Mehmadabad as illustrated in Fig 3.10. Karjan has 8 kms of closed sewer drain network and has approximately 171 residential and 18 non-residential sewer connections.

Most cities, except Talaja, Mehmadabad and V. Vidyanagar, have a notably higher coverage of toilets than sewerage connections, which implies increasing dependence on soak pits/septic tanks.

Fig 3.10: Coverage of sewerage connection (%) – Class C ULBs



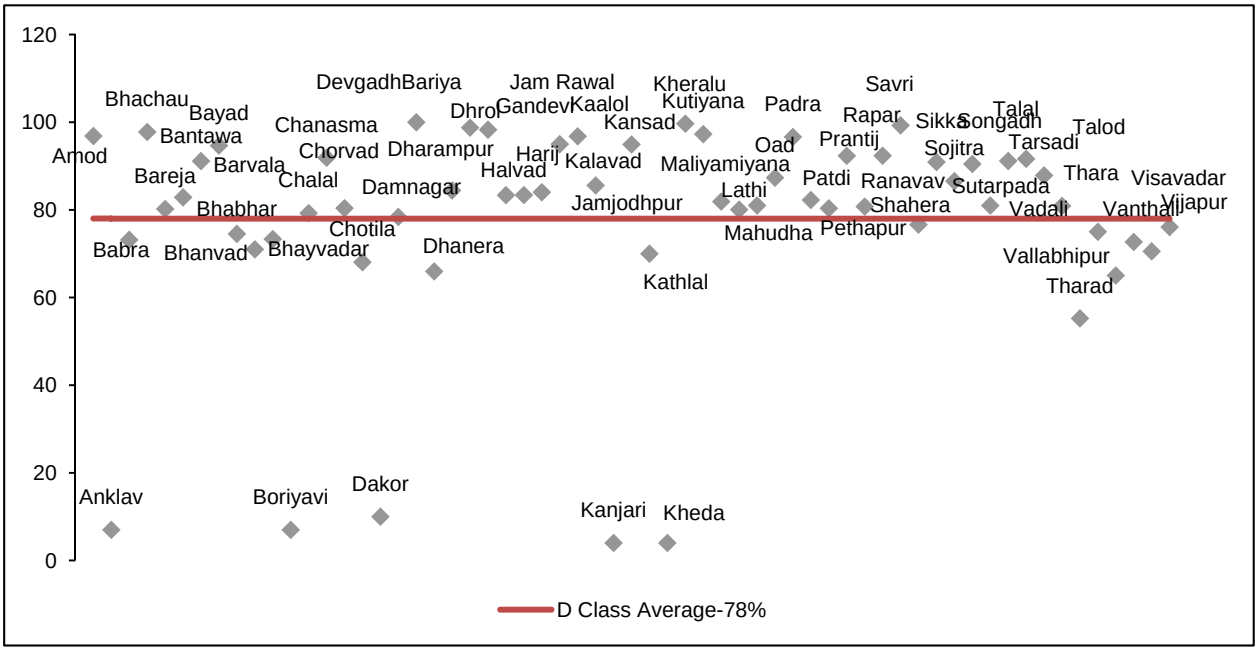
f. Class D ULBs

Coverage of households with access to toilet:

The class average for coverage is 81%. A quarter of the cities have coverage below 75%, a quarter has coverage between 75% and 82%, a quarter between 82% and 90% and lastly a quarter have coverage above 90%, as shown below in Fig 3.11.

Regarding coverage of toilets across households of Class D cities, data from 58 ULBs are analyzed. Data from 6 ULBs are not available due to the inability of ULBs to estimate the number of households with toilet. Information from Chhota Udaipur has not been considered since the data seems unreliable.

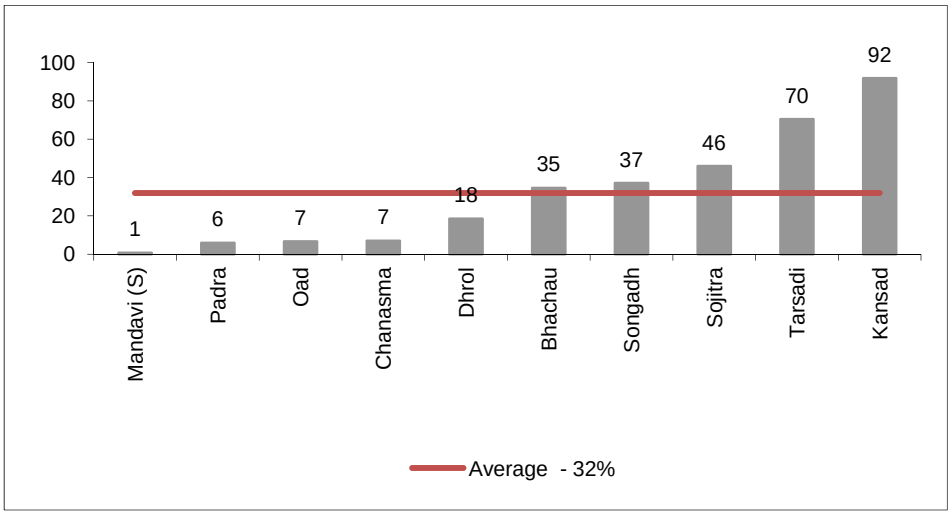
Fig 3.11: Coverage of household toilet (%) – Class D ULBs



Coverage of sewerage connections:

The data from 10 ULBs has been analyzed, which range from very low values for Mandavi (1%), Padra (6%), Oad (6%) and Chanasma (7%) to the reasonably higher coverage values of 92% at Kansad (Refer Fig 3.12). Data from 50 out of the total 64 ULBs from Class D are not available and data from 3 ULBs are not applicable due to lack of sewerage system.

Fig 3.12: Coverage of sewerage connection (%) – Class D ULBs



3.3 Service levels and quality

3.3.1 Collection efficiency of waste water network

Collection efficiency is defined as the quantum of waste water collected (at the inlet of treatment plant) as percentage of normative total waste water generated in the ULB. Wastewater generation is linked to the quantum of water supplied through piped systems, and other sources such as bore wells, when they are very extensively used.

Collection efficiency signifies the effectiveness of the network in capturing and conveying it to the treatment plants. Thus, it is not just adequate to have an effective network that collects waste water, but also one that treats the waste water at the end of the network.

3.3.2 Sewage treatment capacity

This is the capacity to treat quantum of waste water to secondary treatment standards (removal of BOD and COD) as percentage of total estimated waste water generated in the ULB.

a. State level

Collection efficiency of waste water network:

Of the total 166 ULBs across the state, data are available from only 6. The average efficiency is 71% and it ranges from 49% to 96%.

Table 3.3: Sewerage treatment capacity (%)

ULBs	Class	Sewerage (%)
Ahmedabad	M.C	94.5
Rajkot	M.C	69
Surat	M.C	108.5
Vadodara	M.C	167
Valsad	A	137

Sewage treatment capacity:

Data from only 5 ULBs, including Municipal Corporation, are available for analysis (Table 3.3). 160 ULBs do not have sewerage treatment plant, V. Vidyanagar does not have information on capacity treated, hence has not been considered for analysis.

b. Municipal corporations

Collection efficiency of waste water network:

Surat and Vadodara have 91.5% and 100% collection efficiencies. Ahmedabad has 65% efficiency and Rajkot has close to 50% efficiency of waste water network. Data from other MCs are either not available or not applicable. Ahmedabad Municipal Corporation has commissioned two STPs of treatment capacity of 585 MLD. These are anticipated to be completed by Feb 2010 and it is expected that these will cater the AMC's population up to 2021.

Sewage treatment capacity:

Similar to the previously observed values of collection efficiency, Surat and Vadodara too have more than 100% capacity for sewage treatment. Ahmedabad and Rajkot have 94.5% and 69% capacity respectively. Data from other MCs are either not available or not applicable.

c. Class A ULBs

Collection efficiency of waste water network:

Only information from Valsad is available, which shows a 100% collection efficiency of waste water.

Sewage treatment capacity:

Valsad alone has information on capacity for sewage treatment, which is 137%. Valsad has two sewage treatment plants one situated at Sandhepari pardi with capacity of 11 MLD and one located at Tithal road with capacity of 1.2 MLD. The daily average inflow in both the treatment plants is 9.6 MLD. Hence Valsad has sufficient treatment capacity to cater to increased connections and increased population.

d. Class B ULBs

Collection efficiency of waste water network:

No data available for analysis.

Sewage treatment capacity:

No data available for analysis.

e. Class C ULBs

Collection efficiency of waste water network:

Data from only Talaja is available, which shows a 64% collection efficiency of waste water. Talaja has one sewerage plant with capacity of 2 MLD. The daily average inflow in the STP is about 1.2 MLD.

Sewage treatment capacity:

No data available for analysis.

f. Class D ULBs

Collection efficiency of waste water network:

No data available for analysis.

Sewage treatment capacity:

No data available for analysis.

3.4 Financial management

Financial management has been analyzed through extent of cost recovery, which is expressed as wastewater revenues as a percentage of wastewater expenses, for the corresponding time period.

a. State level

The extent of cost recovery in waste water management is calculated as percentage of total operating revenues from waste water related charges to total operating expenses on waste water services. Here, operating revenue includes all waste water related income, excluding revenue grants. Operating expenses considered as all expenses under waste water services, excluding loan interest payment and depreciation.

Table 3.4: Extent of cost recovery in waste water management

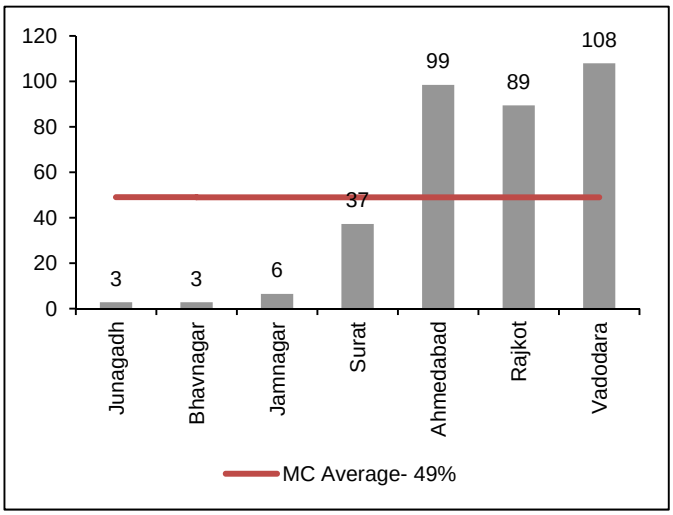
Class of ULBs	Data Available From Number Of ULBs	Average Cost Recovery in Waste Water Management (%)
M.C	7	49
Class A	13	69
Class B	28	38
Class C	22	49
Class D	22	61
Total	92	51

The ULBs levy a “safai kar” that takes care of Solid waste management expenses and cleaning of open drains and gutters if the city does not have underground sewer network.
The state average at 51% is low and indicates less revenue income generated against operating expenses under waste water services. This is calculated from data available from 92 ULBs across the state. Refer table 3.4.

b. Municipal corporations

The cost recovery is poor for Bhavnagar and Junagadh at 3% and for Jamnagar at 6%. Comparatively, Surat has higher recovery extent at 37.3% and Ahmedabad and Rajkot have appreciably higher values at 98.5% and 89% respectively. Vadodara has a cost recovery of 108%.

Fig 3.13: Extent of cost recovery (%) – Municipal corporations



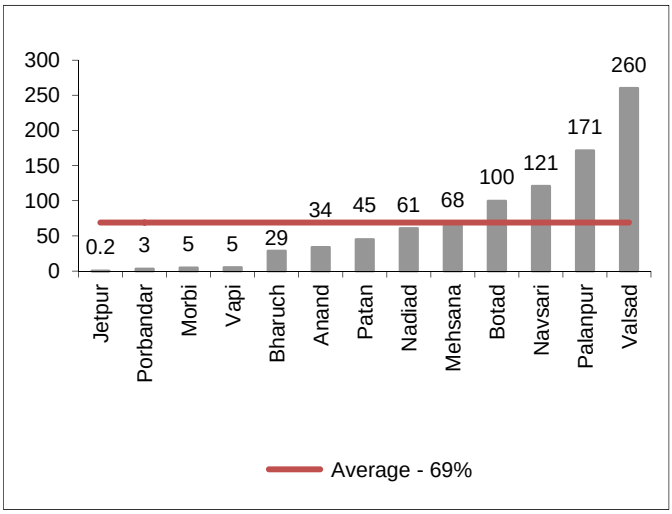
Mostly, Municipal Corporations do not levy a separate sewerage charges or tax. Ahemdabad has apportioned 30% of the property tax collected as conservancy tax. This conservancy tax is equally allocated for SWM and for sewerage. Bhavnagar also levies a safai kar, which is proportion of the property tax. (Refer Fig no.3.13)

c. Class A ULBs

Data from only 13 ULBs are analyzed as information from 2 ULBs is not available and is unreliable in case of 2 other ULBs. The cost recovery is poor (<5%) for Jetpur, Porbandar, Morbi and Vapi. Botad on the other hand has full cost recovery in waste water management, as shown in Fig 3.14.

ULBs that have higher than 100% cost recovery indicate that as compared to their revenues from sewerage tax/safai kar; the expenditure on sewerage is very low. The safai kar revenue collection is dependent on efficiency of property tax collection, which is good in these ULBs.

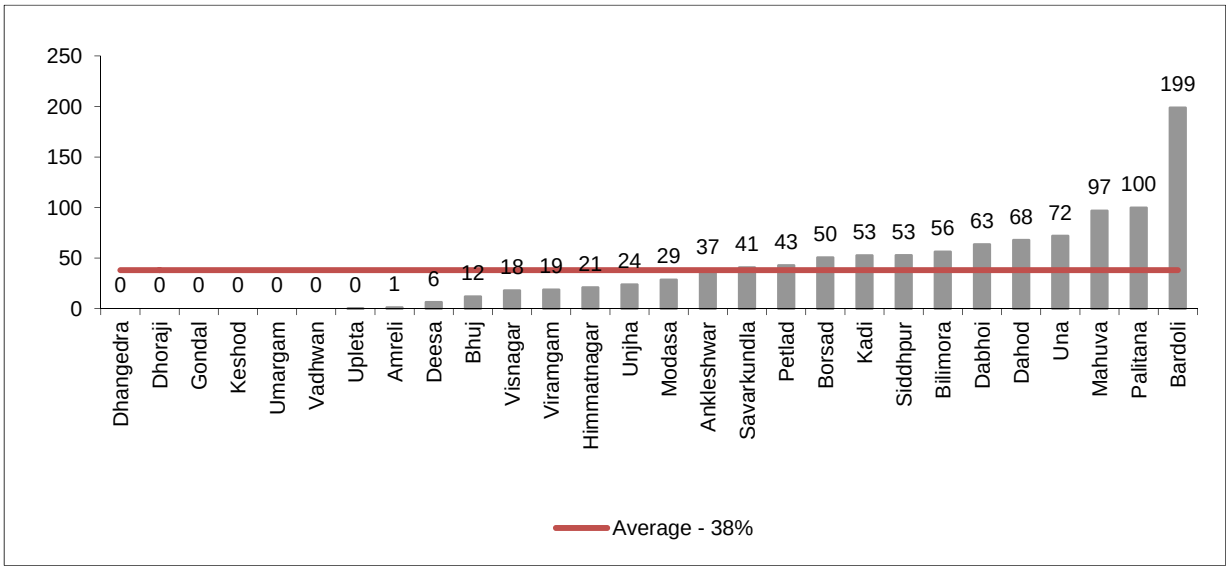
Fig 3.14: Extent of cost recovery (%) – Class A ULBs



d. Class B ULBs

Half the cities have recovery below 24% with 7 cities having no cost recovery at all. However, Mahua (100%), Palitana (97%) and Bardoli (199%) have excellent cost recovery figures (Refer Fig 3.15).Data from 5 out of the total 33 ULBs seem to be unreliable and hence are excluded from the analysis.

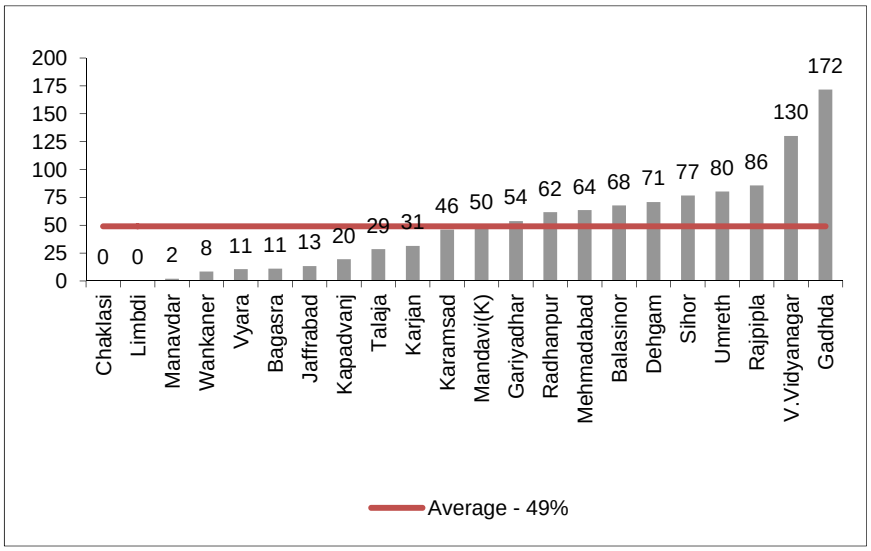
Fig 3.15: Extent of cost recovery (%) – Class B ULBs



e. Class C ULBs

Half the cities analyzed have recovery below 48% with Chaklasi (0%), Limbdi (0%), Manavdar (2%) and Wankaner (8%) having the lowest figures, as mentioned in Fig 3.16. A quarter of the cities have cost recovery between 48% and 70%. Data from only 22 out of the 44 Class C cities have been analyzed as 19 ULBs do not have information while that from 3 ULBs seems unreliable.

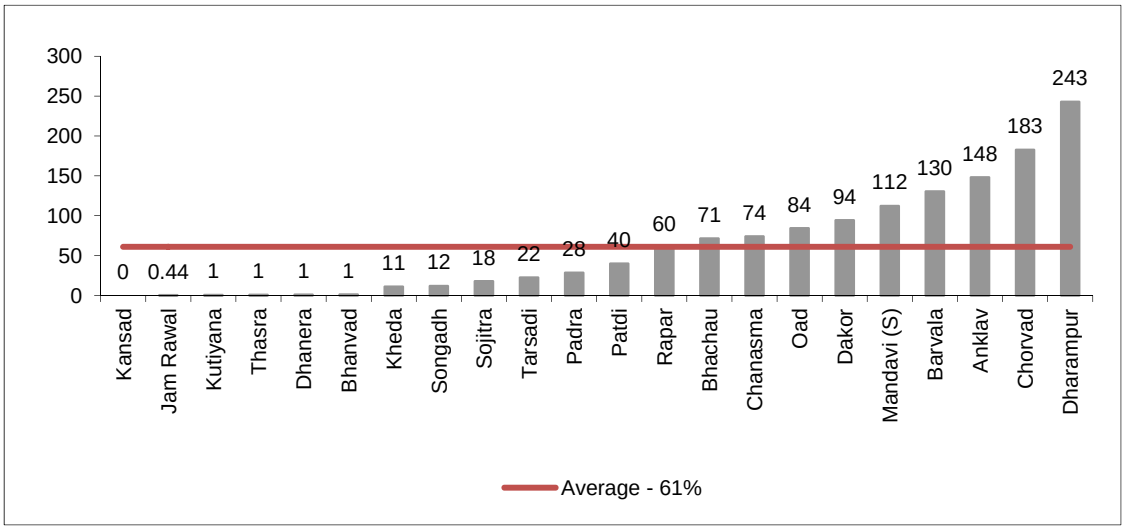
Fig 3.16: Extent of cost recovery (%) – Class C ULBs



f. Class D ULBs

Data from only 22 out of the 64 Class D cities have been analyzed as data from 40 ULBs are not available and 2 ULBs seem to have unreliable information. A quarter of the cities analyzed have cost recovery values below 1%. On the other hand, Barvala(130%), Anklav (148%), Chorvad (183%) and Dharampur (243%) have good cost recovery figures, shown in Fig 3.17.

Fig 3.17: Extent of cost recovery (%) – Class D ULBs



3.5 Efficiency in service operations

3.5.1 Quality of waste water treatment

The quality of waste water treatment is defined as a percentage of wastewater samples that pass the specified secondary treatment standards, that is, treated water samples from the outlet of STPs are equal to or better than the standards laid down by the Government of India agencies for secondary treatment of sewage.

Table 3.5: Quality of waste water treatment (%) – ULBs

ULBs	Class	In Percentage
Ahmedabad	M.C	75
Rajkot	M.C	86
Vadodara	M.C	88
Surat	M.C	89
Valsad	A	100
V. Vidyanagar	C	100

3.5.2 Extent of reuse and recycling of waste water

The term 'reuse and recycling of waste water' is defined as the percentage of wastewater received at the treatment plant that is recycled or reused after appropriate treatment for various purposes. This should only consider water that is directly conveyed for recycling or reuse, such as use in gardens and parks, use for irrigation, etc. Water that is discharged into water bodies, which is subsequently used for a variety of purposes, should not be included in this quantum

3.5.3 Efficiency in redressal of customer complaints

Efficiency in redressal of customer complaints is defined as total number of sewage-related complaints redressed within 24 hours of receipt of complaints, as a percentage of the total number of sewage related complaints received in the given time period

3.5.4 Efficiency in collection of sewerage-related charges

It is defined as current year revenues collected from sewerage related taxes and charges, expressed as a percentage of the total operating revenues, for the corresponding time period.

a. State level

Quality of waste water treatment:

Data from 6 ULBs have been analyzed, whereas information from 160 ULBs is not considered for analysis due to absence of sewerage treatment facility. However, the reliability of data of all 6 ULBs is lowest scale-D. The data are based on estimations by ULB staff without any documentary support. Ahmedabad and Surat Municipal Corporations have also initiated a third party quality audit.

Extent of reuse and recycling of waste water:

In Gujarat, reuse and recycling of waste water is not practised. However, Surat Municipal Corporation has initiated the practice and presently <1% of total waste water collected through sewerage network is being recycled or reused. The treated water is being used for watering the municipal gardens.

Efficiency in redressal of customer complaints:

Efficiency in redressal of customer complaints is defined as total number of waste water related complaints redressed within time as stipulated in service charter of the ULB, as a percentage of the total number of waste water related complaints received in the year.

The state average percentage of efficiency in complaint redressal is 98% and is higher than the SLB average of 91%. Out of 166 ULBs, data for 146 ULBs have been analyzed, while 20 ULBs has not been considered for analysis due to lack of information on complaint registered and redressed. 88% ULBs have reported 100% efficiency in redressal of customer complaints. As illustrated in table 3.5, majority of ULBs are in range of 91-100% (Table 3.6). However, the reliability of data is very low due to non-maintenance of regular records of complaint redressed and the data are, as said by ULB, without any proper record.

Table 3.6: Redressal of customer complaints (%) – Gujarat state

Redressal of customer complaint (Range in %)	*Number of Urban Local Bodies*
51-60	1
61-70	0
71-80	2
81-90	1
91-100	140
Gujarat	146

Efficiency in collection of sewerage-related charges:

The state average of collection of sewerage related charges is 55%. However, only 32% of the ULBs have levied sewerage tax; many of them introduced the taxes in year 2008-09. The remaining 68% ULBs do not have any sewerage taxes. Out of 166 ULBs, data for 61 have been analyzed. Data from Jamnagar corporation is not available and information from Gandevi (class D) is not reliable, hence both these ULBs are also not considered for analysis.

b. Municipal corporations

Quality of waste water treatment:

Out of 7 municipal corporations, data of 4 ULBs are analyzed. Bhavnagar, Jamnagar and Junagadh are not considered for analysis due to non-existence of sewerage treatment facility. Ahmedabad has lowest and Surat has highest across the corporation. However, there is marginal variation among Rajkot, Surat and Vadodara.

Extent of reuse and recycling of waste water:

Only Surat has reported 1% reuse and recycling of waste water. There is no reuse and recycling of waste water in Ahmedabad and Vadodara. Bhavnagar, Jamnagar and Junagadh do not have treatment facility, whereas data from Rajkot is not available, hence not considered for analysis.

Efficiency in redressal of customer complaints:

All the MCs are extremely efficient (53-100%) in redressing customer complaints, except Rajkot which documents an efficiency of 53%. Ahmedabad, Bhavnagar, Jamnagar and Vadodara have reported 100% efficiency in redressal of customer complaints. Rajkot has a high data reliability oa A, since it has a central computerised complaints management system. This data seems accurate as compared to other Municipal Corporations that keep

data regarding complaints- manually and at the ward level and hence falls in raliability band C.

Efficiency in collection of sewerage-related charges:

Bhavnagar does not collect sewerage-related charges, whereas Ahmedabad and Rajkot collect 59% and 53% respectively. Surat collects 79% and Vadodara 83% as sewerage-related charges. Data are not available from Jamnagar while Junagadh does not levy sewerage tax.

c. Class A ULBs

Quality of waste water treatment:

No data are available, except from Valsad which has reported that all samples from its WTP conform with/exceed the required CPHEEO parameters. However, the reliability of data is low, stated scale D.

Extent of reuse and recycling of waste water:

No data are available, except from Valsad which does not reuse or recycle water.

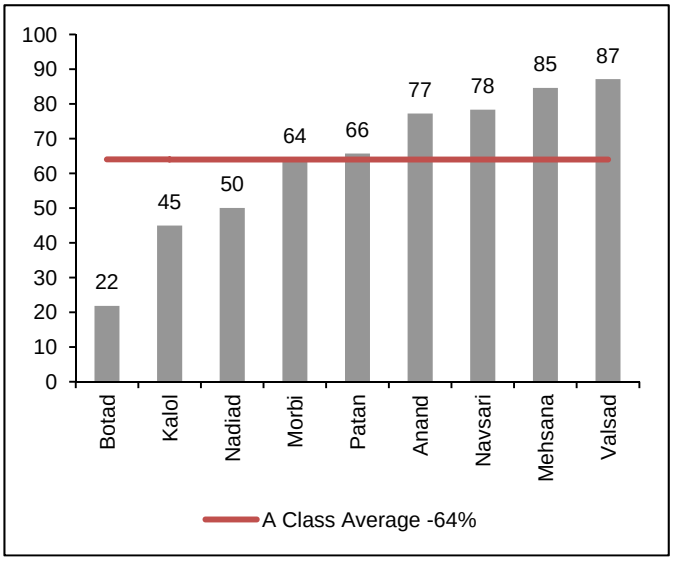
Efficiency in redressal of customer complaints:

Data available from 17 ULBs show excellent efficiency (<93%) in redressal of customer complaints, except Gandhidham which documents an efficiency of 70%.

Efficiency in collection of sewerage-related charges:

Data from 9 ULBs have been analyzed as information from other ULBs in class A is not available. The efficiency is equally distributed about the mean of 64%, with some ULBs including Botad (22%) and Kalol (45%) having notably lower efficiency and Mehsana (85%) and Valsad (87%) having notably higher efficiency (Refer Fig 3.18).

Fig 3.18: Efficiency in collection of sewerage-related charges (%) – Class A ULBs



d. Class B ULBs

Quality of waste water treatment:

No data available for analysis.

Extent of reuse and recycling of waste water:

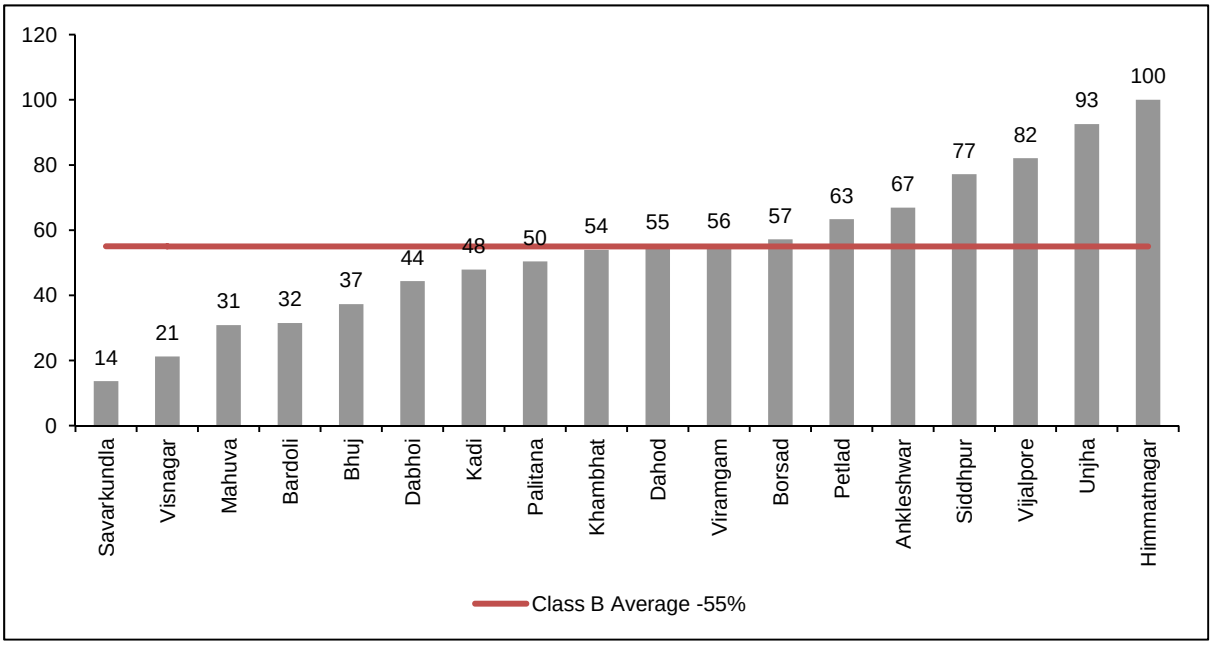
No data available for analysis.

Efficiency in redressal of customer complaints:

Out of 33 ULBs, data of 28 are analyzed which show excellent 100% efficiency, except Bhuj (86%) and Viramgam (93%). 5 ULBs, namely Dhrangadhra, Dholka, Gondal, Okha and Umargam, are not considered for analysis due to non-availability of data.

Efficiency in collection of sewerage-related charges:

Fig 3.19: Efficiency in collection of sewerage-related charges (%) – Class B ULBs



Only 18 ULBs of Class B have provided information on sewerage tax collection, whereas in 15 ULBs sewerage tax is not levied, hence not included in the analysis. The value is very variable though equally distributed about the mean of 55%. A quarter of the ULBs have efficiency below 39% with the lowest value for Savarkundla at 14%. However, some ULBs including Siddhpur (77%), Vijalpur (82%), Unjha (93%) and Himmatnagar (100%) have good collection efficiencies.

e. Class C ULBs

Quality of waste water treatment:

No data are available, except from V. Vidyanagar which has 100% quality of waste water treatment. However, the reliability of data is low.

Extent of reuse and recycling of waste water:

No data available, except from V. Vidyanagar which does not reuse or recycle waste water.

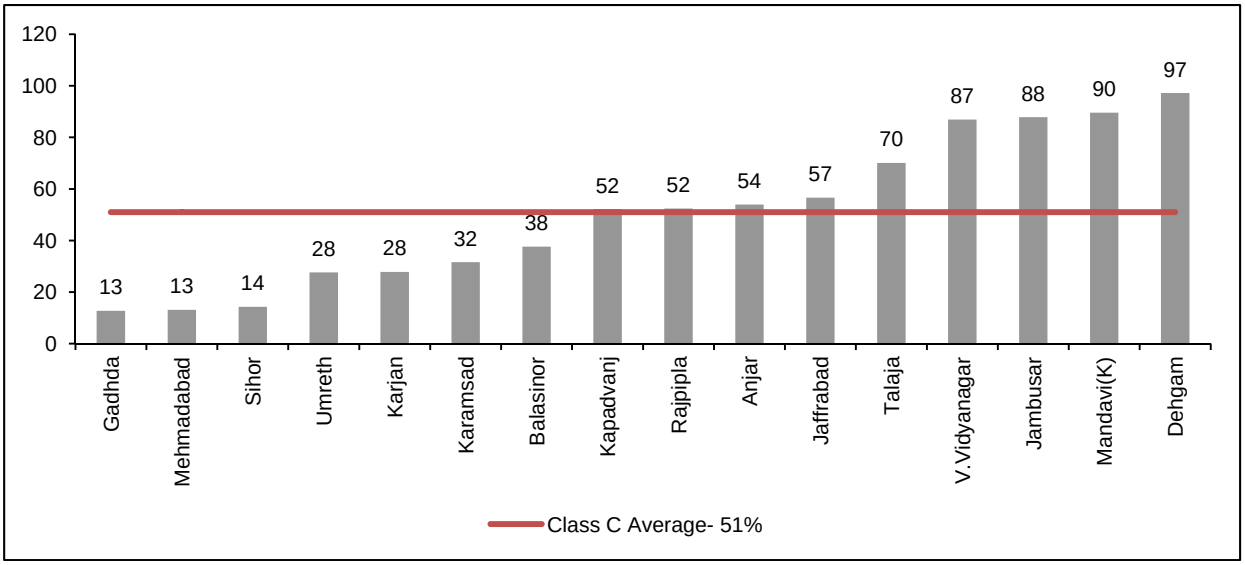
Efficiency in redressal of customer complaints:

The data obtained from 40 ULBs and analyzed, show excellent 100% or near 100% efficiency in redressal of customer complaints, except Wankaner (75%) and Rajula (80%).

4 ULBs, namely Bavla, Chaklasi, Kodinar and Manavadar, do not have data on complaint redressal, hence are not included in analysis.

Efficiency in collection of sewerage-related charges:

Fig 3.20: Efficiency in collection of sewerage-related charges (%) – Class C ULBs



Data from 16 ULBs is analyzed and found to be extremely variable. Half the ULBs have efficiency below 52%, with Gadhda, Mehmadabad and Sihor having notably low values. On the contrary, V.Vidyanagar (87%), Jambusar (88%), Mandavi - Kutch (90%) and Dehgam (97%) have notably higher efficiency levels. Remaining 28 ULBs are not considered for analysis due to non-existence of sewerage taxes/charges.

f. Class D ULBs

Quality of waste water treatment:

No data available for analysis.

Extent of reuse and recycling of waste water:

No data available for analysis.

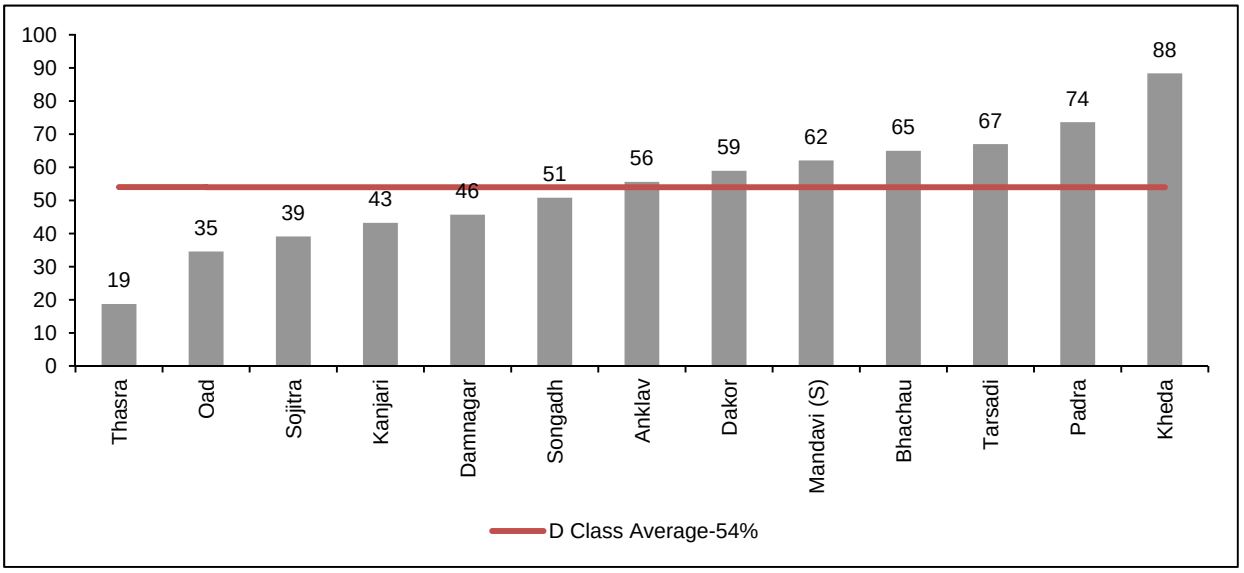
Efficiency in redressal of customer complaints:

Among Class D ULBs, data from 54 show excellent 100% or near 100% efficiency in redressal of customer complaints, except Sikka (44%). The remaining 10 do not have data on complaints received and redressed.

Efficiency in collection of sewerage-related charges:

As shown in Fig 3.21, data from only 13 ULBs are analyzed and range from 18% for Thasra to 88% for Kheda. Sewerage taxes/ charges are not imposed in about 78% ULBs of Class D. The data from Gandevi seem unreliable and hence excluded from analysis.

Fig 3.21: Efficiency in collection of sewerage-related charges (%) – Class D ULBs



3.6 Equity

3.6.1 Spatial variations in coverage of individual toilets

Spatial variation in coverage of individual toilets is defined as coefficient of variation (standard deviation divided by mean) of ward values for total households with individual toilets within premises as percentage of total households.

3.6.2 Spatial variations in coverage of household connections

Coefficient of variation (defined as standard deviation divided by mean) of zonal values for "total households to sewerage network with an individual connection as percentage of total households"

3.6.3 Coverage of toilets in slums

Coverage of toilets in slums is expressed as total households in slum settlements with individual toilets or with access to a community toilet as percentage of total households in slum settlements in the ULB.

3.6.4 Coverage of sewerage connections in slums

Coverage of sewerage connections in slums denotes total number of households in slum settlements with underground municipal sewerage connections as percentage of total households in all slum settlements in the ULB.

a. State level

Spatial variations in coverage of individual toilets:

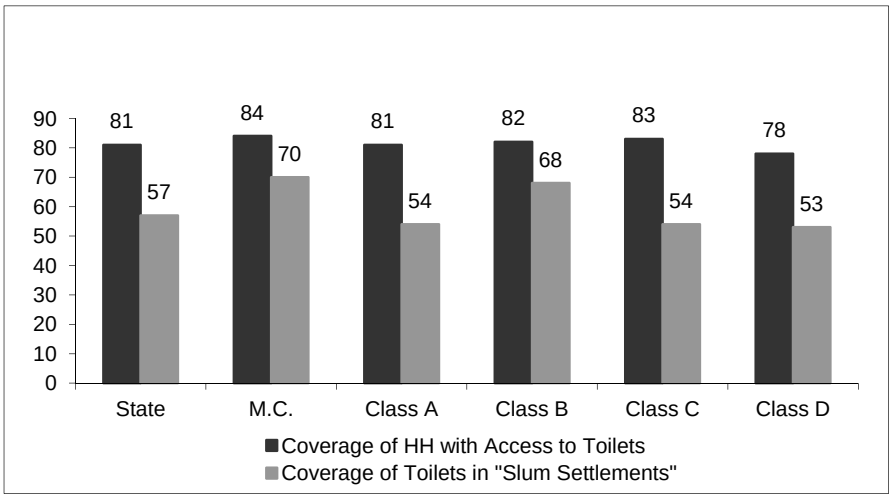
In Gujarat, none of the ULBs has data pertaining to spatial variations in coverage of individual toilets.

Spatial variations in coverage of household connections:

No data for analysis.

Coverage of toilets in slums:

Fig 3.22: Coverage of toilet in city and slum (%) - Gujarat state

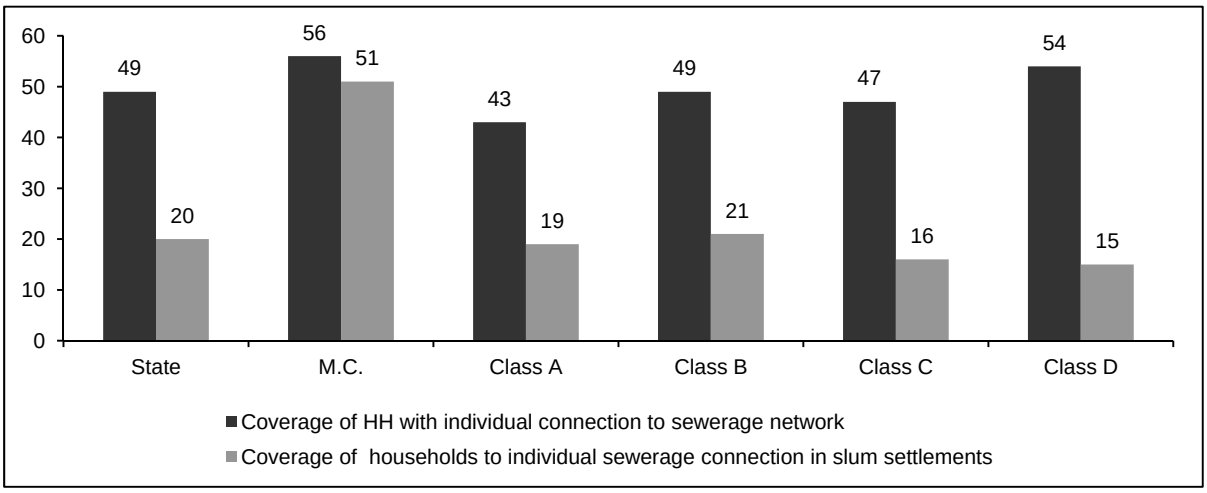


The state average coverage of toilets in slums comes to 57%. There is marginal difference across all the classes in terms of ULBs and slum coverage as mentioned in Fig 3.22. The reliability of data is low in band D.

However, it highlights the need for cities to aggressively add toilets under the "Vyaktigat Shauchalaya "scheme of Govt. of Gujarat as well as to build more pay & use and community toilets. Under the Nirmal Urban (Individual and Pay & Use Toilet Schemes), (2007-08)- the government is supporting construction of Pay and Use Toilets. The GoG subsidy for the same is upto Rs. 0.4 million for a toilet block with the rest being borne by ULB. Similarly for construction of individual toilets, the GoG subsidy is of Rs. 4000 per unit till 2007-08 with a beneficiary contribution - Rs. 900 per unit.

Coverage of sewerage connections in slums:

Fig 3.23: Coverage of household sewerage connection in city and slum (%) – Gujarat state



The state average coverage of sewerage connections in slums is 20%, which is much lower than the state average coverage of sewerage connections in ULB 49%. Only municipal corporations show high sewerage connection coverage both at city level and in slums. In terms of equity, a marginal difference between services in city level and in slums is seen in corporations, while the maximum inequity is seen in Class D, as illustrated in Fig 3.23.

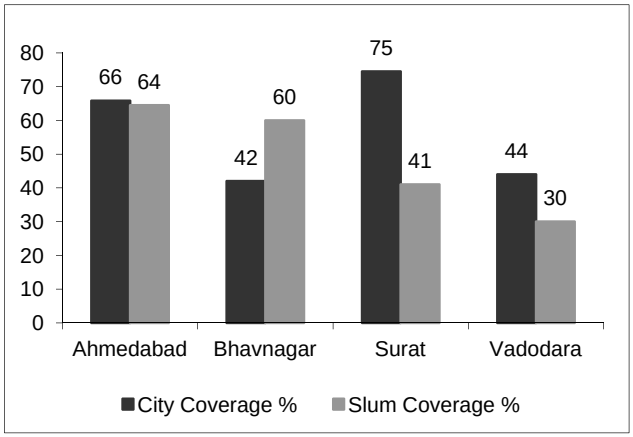
b. Municipal corporations

Coverage of toilets in slums:

Surat has the lowest coverage of toilets in slums at 41%. In Rajkot, there are 981 pay-and-use toilet seats and more than 2,000 community toilet seats. This is followed by Jamnagar, Junagadh and Vadodara with 52-63% coverage,

As compared to the MC coverage of individual toilets, slums have 14% lesser coverage on an average. Ahmedabad, Bhavnagar and Rajkot have better coverage in slums than the MC as whole. Vadodara had partial data on slum coverage since the biometric survey was on-going during the data collection period. Therefore, it has been excluded from analysis. (Refer Fig 3.24)

Fig 3.24: Coverage of HH sewerage connection in city and slum (%) – Municipal corporation



Coverage of sewerage connections in slums:

Data from only 4 ULBs are available, including Ahmedabad at 64%, Bhavnagar at 60%, Surat at 41% and Vadodara at 30%. Again, Bhavnagar has better coverage of sewerage in slums than the MC as whole.

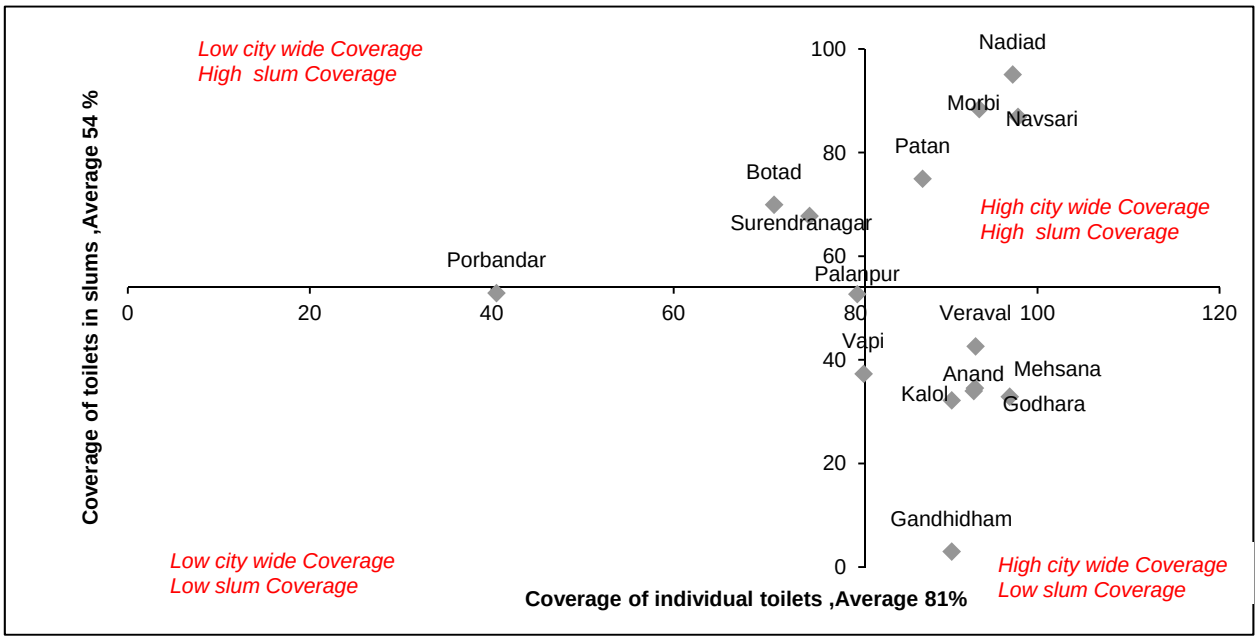
c. Class A ULBs

Coverage of toilets in slums:

As shown in Fig 3.25, the data from 15 ULBs show variability ranging from 3% coverage at Gandhidham to 95% coverage at Nadiad. The data are equally distributed about the mean of 54%. Data from remaining 3 ULBs are not considered for analysis. Overall, the coverage of toilets in slums is 32% lesser than the city average. Only Botad, Morbi, and Nadiad have comparable coverage of toilets in slums as compared to the city.

Kalol and Godhra have about 30% of individual toilet coverage in slums and also have less number of community toilets. They have a high population of 1,024 and 1,339 persons per public toilet respectively.

Fig 3.25: Equity in coverage of toilets (%) – Class A ULBs

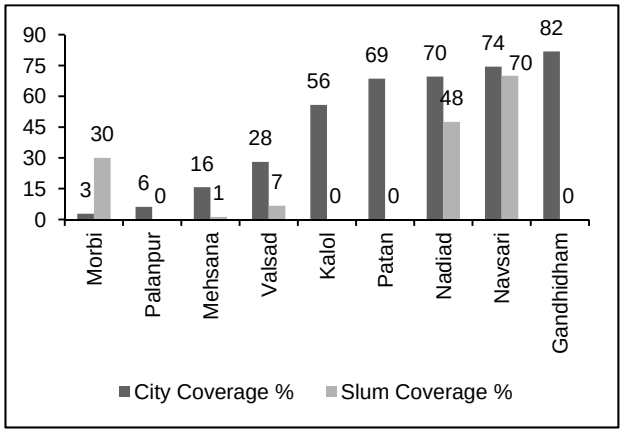


Coverage of sewerage connections in slums:

The average coverage of sewerage is 19%, which means more than three quarters of the population in slums depend on soak pits/septic tanks. Data from 8 ULBs are not available for analysis. The remaining 10 ULBs show very poor negligible coverage across most ULBs.

Only Navsari has comparable coverage in slums and the city. Gandhidham, which has the highest coverage of sewerage across all Class A cities, has no coverage in slums.

Fig 3.26: Equity in coverage of sewerage connections (%) – Class A ULBs



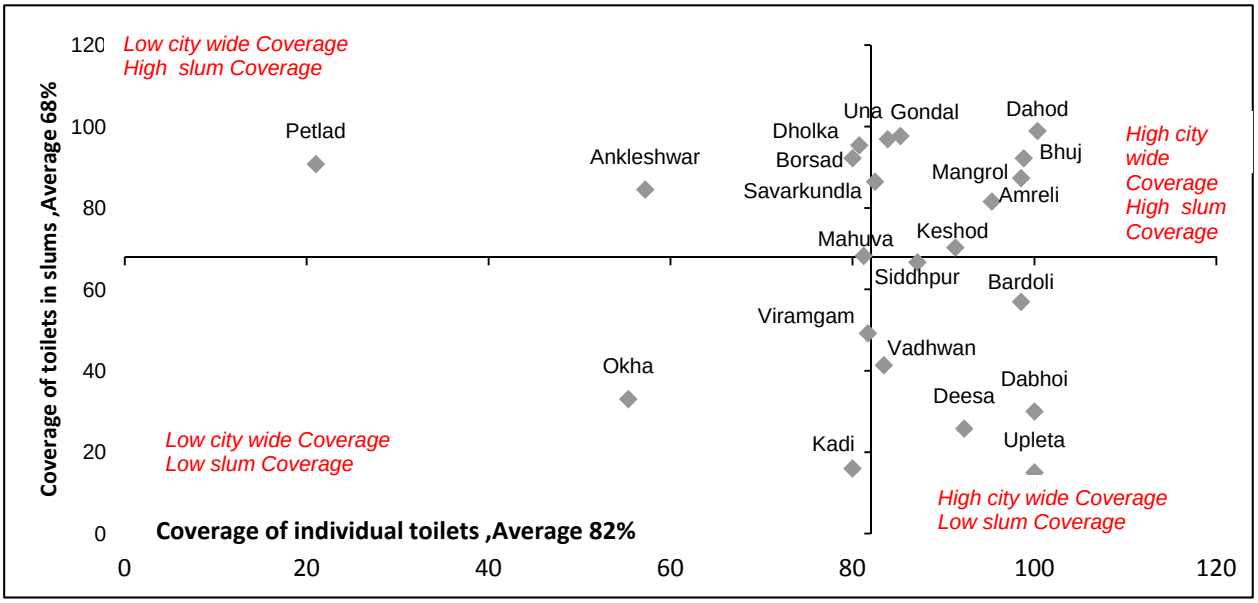
d. Class B ULBs

Coverage of toilets in slums:

Data from 10 ULBs are not included. As seen earlier, the data are extremely variable, ranging from 15% at Upleta to 99% at Dahod. The average coverage across slums of Class B cities is 68%. A quarter of the cities have values below 45%.

As compared to the total city data, the coverage in slums is 16% lesser on average. Only Savarkundla, Dahod, Mangrol and Bhuj have comparable data from the total city and slums regarding coverage of toilets. Upleta has a very low coverage of 15% in slums; and also has a high number (856) of persons per public toilet seat, indicating the need for the ULB to increase number of public toilets in slums so as to improve access to slum dwellers.

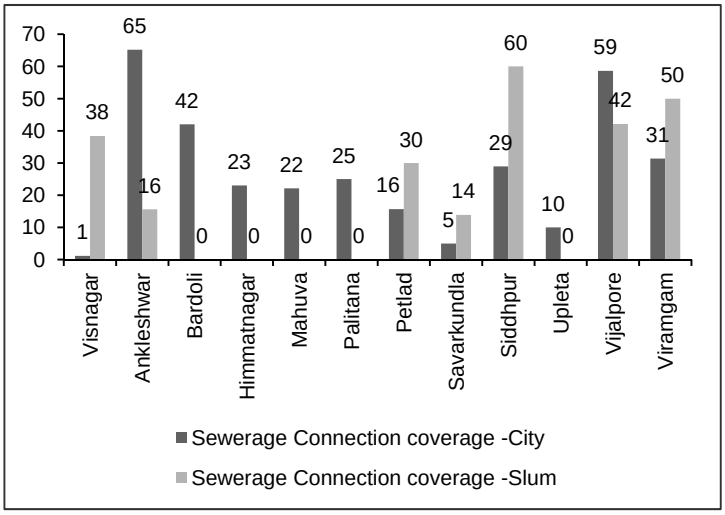
Fig 3.27: Equity in coverage of toilets (%)- Class B ULBs



Coverage of sewerage connections in slums

Data from only 12 ULBs are available for analysis which shows no sewerage connections in slums of 5 ULBs including Bardoli, Himmatnagar, Mahua, Palitana and Upelta. Generally, coverage in slums is lower than the ULB values; however, Petlad, Savarkundla, Siddhpur and Visnagar have more coverage in slums than in the ULB.

Fig 3.28: Equity in coverage of sewerage connections (%) - Class B ULBs

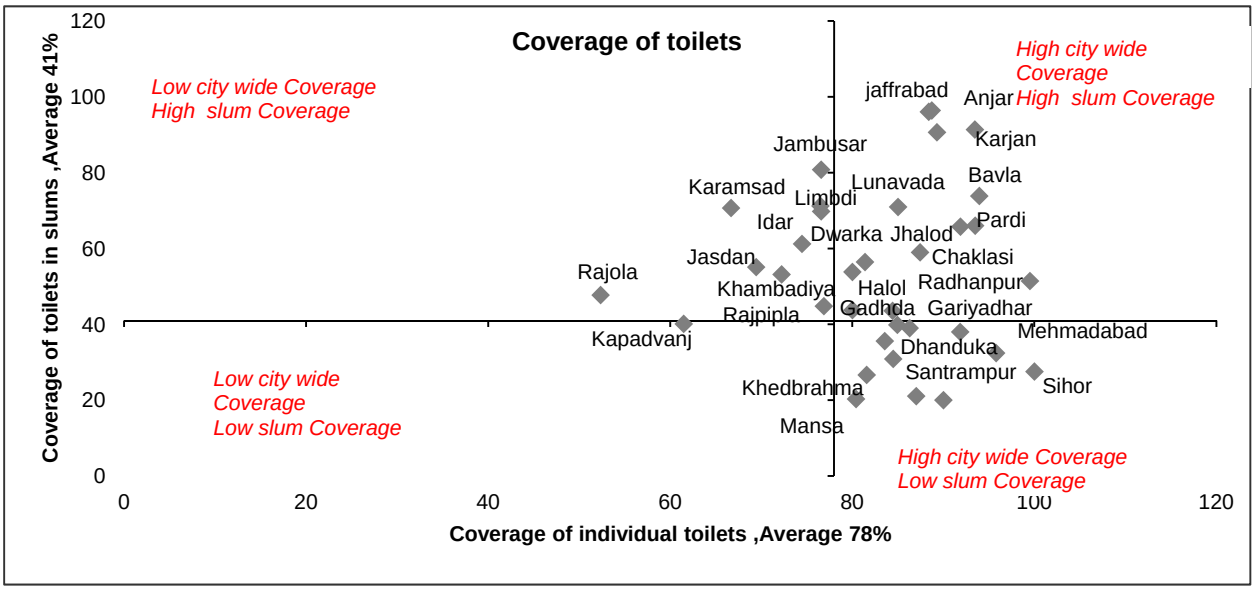


e. Class C ULBS

Coverage of toilets in slums:

Out of 44 ULBs, data of 35 are analyzed and seem to have a highly variable range from 20% in V.Vidyanagar to 96% in Jambusar. The average value is 54%. In terms of equity, there is high inequity in ULBs like Rajula, Limbdi, Halol, Vadnagar, V.Vidyanagar Radhanpur, Dwarka, Vyara and Gariyadhar, where slum coverage is below 40% and coverage in ULBs is above 80%. In ULBs like Anjar, Wankaner, Bavla and Jambusar where coverage of toilets in slums and in ULB is above 80%, it means there is marginal difference in coverage. On the other hand, in ULBs like Jaffrabad, Karjan, Anjar, Bavla and Jambusar, coverage in slums is slightly more than the coverage in ULB. However, the reliability of data is very low as category D.

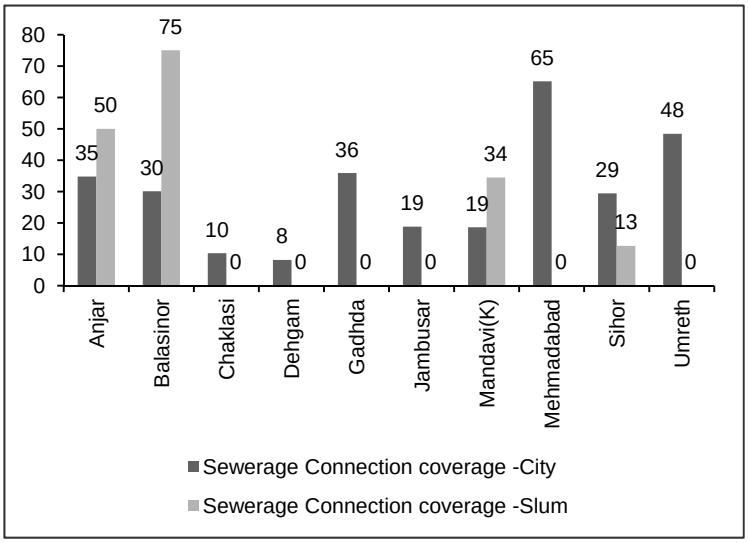
Fig 3.29: Equity in coverage of toilets (%)- Class C ULBs



Coverage of sewerage connections in slums:

Only 10 ULBs have sewerage systems and 4 have sewerage connections in slum settlement ranging from 13% to 75% coverage. Anjar and Balasinor have reported high coverage in slums compared to coverage in ULB. The remaining 6 ULBs have partial sewerage network but they not have sewerage connections in slum settlements.

Fig 3.30: Equity in coverage of sewerage connections (%) - Class C ULBs



f. Class D ULBs

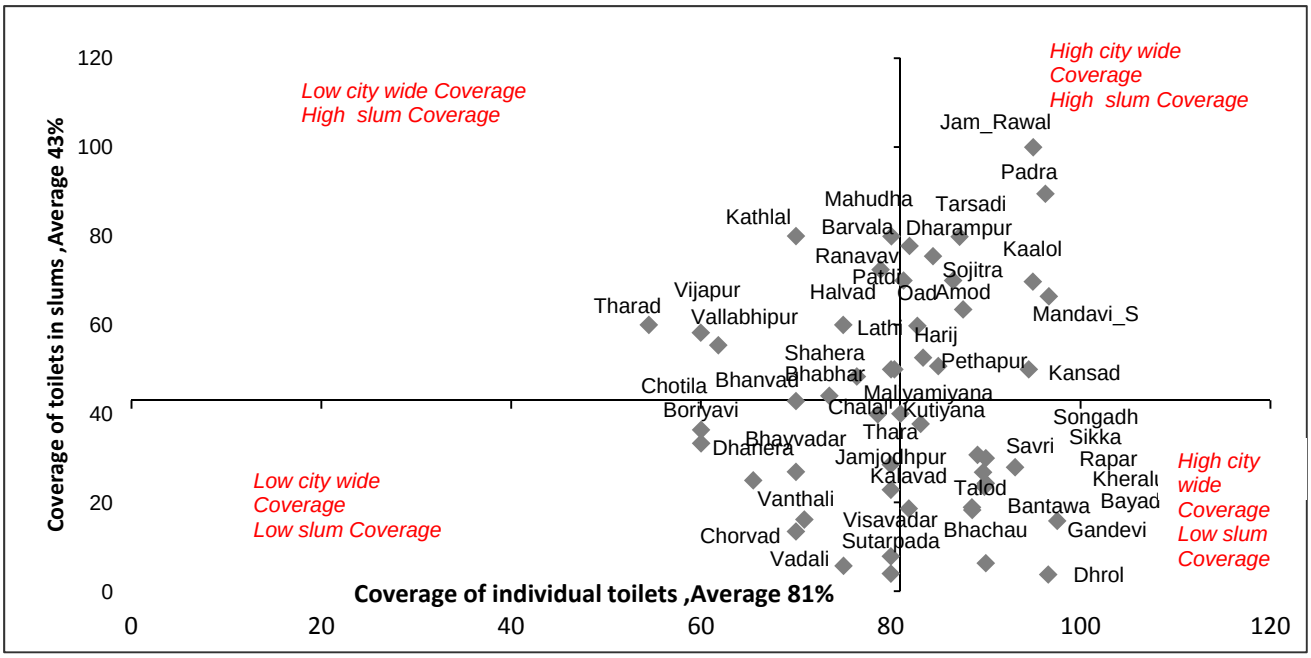
Coverage of toilets in slums:

The data pertaining to coverage of toilets in slum settlements are available for 53 ULBs and analyzed, whereas 11 ULBs either do not have data or have unreliable data on slum coverage, hence are not considered for analysis. The class average coverage of toilets in slums is 53%, much lower than the coverage in ULB 78%.

There is high inequity in Prantij, Chorvad and Sutrapada, where toilet coverage in ULB is greater than 80% and slum coverage is less than 10%. There is marginal difference (<5%) in coverage of toilets in ULB and in slums for Padra, Shahera, Jam, Rawal, Chotila, and Patdi.

Kathlal, Padra, Sojitra, Chotila, Vallabhipur, Patdi, Barwal and Jam-Rawal reported higher coverage in slum than ULB. The reliability of data is very low.

Fig 3.31: Equity in coverage of individual toilets (%) - Class D ULBs

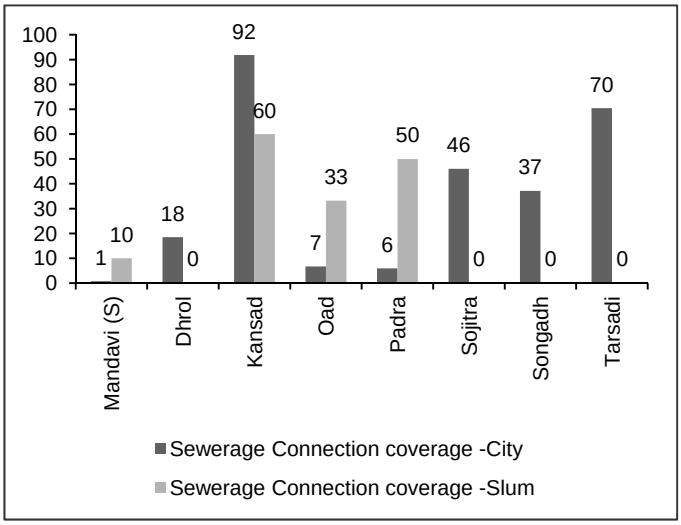


Coverage of sewerage connections in slums:

Among Class D ULBs, only 7 have sewerage network and 4 of them have sewerage connections in slum settlements.

The coverage in slums is higher in Oad, Mandvi and Padra. Dhrol, Sojitra, Songadh and Tarsadi have sewerage connections in the city but none in the slums.

Fig 3.32: Equity in coverage of sewerage connections (%) - Class D ULBs

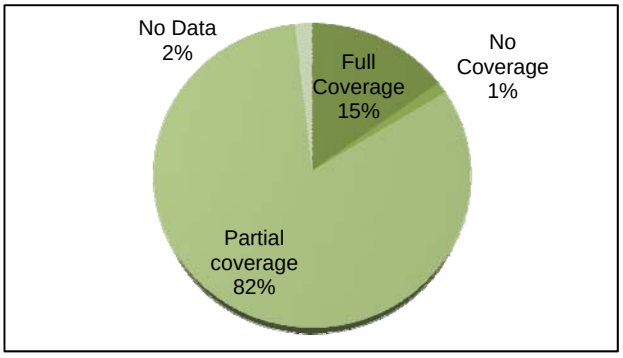


Chapter- 4: Solid Waste Management

4.1 Overall scenario at state level

After the implementation of Municipal Solid Waste Management Handling Rules 2000 (MSW Rules 2000) in Gujarat, ULBs have initiated door-to-door collection service. Currently, 15% of the ULBs have reported 100% door-to-door coverage, while partial coverage has been achieved by 82% of the ULBs. Newly-formed ULBs like Bhabhar and Thara (Class-D cities) have yet not initiated the process of door-to-door collection *(Refer Fig 4.1).*

Fig 4.1: Coverage of solid waste door-to-door collection in the state



Extent of Segregation of Municipal Solid Waste initiated in 50 ULBs. However, only 12 ULBs have initiated segregation at source. 10 ULBs are not included in analysis as data are not available or value is higher than the 100%.

Table 4.1: No. of cities with treatment facility

Type of Treatment Facilities	No. of ULBs
Composting	11
Vermi Composting	50
RDF	3
Waste to Energy	1
Community-Based Vermi Composting	1
Total	66

In Gujarat, 66 ULBs (40%) have treatment facilities such as Composting, Vermi Composting, Refused Derived Fuel (RDF), Waste to Energy and Community-based Composting. Table 4.1 shows no. of cities with treatment facilities. Although all ULBs have identified sites for scientific disposal of solid waste, only Rajkot and Surat Municipal Corporations have operational scientific landfill sites.

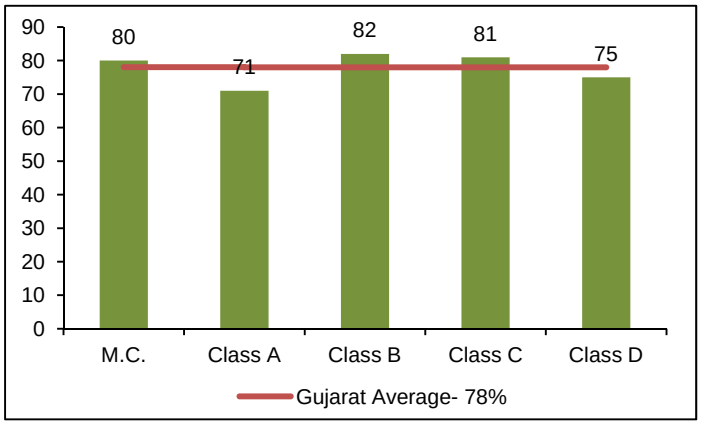
Policy initiative for improved SWM in urban Gujarat by Gujarat Urban Development Company (GUDC)

Looking at the need for supporting ULBs of the state for improved solid waste management, at the state level, a committee was formed to address the concerns, and to outline a broad strategy for solid waste management. Since most of the ULBs lack institutional capacity, technical knowhow and poor financial health, the Urban Development and Urban Housing Department decided to take up this project at the state level. Financial support was through the state budget and under the 12th Finance Commission grant. The project started in Gujarat in the latter part of 2005 and GUDC was designated as the nodal agency for implementation of the project state wide. As part of the project, the government has allocated over Rs. 2,150 m for various components such as design and construction of landfill sites, compost plants, purchase of equipment as well as Information, Education and Communication (IEC) activities. Under the project, solid waste in all municipal corporations and municipalities will be treated. Key participants in the project include state-level steering committee with GUDC as the nodal agency, a state-level consultant for sanitary landfill sites, Karnataka Compost Development Corporation (KCDC) – state-level consultant for vermi-compost and microbial treatment.

4.2 Access and coverage

Access and coverage is analyzed through household (HH) level coverage of SWM services and is defined as percentage of households and establishments that are covered by a daily doorstep collection system.

Fig 4.2: Household-level coverage of SWM services (%) –Gujarat state

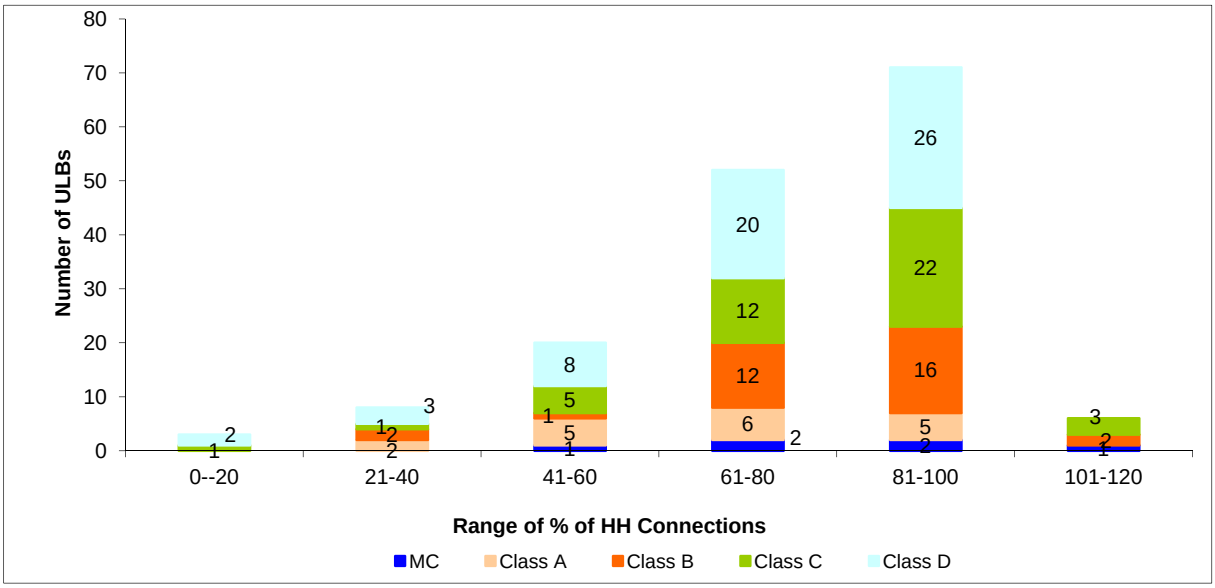


a. State scenario

ULBs across Gujarat have deployed various methods for door-to-door collection ranging from outsourcing to NGOs/*sakhi mandals/CBOs*, tractor-based collection (in case of lack of staff) and cycle/tricycle rickshaw-based collection system in narrow lanes.

The state average for door-to-door collection is 78% and is significantly lower than the SLB benchmark 100%. There is not much variation observed across class size of cities. 82% of households in Class B ULBs are covered by door-to-door collection service while the same is 71% in Class A ULBs. 4 are excluded from the analysis as data are not available. Fig 4.3 shows analysis of 152 ULBs.

Fig 4.3: Percentage of household-level coverage of SWM services

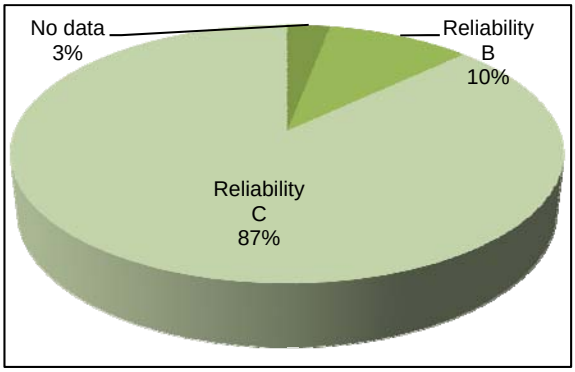


Maximum cities 44% (71 ULBs) have a household coverage ranging between 81-100% coverage. Only 2% (3 ULBs) have a very low coverage in the range of 0-20%.

Reliability of data:

Although the performance of ULBs in the SWM sector is appreciable, improvements need to be made for better data keeping. Data of 87% ULBs fall in category D, which means that no records are maintained by ULBs. Around 10% of the ULBs have a data reliability of B, which means that these ULBs have manual records and that primary collection records are maintained. *(Refer Fig 4.4)*

Fig 4.4: Reliability of data for HH-level coverage of door-to-door collection (%)

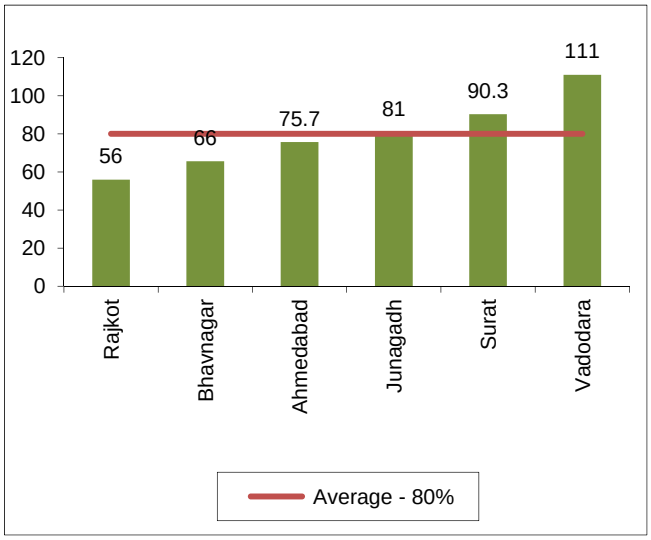


b. Municipal corporation

Among MCs, Surat and Vadodara have high coverage at 90.3% and 111% respectively. Rajkot MC has the least coverage at 56%.

Surat has a good coverage due to private sector participation for door-to-door collection service, whereas Junagadh Municipal Corporation manages the service through its own staff. In Ahmedabad, door-to-door collection is managed through residential welfare associations. Jamnagar MC data has not been included in this analysis due to non availability of data.

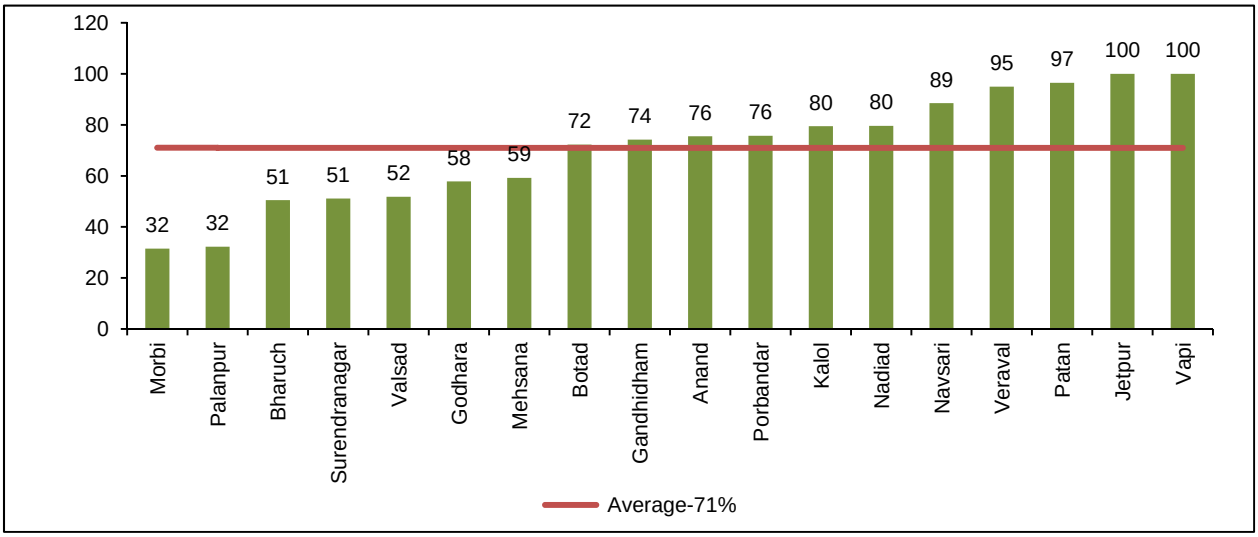
Fig 4.5: HH-level coverage of SWM services (%)- Municipal corporation



c. Class A ULBs

Jetpur, Patan and Vapi municipalities have a high coverage, which could be attributed to involvement of the private sector in door-to-door collection. Morbi and Palanpur have the lowest coverage at 32%. Comparing this to the staff adequacy, both the cities have adequate staff for solid waste management. Morbi and Palanpur have 87% and 94% of staff recruited as compared to staff sanctioned. This emphasizes the need for improvement of management and monitoring of staff performance for door-to-door collection services. The reliability of data in many of the cities is D, which specifies poor data maintenance. *(Refer Fig 4.6)*

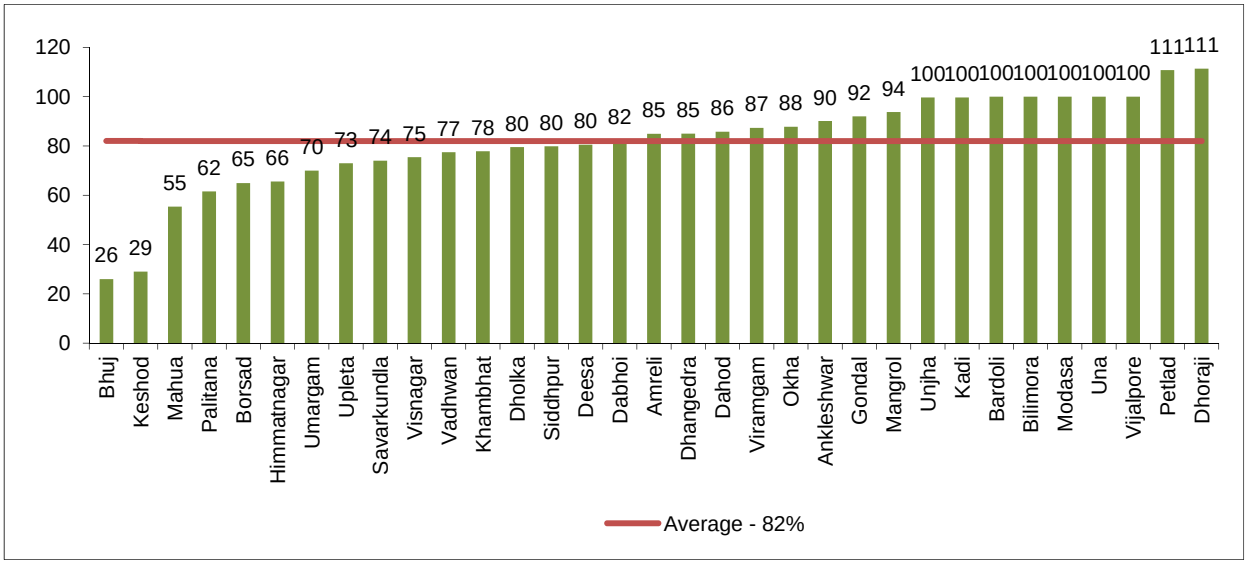
Fig 4.6: HH-level coverage of SWM services (%) - Class A ULBs



d. Class B ULBs

Among Class B cities, Unjha, Kadi, Bardoli, Bilimora, Modasa, Una and Vijalpore have 100% coverage; and Petlad and Dhoraji have 111% coverage. Bhuj, Keshod and Mahua ULBs have the lowest coverage at 26%, 29% and 55 % respectively. Bhuj has involvement of private sector for door-to-door collection service in a few wards; the same could be expanded to cover the remaining wards to improve its coverage. Keshod and Mahua with 70% and 87% of sanctioned solid waste staff recruited have adequate staff and hence there is a need to improve management and monitor staff performance for door-to-door collection services *Refer Fig 4.7)*

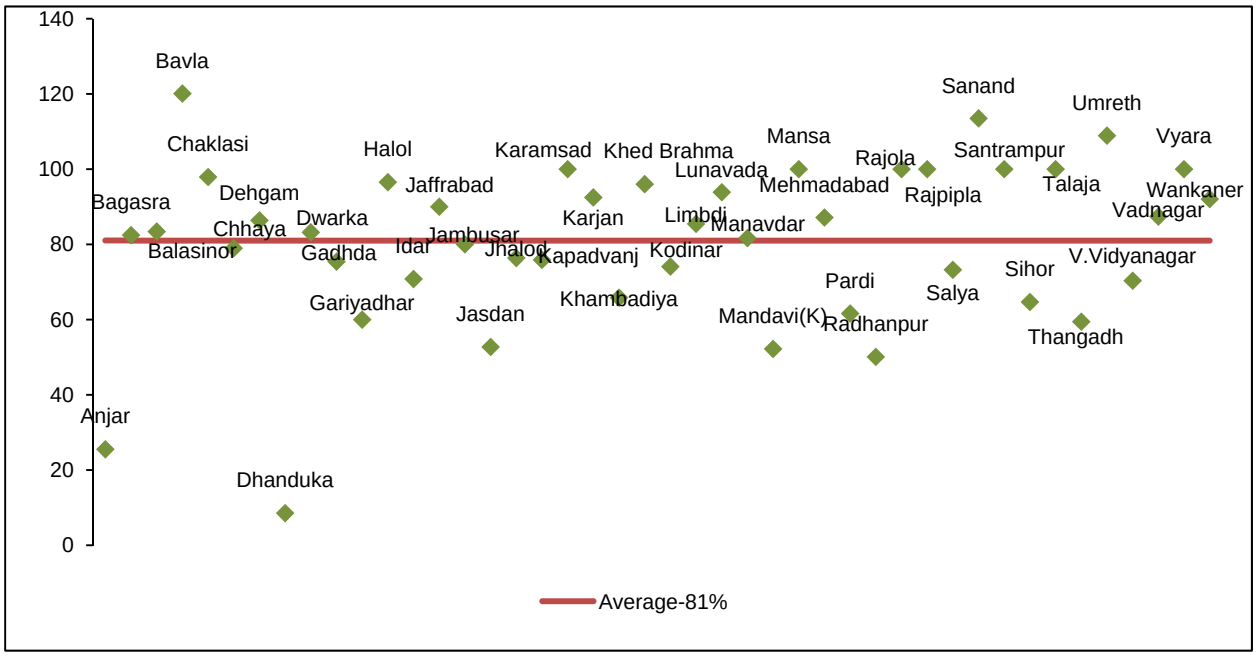
Fig 4.7: HH-level coverage of SWM services (%) -Class-B ULBs



e. Class C ULBs

Among Class C Cities, Dhandhuka and Anjar have the lowest coverage at 9% and 26% respectively. Dhanduka has 69% of its sanctioned staff recruited; so it could possibly hire more staff for extending the door-to-door collection service or contract out this service. The ULB already has private sector involvement for secondary collection and transportation. There is also a need for monitoring performance of existing 69% staff for further improvement of service. Rajula, Rajpipla, Santrampur, Talaja and Vyara municipalities have 100% coverage. The reliability of data for all these cities is D. Umreth, Sanand and Bavla have coverage higher than 100%. The overall average across Class C ULBs is 81%.

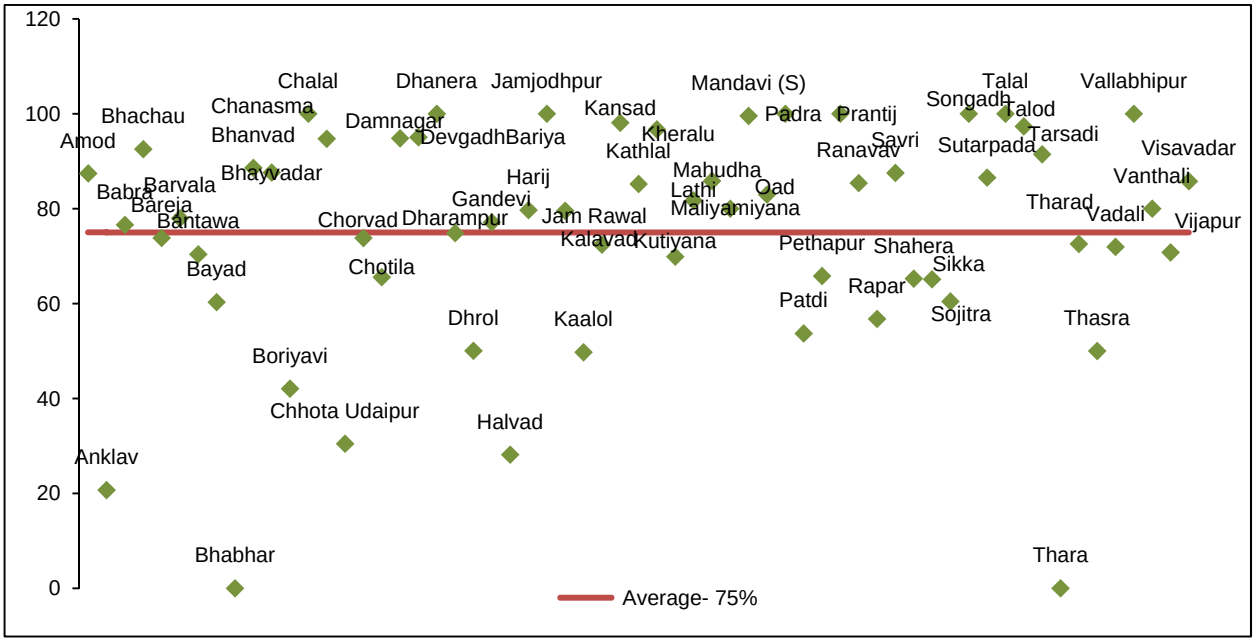
Fig 4.8: HH-level coverage of SWM services (%) - Class C ULBs



f. Class D ULBs

Among Class D ULBs, Mandavi, Chalala, Dhanera, Jamjodhpur, Padra, Prantij, Songadh, Talaja and Vallabhipur have 100% household coverage. Bhabhar and Thara municipalities have not yet initiated door-to-door collection services. Anklav, Chhota Udaipur and Halvad have the lowest coverage at 21%, 30% and 28% respectively. Half the ULBs in Class D have at least 80% coverage. However, data reliability in most of the cities is D. Dakor, Kheda and Kanjari are not considered for analysis due to unreliable data.

Fig 4.9: HH-level coverage of SWM services (%) – Class D ULBs



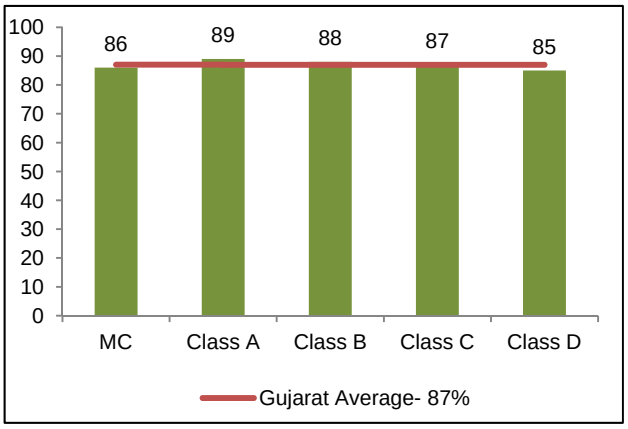
4.3 Service level and quality

Service level and quality includes indicators on efficiency of collection of municipal solid waste (MSW), extent of segregation of MSW, extent of MSW processed and recycled.

Efficiency of collection of MSW is defined as total waste collected by ULB and/or authorized service providers as a percentage of total waste generated within the ULB, excluding recycling or processing at the generation point.

Extent of segregation of MSW is defined as percentage of waste from households and establishments that is segregated. Segregation should at least be at the level of separation of wet and dry waste at the source, that is at the household or establishment level. It is important that waste segregated at the source is not again mixed, but transported through the entire chain in a segregated manner.

Fig 4.10: Efficiency of collection of municipal solid waste (%) - Gujarat state



Extent of MSW processed and recycled is defined as total quantity of waste that is processed or recycled as a percentage of total waste collected.

a. State scenario

The state average of efficiency of collection of solid waste is 87%, which is lower than the Service Level Benchmark (SLB) 100%.

There is not much variation across the different classes of ULBs. Class A has the highest efficiency at an average of 89% *(Refer Fig 4.10)*. Only 48 ULBs undertake some level of segregation of waste. There is no segregation undertaken by the remaining ULBs.

Solid waste processing and recycling is undertaken by 66 ULBs (40%), out of which 51 (76%) follow vermicomposting; 11 undertake composting and 4 ULBs undertake waste to energy options. In terms of waste collection, there is marginal variation across all classes. Segregation of waste is very less in the classes. Class A ULBs report maximum segregation followed by corporations at 14%. Similarly, there is less variation in waste process/recycle across other classes. *(Refer Fig 4.11)*

Fig 4.11: Solid waste collection, segregation and processing (%) - Gujarat state

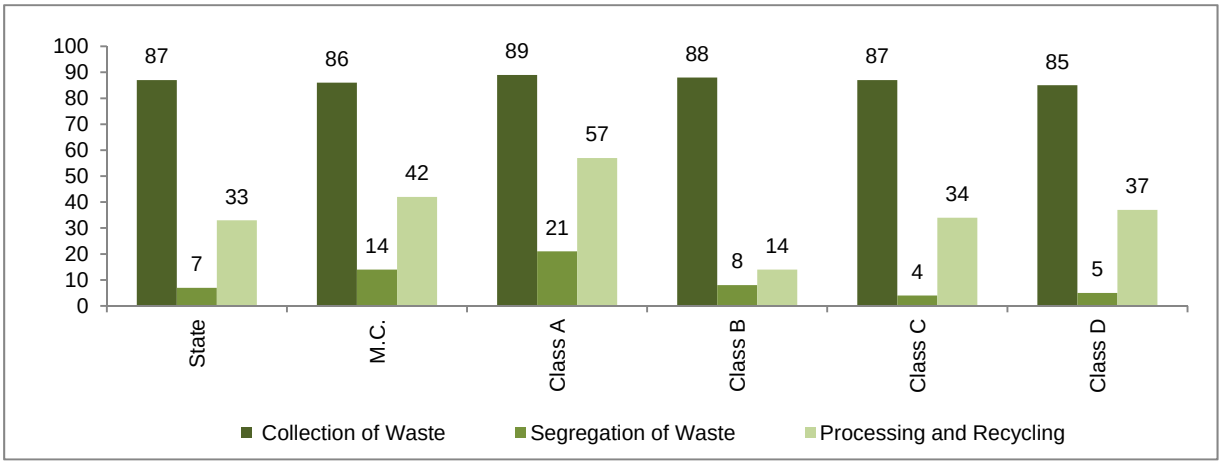
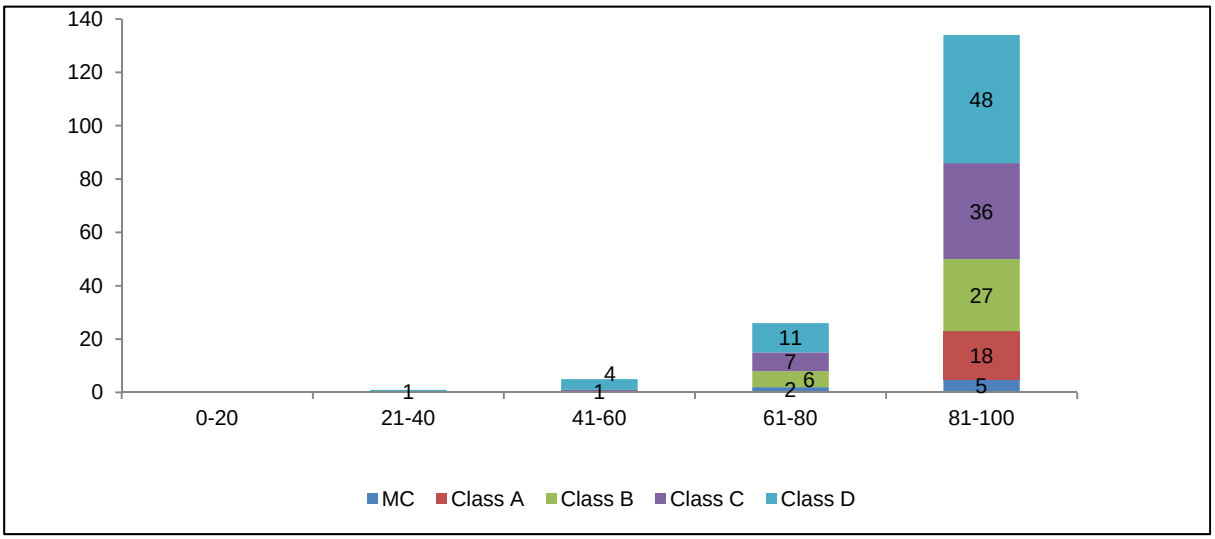


Fig 4.12 shows analysis of 166 ULBs. Maximum cities, around 81% (134 ULBs) have collection efficiency in the range of 81-100%. Only Bareja ULB has very low collection efficiency at 40%.

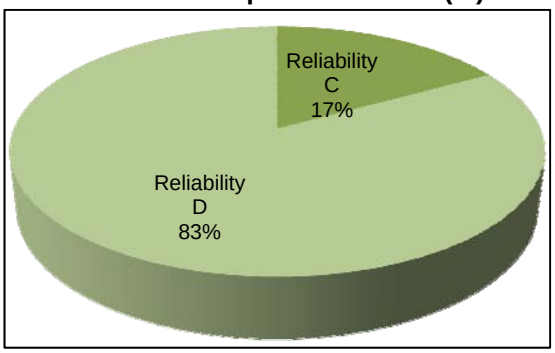
Fig 4.12: Percentage efficiency of collection of municipal solid waste



Reliability:

Fig 4.13 shows that 138 ULBs have a data reliability of D for efficieny of waste collection, which means that no records are maintained. 28 ULBs (17%) have a data reliability C, which means that there is a system of maintaining manual records of quantum of waste collected that are based on trips to treatment/ disposal site and estimates of waste generation based on size of the city. Data regarding extent of segregation and waste processing also mostly fall in reliability cartegories of C and D.

Fig 4.13 : Reliability of data for efficiency of collection of municipal solid waste (%)



b. Municipal corporation

Looking at the entire spectrum of processes undertaken for effective solid waste management, viz. collection, segregation, treatment and disposal, Rajkot Municipal Corporation is undertaking all these at a significant high percentage.

Ahmedabad and Rajkot Municipal Corporations have low collection efficiency as compared to the average of 86% among the 7 municipal corporations. Jamnagar collects 96% of the waste generated in the city. However, reliability band for this data is mostly C and D. *(Refer Fig 4.14)*

Fig 4.14: Efficiency of collection of municipal solid waste (%) -Municipal corporation

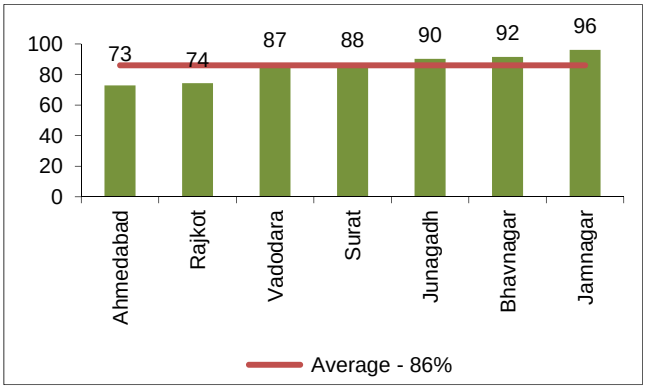
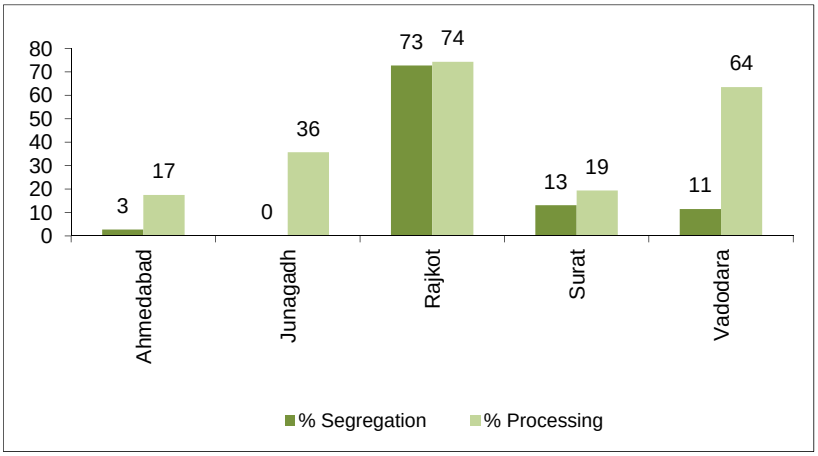


Fig 4.15 highlights that segregation of waste is only done in Rajkot city (73%) with data Reliability A, which indicates that there are automated systems of quantity measurement of the segregated waste at weighbridge. Recycling and processing of waste is undertaken by 5 municipal corporations. The entire segregated 73% waste of Rajkot is treated. This is followed by Surat at 19.4, Vadodara at 64%, Junagadh at 36% and Ahmedabad at 17.5%.

Fig 4.15: Solid waste segregation and processing - Municipal corporations



Integrated Waste Processing Plant of Rajkot Municipal Corporation

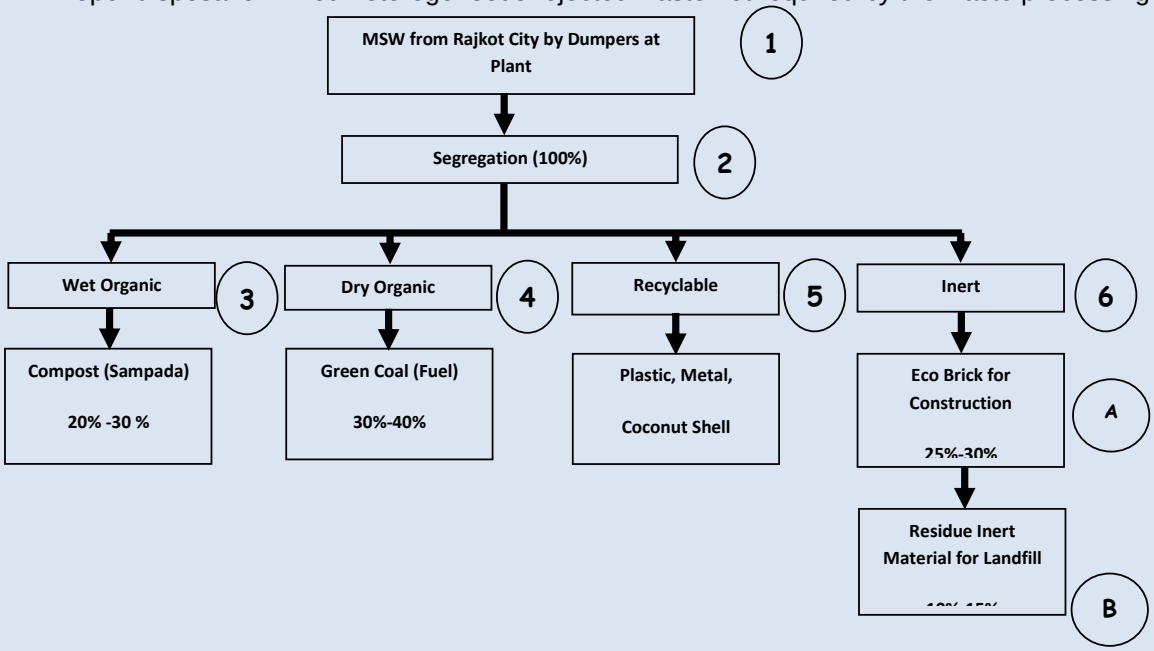
Rajkot Municipal Corporation (RMC) with a population of about 1 million (Census 2001) and spread over 104.86 sq km, generates 300 MT of solid waste per day. Like most other cities of the country, RMC was also facing a problem of collection and disposal of the solid waste generated daily. Before undertaking this initiative of integrated solid waste management, RMC used to simply dump the collected waste at the dumpsite, resulting in environmental nuisance. Later in 2005, RMC contracted with a private party on 'Build Operate Own (BOO)' basis and started an integrated waste processing plant. This processing plant is the first of its kind in India which recycles almost 85% to 90% of waste and leaves behind only 10% to 15% as rejects for land fill sites. RMC had acquired land of 100 acres for the purpose of development of a sanitary landfill site and waste processing plant on a 200-years lease. This land was wasteland and hence could be utilized for construction of a landfill site. Out of 100 acres, 30 acres of land was given to the private partner for establishment of waste processing plant on lease at the rate of Rs 1 per sq meter per year.

Role of private partner

- Lease rental for land at Rs 1 per sq m
- Installation and commissioning of waste conversion and processing plant
- Penalty of Rs 10 lakh in case of failure to set up plant
- Entire liability of the equipment involved in waste conversion processing plant would be of the private partner
- All products received as output of the waste conversion and processing plant would be the assets of private partner
- Private partner would be responsible for marketing and sale of recovered products, byproducts, co-products, and all the revenue generated would go to private partner

Role of RMC

- To lease 30 acres of land for setting up of processing plant and warehouse facilities for the period of 7 years
- No financial assistance from RMC to private partner
- To deliver 300 metric tons of waste per day to the plant
- To provide utilities like access road up to entrance of premises of plant, water supply up to 2 lakh litres per day, electricity power line (user charges for such utilities to be borne by the private partner)
- Proper disposal of mixed heterogeneous rejected waste not required by the waste processing plant.

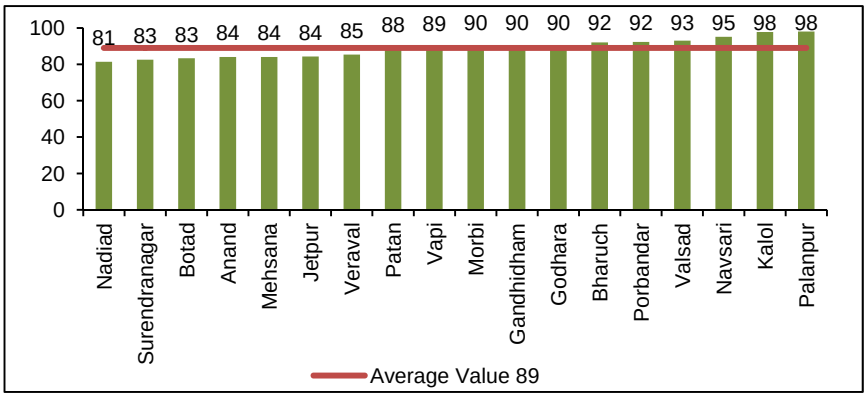


Bhavnagar and Jamnagar do not recycle or treat their waste. Ahmedabad, Rajkot, Surat and Vadodara undertake composting of waste while there are RDF treatment facilities at Ahmedabad, Junagadh and Surat corporations. The data reliability for processing of waste for Junagadh and Rajkot Municipal Corporations is B, indicating that these ULBs maintain manual records for quantity of waste measured at weighbridge. Ahmedabad, Surat and Vadodara corporations have data Reliability A, indicating that there are automated systems of measurement of waste at weighbridge.

c. Class A ULBs

All Class A ULBs have a good collection efficiency of more than 80%. The average for Class A cities is 89%, indicating that 89% of the waste generated in Class A ULBs gets collected on a daily basis. *(Refer Fig 4.15).*

Fig 4.16: Efficiency of collection of municipal solid waste (%) - Class A ULBs



The data reliability is D for all ULBs, excluding Morbi which has data Reliability C. This indicates the need for improved data keeping systems across all A Class ULBs.

Fig 4.17: Solid waste segregation and processing – Class A ULBs

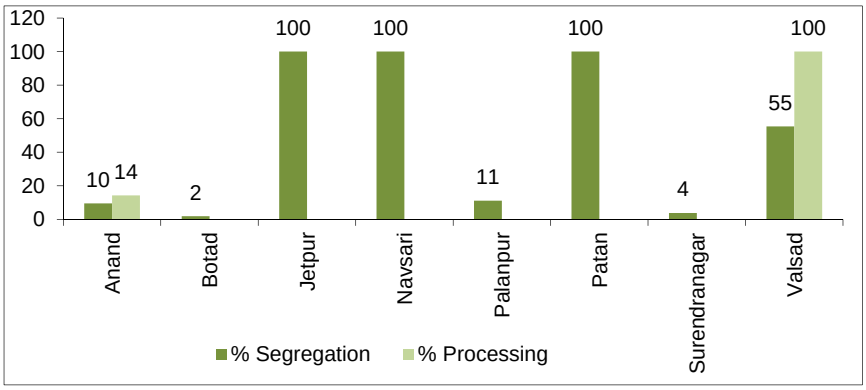


Fig 4.17 shows that only 8 of the 18 Class A ULBs segregate waste at the source. Navsari, Jetpur and Patan municipality segregate 100% of its waste generated,. The reliability of this data is D, indicating that data records are not maintained. Only two ULBs, Anand and Valsad, undertake solid waste recycling and processing with 14% and 100% respectively. Data reliability is D and C respectively.

d. Class B ULBs

Class B ULBs have an average collection efficiency of 88%. The collection efficiency ranges from 63% in Dabhoi to 98% in Bhuj. Majority of ULBs have a data Reliability D. Only 15 municipalities undertakes any amount of segregation of waste. The data reliability for the same is C, signifying that manual data records are maintained.

Fig 4.18: Efficiency of collection of municipal solid waste (%) - Class B ULBs

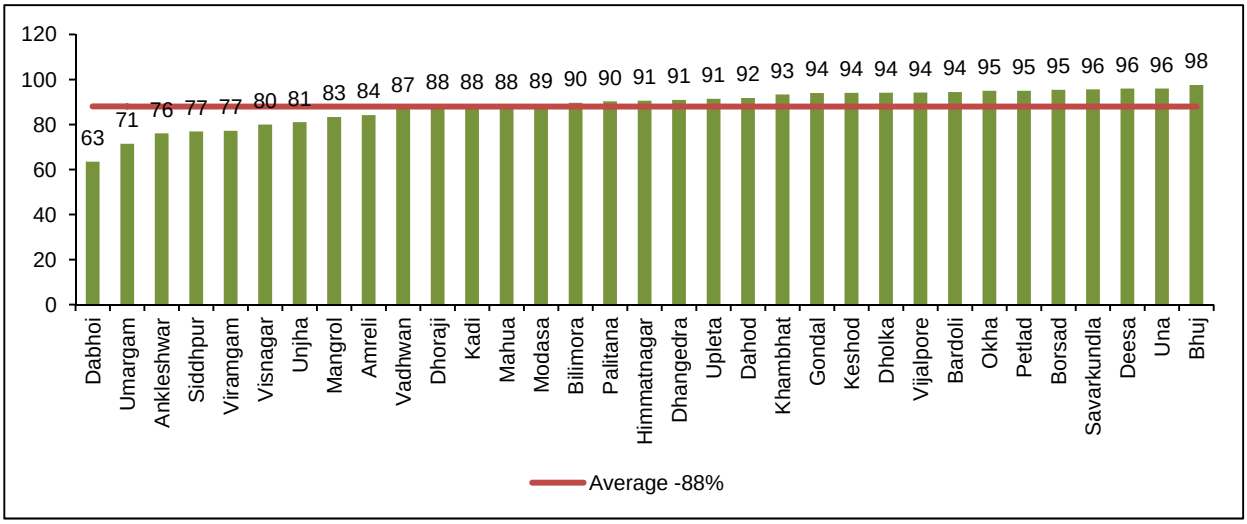
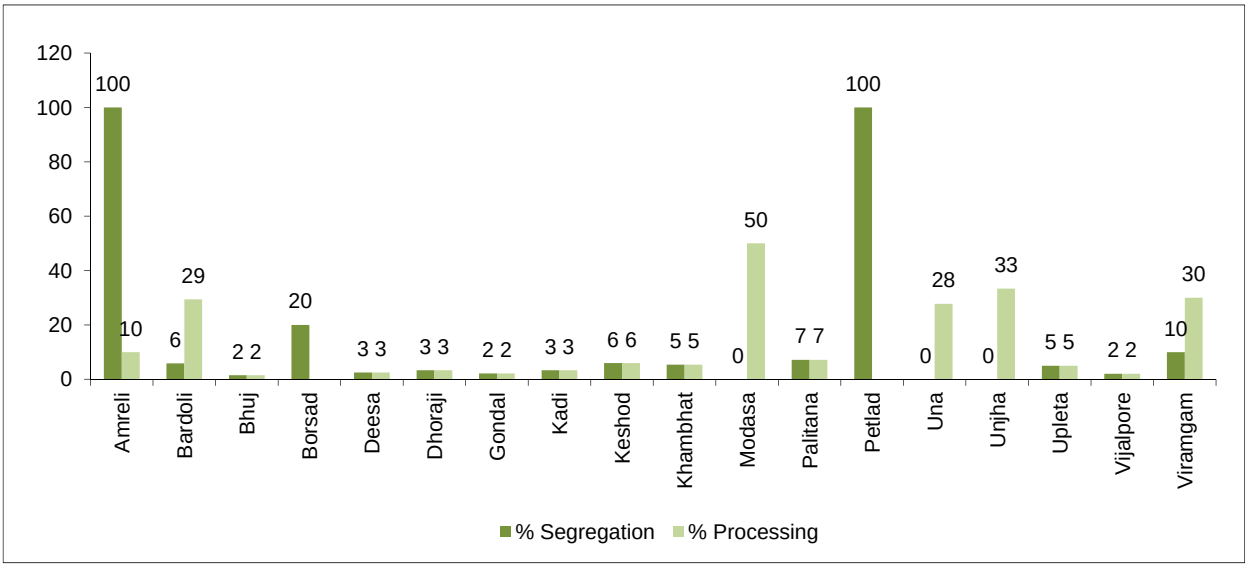


Fig 4.19: Solid waste segregation and processing – Class B ULBs



e. Class C ULBs

The average collection efficiency of solid waste for Class C ULBs is 87%. Balasinor and Gadhda municipalities have lowest collection efficiency at 60% and 68% respectively, while Gariyadhar and Limbdi have 100% collection efficiency. The reliability of data for all these cities is D. (refer Fig 4.20)

Fig 4.20: Efficiency of collection of municipal solid waste (%) - Class C ULBs

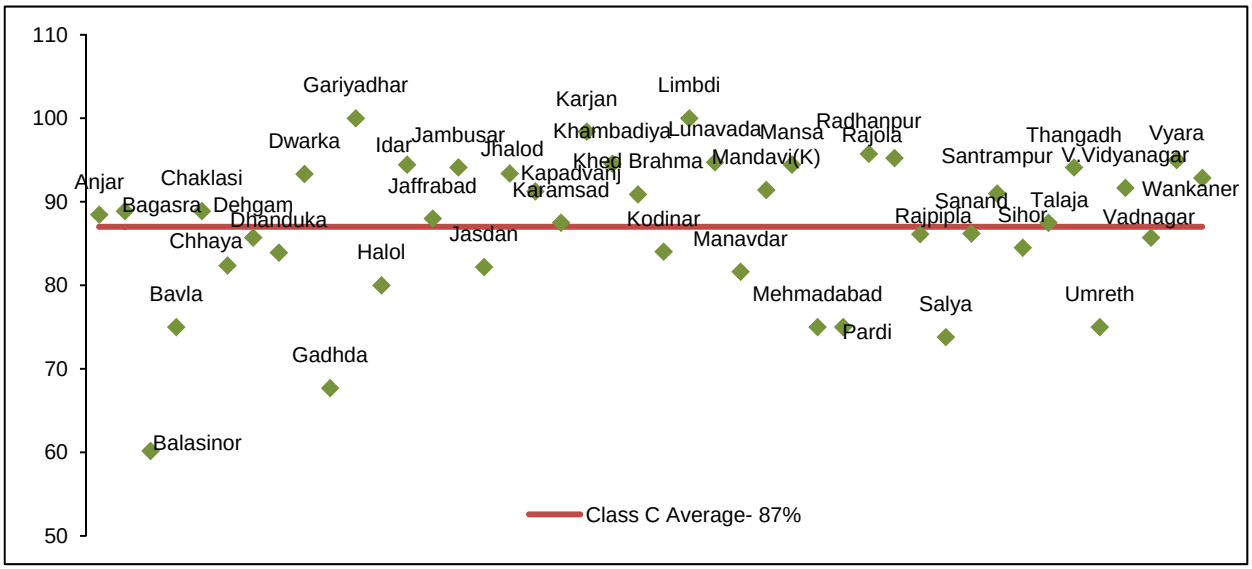
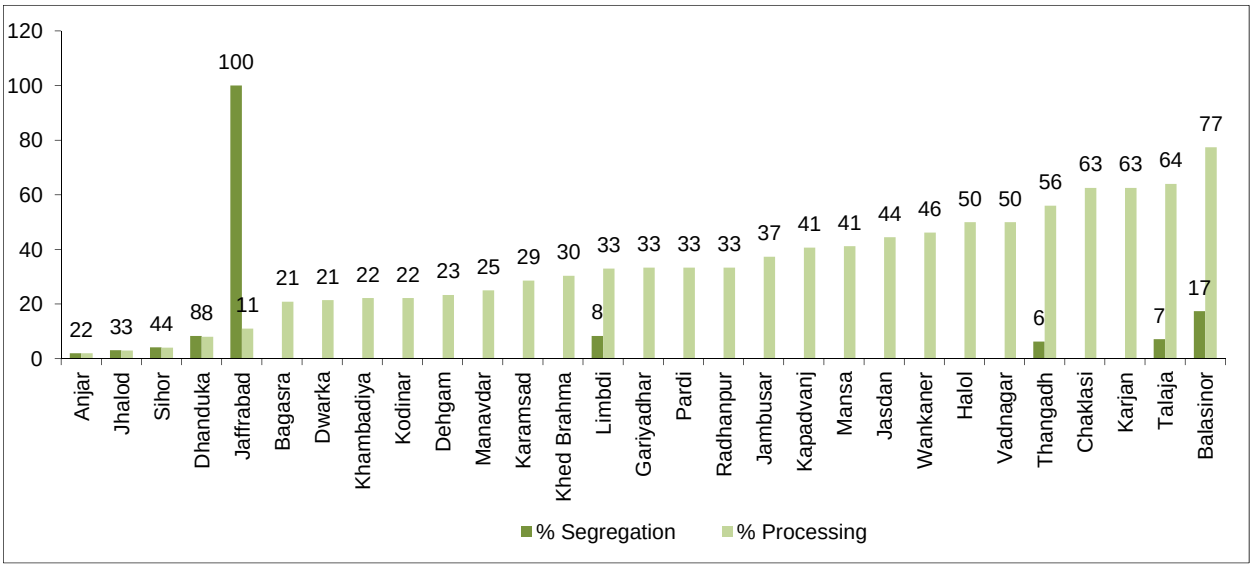


Fig 4.21: Solid waste segregation and processing – Class C ULBs

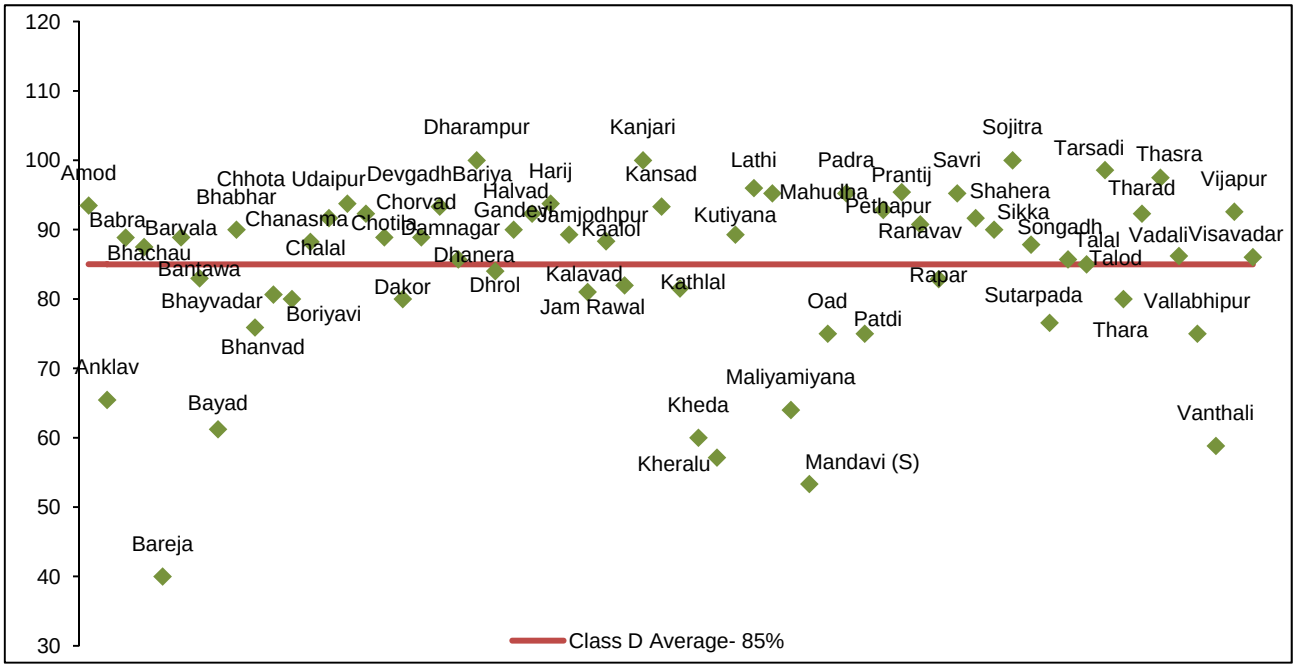


Only 9 municipalities undertakes any amount of segregation and mostly segregate <10% of collected waste except Jaffrabad which reports 100% segregation. Out of 44 ULBs, 29 undertake some form of treatment; with 21 undertaking vermi composting, and Bagasara, Karamsad and Jasdan using community-level composting. Gadhda municipality has vermi composting plant with the capacity of 5 tons per day, but the plant is not functional due to inadequate supply of water and low percentage of organic material in the waste. All ULBs are having data Reliability C or D. (Refer Fig 4.21).

e. Class D ULBs

Class D ULBs have an average collection efficiency of 85% with Bareja, Mandavi, Vanthali and Kheda having lowest collection efficiencies of 40%, 53% and 57% respectively. As shown in Fig 4.22.

Fig 4.22: Efficiency of Collection of Municipal Solid Waste (%) - Class D ULBs



Dharampur, Kanjari and Sojitra have 100% collection efficiency; however, the reliability band for this data for most of these cities is D. 12 municipalities undertake waste segregation; however, no data records are there for segregation of municipal waste for some municipalities. The range varies from 3 to 77%. In 38 ULBs, waste is partially or fully treated or processed. 100% of waste is recycled or processed by Chalala, Kheda and Kheralu municipalities. In most of the cities, vermin-composting has being done.

4.4 Financial sustainability

Financial sustainability includes indicators on extent of cost recovery (O&M) in SWM services and Efficiency in collection of solid waste management related charges.

4.4.1 Extent of cost recovery (O&M):

Extent of cost recovery denotes the extent to which the ULB is able to recover all operating expenses related to SWM services from operating revenues of source related to exclusively to SWM, which is defined as the total annual operating revenues from SWM as a percentage of the total annual operating expenses on solid waste management.

a. State scenario

Revenue income in the cities of Gujarat is very low because the "Safa*i vero*" or sanitation tax was recently introduced in the year 2008-09 in most of the ULBs. 87% cities (144) have levied tax. Typically, in most of the ULBs, the revenue expenditure on SWM is very high due to high establishment, operation and maintenance costs of providing the service, while there is low revenue income and hence cost recovery is low.

Fig 4.23: Extent of cost recovery in SWM service (%) - Guiarat state

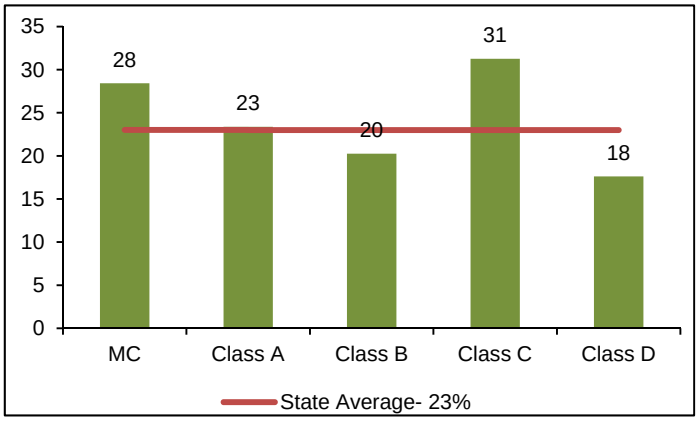
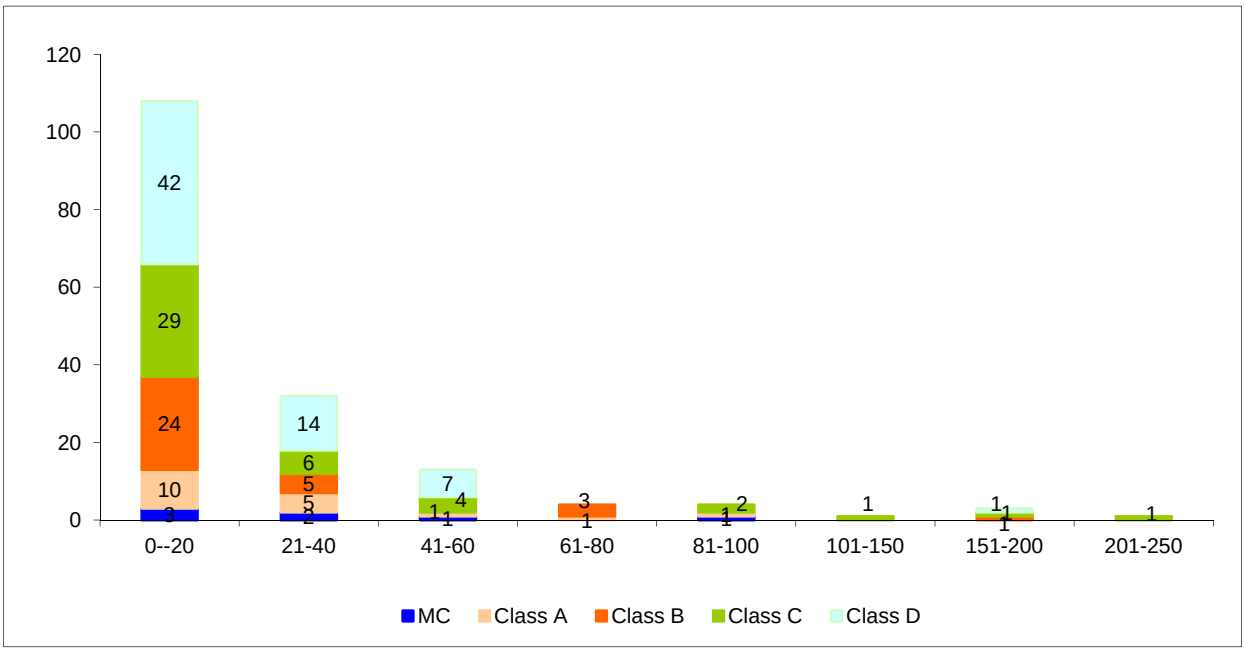


Fig 4.24: Range of value of extent of cost recovery in solid waste management service

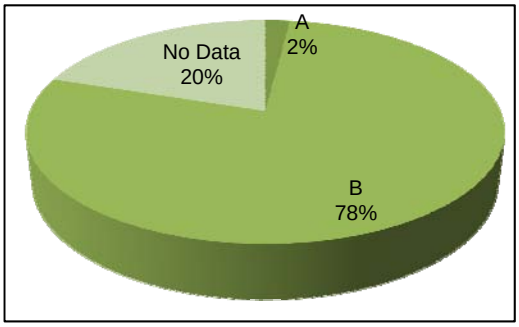


The state average of extent of cost recovery in SWM services is 23%, which is lower side to the SLB benchmark of 100%. There is some variation across the different classes of municipalities. Class C ULBs have the highest percentage of cost receovery at 31%; while Class D municipalities have the lowest recovery at 18%. (Refer Fig 4.23). Fig 4.24 shows analysis of 161 ULBs. A majority of the ULBs (108) have very low cost recovery percentage in the range of 0-20%. Only 2% (4 ULBs) have cost recovery ranging between 81-100%.

Reliability:

Fig 4.25 depicts that 130 ULBs have data Reliability B for extent of cost recovery, which means that manual records are kept and that ULBs have accrual-based double entry system, with clear segregation of budget heads related to SWM. Only Nadiad, Jamnagar and Kapadvanj have data Reliability A, indicating that these ULBs have computerized accounting systems with accrual-based double entry system and have clear segregation of budget heads related to SWM.

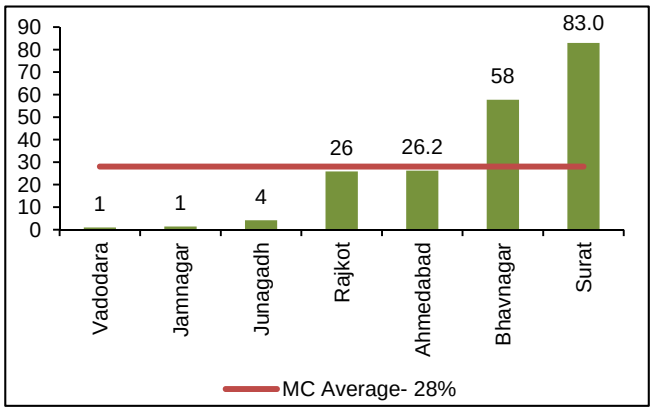
Fig 4.25: Data Reliability - Extent of cost recovery in SWM service (%)



b. Municipal corporation.

Fig 4.26 shows the cost recovery among municipal corporations. MCs average is 28%. Surat recovers 83% of its expenses on SWM, while Vadodara and Jamnagar are able to recover only a marginal cost of 1%.

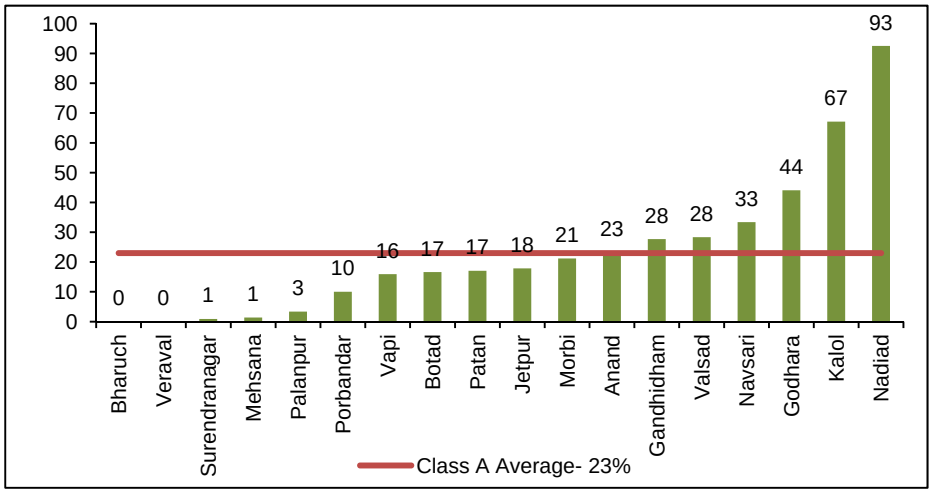
Fig 4.26: Extent of cost recovery in SWM service (%) - Municipal corporations



c. Class A ULBs

Cost recovery among Class A ULBs is only 23%. Nadiad has the highest cost recovery at 93%, followed by Kalol at 67%. The reliability of data for these cities is A and B respectively. Bharuch has shown 0% cost recovery due to lack of information on revenue income, whereas Veraval has 0% cost recovery as the city has not levied sanitation tax, hence revenue income is zero. Mehsana city has not levied the sanitation tax. The cities with lower cost recovery indicate that even though the cities have levied the sanitation tax, the revenue expenditure is very high against revenue income.

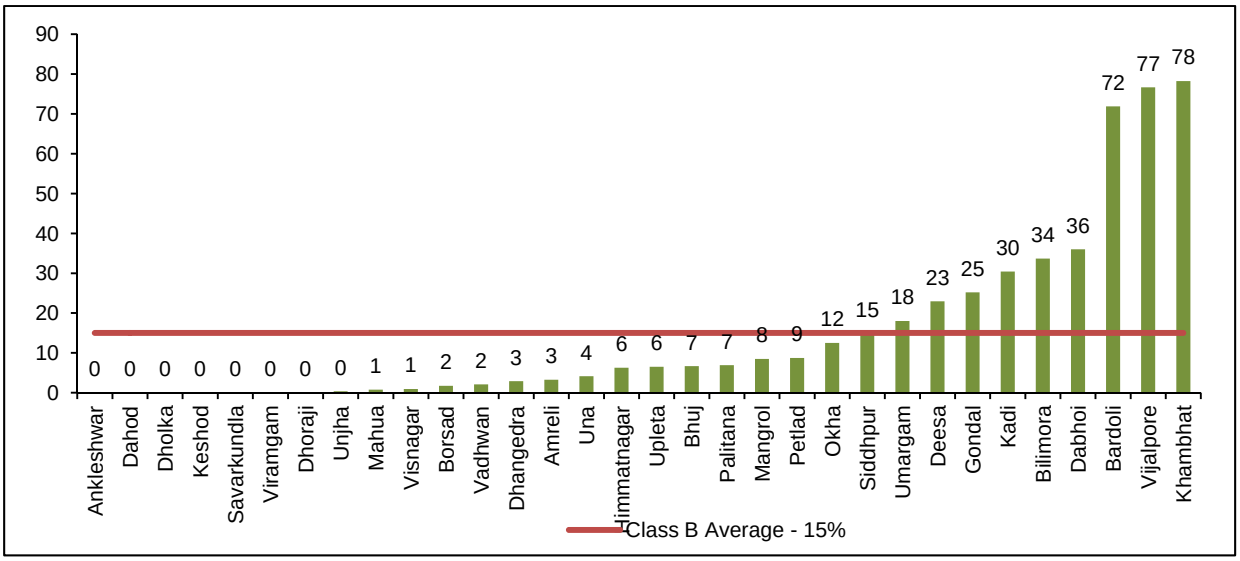
Fig 4.27: Extent of cost recovery in SWM service (%) - Class A ULBs



d. Class B ULBs

Among Class B ULBs, the average cost recovery is 15% if the reported value of 188% from Modasa is not considered, else the average is 20%. Bardoli, Vijalpore and Khambhat have good cost recovery of more than 70% with data Reliability B. Ankleshwar, Dahod, Dholka, Keshod and Viramgam have 0% cost recovery due to lack of information on revenue income. Dhoraji,Unjha and Savarkundla have 0% cost recovery because they have not levied the 'safai vero'. Modasa has not been included in this analysis due to its cost recovery value being higher than 100%.

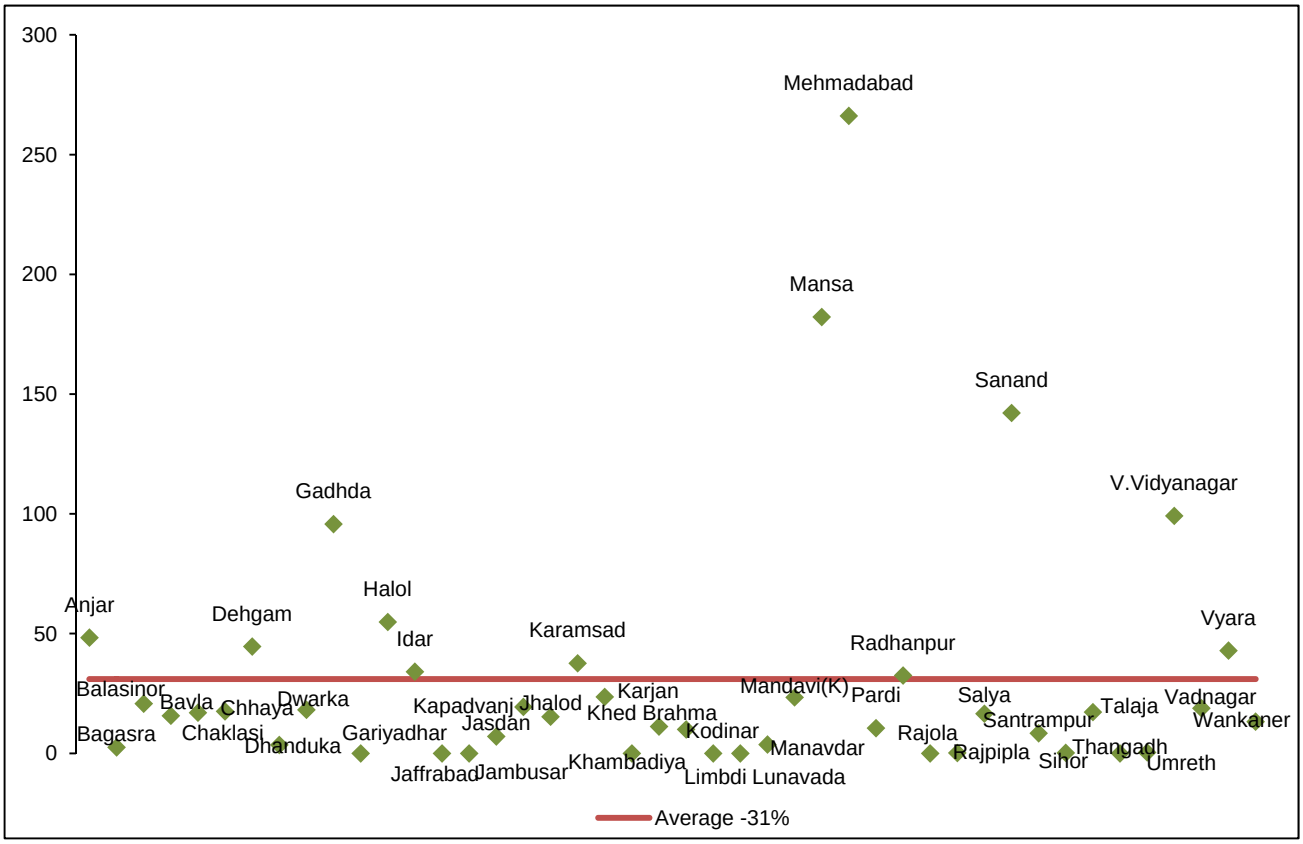
Fig 4.28: Extent of cost recovery in SWM service (%) - Class B ULBs



e. Class C ULBs

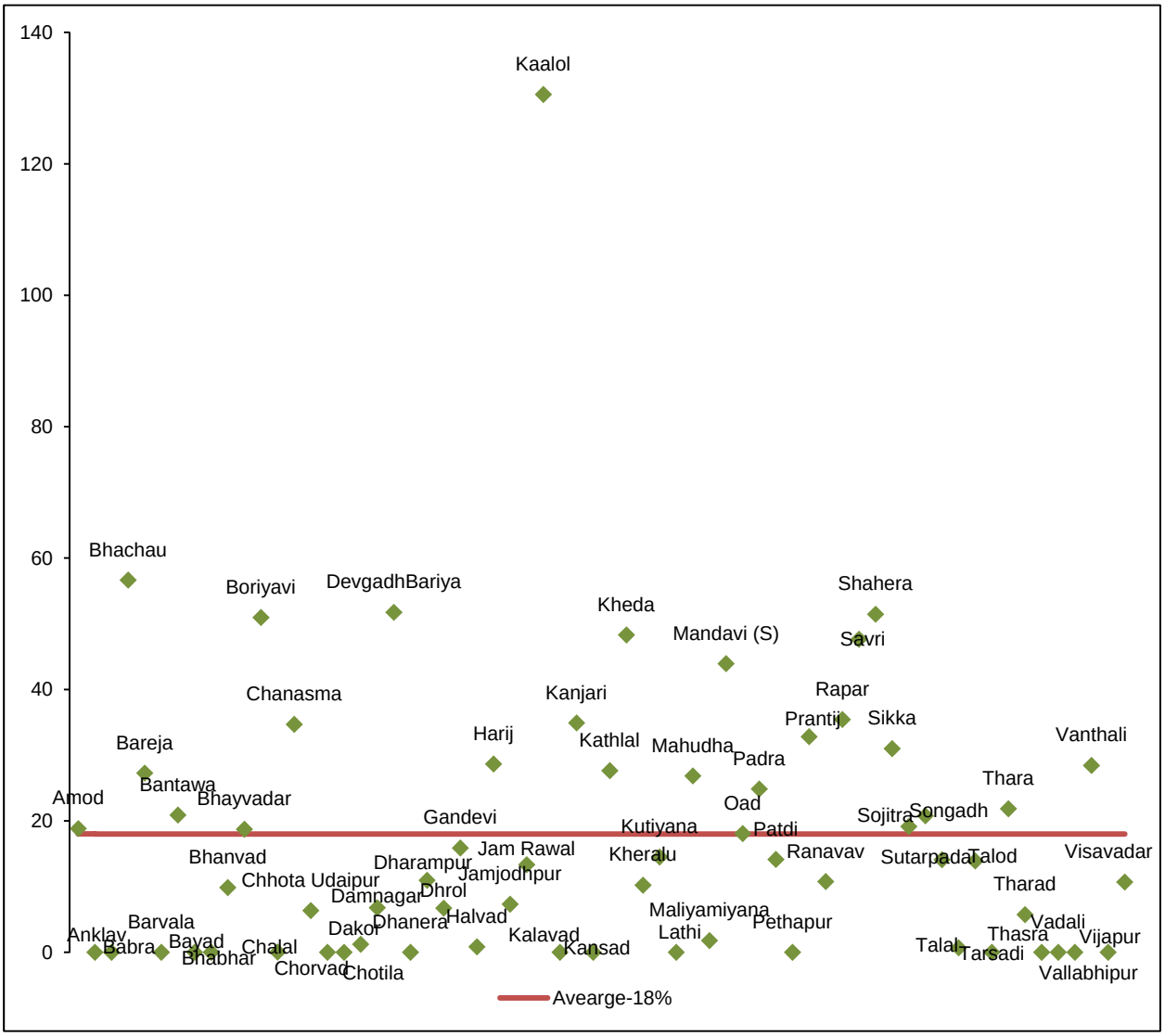
Among Class C ULBs, Gariyadhar, Jaffrabad, Jambusar, Limbdi, Lunavada, Rajula, ULBs have 0% cost recovery due to lack of information on revenue income. Khambadia, Rajpipla, Thangadh, Sihor, and Umreth have 0% cost recovery as sanitation tax has not been levied, hence revenue income is zero. V.Vidyanagar and Gadhda have good cost recovery of 99% and 96% respectively with data Reliability B. Sanand, Mehmadabad and Mansa have reported maximum cost recovery.

Fig 4.29: Extent of Cost Recovery in SWM service (%) - Class C ULBs



f. Class D ULBs

Fig 4.30: Extent of cost recovery in SWM service (%) - Class D ULBs



Bhachau municipality has the highest cost recovery of 57%. Anklav, Babra, Barvala, Bayad, Bhabhar,Chorwad, Chotila, Dhanera, Kalavad, Kansad, Lathi, Pethapur, Tarsadi, Thasra, Vadali, Vallabhipur, Vijapur and Chalala have 0% cost recovery. Kaalol has not been included in this analysis as its value is higher than 100% (Refer Fig 4.30).

4.4.2 Efficiency in collection of SWM-related charges

Efficiency in collection of SWM-related user charges (%) is defined as current year revenues collected, expressed as a percentage of total operating revenues, for the corresponding time period.

a. State scenario

Overall efficiency in collection of SWM-related charges is low throughout the state. The state average at 43% is very lower than Service Level Benchmark 100%. Municipal corporations have the highest efficiency of collection of charges at 64%. (Refer Fig 4.31)

Fig 4.32 illustrates that maximum ULBs have a collection efficiency ranging between 41% and 60%. 9 ULBs collect 81-100% of the SWM charges. 28 have not been included in the analysis due to data not being available.

Fig 4.31: Efficiency in collection of SWM-related charges (%) - Gujarat state.

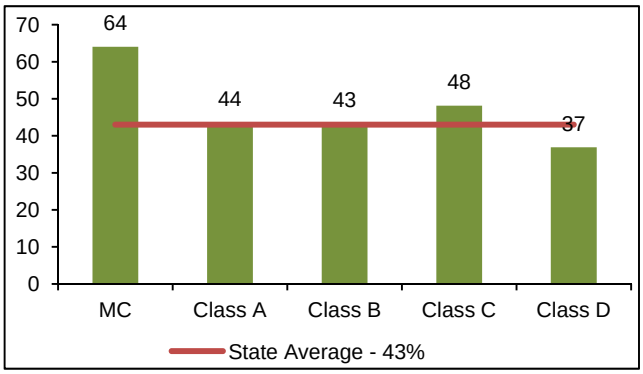
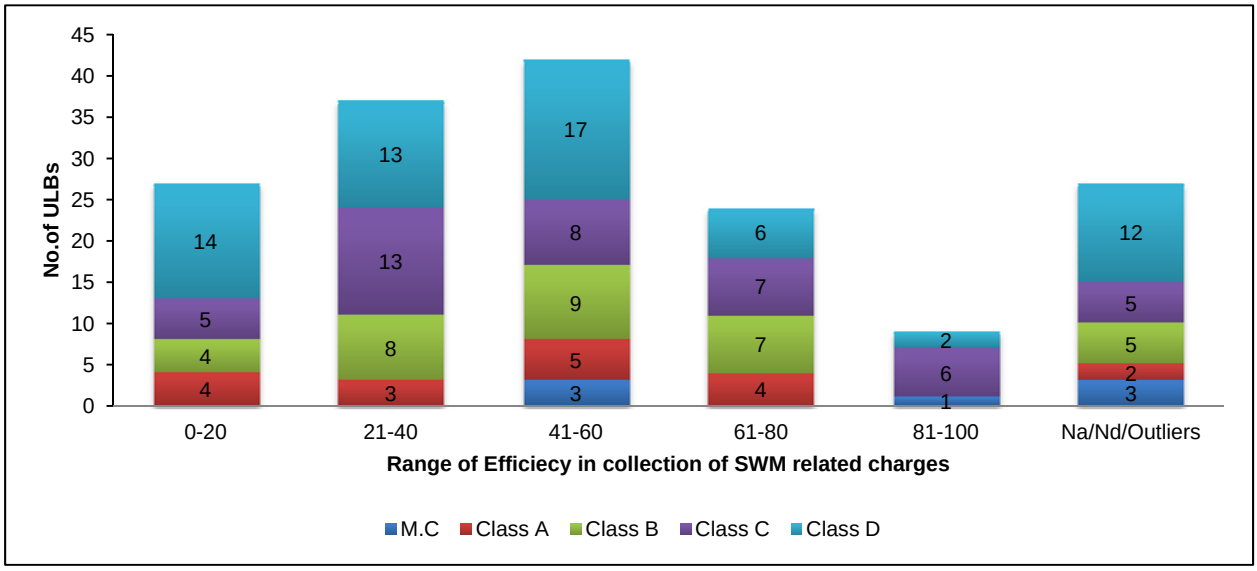


Fig 4.32: Range of value of efficiency in collection of SWM-related charges (%)

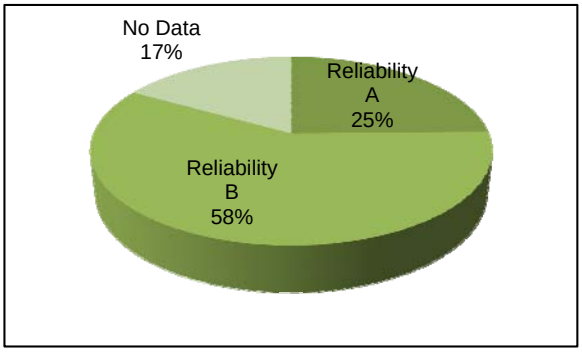


Reliability:

Data from 97 (58%) out of 166 ULBs fall in reliability band B indicating that manual records are maintained and there is accrual-based double entry system being practiced parallel to cash-based system.

Data from 41 ULBs have Reliability A, indicating DCB tables are automatically generated and are linked to billing and collection systems, with regular updation and use of accrual-based double entry system. *(Refer Fig 4.33)*

Fig 4.33: Reliability for efficiency in collection of SWM-related charges (%)

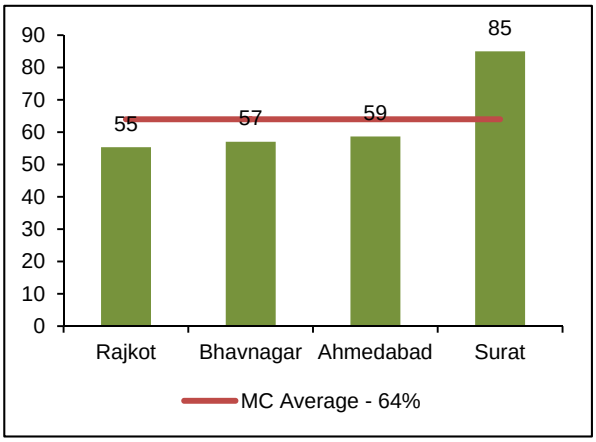


b. Municipal corporation

Among municipal corporations, Surat collects 85.2% of its billed amount and its data has Reliability A.

There is a marginal variation in collection efficiencies of Rajkot (55%), Bhavnagar (57%) and Ahmedabad (58.6%). The data reliability for Ahmedabad and Rajkot is A, while that for Bhavnagar is B. (Refer Fig 4.34)

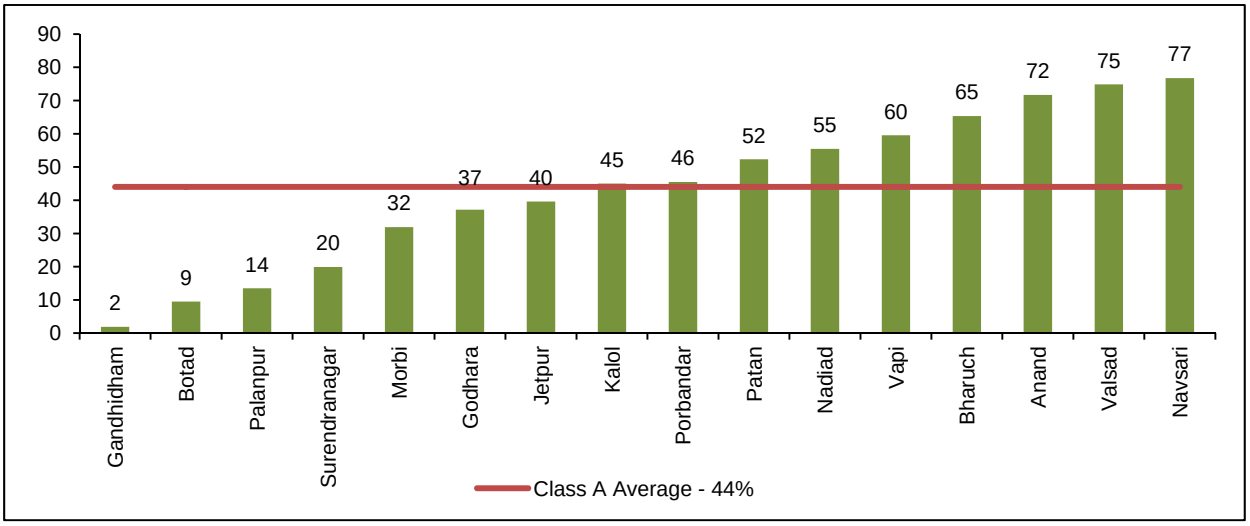
Fig 4.34: Efficiency in collection of SWM-related charges (%) -Municipal corporation



c. Class A ULBs

Efficiency in collection of SWM-related charges ranges between 2% and 77%. Valsad (75%) and Navsari (77%) have good efficiency in collection of SWM-related charges and Gandhidham and Botad have very low efficiency at 2% and 9% respectively. There is a positive correlation between service coverage and collection of SWM-related charges, indicating that higher the coverage, higher is the collection efficiency. 'Safai vero' is not levied in Mehsana and Veraval, hence the two are not included in this analysis.

Fig 4.35: Efficiency in collection of SWM-related charges (%) -Class A ULBs

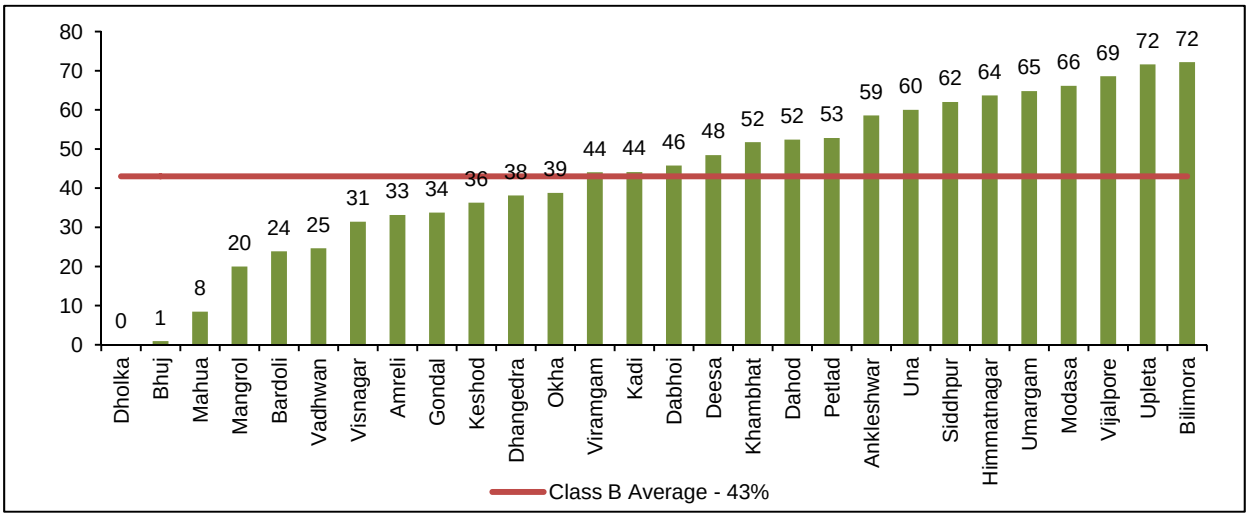


d. Class B ULBs

Among Class B cities, Bilimora and Upleta have highest collection efficiency at 72%. Dholka has 0% collection efficiency as the city has not collected any tax against current billed demand. Bhuj and Mahua have shown low collection efficiency at 1% and 8% respectively.

Borsad, Dhoraji, Palitana and Savarkundla, have not been included in this analysis due to Safai vero is not levied, hence not applicable. (*Refer Fig 4.36)*

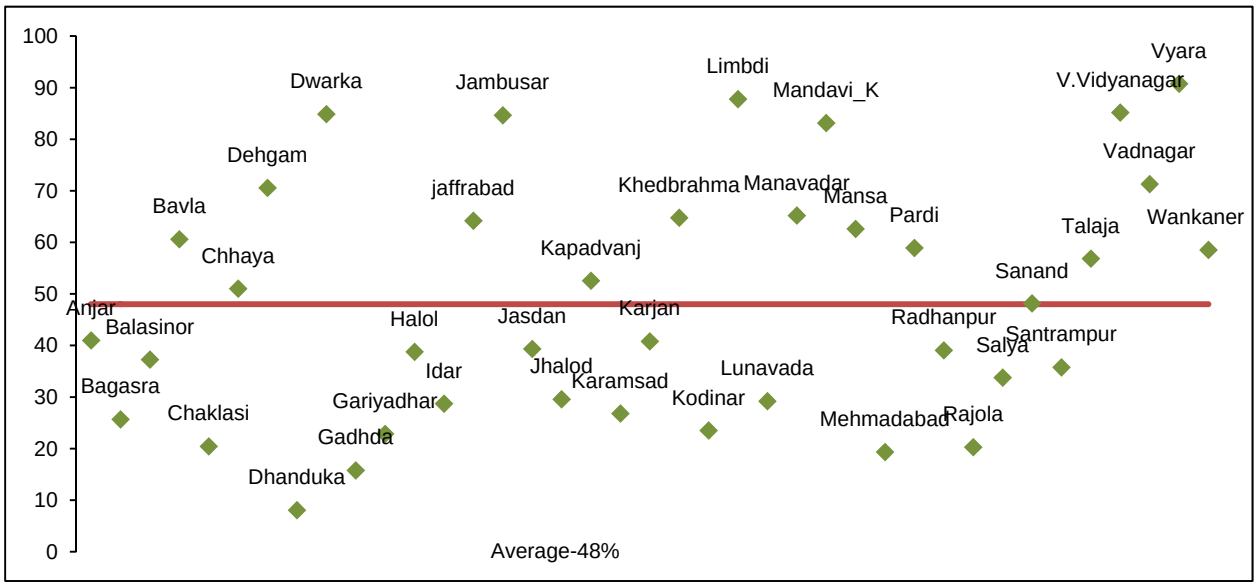
Fig 4.36: Efficiency in collection of SWM-related charges (%) -Class B ULBs



e. Class C ULBs

Among Class C ULBs, Dhandhuka, Gadhda, Mehmadabad, Chaklasi and Rajula ULBs have low collection efficiencies ranging from 8-20%. Dwarka, Jambusar and V.Vidyanagar collect 85% of their billed SW charges while Limbdi collects 88% and Vyara collects 91% of billed SW charges. Khambadia, Rajpipla, Sihor, Thangadh and Umreth have not been included in this analysis as the data are not applicable.

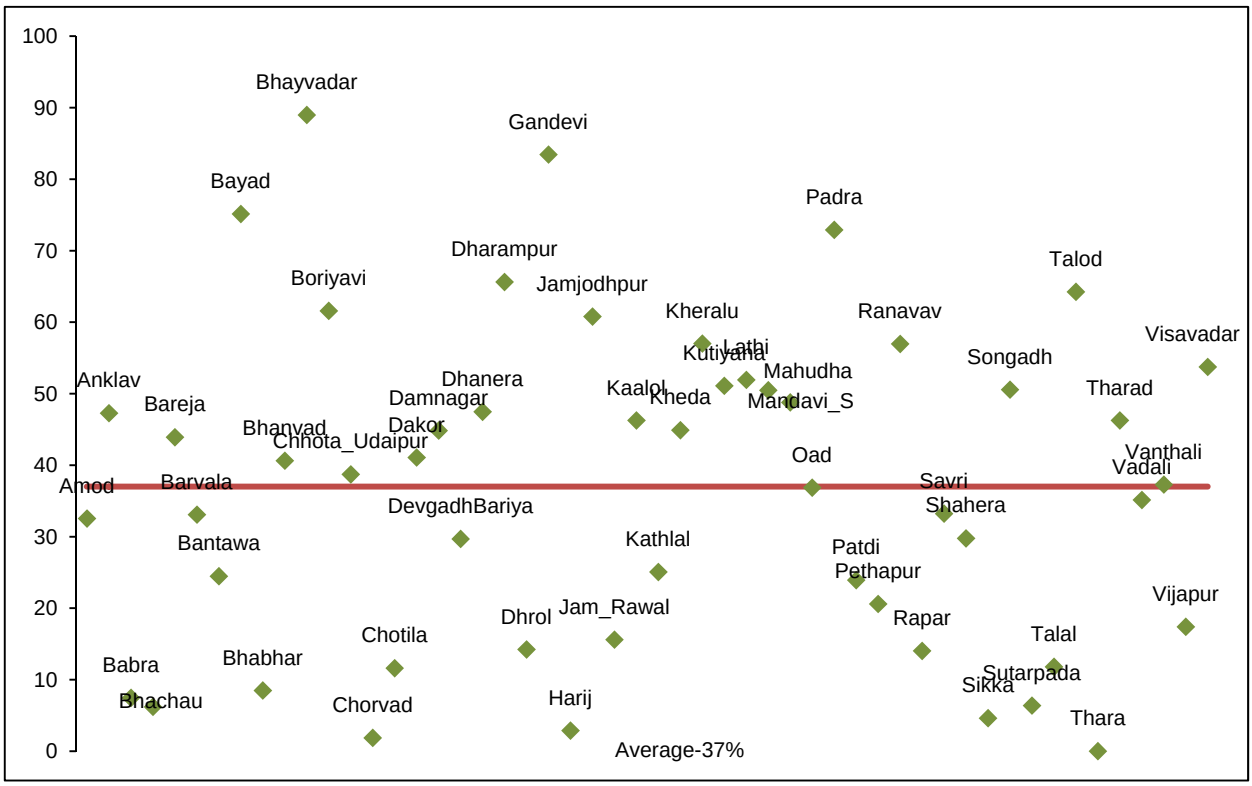
Fig 4.37: Efficiency in collection of SWM-related charges (%) - Class C ULBs



f. Class D cities

Class D ULBs have collect SWM-related charges ranging between 0 and 89%. Thara, Harij, Chorwad, Bhabar, Sikka, Rapar, Bhachau and Sutrapada ULBs have the lowest collection efficiencies. Talod, Bayad, Dharampur, Gandevi and Padra have good collection efficiencies ranging between 63% and 89%. 12 cities have not been included in this analysis due to data being not applicable and value being higher than 100%. (Refer below Fig 4.38)

Fig 4.38: Efficiency in collection of SWM-related charges (%) -Class D ULBs



4.5 Efficiency in service operation

Efficiency in service operation is analyzed through indicators pertaining to efficiency in redressal of customer complaints (%) and percentage of recruited staff to sanctioned staff (%).

4.5.1 Efficiency in redressal of customer complaints

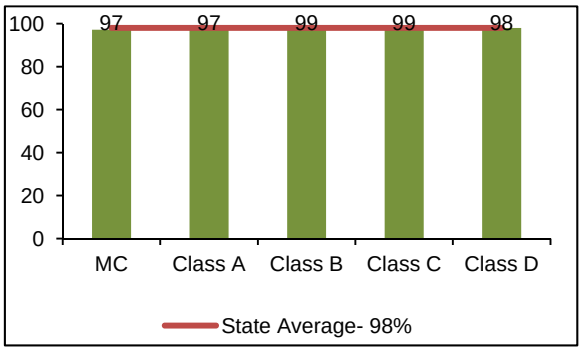
Efficiency in redressal of customer complaints is defined as the total number of SWM-related complaints redressed within 24 Hours of receipt of the complaint, as a percentage of the total number of SWM complaints received in the given time period.

a. State scenario

A majority of the ULBs have more than 80% of efficiency in complaint redressal. There is not much variation in the average value of complaint redressal across all the classes.

Fig 4.39 shows that state average for efficiency in redressal of customer complaints (98%) is higher to the service level benchmark (80%). Class B and C have a marginally high value of 99% redressal efficiency as compared to other classes of ULBs. 7 cities have not been included in this analysis due to data being either not available or not applicable.

Fig 4.39: Efficiency in redressal of customer complaints (%)-Gujarat state

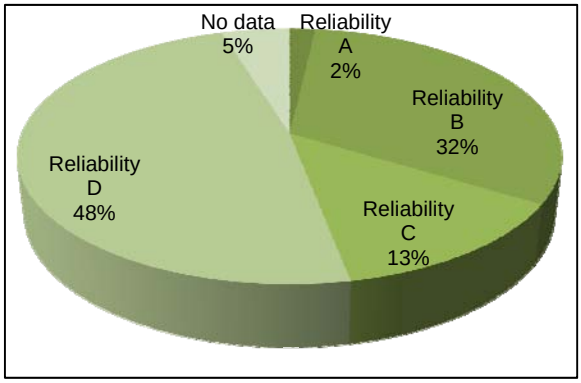


Reliability:

80 ULBs have a data Reliability D, which means that no records are maintained. 53 ULBs (32%) have a data Reliability B, which indicates manual records are maintained and complaints are segregated and collated from various means. 22 of the ULBs (13%) have Reliability C, which means that manual records are maintained without any segregation or collation of complaints.

5% ULBs have no data regarding complaint redressal. Rajkot, Navsari and Petlad have data Reliability A, since they have computerized records for complaints; complaints also get segregated and are collated from various means. *(Refer Fig 4.40)*

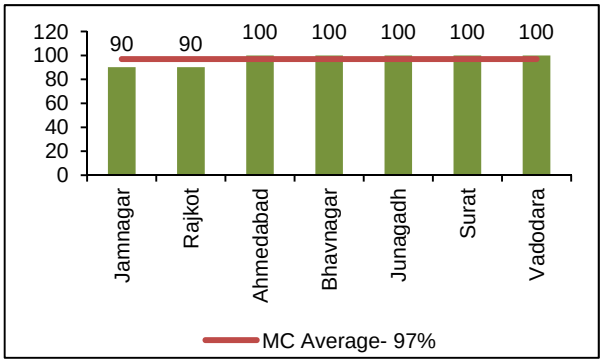
Fig 4.40: Reliability of data for efficiency in redressal of customer complaints (%)



b. Municipal corporation

Except Jamnagar (90%) and Rajkot (90%), all municipal corporations redress 100% of applications received. Data for all MCs, except Rajkot that has Reliability A, fall in Reliability C.

Fig 4.41: Efficiency in redressal of customer complaints (%) - Municipal corporation



c. Class A ULBs

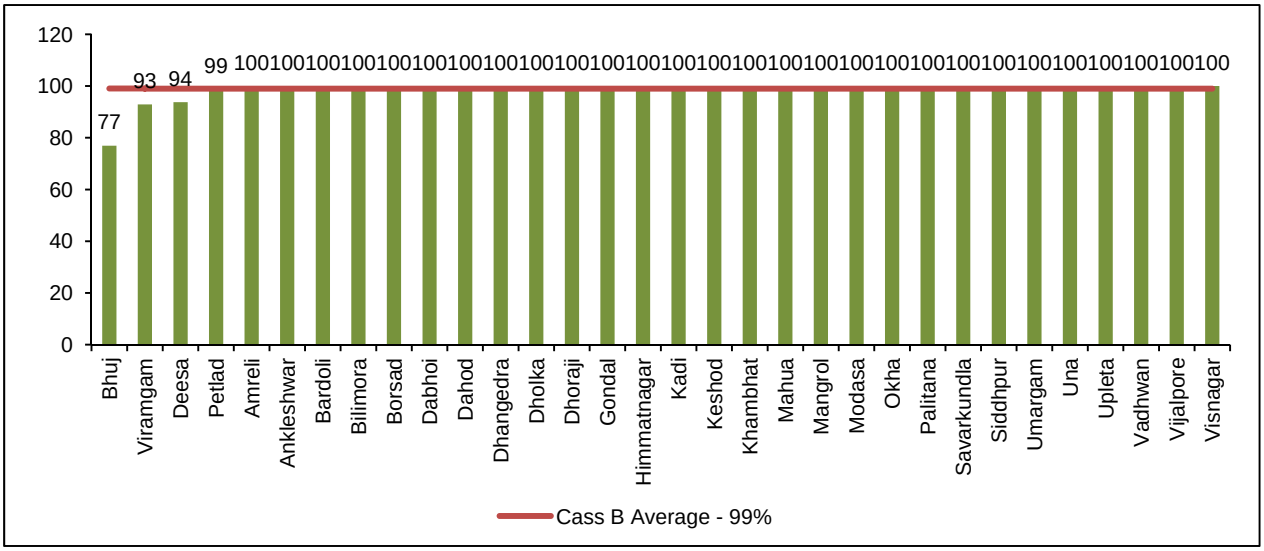
Among Class A ULBs, 14 out of 18 have 100% efficiency in redressal of complaints. Data reliability of Veraval, Patan and Valsad is B, while that for Surendranagar and Godhra is C; Anand, Botad, Jetpur, Kalol, Nadiad, Palanpur and Porbandar have data Reliability D.

Fig 4.42: Efficiency in redressal of customer complaints (%) - Class A ULBs

Navsari has a computerized system for maintaining records and hence has Reliability A. Gandhidham and Bharuch have the least efficiency of redressal of complaints at 78% and 88% respectively (Refer Fig 4.42).

d. Class B ULBs

Fig 4.43: Efficiency in redressal of customer complaints (%) - Class B ULBs



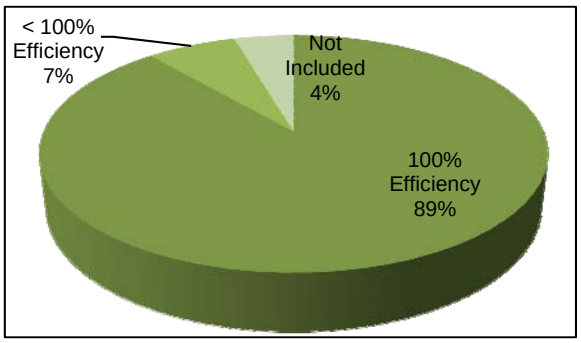
As illustrated in Fig 4.43, 28 ULBs report 100% efficiency in redressal of complaints, with most of the data reliability being B or D except Dhrangadhra that has Reliability C. Petlad has a 99% efficiency of complaint redressal with data Reliability A, which indicates the city has computerized system for complaint redressal.

e. Class C ULBs

39 cities (89%) of Class C have 100% efficiency in complaint redressal. Only 3 cities – Chhaya (97%), Mehmadabad (87%) and Rajula (80%) – report lower than 100% efficiency.

Data reliability in most of the cities is B or D. Kodinar and Kapadvanj have not been included in this analysis due to data not being applicable. *(Refer Fig 4.44)*

Fig 4.44: Efficiency in redressal of customer complaints (%)-Class C ULBs

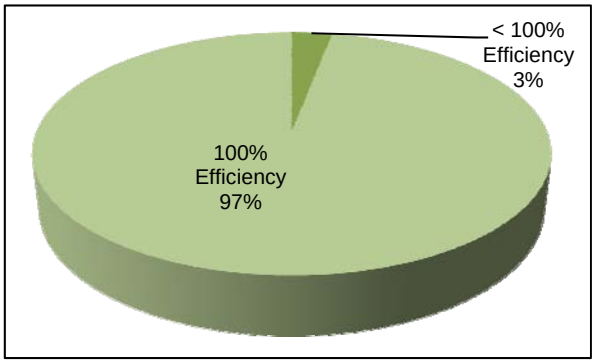


f. Class D ULBs

58 cities (97%) among Class D ULBs have 100% efficiency in redressal of customer complaints. Prantij has zero redressal of complaints, while Bhachau has 80% of complaints redressal.

Data of most of the cities fall under data Reliability B and D. Devgadh Bariya, Harij, Kheda and Talod have not been included in this analysis due to data not being available.

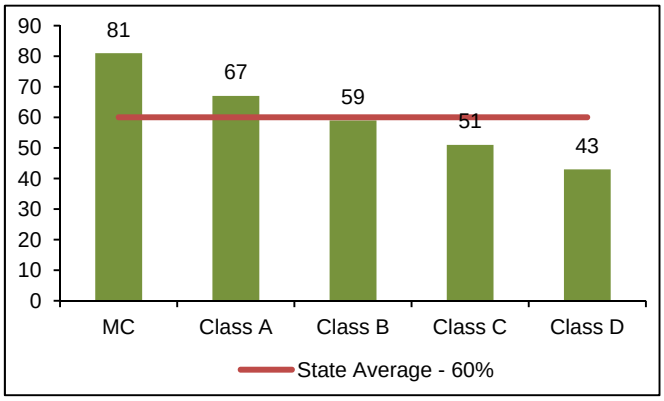
Fig 4.45: Efficiency in redressal of customer complaints (%)-Class D ULBs



4.5.2 Percentage of recruited staff to sanctioned staff (%)

Percentage of recruited staff to sanctioned staff (%) is defined as total number of recruited staff expressed as a percentage of total sanctioned staff for solid waste management operations.

Fig 4.46: Percentage of recruited staff to sanctioned staff (%) – Gujarat state



a. State scenario

Staff adequacy is an important determinant of the service levels and service quality to citizens. During visits to ULBs, a majority of them have cited lack of adequate and skilled human resources as a reason for low service levels. Many of the ULBs have filled positions by hiring staff on contractual/daily wage basis. However, as cited in section 4.2, many of the ULBs that have the lowest coverage, have adequate staff and what is required is improvement in staff management and monitoring. Although many ULBs have resorted to contracting out services in the SWM sector, there remain issues of efficient contract management.

Across classes of ULBs, municipal corporations have the most adequate staff, having recruited with 81% of the sanctioned staff (Refer Fig 4.46). For municipalities, the sanctioned staff is as per the GR No.1089/1122 R, dated: 22/01/2004 (which was revised on 01/06/2010 GR.No. 132010), the minimum staff for solid waste management is as follows:

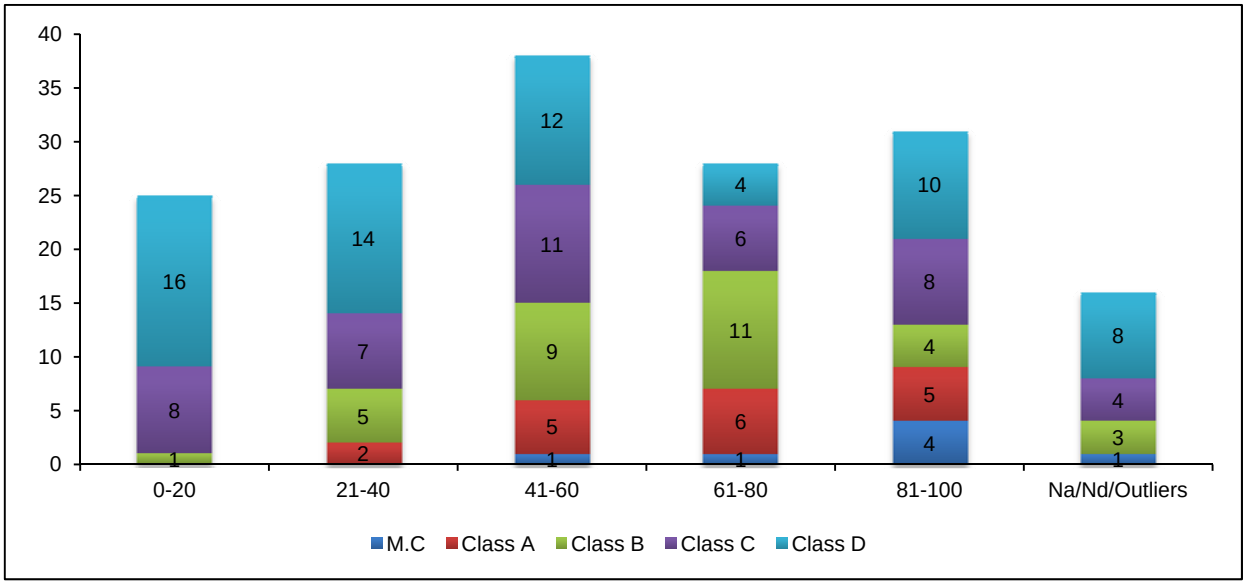
Sanitary inspectors 2 for class A & B and one for Class C & D. One supervisor per 20 sweepers for each class. 5 drivers in class A & B, 3 for class C and 2 for class D.

Class A has on an average 67% of sanctioned SWM staff recruited. Class D has the lowest percentage of staff recruited at 43%.

This, along with the fact that many of Class D ULBS have been recently formed, adds to their challenge of provision of services to its citizenry.

An analysis of 150 ULBs reveals that maximum ULBs have staff strength of 41-60% of what has been sanctioned. 12 ULBs have no dedicated staff recruited for SWM.

Fig 4.47: Range of value percentage of recruited staff to sanctioned staff (%)

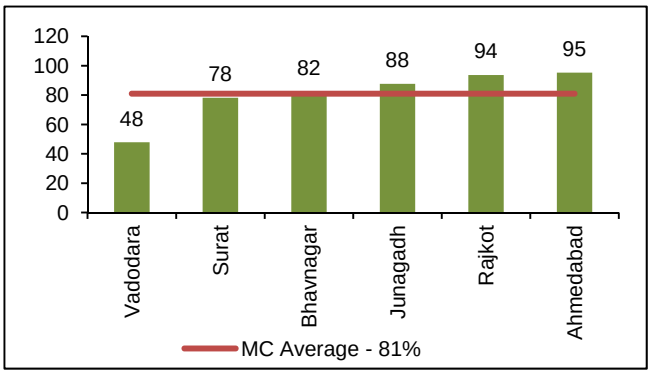


b. Municipal corporations

Vadodara (48%) and Surat (78%) have the least staff strength as compared to sanctioned strengths. However, both Vadodara and Surat have outsourced primary SW collection activities.

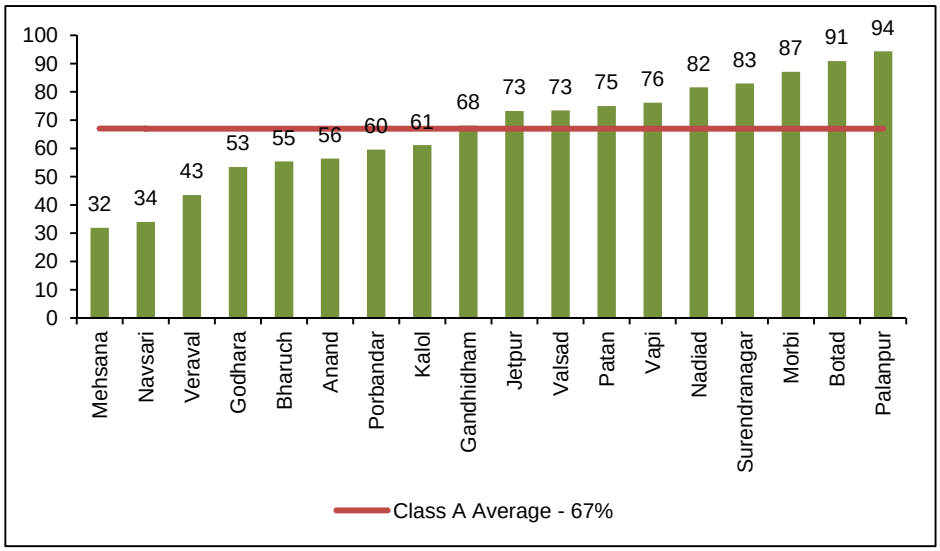
Ahmedabad (95%) has the highest value, followed by Rajkot (94%). Data reliability for ULBs is A. Jamnagar has not been included in this analysis due to non-availability of data. *(Refer Fig 4.48)*

Fig 4.48: Percentage of recruited staff to sanctioned staff (%)-Municipal corporation



c. Class A ULBs

Fig 4.49: Percentage of recruited staff to sanctioned staff (%) -Class A ULBs

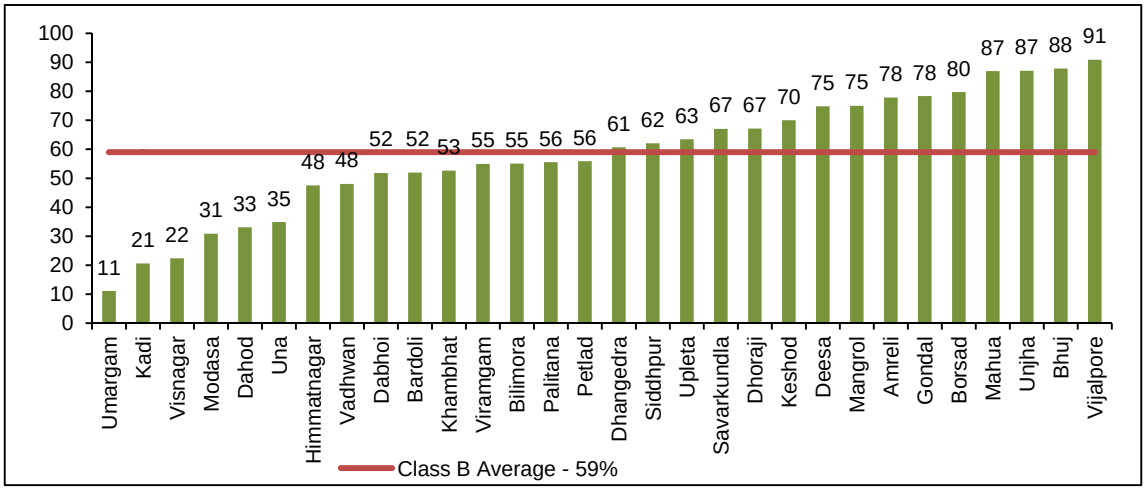


Among Class A cities, percentage of recruited staff to sanctioned staff ranges from 32% to 94 %. Botad (91%) and Palanpur (94%) have highest staff strengths. Despite this, the coverage of door-to-door collection services in Palanpur is a mere 32%. Mehsana (32%) and Navsari (34%) have least staff strengths. Navsari has outsourced primary collection and hence has coverage of 89%. Data reliability is A for all ULBs. 11 of the 18 ULBs have outsourced door-to-door collection to some extent

d. Class B ULBs

In Class B cities Mahua (87%), Unjha (87%), Bhuj (88%) and Vijalpore (91%) have the highest % of staff recruited to staff sanctioned. Bhuj has high staff strength and has also outsourced door to door collection to some extent, but still has a low coverage of 26%.

Fig 4.50: Percentage of recruited staff to sanctioned staff (%) - Class B ULBs

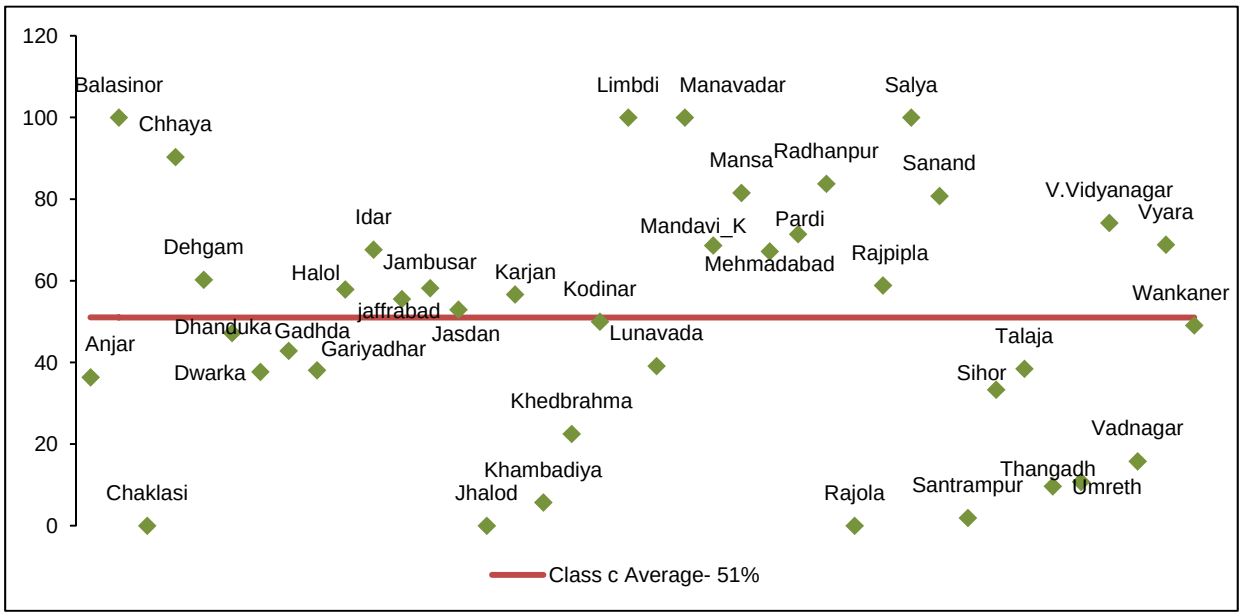


Umargam, Kadi and Visnagar have very low staff strengths at 11%, 21% and 22% respectively (*Refer Fig 4.50).*These ULBs have not outsourced door-to-door collection services and, even with low staff strengths, have coverage of services of more than 70% with Kadi having 100% coverage. Reliability for all the ULBs is A. Ankleshwar, Okha and Dholka have not been included in this analysis as data are not available.

e. Class C ULBs

Among Class C ULBs, Chaklasi, Jhalod and Rajula ULBs have no dedicated staff recruited for SWM while Santrampur has 2% of sanctioned staff recruited.

Fig 4.51: Percentage of recruited staff to sanctioned staff (%) - Class C ULBs

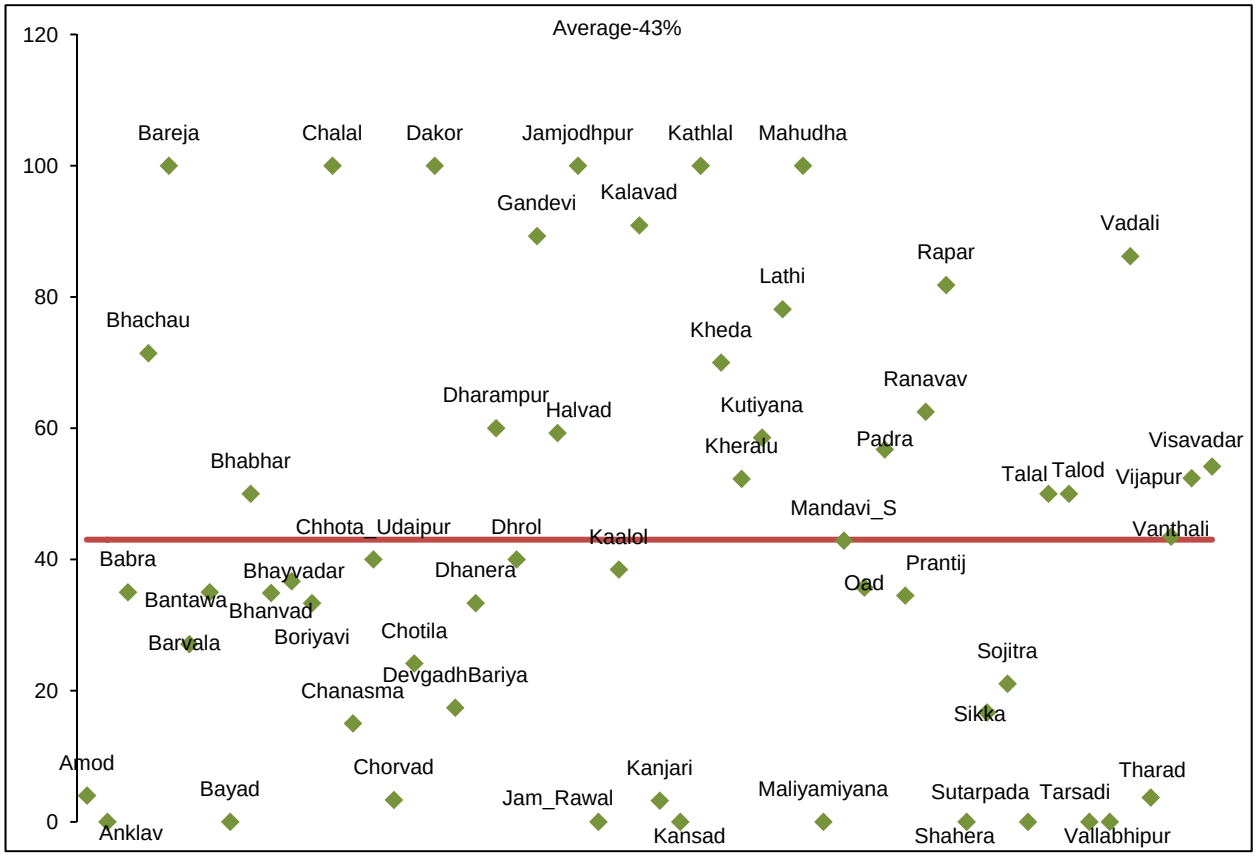


Balasinor, Limbdi, Manvadar and Salaya have 100% of the sanctioned staff recruited. Data reliability for all ULBs is A. Bagasra, Bavla, Kapadvanj and Karamsad have not been included in this analysis due to data not being available.

f. Class D ULBs

Bareja, Chalala, Dakor, Jamjodhpur, Kathlal, and Mahudha municipalities have 100% of the sanctioned staff recruited, while Anklav, Bayad, Jamraval, Kansad, Maliya Miyana, Shahera, Sutrapada, Tarsadi and Tharad do not have any dedicated SWM staff. Damnagar, Harij and Thara ULBs have not been included in this analysis due to data not being available. Also, Patdi, Pethapur, Savri, Songadh and Thasra have not been included due to no records on sanctioned staff. These ULBs were formed in year 2005 and have same gram panchayat staff which was continuing since its inception and there has been no change in it.

Fig 4.52: Percentage of recruited staff to sanctioned staff (%) - Class D ULBs



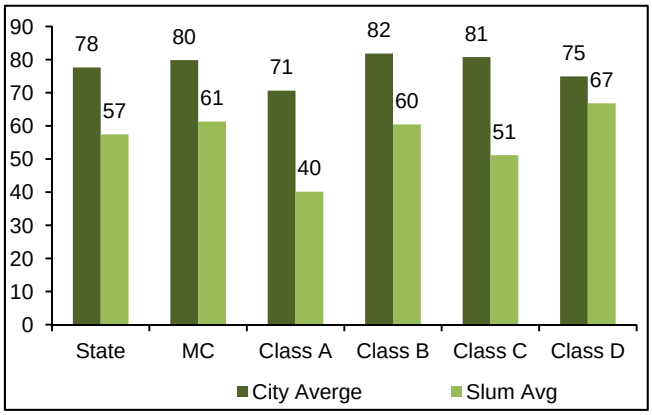
4.6 Equity in service delivery

Equity in service delivery includes spatial variations in HH-level coverage of SWM services (%) and HH-level coverage of SWM services in 'slum settlements'.

4.6.1 Spatial variations in HH-level coverage of SWM service

Spatial variations in HH-level coverage of SWM service is defined as (standard deviation divided by mean) zonal values for "Percentage of households covered by daily door-step collection system to total number of households". There is no data availability for spatial variations in HH-level coverage of SWM services (%) across any city and hence the indicator has not been considered for analysis.

Fig 4.53: HH-level coverage of SWM services (%) - Gujarat state



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

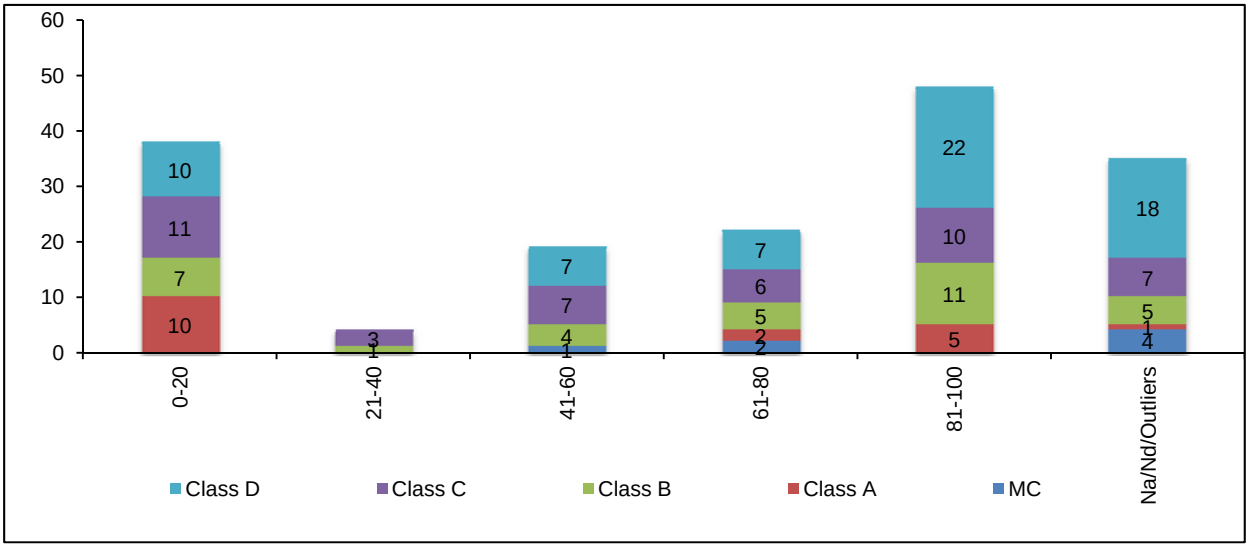
HH-level coverage of SWM services in 'slum settlements' is defined as percentage of households that are covered by daily doorstep collection system to the total number of households in the slum settlements.

a. State scenario

57% of the slum households are covered by a door-to-door solid waste collection system as compared to 78% at the city level. The maximum difference between service provision at city-wide level and for slums is in Class A cities.

The minimum difference is in Class D ULBs. *(Refer Fig 4.53).*However, *analysis across* 131 ULBs reveals that maximum ULBs (48) cover 81-100% of their slum households. 38 ULBs only cover 0-20% of the slum households.

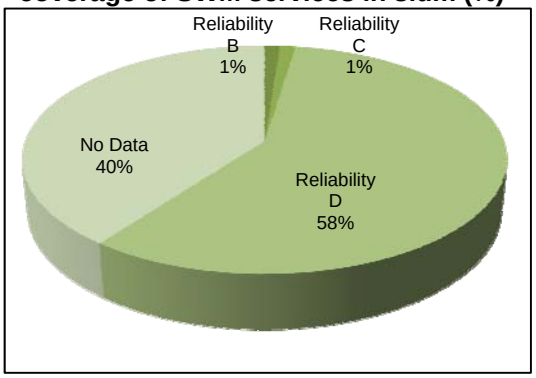
Fig 4.54: Range of value of HH-level coverage in slum (%)



Reliability:

Data from 2 ULBs are of reliability B and C. Valsad and Chaklasi have data of Reliability B which indicates data based on recent surveys and Ahmedabad and Bhachau ULBs have data of Reliability C, since they maintain households and collection details. 96 ULBs have data Reliability D. No records are maintained. *(Refer Fig 4.55)*

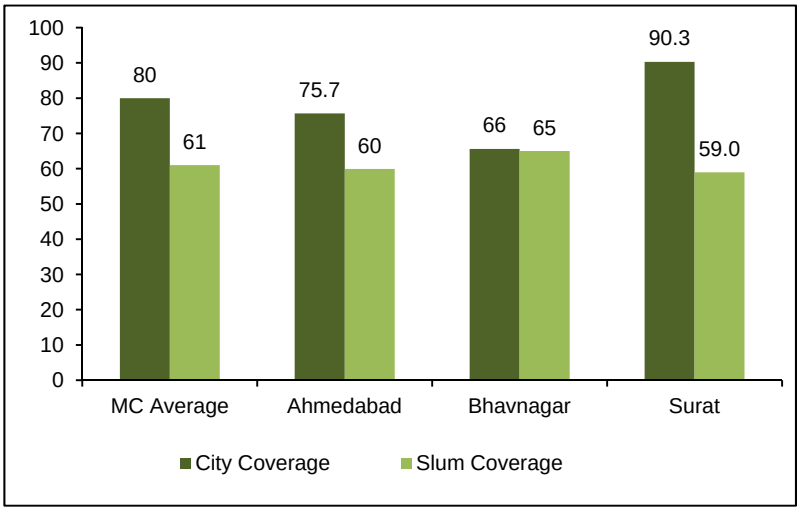
Fig 4.55: Reliability of data- HH-Level coverage of SWM services in slum (%)



b. Municipal corporation

Municipal Corporation of Bhavnagar has the highest equitable distribution of services. The reliability of data is D for both city and slum coverage; while Surat MC having most inequitable distribution of service has a data reliability of C and D for city and slum coverage respectively. Data from Jamnagar, Junagadh, Rajkot, Vadodara MCs have not been included in this analysis due to data not being for slum coverage.

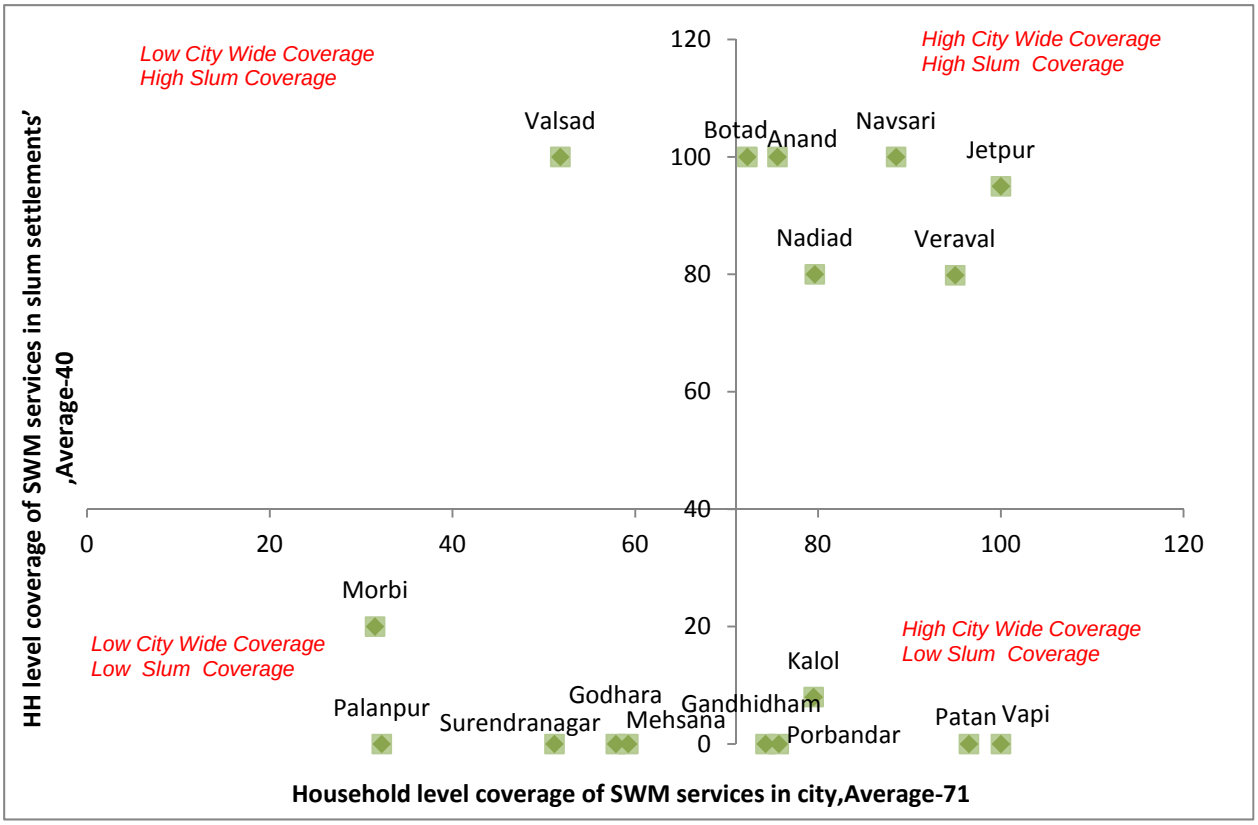
Fig 4.56: HH-level coverage of SWM services (%) -Municipal corporation



c. Class A ULBs

Kalol, Porbandar, Gandhidham, Patan and Vapi municipalities have low coverage of door-to-door collection in slums but a high coverage at the city level. Except Kalol, other 4 ULBs have coverage of more than 74% at city level but cover zero slum households.

Fig 4.57: HH-level coverage of SWM services (%) - Class A ULBs



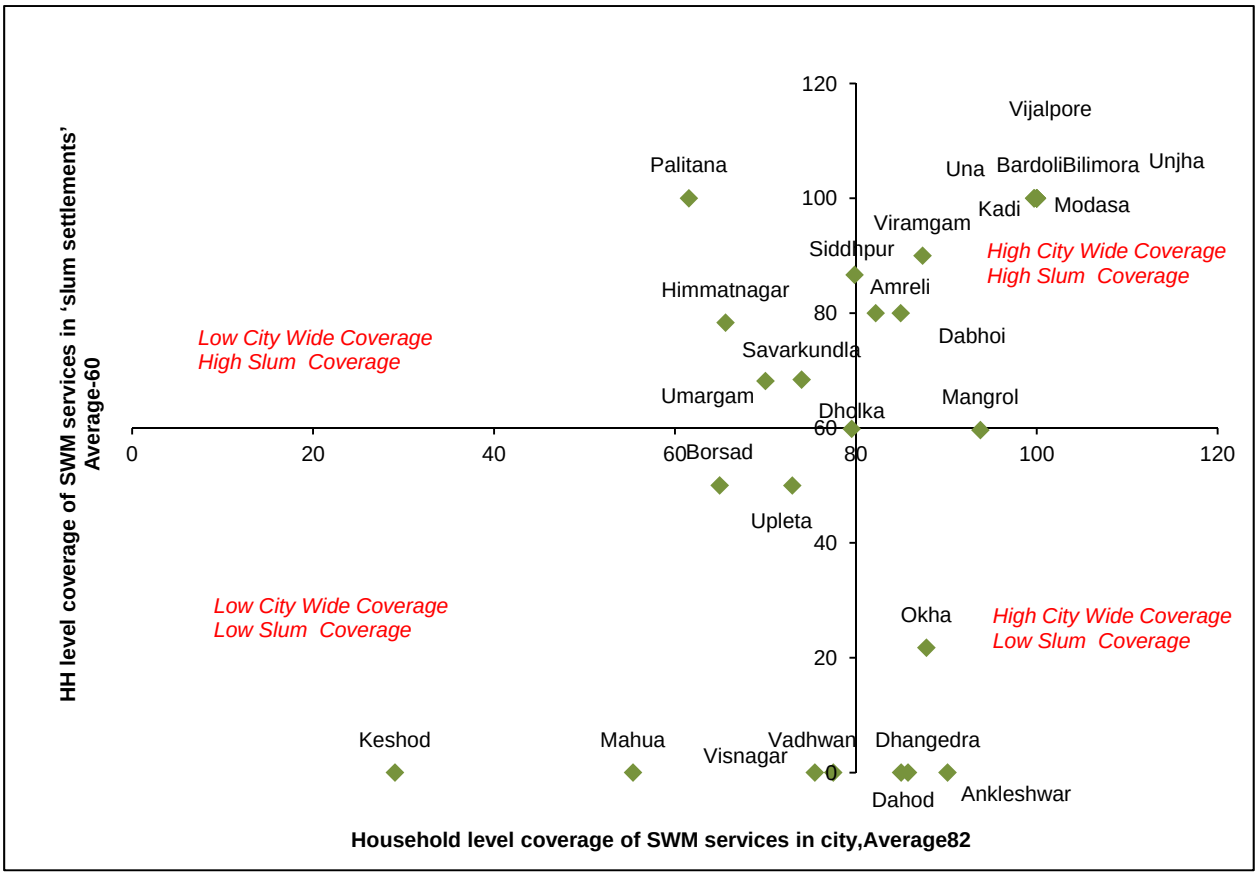
Kalol covers a mere 8% of slum households by door-to-door collection service and also has a low coverage of water supply connections in slums. This indicates a need for undertaking interventions in improving all services to slums in Kalol.

Valsad municipality covers 100% of slum households but the coverage at household level is only 52%. Jetpur, Anand, Navsari, Veraval and Botad have the most equitable distribution of services with Jetpur having a city-wide coverage of 100% and 85% in slums. Bharuch has not been included in this analysis since data was not available (Refer Fig 4.57).

d. Class B ULBs

Among Class B ULBs, Vijalpore, Unjha, Una, Modasa, Kadi, Bilimora and Bardoli municipalities cover 100% of the city as well as 100% of the slum households by door-to-door collection. The data reliability band is D for both the coverage.

Fig 4.58: HH-level coverage of SWM services (%) -Class B ULBs



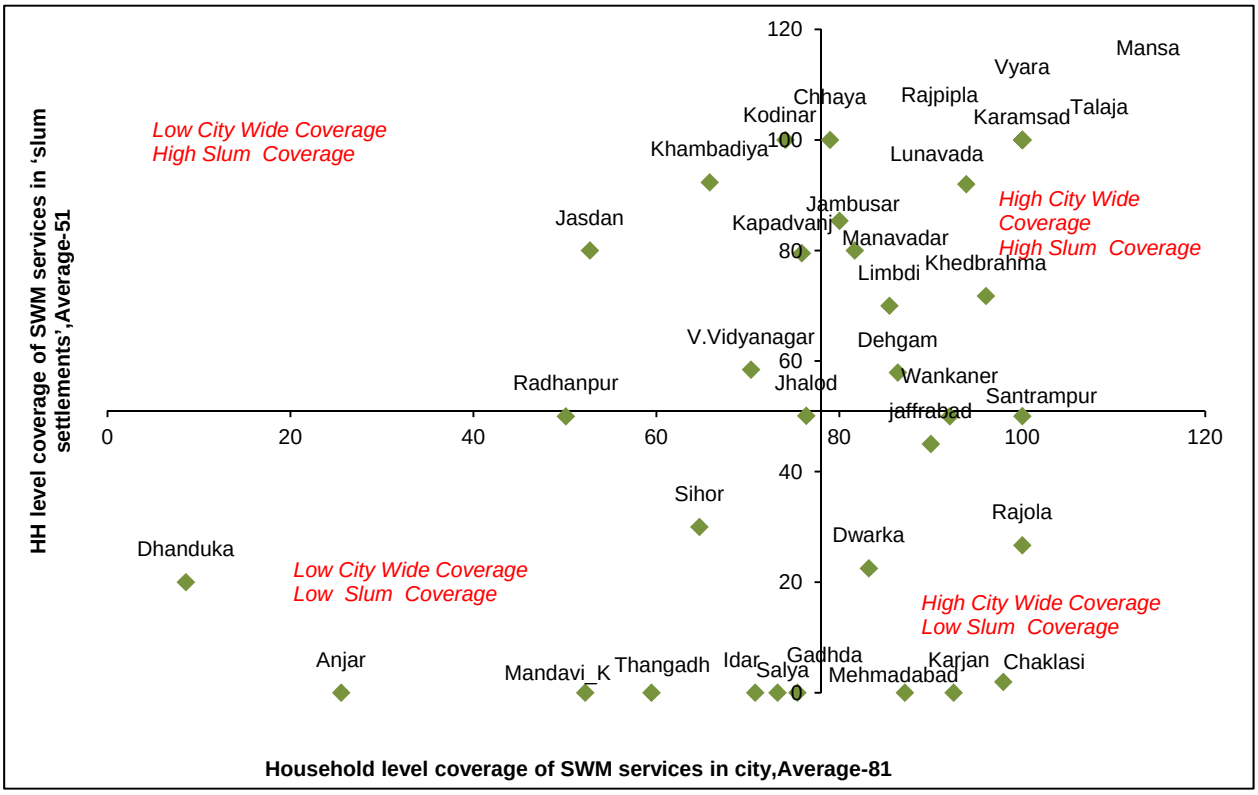
Ankleshwar, Dahod, Dhrangadhra and Okha have a high city-wide coverage but a low slum household coverage. Okha has coverage of 88% at city level but covers only 22% of the slum households. The other 3 ULBs have a high coverage ranging from 85-90%, but do not provide services to a single slum household.

Palitana, Himmatnagar, Savarkundla and Umargam also show inequitable distribution of services with high coverage in slums but a low coverage at city level. Bhuj, Dessa, Dhoraji, Gondal and Khambhat have not been included in this analysis due to non-availability of data for slum coverage.

e. Class C ULBs

Among Class C ULBs, Karjan, Mehmadabad, Chaklasi, Dwarka, Rajula and Jaffrabad municipalities have inequitable distribution with high coverage of service at the city level but a low coverage in slums. Karjan and Mehmdabad municipalities have zero service coverage in slums while Chaklasi has 2% coverage. Rajula has 100% coverage at city level but has 27% coverage in slums.

Fig 4.59: HH-level coverage of SWM services (%) -Class C ULBs

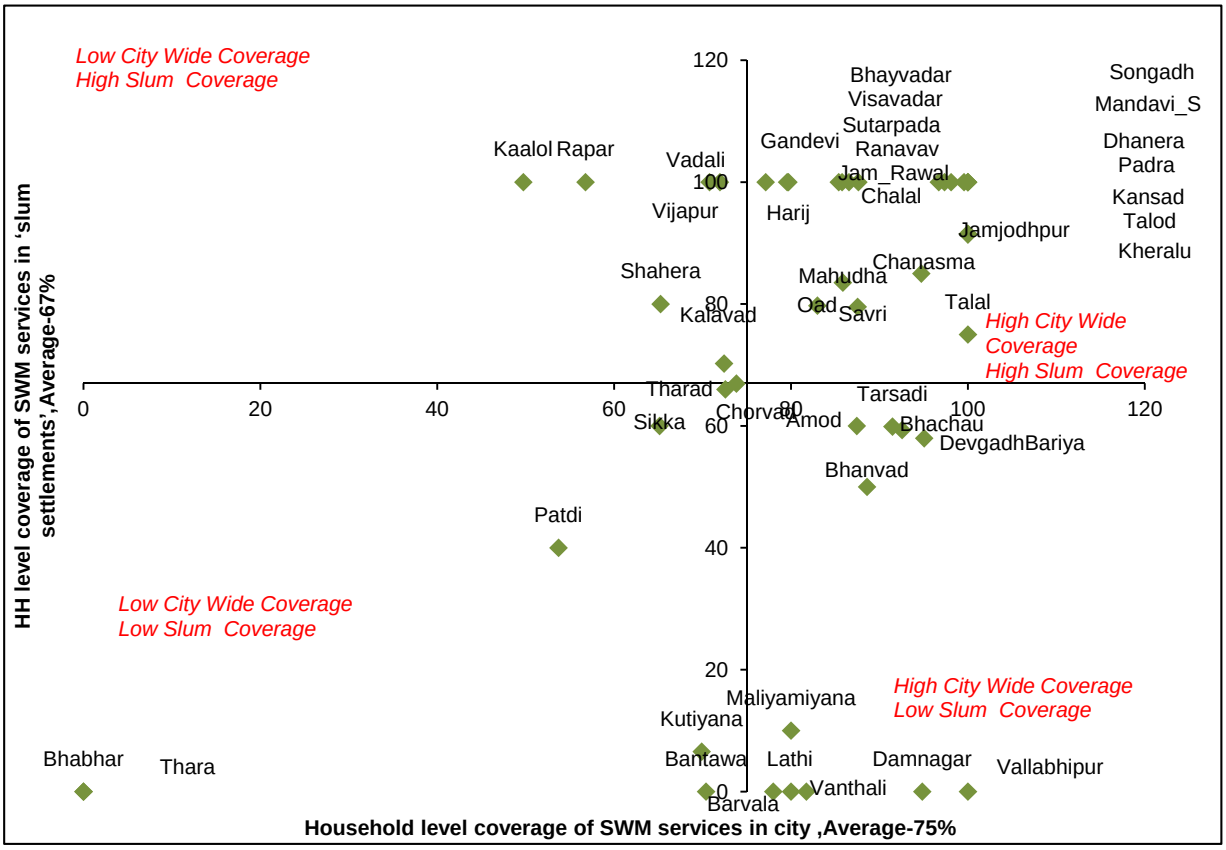


V.Vidyanagar, Jasdan, Kapadvanj, Khambadia and Kodinar municipalities have more slum coverage than city coverage. Karamsad, Mansa, Rajpipla, Talaja and Vyara have 100% coverage of SWM service in city as well as in slum settlements with data Reliability D for both city and slum coverage (except Mansa that has data Reliability B for city coverage). Balasinor, Gariyadhar, Halol, Pardi and Umreth cities have not been included in this analysis due to data non-availability. Bagasra has reported zero slum households in the city and hence has not been included while Sanand and Bavla data are higher than 100% and could also not be included.

f. Class D ULBs

Household-level coverage of services at city level is significantly higher than coverage in slums in ULBs of Barvala, Damnagar, Lathi, Vallabhipur, Maliya Miyana, Bhanvad, Devgadh Bariya, Bhachau, Amod, Tarsadi and Vanthali.

Fig 4.60: HH-level coverage of SWM services (%) -Class D ULBs



Barwala, Damnagar, Lathi, Vallabhipur and Vanthali having HH coverage ranging from 80-100% at city level provide no coverage to slums. Dhanera, Mandavi, Padra and Songadh ULBs have 100% coverage in both city and slums with data Reliability D for slum and city coverage (except Padra that has Reliability B for city coverage). Kaalol, Rapar, Vadali, Sahera and Kalavad have better coverage in slums as compared to city level. 18 cities have not been included in this analysis as data are either not available or not applicable.

Chapter 5: Storm Water Management

5.1 Coverage of storm water drainage network

Coverage of storm water drainage is defined in terms of the percentage of road length covered by the storm water drainage network.

a. State level Scenario

The state level coverage for water drainage network is 31%. The data is available from only half the ULBs across the state (refer Table 5.1). The coverage is least across Class B and C cities at 22% and 26% respectively. A quarter of the cities have less than 7% coverage. However, a few cities (mostly Class D) report more than 100% coverage including Halvad, Jetpur, Bagasara, Morbi, Vallabhipur, Kheda and Lunawada.

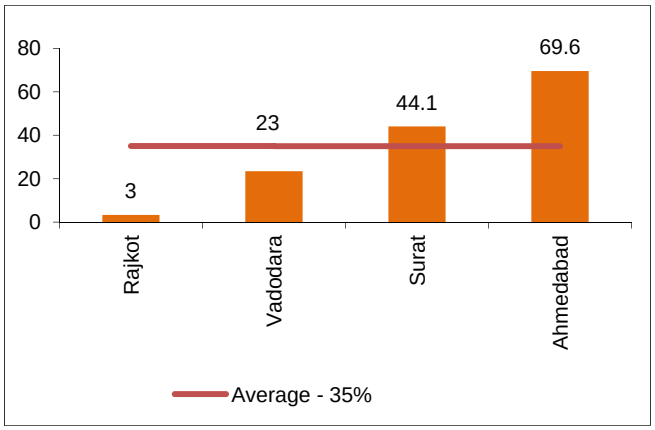
Table 5.1: No. of ULBs with storm water drainage network

	Total number of ULBs	Number of ULBs with available data	Average (%)
MC	7	4 (57%)	35
Class A	18	14 (78%)	37
Class B	33	19 (58%)	22
Class C	44	22 (50%)	26
Class D	64	22 (34%)	40
Total	166	81 (49%)	31

b. Municipal Corporations

Data from 4 ULBs is available for analysis. Ahmedabad reports the best coverage of storm water network at 69.6% followed by Surat at 44%. Vadodara reports coverage of 23% and Rajkot only has 3% coverage. The overall average coverage is 35%. With financial assistance of the JnNURM project, Ahmedabad Municipal Corporation has initiated laying of storm water drains for the entire city including newly merged area at the cost of Rs. 101 crore. Surat Municipal Corporation has undertaken a ground level survey to identify the length of drains vis-à-vis the road length. The survey helped the city identify and verify the length of pucca and covered drains.

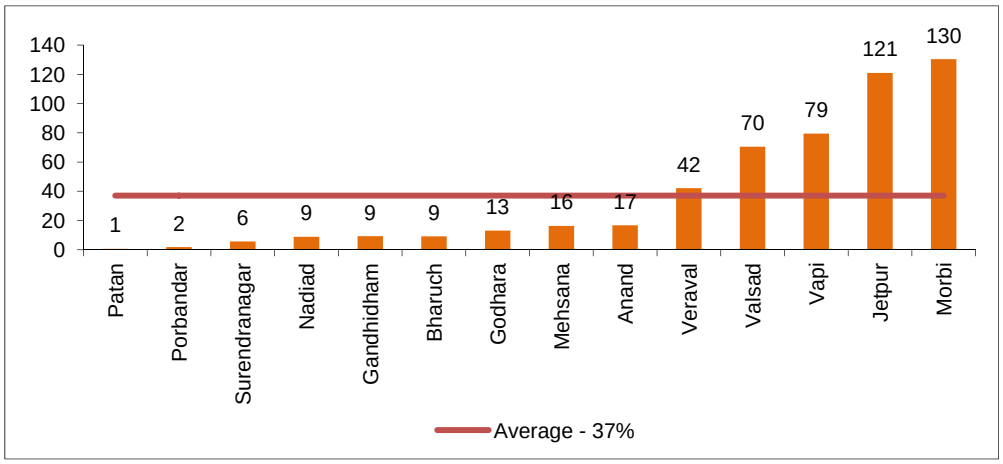
Fig 5.1: Coverage of storm water drainage (%) – Municipal corporations



c. Class A ULBs

The overall average from Class A cities is 37%. Patan and Porbandar have negligible coverage (~1%); whereas, Jetpur and Morbi report highest coverage at 121% and 130% respectively. This represents the wide variability of coverage across Class A cities. Data from Botad, Kalol, Navsari and Palanpur is not included in the analysis as they report unreliable data. ULBs also have natural drains (*Kaans*) to cater to storm water.

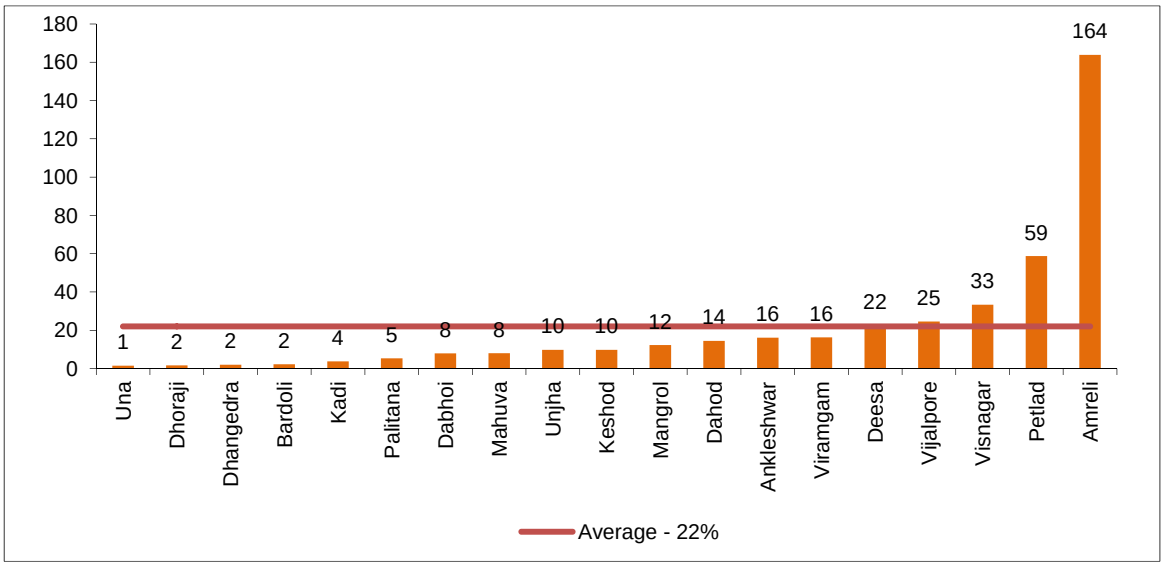
Fig 5.2: Coverage of storm water drainage (%) – Class A ULBs



d. Class B ULBs

10 ULBs report less than 10% coverage of storm water drainage network. Data from 22 ULBs is available for analysis. Class B has the least coverage across all classes of cities. Amreli reports a 164% coverage which inflates the average of Class B cities to 22% and its exclusion would reduce the average to only 14%. Petlad reports the next highest coverage at 59%.

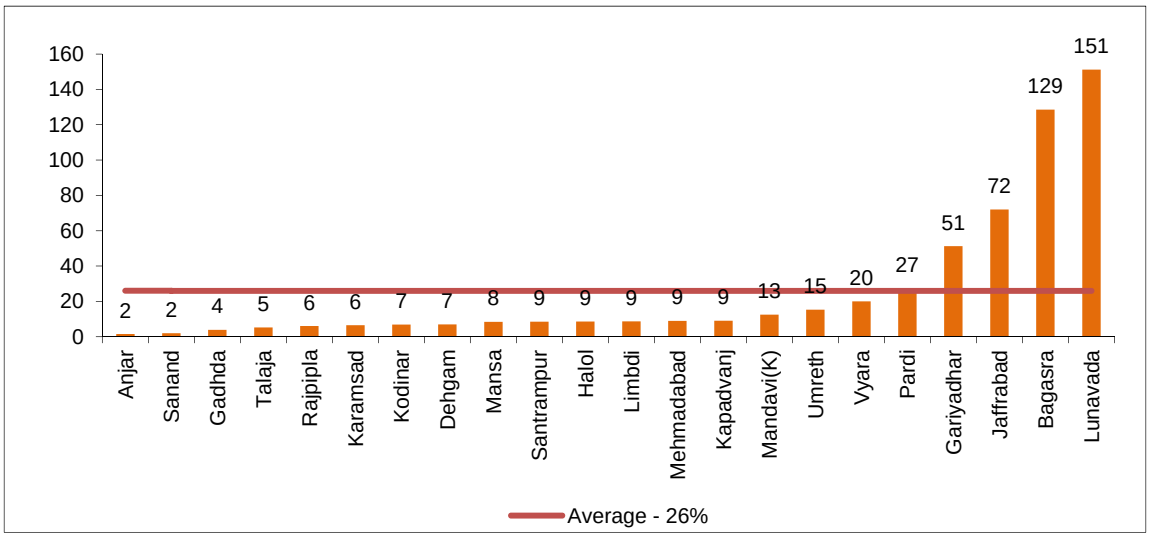
Fig 5.3: Coverage of storm water drainage (%) – Class B ULBs



e. Class C ULBs

Data from half the ULBs is available for analysis. The average across Class C cities is 26%. Gariyadhar, Jaffrabad, Bagasra and Lunavada are the ULBs with good coverage (50-151%). Else half the cities with data have less than 9% coverage of storm water drainage.

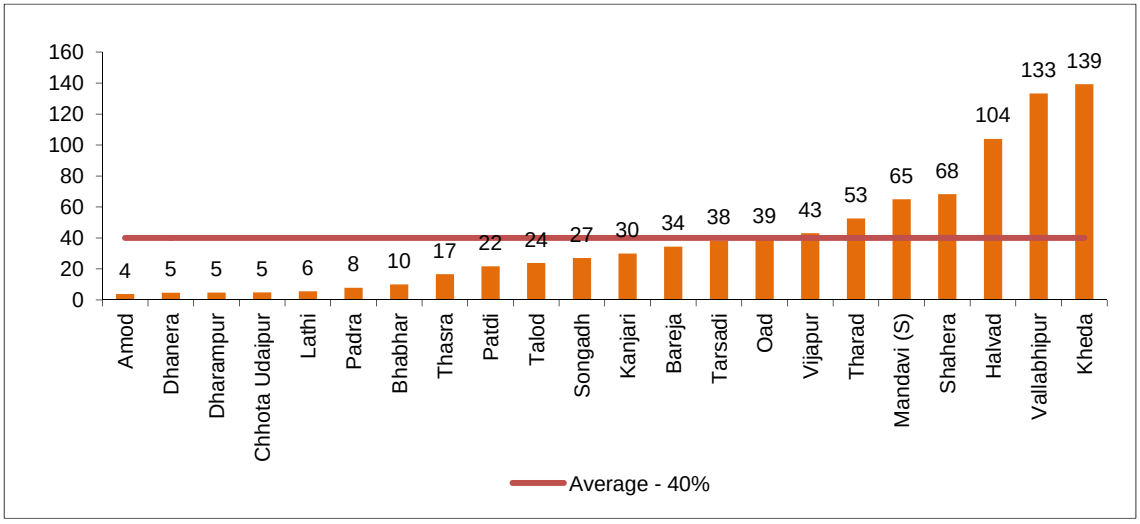
Fig 5.4: Coverage of storm water drainage (%) – Class C ULBs



f. Class D ULBs

Data from only 22 ULBs (34%) is available for analysis. The overall average of coverage across Class D cities is better than other classes at 40%. A quarter of the cities have at least 50% coverage. Kheda, Vallabhipur and Halvad report >100% coverage.

Fig 5.5: Coverage of storm water drainage (%) – Class D ULBs



5.2 Incidence of water logging/flooding

This is defined as the number of times water logging is reported in a year, at flood prone points within the city. Flood prone points within the city are locations that experience water logging at key road intersections, or along a road length of 50 m or more, or in a locality affecting 50 households or more.

a. State level scenario

The SLB benchmark for the incidence of water logging/flooding is 0. Data from only 70 ULBs is available for analysis. Data from all classes of cities report less incidence except MCs where the problem of water logging/flooding is extremely high. The Fig 5.6 shows that 25 cities with reported data have at least 1 incidence and 19 cities have 2 incidence of water logging followed by 9 cities with 3 and 4 incidences each. Morbi and Dhanera have reported 12 incidences. Municipal corporations including Ahmedabad and Surat have reported more than 200 incidences of water logging. The overall reliability of data is D.

This is one area where cities need to improve their reliability of data. Reliability A indicates that flood prone points should be first identified based on reports/ complaints filed by citizens, or by direct observations, and reported into a central control room. Monitoring stations (in charge of specific jurisdictions) should regularly monitor instances of flooding in the respective wards/zones, as mentioned above. Data should be captured by time, date, location and extent of flooding.

Fig 5.6: Incidence of water logging/flooding in ULBs (Numbers)

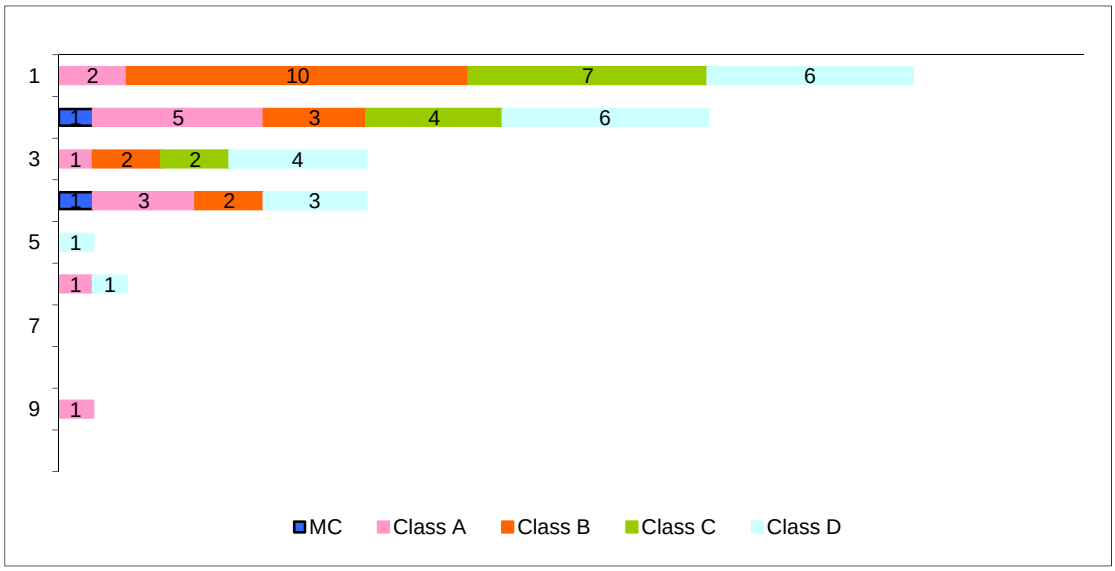


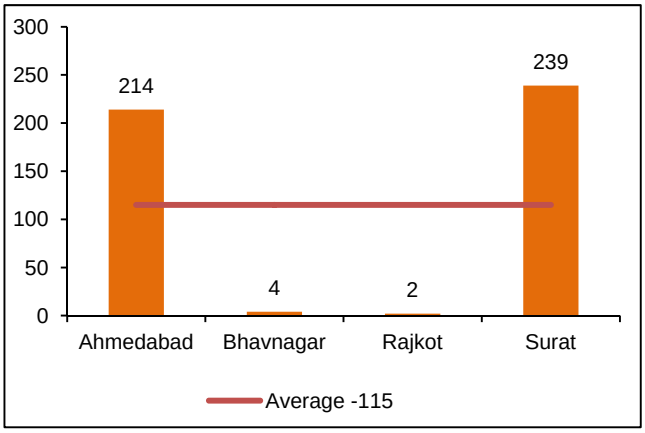
Table 5.2: Number of ULBs with Incidence of water logging/flooding

	Total number of ULBs	Number of ULBs with available data	Average (%)
MC	7	4 (57%)	115
Class A	18	14 (77%)	4
Class B	33	17 (53%)	2
Class C	44	13 (30%)	2
Class D	64	22 (34%)	3
Total	166	70 (42%)	9

b. Municipal Corporations

Ahmedabad reported 214 incidences and Surat 239 incidences of water logging and flooding. Bhavnagar has reported 4 and Rajkot has reported 2 incidences in a year. (Refer Fig 5.7).

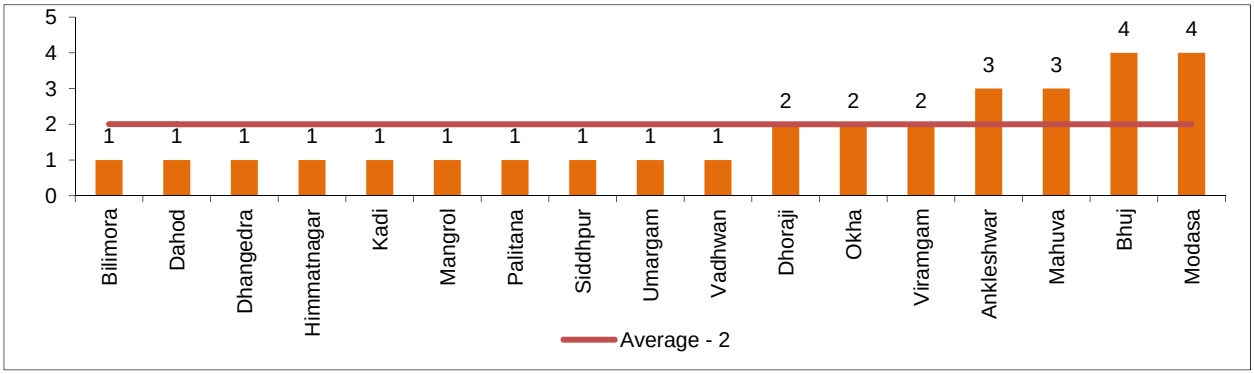
Fig 5.7: Incidence of water logging/flooding (Numbers): Municipal corporations



c. Class A Cities

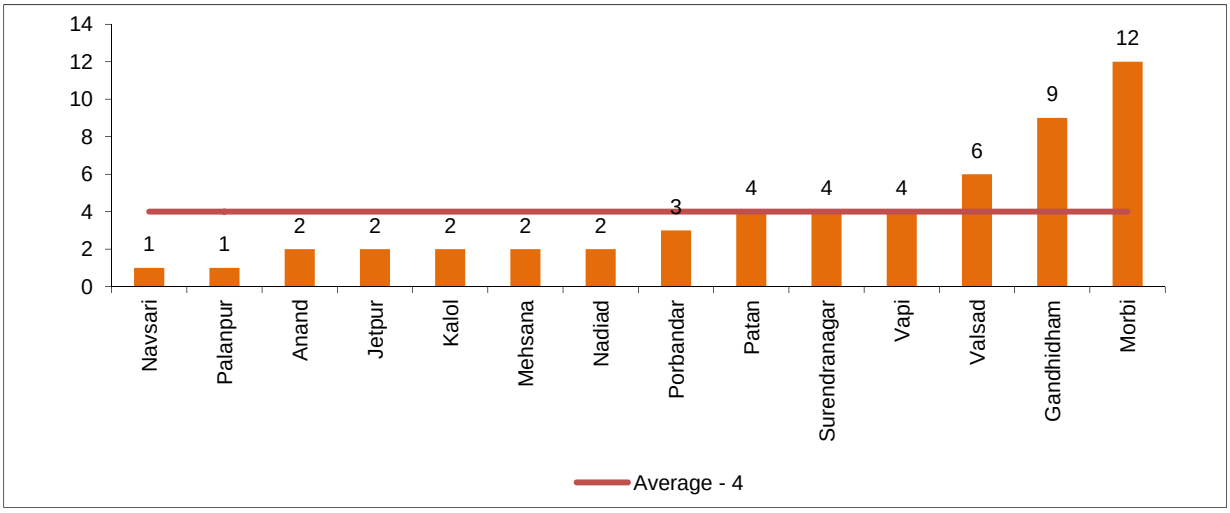
The overall average of incidence of water logging/flooding across Class A cities is 4. Navsari and Palanpur report the lowest incidence at 1; whereas Valsad (6), Gandhinagar (9) and Morbi (12) report the highest incidence.

Fig 5.8: Incidence of water logging/flooding (Numbers): Class A ULBs



d. Class B Cities

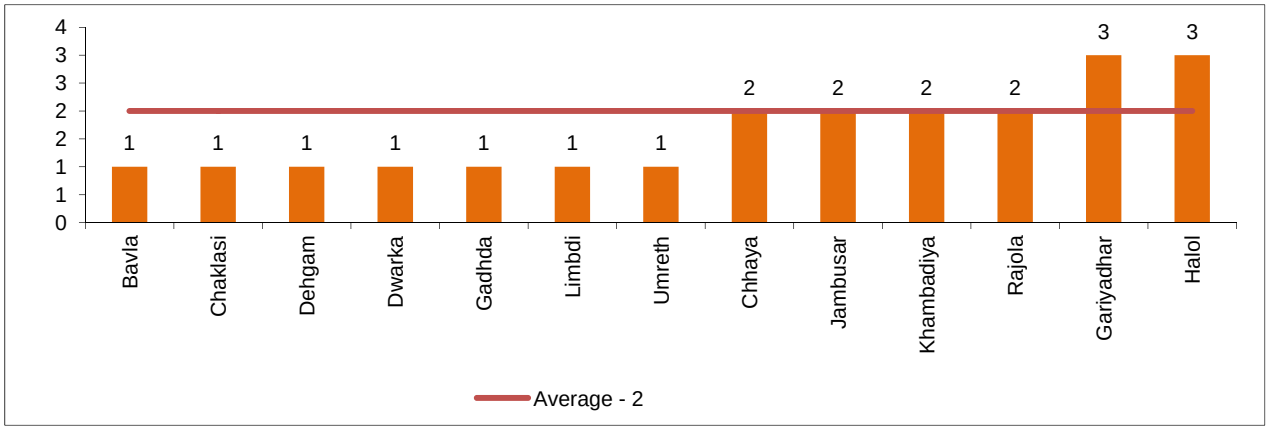
Fig 5.9: Incidence of water logging/flooding (Numbers): Class B ULBs



Data from 16 ULBs was not available for analysis and hence was not included. The overall average across Class B ULBs is 2% which is lower than other classes of cities. The incidence ranges from 1% (in 10ULBs) to 4% (in Bhuj and Modasa).

Class C Cities

Fig 5.10: Incidence of water logging/flooding (Numbers): Class C ULBs

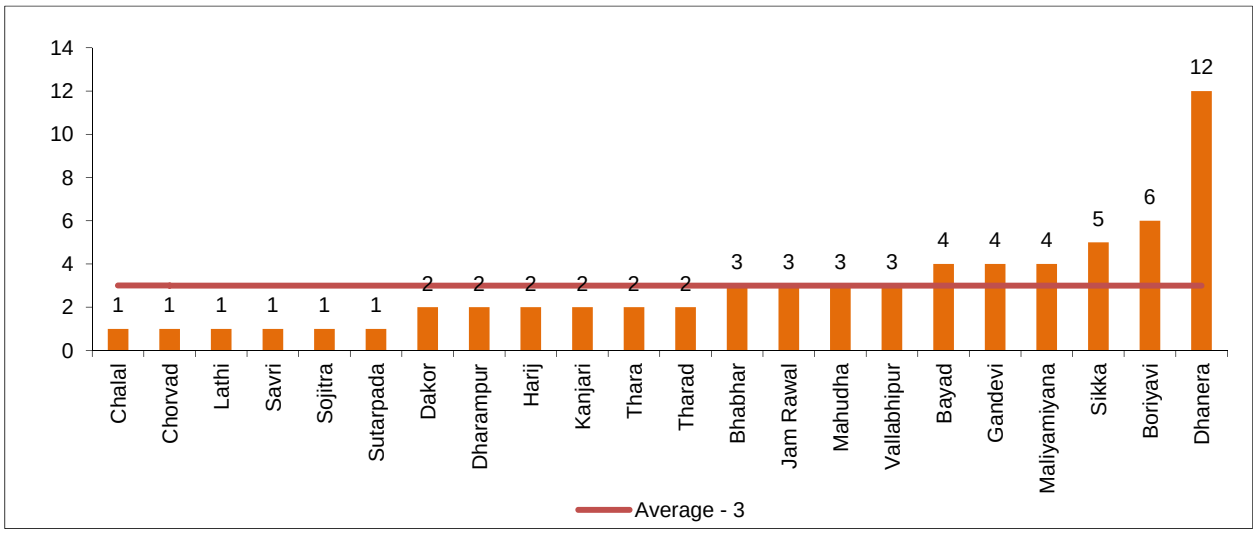


Data from only 13 ULBs is available for analysis. The overall average across Class C Cities is 2. The highest incidence is reported at Gariyadhar and Halol at 3%. Other cities have less than 2 incidences.

e. Class D Cities

Data from only 22 ULBs is available for analysis. The overall incidence of water logging/flooding average is 3 for incidence across Class D cities. The data ranges from 1 for Chalal, Chorvada, Lathi, Savri, Sojitra and Sutrapada to 6 for Boriyavi and 12 for Dhanera as illustrated in Fig 5.11.

Fig 5.11: Incidence of water logging/flooding (Numbers): Class D ULBs



Annexures

Performance Assessment System for UWSS

Date:

Name of ULB

Name of District

IV.Water Quality

1 For Surface & Ground sources : Residual Chlorine, Bacteriological and TDS tests

Sample location	Residual Chlorine tests		Bacteriological tests		TDS tests	
	No of tests conducted per year	No of tests that met the standards per year	No of tests conducted per year	No of tests that met the standards per year	No of tests conducted per year	No of tests that met the standards per year
At the outlet of WTP/ bore wells						
At intermediate (ESR) points						
At consumer end						
Total	0	0	0	0	0	0
Source of Information:						

2 For Ground Sources:Flouride testing

Sample location	Fluoride tests	
	No of tests conducted per year	No of tests that met the standards per year
At source		
At consumer end		
Total	0	0
Source of Information:		

2.1	**Average values of TDS at city level (ppm)**	
2.2	**Average value of Flouride at city level (ppm)**	
2.3	**Are chemical tests conducted by the ULB? (Y/N)**	
2.4	**If Yes, Give details on parameters that were tested and period of tests conducted**	

3 Information recording system for water quality

3.1	**Are records of tests conducted maintained by the ULB? (Y/N)**	
3.2	**If Yes, are records of tests computerised? (Y/N)**	
3.3	**If Yes, are computerised records linked to GIS database? (Y/N)**	
3.4	**Is sampling regimen for tests at consumer end well documented and practiced? (Y/N)**	
3.5	**Are audits for water quality conducted?(1/2/3/4)***	

** 1: Independent and regular audits, 2: Independent but occasional/ Ad-hoc audit, 3: Periodic internal audit, 4: No audits conducted*

Respondent Name:

Contact Details:

Page no: 7/20

Enumerator Name: 0

Performance Assessment System for UWSS

Date:

Name of ULB

Name of District

V. Sanitation, Waste Water & Storm Water Drainage - a

1	**Existing system for collection of sewage and sewerage connections: ULB Level**		
1.1	**Does the ULB have piped sewerage system?(Y/N)**		
	If No, Go to QN 2		
1.2	**If Yes, type of piped sewerage system (1,2,3)[1]**		
	[1] *1: underground, 2: piped on-ground, 3: underground combined sewerage and SWD*		
1.3	**Length of piped sewerage network (Km)**		
1.4	**Total area covered with piped sewerage network (sq.km)**		
2	**Existing system for collection of sullage water: ULB Level**		
2.1	**Are there open drains for collection of sullage in areas without piped sewerage system? (Y/N)**		
2.2	**Are there closed drains/Underground for collection of sullage in areas without piped sewerage system? (**		
2.3	**Length of open drain network (Km)**		
2.4	**Length of closed drain network (km)**		
2.5	**Total area covered with open drain network (sq.km)**		
2.6	**Total area covered with closed drain network (sq.km)**		
2.7	**Where is sullage disposed off? (1,2,3)[2]**		
	[2] *1: On Land, 2: In water bodies, 3: Others (specify)*		
2.8	**Is there any unauthorized use of open drains to dispose sewage? (Y/N)**		
3	**Access to Toilets in the ULB**		
3.1	**Are records on access to individual toilets for households maintained by the ULB? (Y/N)**		*If No, go to QN 3.6*
3.2	**If Yes, how does the ULB maintain records?(1/2/3)[3]**		
	[3] *1: connection registers, 2: as part of property tax registers, 3: Sanitation bills*		
3.3	**If Yes, is this data updated regularly? (Y/N)**		
3.4	**If Yes, are records on HHs access to individual toilets computerised? (Y/N)**		
3.5	**If Yes, is data on toilet connections and properties linked to GIS database? (Y/N)**		
3.6	**Basis of estimation of data related to households with access to toilets? (1/2/3)[4]**		
	[4] *1: Periodic surveys by ULB/other agency, 2: Past surveys, 3: as said by ULB*		
3.7	**Total number of households with access to individual toilets**		
3.8	**Total number of households with access to shared toilets**		
3.9	**Total number of households with access to community toilets**		
3.10	**Are records on residential properties with access to individual toilets maintained by the ULB?(Y/N)**		
3.11	**Total number of residential properties with access to individual toilets**		
4	**Households with sewerage connections in the ULB**		
4.1	**Do records provide number of HHs with sewerage connections? (Y/N)**		*If No, go to QN 4.6*
4.2	**If Yes, how does the ULB maintain records?(1/2/3)[5]**		
	[5] *1: connection registers, 2: as part of property tax registers, 3: Sewerage bills*		
4.3	**If Yes, is this data updated regularly? (Y/N)**		
4.4	**If Yes, is this data computerised? (Y/N)**		
4.5	**If Yes, is data on sewerage connections and properties linked to GIS database? (Y/N)**		
4.6	**Basis of estimation of data related to households with access to sewerage connections?(1/2/3)[6]**		
	[6] *1: Periodic surveys by ULB/other agency, 2: Past surveys, 3: as said by ULB*		
4.7	**Total number of households with access to individual sewerage connections**		
4.8	**Do records provide number of residential sewerage connections? (Y/N)**		*If No, go to QN 4.12*
4.9	**If Yes, how does the ULB maintain records?(1/2/3)[7]**		
	[7] *1: connection registers, 2: as part of property tax registers, 3: Sewerage bills*		
4.10	**If Yes, is this data updated regularly? (Y/N)**		
4.11	**If Yes, is this data computerised? (Y/N)**		
4.12	**Basis of estimation of number of residential sewerage connections?(1/2/3)[8]**		
	[8] *1: Periodic surveys by ULB/other agency, 2: Past surveys, 3: as said by ULB*		
4.13	**Total number of residential sewerage connections**		
4.14	**Total number of non-residential sewerage connections**		

Respondent Name: _____

Contact Details: _____

Enumerator Name: _____

Performance Assessment System for UWSS

Date:

Name of ULB

Name of District

V. Sanitation, Waste Water & Storm Water Drainage - b

5 Wardwise households with individual toilets

5.1	**Is there ward wise information or estimates on number of HHs with access to individual toilets?(Y/N)**		
	If No, go to QN 5.5		
5.2	**If Yes, which wards are used for details on households with access to individual toilets as provided in QN 5.4? (1,2,3,4)[9]**		[9] *1: Admin ward, 2: Election ward, 3: Property tax ward.4: Others, specify. These should match with ward details on Sheet 1*
5.3	**Number of wards for which details on households with access to individual toilets is provided in QN 5.4**		

5.4 **Number of households with access to individual toilets (insert additional rows/sheets if required)**

Ward No	Total no of HHs with access to individual toilets	Total no of HHs
Total	0	0
Source of Information:		

5.5	**Is there ward wise information or estimates on number of residential properties with access to individual toilets?(Y/N)**		
	If No, go to QN 6		
5.6	**If Yes, which wards are used for details on residential properties with access to individual toilets as provided in QN 5.7? (1,2,3,4)[10]**		[10] *1: Admin ward, 2: Election ward, 3: Property tax ward.4: Others, specify. These should match with*

5.7 **Number of residential properties with access to individual toilets (insert additional rows/sheets if required)**

Ward No	Total no of residential properties with access to individual toilets	Total no of residential properties
Total	0	0
Source of Information:		

6 Wardwise households with sewerage connections

6.1	**Is there ward wise information or estimates on number of HHs served per connection?(Y/N)**		
	If No, go to QN 7		
6.2	**If Yes, which wards are used for information on households served by sewerage connections as provided in QN 6.4? (1,2,3,4)[11]**		[11] *1: Admin ward, 2: Election ward, 3: Property tax ward.4: Others, specify. These should match with ward details on Sheet 1*
6.3	**Number of wards used for details on households by sewerage connections as provided in QN 6.4?**		

6.4 **Ward wise households served by sewerage connections (insert additional rows/sheets if required)**

Ward No	Total no of HHs with individual sewerage connection	Total no of HHs
Total	0	0
Source of Information:		

7 Ward wise Residential sewerage connections

7.1	**Is there ward wise information or estimates on number of residential sewerage connections?(Y/N)**		
	If No, go to QN 8		
7.2	**If Yes, which wards are used for information on residential sewerage connections as provided in QN 7.4? (1,2,3,4)[12]**		[12] *1: Admin ward, 2: Election ward, 3: Property tax ward.4: Others, specify. These should match with ward details on Sheet 1*
7.3	**Number of wards for which details on residential sewerage connections is provided in QN 7.4**		

7.4 **Number of residential sewerage connections by wards (insert additional rows/sheets if required)**

Ward No	No of residential sewerage connections	Total no of HHs
Total	0	0
Source of Information:		

Performance Assessment System for UWSS

Date:

0 0

V. Sanitation, Waste Water & Storm Water Drainage - c

8	**Areas without sewerage network**	
8.1	**Does the ULB have areas without piped sewerage network? (Y/N)**	
	If No, go to QN 9	
8.2	**Area without sewerage network (in sq. km)[13]**	
8.3	**Means of disposal of sewage in these areas (1/2/3)[14]**	
8.4	**If means of disposal is by septic tanks, agency for cleaning septic tanks?(3/4)[15]**	
8.5	**Location of disposal of septic tank waste (mark on map)**	

[13] *Mark areas without sewerage network on map*
[14] *1: Septic tanks, 2:Open drains, 3: Soak pits*
[15] *3: ULB, 4:Private agency*

9	**Sewage Treatment Plants (insert additional rows/ sheets if required)**	
9.1	**Does the ULB have pumping stations?(Y/N)**	
9.2	**If Yes, total number of pumping stations in the ULB**	
9.3	**Does the ULB have Sewage Treatment Plants?(Y/N)**	
	If No, go to QN 11	
9.4	**If Yes, total number of STPs in the ULB**	

Mark locations of all pumping stations on map

Mark locations of all STPs on map

9.5 Details of STPs

Name of STP	Installed Capacity of STPs (MLD)	No of sewage zones/ wards covered	Location in Ward/ outside city	Is inflow meter present? (Y/N)	Daily avg inflow (MLD)	Type of Treatment: Primary (P), Secondary (S), Tertiary (T)	Is outflow meter present? (Y/N)	Water conveyed for recycling/ reuse after treatment (MLD)
Total	0			N	0	0	N	0
Source of Information								

9.6	**Are log records of treatment plant operations maintained?(Y/N)**	
9.7	**If No, is quantity of waste water collected estimated on the basis of inflow channel dimensions? (Y/N)**	
9.8	**Are automated systems adopted for monitoring waste water treatment plant operations? (Y/N)**	
9.9	**Are automated systems linked to GIS database? (Y/N)**	

10	**Quality of waste water treatment**	
10.1	**Effluent samples tested (number per year)(BOD , COD, Suspended solids, etc)**	
10.2	**Effluent samples passed (number per year)(BOD , COD, Suspended solids, etc)**	
10.3	**Are all parameters (BOD , COD, Suspended solids, etc) for waste water treatment tested? (Y/N)**	
10.4	**Is sampling regimen for waste water samples well documented and practiced? (Y/N)**	
10.5	**If yes, is the records of sampling regimen computerised? (Y/N)**	
10.6	**If yes, are the records linked to GIS database? (Y/N)**	
10.7	**Are audits for waste water quality conducted?(1/2/3/4)***	

** 1: Independent and regular audits, 2: Independent but occasional/ Ad-hoc audit, 3: Periodic internal audit, 4: No audits conducted*

11	**Untreated waste water**	
11.1	**Location of Sewage Outfalls for Untreated Waste Water (Admin ward no./ Outside city)[16]**	
11.2	**Estimated quantity of untreated waste water disposed (MLD)**	
11.3	**Basis of estimation of quantity of untreated waste water (1/2)[17]**	

[16] *Mark location of sewage outfalls on map (marking need not be to scale)*
[17] *1: Based on outfall channel dimensions, 2: as reported by ULB without any back up*

12 Storm water drainage (SWD) network

12.1 Type of network

At ULB level	Total Length of SWD (km)	Discharge point
Under-ground		
Surface: Covered		
Surface: Uncovered		
Total	0	
Source of Information:		

12.2 Flooding incidents in the ULB (insert additional sheets if required)

Name of flooding locations[18]	Frequency (no/yr) (2009)	Period of water flooding (hrs)	Reason of flooding (1/2/3)*
Total	0	#DIV/0!	
Source of Information:			

** 1: Choked drains, 2: low lying areas, 3: Others (specify)*

[18] *Mark locations of flooding on map*

12.3	**Are records of location of flooding points/ duration of floods maintained by ULB?(Y/N)**	

Respondent Name: _____

Contact Details: _____

Enumerator Name: 0

Performance Assessment System for UWSS

Date:

Name of ULB

Name of District

VI. Municipal Solid Waste Management - a

1	**Generation of Solid Waste in ULB**		
1.1	**Total waste generated in ULB (TPD)***		* *Tonnes per day*
1.2	**Basis of estimation of waste generated (1/2/3/4)[1]**		
	[1] *1: Sample survey (seasonal variations in quantity also captured), 2: spot surveys to validate norms(MSW 2000), 3: per capita waste generation, 4: as said by ULB*		
1.3	**If estimation is based on per capita norms, what is the rate of generation used?(gms/capita/day)**		
2	**Primary Collection at ULB level**		
2.1	**Total no of residential HHs served by door to door collection of solid waste**		
2.1.1	**Number of HHs provided with two bins system for bio-degradable and recyclable specified**		
2.1.2	**Are bins provided: 1. by HHs at their cost, or 2. by ULB? (1/2)**		
2.2	**Total no of establishments[2] served by door step collection**		
2.3	**Total no of establishments in the city**		
2.4	**What is the source of information of primary collection of solid waste? (1/2/3/4/5)[3]**		
	[2] *Establishments include offices, institutions, hotels, restaurants, and other commercial establishments*		
	[3] *1: GIS database on MSWM, 2: Computerised records, 3: Manual records(property tax/connection registers/ billing records), 4: Surveys, 5: as reported by ULB; no records*		
3	**Primary Collection of Solid Waste: Residential Households at Ward level**		
3.1.	**Is there ward wise information or estimates on number of HHs served? (Y/N)**		
	If No, Go to QN 4		
3.2	**If Yes,which wards/ zones are used for details on households served by primary collection as provided in QN 3.4? (1,2,3,4)[4]**		
	[4] *1: Admin ward, 2: Election ward, 3: Property tax ward, 4: Others, specify. These should match with ward details on Sheet 1*		
3.3	**If Yes, number of wards for which details on HHs served by primary collection is provided in QN 3.4**		
3.4	**Households served by door to door collection (add rows/ sheets if required)**		

Ward no	Number of HHs served by primary collection	Total number of HHs	Agencies involved (1/2/3/4)[5]
Total	0	0	
Source of Information:			

[5] *1: ULB, 2: CBO or Sakhimandal, 3: Private contractors, 4: Resident Welfare Associations*

4	**Street Sweeping Details**		
4.1.	**Total length of streets swept daily by mechanical means (km)**		
4.2.	**Total length of streets swept daily by manual means (km)**		
4.3.	**No. of sweepers deployed (No)**		
	Source of Information:		
5	**Segregation of waste**		
5.1	**Is waste collected in a segregated manner through door to door services? (Y/N)**		If no, go to que-5.3
5.2	**If Yes, is waste collected & transported in separate vehicle trips to treatment/ disposal site?(Y/N)**		
5.2.1	**If Yes, quantity of bio-degradable waste received at treatment/disposal site (TPD)**		
5.2.2	**If Yes, quantity of recyclable waste received at treatment/disposal site (TPD)**		
5.3	**Quantity of waste taken away by recyclers from intermediate points (TPD)**		
5.4	**Quantity of waste received at disposal site as non recyclable, non bio-degradable waste and residue & rejects (TPD)**		
6	**Treatment Plant details**		
6.1	**Does the ULB have treatment plants? (Y/N)**		*If No, go to QN 7*
6.2	**If Yes, is weigh bridge present near the treatment facility? (Y/N)**		
7	**Mode of disposal for MSWM**		
7.1	**Is mode of disposal of MSW through open dumping? (Y/N)**		
7.2	**Is mode of disposal of MSW through scientific engineered landfills/compliant sites? (Y/N)**		
7.3	**Is mode of disposal of MSW through open dumping and compliant sites? (Y/N)**		

Performance Assessment System for UWSS

Date:

Name of ULB

Name of District

VI. Municipal Solid Waste Management - b

8	**Treatment/ Processing facility (If ULB does not have treatment plant, than go to question 9)**						
8.1	**Are log records of daily intake of waste quantity, based on measurement at weighbridge, maintained? (Y/N)**						
8.1.1	**If Yes, are computerised systems used for monitoring operations at treatment plant? (Y/N)**						
8.1.2	**If Yes, are monitoring systems linked to GIS database? (Y/N)**						
8.1.3	**If No, is quantity of waste intake estimated based on vehicle trips to treatment plant? (Y/N)**						

8.2	**Type of treatment**	**Installed capacity (TPD)**	**Quantity of waste input (TPD)**	**Quantity of recovered end products (TPD)**
	Composting			
	Vermi-composting			
	Community level composting			
	RDF			
	Waste to energy			
	Others, specify			
	Total	0	0	0
	Source of Information:			

8.3	**Quantity of waste rejected after treatment (e.g., inert matter) (TPD)**	
8.4	**Are there any formal recycling facilities in the ULB? (Y/N)**	
8.5	**If yes, capacity of the facility(TPD)**	

9	**Existing system of disposal of MSW**						
9.1	**Open dumps: General details**						
9.1.1	**Name of open dumps***	**Distance from the entry point of city (km)**	**Area (Ha)**	**Remaining age of landfill (yrs)**	**Does ULB pay tipping fee for disposing waste rejects?[6] (Y/N)**	**If yes, to whom is it paid**	**Tipping fee (Rs/ton)**
	Source of Information:						

** Mark loction of open dumps on map*

[6] This is applicable in the case where the disposal site is operated by a private operator

9.1.2	**Open dumps: Details on waste disposed**					
	Name of open dumps	**Capacity (Tonnes)**	**Quantity of waste received (TPD)**	**Is weighbridge present? (Y/N)**	**Are log records maintained? (Y/N)**	**If No, Basis of estimation[7]**
	Total	0	0	N	N	
	Source of Information:					
9.1.3	**Are computerised systems used for monitoring operations at disposal site? (Y/N)**					
9.1.4	**If yes, are monitoring systems linked to GIS database? (Y/N)**					

[7] 1: based on vehicle trips, 2: as said by ULB

9.2	**Compliant/ Scientific engineered landfills**							
9.2.1	**Name of compliant/ scientific engineered landfill[8]**	**Area (Ha)**	**Remaining age of landfill (yrs)**	**Capacity (Tonnes)**	**Quantity of waste received (TPD)**	**Is weighbridge present? (Y/N)**	**Are log records maintained? (Y/N)**	**If No, Basis of estimation**
	Total			0	0	N	N	
	Source of Information:							

[8] As per MSW Rules 2000, Mark location of landfills on map

9.2.2	**Are computerised systems used for monitoring operations at landfill site? (Y/N)**	
9.2.3	**If yes, are monitoring systems linked to GIS database? (Y/N)**	

10	**Transportation of Solid Waste (Insert additional rows/sheets if required)**				
10.1	**Are records of daily trips to treatment/ disposal site maintained? (Y/N)**				
10.2	**Details on trips of waste transportation vehicles**				
	Type of vehicle	**Number**	**Capacity (T)**	**Trips/ Day**	**Tons/ Month**
	Lorries/ Trucks				0
	Tractor trailers				0
	Compactors				0
	Tipper trucks				0
	Dumper placers				0
	3-wheeler auto tippers				0
	Others (Cycle Rickshaws/Bullock carts,etc)				0
	Source of Information:				

Respondent Name: _____

Contact Details: _____

Performance Assessment System for UWSS Date:

Name of ULB

VII. Informations of Slums

1	**General Information**		
1.1	**Total number of slum settlements in the ULB[1]**		[1] *Mark settlements on map*
	Of total slums, Number of notified slums in the ULB		
1.2	**Number of slum settlements on public land**		
1.3	**Total no of HHs in slum settlements**		
1.4	**Total population in slum settlements**		
1.5	**Total no. of BPL families in the ULB**		

2	**Services in slums**	
2.1	**Number of individual water connections**	
2.2	**Number of group connections**	
2.3	**Number of stand posts**	
2.4	**Number of individual toilets**	
2.5	**Number of seats in pay-n-use toilets (functional toilets)**	
2.6	**Number of seats in community toilets (functional toilets)**	
2.7	**Number of sewerage connections**	
2.8	**Number of slum HHs served by primary collection**	
	Source of Information:	

3	**Information systems for slums**		
3.1	**What is the source of information for QN 1? (1/2/3/4)[2]**		
3.2	**What is the source of information for QN 2? (1/2/3/4)[2]**		

[2] *1: Records, 2: Survey of all slums, 3: past surveys (more than 5 years), 4: as told by ULB; no records.*

3.3	**If records are maintained for slum information, how frequently are they updated? (1/2/3)[3]**		

[3] *1: Annually, 2: Occasionally (once in 3-5 yrs), 3: No updation*

3.4	**Do records provide settlement level details? (Y/N)**		*If Yes, attach formats*
3.5	**Do records provide household level details? (Y/N)**		*If Yes, attach formats*
3.6	**Is the slum information computerised? (Y/N)**		
3.7	**If Yes, collect data on slum separately from ULB**		

4 **Ongoing/ Completed Projects or schemes related to UWSS for slums in the ULB (Insert additional rows/ sheets as required)**

Name of program/ scheme for slum related activities[1]	Year of inception of program	Duration of program (no. of years)	Brief Description of program (in terms of infrastructure and services provided)
Source of Information:			

[1] *Nirmal Gujarat, IHSDP, BSUP, MSNA, Other programs*

5	**List the major NGOs and/ or CBOs working in slums in the ULB**

Performance Assessment System for UWSS

Date:

Name of ULB

Name of District

VIII. Consumer Grievance Redressal

1	**Citizens' Charter**	
1.1.	**Does the ULB have a citizen charter ? (Y/N)**	
1.1.2	**If yes, is it displayed/ disseminated to the citizen? (Y/N)**[1]	

[1] *Collect copy of the citizen charter of the ULB*

2 Means of making complaints

Means	Y/N	Number of complaints/Year (2009)
In person		
Letter		
Telephone		
SMS		
E-mail		
Total		0
Source of Information:		

2.1	**Are complaints received through above means recorded? (Y/N)**	

3 Service wise complaints

Service	Average number of complaints received monthly	Number of complaints redressed monthly*
Water supply		
Waste water		
SWM		
SWD		

** Complaints redressed as per standards mentioned in the citizen charter or manual records*

3.1	**Does the ULB maintain records on complaints received and redressed? (Y/N)**	
3.2	**If Yes, is the complaint systems computerised? (Y/N)**	
3.3	**If Yes, are the complaint redressal systems linked to GIS database? (Y/N)**	
3.4	**What are the major complaint areas?**	

3.4.1

Service	Type of complaint[2]	Number of complaints received monthly	Number of complaints redressed monthly*
Water supply	Non- availability of water		
	Low water pressure		
	Contaminated water		
	Pipe breakage/leakage		
	Others (specify)		
	Total	0	0
Waste water	Sewer blocks		
	Overflowing manholes		
	Sewer pipe breakage		
	Others (specify)		
	Total	0	0
SWM	Door to door collection		
	Overflowing bins		
	Infrequent street sweeping		
	Odor/nuisance of dumpsites/ transportation vehicles		
	Others (specify)		
	Total	0	0
SWD	Water logging		
	Cleaning of storm drains		
	Disinfection of post-flooded areas		
	Others (specify)		
	Total	0	0
Source of Information:			

** Complaints redressed as per standards mentioned in the citizen charter or manual records.*

[2] *Collect all types of complaints as received and segregated by ULB for each service*

Respondent Name: _____

Contact Details: _____

Performance Assessment System for UWSS

Date:

Name of ULB

Name of District

IX. Staff and Management

1	**Details of Municipal Staff**	
1.1	**Does the ULB maintain manual systems for staff records? (Y/N)**	
1.2	**If Yes, does the ULB have computerised systems for staff records? (Y/N)**	
1.3	**Does ULB maintain records for recruited staff ? (Y/N)**	

1.4

Department	Permanent Staff		No of temporary/ contract staff	No of daily wage staff	Total staff
	Sanctioned	Filled			
Total municipal staff					0
Administration					0
Finance/Accounts					0
Water supply					0
Waste water & SWD					0
SWM					0
Source of Information:					

1.5 Technical and Non-technical staff for WSS

Department	No of technical staff	No of non-technical staff
Water Supply		
Waste water		
SWM		
Total	0	0
Source of Information:		

2 Private Sector Participation in WSS (Insert additional rows/sheets, as required)

Title of contract	Sector (1/2/3/4)[1]	Type of contract [2]	Tenure (yrs)	Value (Rs)
Source of Information:				

[1] *1: Water, 2: Waste water, 3: SWM, 4: SWD*

[2] *Service contract, Management contract, Lease contract, BOOT/BOT,others (specify)*

3	**Computer Proficiency of Staff**	
3.1	**Does ULB staff use computers in daily operations? (Y/N)**	
3.2	**If Yes, list departments where computerised systems are used[3]**	

[3] *Admin/Accts/Water/Sanitation/SWM/SWD*

3.3	**Software's used in the computers[4]**	
3.4	**Is Internet facility present for the ULB? (Y/N)**	
3.5	**If Yes, type of facility (1/2/3)[5]**	

[4] *MS-Office (Word, Excel),AutoCAD, Others: specify*

[5] *1: Broadband, 2: Dial-up, 3: Others*

Respondent Name:

Contact Details:

Performance Assessment System for UWSS

Date:

Name of ULB

Name of District

X. Finance and Tariffs - a

1	**Accounting systems**	
1.1	**Is accrual based double entry accounting system followed? (Y/N)**	
1.2	**If Yes, is accrual based double entry system followed in parallel to cash based system?(Y/N)**	
1.3	**If Yes, is accrual based double entry accounting systems followed on a regular basis? (Y/N)**	
1.4	**Does the ULB have computerised accrual based double entry accounting systems? (Y/N)**	

2	**ULB Budgets**	
2.1	**Is the information as reported in QN 3, 4, 6 & 7 for 2007-08 based on 'actuals' or 'revised estimates'? (AC/RE)[1]**	
2.2	**Is the information as reported in QN 3, 4, 6 & 7 for 2008-09 based on 'actuals' or 'revised estimates'? (AC/RE)[1]**	

[1] *For Financial statement, collect Actual Budget for 2007-08 & 2008-09; However, if actual budget is not available, collect Revised Budget Estimates (RE) for 2008-09*

3 Capital Account - for the ULB

3.1 Sources of Funds for Capital Account (In Rs.)

	2007-08	2008-09
Sources	0	0
Grants		
Borrowing		
Internal ULB funds		
Others		
Total	0	0
Source of Information:		

3.2 Capital Expenditure (In Rs.)

	2007-08	2008-09
	0	0
Projects, schemes, etc		
Principal repayment on loans		
Others		
Total	0	0
Source of Information:		

4 Capital expenditure for Municipal Services in Water, Sanitation, SWM and SWD(in Rs)

	Water supply		Waste water		Solid waste		Storm water drainage	
	2007-08	2008-09	2007-08	2008-09	2007-08	2008-09	2007-08	2008-09
	0	0	0	0	0	0	0	0
On Projects, schemes								
Principal Repayment on loans								
Others								
Total								
If loan repayment is not available sector wise, estimated share of total ULB loan repayments for these sub-sectors								
% share of ULB principal repayments on loans								
Source of Information:								

5 Ongoing/ Recently Completed Capital Investment Projects for Water, Sanitation, SWM and Slums

Sector	Brief Description	Sources of funds (1/2/3/4)[2]	Start Date (Year)	End Date[3] (Year)	Total estimated project cost
Water Supply					
Waste water/ Sewerage					
SWM					
Slums: Housing					
Slums: Basic services					
Total					0
Source of Information:					

[2] *Sources of funds: 1: JNNURM/MSNA, 2:Other grants, 3: Only own funds and donations, 4: Others, specify*

[3] *For ongoing projects, give estimated date of project completion*

Performance Assessment System for UWSS

Date:

Name of ULB

Name of District

X. Finance and Tariffs - b

6 Total Revenue Income & Expenditure of the ULB (in Rs)[4]

Income Heads	2007-08	2008-09
	0	0
Tax income		
Non-tax income		
Revenue grants		
Other income		
Misc. Income		
Total	0	0
Source of Information:		

Expenditure Heads	2007-08	2008-09
	0	0
Establishment		
Administrative		
O & M		
Loan interest payment		
Depreciation		
Others (Program Sp. Exp + misc)		
Total	0	0
Source of Information:		

[4] *For Gujarat, the data for the above tables are to be taken from segment reports of the GMARP Annual Accounts statements*

7 Revenue Income & Expenditure by municipal services (in Rs)

7.1 Revenue Income

	Water supply		Waste water		Solid waste		Storm water drainage	
	2007-08	2008-09	2007-08	2008-09	2007-08	2008-09	2007-08	2008-09
Heads	0	0	0	0	0	0	0	0
Tax income								
Non-tax income								
Revenue grants								
Other income								
Misc. Income								
Total	0	0	0	0	0	0	0	0
Source of Information:								

7.2 Revenue Expenditure

	Water supply		Waste water		Solid waste		Storm water drainage	
	2007-08	2008-09	2007-08	2008-09	2007-08	2008-09	2007-08	2008-09
Heads	0	0	0	0	0	0	0	0
Establishment								
Administrative								
Energy consumption								
Other expenses in O&M								
Loan interest payment								
Depreciation								
Bulk water			Not applicable					
Others (Program Sp. Exp + misc)								
Total	0	0	0	0	0	0	0	0
Source of Information:								

Performance Assessment System for UWSS

Date:

Name of ULB

Name of District

X. Finance and Tariffs - c

8	**Service taxes and Charges**	
8.1	**Does the ULB levy service taxes for water/sanitation linked to property taxes? (Y/N)**	
	If Yes, collect copy of tax rates	
8.2	**Does the ULB levy charges (fixed/volumetric) for water? (Y/N)**	
	If Yes, collect copy of charges	
8.3.	**Does the ULB levy any other charges[7] for water/ sanitation/sewerage/ SWM? (Y/N)**	
	If Yes, collect copy of types of other charges	

[7] *Water charges includes development charges, regularisation fees, user charges, penalties & fees, and other fees*

9 Demand and Collection: 2008-09[5]

9.1 Heads	Billed demand (in Rs)			Collected amount (in Rs)			Arrears yet to be collected		
	Arrears as on 1.4.2008 (a)	Current Billed Demand 2008-09 (b)	Total Billed Demand (a + b)	Collection from Arrears (c)	Collection from Current Billed Demand (d)	Total collected amount during the year 2008-09 (c + d)	Arrears of past demand (e)	Arrears of current demand (f)	Total amount in arrears at the end of the year 2008-09 (e + f)
Water supply									
Water Tax[6]							0	0	0
User charges (Fixed/ Volumetric)							0	0	0
Other charges[7]							0	0	0
Total	0	0	0	0	0	0	0	0	0
Waste water									
Sewerage tax							0	0	0
Sewerage charge							0	0	0
Others							0	0	0
Total	0	0	0	0	0	0	0	0	0
SWM									
SWM charge							0	0	0
Others							0	0	0
Total	0	0	0	0	0	0	0	0	0
Source of Information:									

[5] *Billed demand, collection and arrears to be taken from the Demand Collection Balance statement as provided by ULB.*

[6] *Water tax includes water tax, special water tax, water benefit tax, etc*

[7] *Water charges includes development charges, regularisation fees, user charges, penalties & fees, and other fees*

9.2	**Are DCB tables properly maintained and updated by the ULB?(Y/N)**	
9.3	**Is DCB analysis linked to billing and collection systems? (Y/N)**	
9.4	**Is the billing and collection systems computerised and DCB tables automatically generated?(Y/N)**	

Annexure 2: Key Performance Indicators.

	Water supply	Wastewater	Solid waste management (SWM)
Indicators for goals			
Access and coverage	1. Coverage of water supply connections at household level	1. Coverage of households with access to individual toilets	1. Household level coverage of SWM services
		2. Coverage of households with individual connections to sewerage network	
Service levels and quality	2. Per capita supply of water	3. Collection efficiency of wastewater network	2. Efficiency of collection of municipal solid waste
	3. Continuity of water supply	4. Sewage treatment capacity	3. Extent of segregation of municipal solid waste
	4. Quality of water supplied		4. Extent of municipal solid waste processed and recycled
Financial management	5. Extent of cost recovery (O&M) in water supply services	5. Extent of cost recovery (O&M) in wastewater management	5. Extent of cost recovery (O&M) in SWM services
Indicators for reform actions			
Efficiency in service operation	6. Extent of non-revenue water	6. Quality of wastewater treatment	6. Extent of scientific disposal of municipal solid waste
		7. Extent of reuse and recycling of wastewater	
	7. Efficiency in redressal of customer complaints	8. Efficiency in redressal of customer complaints	7. Efficiency in redressal of customer complaints
	8. Extent of functional metering of water connections		
	9. Efficiency in collection of water supply-related charges	9. Efficiency in collection of sewerage-related charges	8. Efficiency in collection of SWM-related user charges
Equity	10. Spatial variations in coverage of water supply connections	10. Spatial variations in coverage of households with access to individual toilets	9. Spatial variations in household level coverage of SWM services
	11. Spatial variations in per capita water supply	11. Spatial variations in coverage of household connections to sewerage network	
	12. Coverage of water supply connections in 'slum settlements'	12. Coverage of toilets in 'slum settlements'	10. Household level coverage of SWM services in 'slum settlements'
		13. Coverage of household connections to sewerage network in 'slum settlements'	

Sr. No.	Cities	Class	Coverage of water supply connections	Per capita supply of water	Continuity of water supply	Quality of water supplied	Cost recovery (O&M) in water supply services	Spatial variations in water supply coverage	Spatial variations in per capita supply of water	Coverage of WS connections in 'slum settlements'	Extent of non-revenue water	Efficiency in redressal of customer complaints	Percentage of recruited staff to sanctioned staff	Extent of functional metering of water connections	Unit electricity cost of production of water supply	Efficiency in collection of water supply related charges
	Units		**%**	**LPCD**	**Hrs**	**%**	**%**	**Ratio**	**Ratio**	**%**	**%**	**%**	**%**	**%**	**Rs/KL**	**%**
1	Ahmedabad	MC	85.4	121	2.3	94.8	54.0	nd	nd	55	31.0	99.2	82	na*	1.6	60.4
2	Bhavnagar	MC	61	112	0.8	100	40	nd	nd	80	39	100	82	0.10	2.8	47
3	Jamnagar	MC	56	116	0.8	100	118	0.3	nd	64	50	75	nd	0.12	8.3	nd*
4	Junagadh	MC	68	44	0.8	94	10	nd	nd	43	35	99	49	na*	3.7	4
5	Rajkot	MC	76	183	0.3	98	46	nd	0.7	34	nd*	97	75	2.50	2.6	51
6	Surat	MC	86.6	147	3.0	100	92.3	0.2	nd	80	20.4	94.8	75	0.41	1.6	94
7	Vadodara	MC	65	174	0.9	97	90	0.3	0.6	54	35	98	75	0.05	2.5	nd*
	Average Value		**71**	**128**	**1.2**	**98**	**64**	**0.26**	**0.64**	**58**	**35**	**95**	**73**	**0.64**	**3.3**	**51**
	Class A															
8	Anand	A	52	107	4.5	100	70	nd	nd	52	13	100	64	na*	1.9	79
9	Bharuch	A	46	97	4.0	100	192	nd	nd	nd*	41	87	32	na*	0.4	97
10	Botad	A	36	120	1.0	100	25	nd	nd	25	45	100	80	na*	2.4	8
11	Gandhidham	A	63	157	0.8	100	57	nd	nd	nd*	17	67	75	na*	0.3	28
12	Godhara	A	33	122	2.0	100	11	nd	nd	25	32	99	62	na*	0.1	58
13	Jetpur	A	45	109	0.8	100	32	nd	nd	90	nd*	100	24	na*	2.3	45
14	Kalol	A	52	104	1.5	100	150	0.56	nd	33	33	100	75	na*	1.1	48
15	Mehsana	A	63	59	2.0	100	38	nd	nd	2	47	89	30	na*	1.8	73
16	Morbi	A	41	133	1.0	100	17	0.60	nd	90	47	90	15	na*	1.2	61
17	Nadiad	A	76	85	2.0	99	56	nd	nd	95	nd*	85	54	na*	0.5	51
18	Navsari	A	93	66	6.5	100	34	nd	nd	71	28	100	53	na*	0.6	67
19	Palanpur	A	60	102	0.9	100	10	0.08	nd	nd*	nd*	100	67	na*	1.6	20
20	Patan	A	117	61	1.0	83	63	0.14	nd	57	14	100	45	na*	3.7	64
21	Porbandar	A	39	53	0.8	100	31	nd	nd	61	23	100	73	na*	0.6	61
22	Surendranagar	A	51	103	0.8	100	51	nd	0.18	61	22	94	80	na*	nd	20
23	Valsad	A	47	71	3.5	100	74	0.47	nd	14	40	100	51	na*	0.3	80
24	Vapi	A	14	117	2.0	100	27	nd	nd	nd*	42	100	0	na*	0.3	48
25	Veraval	A	37	147	2.0	99	24	nd	nd	80	nd*	78	46	na*	1.4	52
	Average Value		**54**	**101**	**2.1**	**99**	**53**	**0.37**		**54**	**32**	**94**	**51**	**0**	**1.2**	**53**
	Class B															
26	Amreli	B	67	82	2.5	100	71	nd	nd	95	nd*	100	76	na*	nd	29
27	Ankleshwar	B	46	187	1.5	93	60	nd	nd	35	16	100	nd	na*	nd	69
28	Bardoli	B	94	102	2.0	99	37	nd	nd	nd*	13	100	74	na*	2.1	30
29	Bhuj	B	91	127	1.0	100	39	nd	nd	84	15	71	81	0.8	8.7	36
30	Bilimora	B	58	64	0.7	100	41	nd	1	20	44	100	33	na*	1.3	72
31	Borsad	B	86	78	2.5	100	139	nd	nd	5	nd*	100	67	na*	nd	58
32	Dabhoi	B	74	88	0.4	100	24	nd	nd	51	5	100	100	na*	7.9	48
33	Dahod	B	102	68	1.5	98	56	nd	2	nd*	nd*	100	70	na*	nd	41
34	Deesa	B	78	86	2.0	100	17	nd	nd	95	24	94	29	na*	7.3	59
35	Dhangedra	B	62	131	1.0	100	90	nd	nd	60	26	100	90	na*	nd	38
36	Dholka	B	56	100	1.2	100	76	nd	nd	80	9	100	0	na*	1.9	nd*
37	Dhoraji	B	68	62	2.0	100	47	nd	nd	40	27	100	81	na*	2.2	19
38	Gondal	B	52	45	0.4	100	112	1	nd	50	nd*	100	49	na*	1.4	60
39	Himmatnagar	B	110	101	2.0	100	133	nd	nd	nd*	17	100	9	na*	1.4	70
40	Kadi	B	86	92	1.0	100	25	nd	nd	nd*	41	100	6	na*	2.1	45
41	Keshod	B	56	95	2.0	100	44	nd	nd	nd*	18	100	70	na*	3.1	48
42	Khambhat	B	97	63	5.1	93	15	nd	nd	10	50	94	0	na*	11.1	53
43	Mahua	B	47	86	1.3	89	57	nd	nd	15	19	100	70	na*	nd	31
44	Mangrol	B	77	41	0.6	100	213	nd	2	90	24	100	100	na*	2.3	51
45	Modasa	B	90	74	1.5	100	55	1	nd	30	nd*	100	6	na*	2.5	69
46	Okha	B	80	14	0.5	100	24	nd	nd	nd*	41	100	nd	na*	nd	nd*
47	Palitana	B	55	96	1.0	95	41	nd	nd	70	41	100	91	na*	1.0	28
48	Petlad	B	115	94	2.6	89	100	0.57	nd	82	9	100	63	na*	0.2	50
49	Savarkundla	B	86	43	0.5	100	51	nd	nd	65	nd*	100	89	na*	nd	46
50	Siddhpur	B	73	58	0.3	100	41	0.11	0.70	80	35	100	100	na*	4.4	74
51	Umargam	B	22	46	0.7	100	38	1.02	na	91	nd*	100	100	na*	2.5	37
52	Una	B	73	69	1.0	100	25	nd	nd	90	nd*	100	100	na*	1.3	33
53	Unjha	B	89	122	2.0	100	143	nd	nd	nd*	20	100	65	na*	0.3	91
54	Upleta	B	77	75	0.8	93	74	0.25	nd	9	7	100	75	na*	2.3	87
55	Vadhwan	B	71	40	1.0	100	90	nd	nd	36	29	100	20	na*	0.2	28
56	Vijalpore	B	70	70	1.5	100	17	nd	nd	57	50	100	85	na*	1.6	76
57	Viramgam	B	66	96	1.0	100	126	0.19	nd	75	49	97	79	na*	0.0	52
58	Visnagar	B	78	104	0.4	100	38	0.12	0.72	45	28	100	33	na*	2.4	37

Sr. No.	Cities	Class	Coverage of water supply connections	Per capita supply of water	Continuity of water supply	Quality of water supplied	Cost recovery (O&M) in water supply services	Spatial variations in water supply coverage	Spatial variations in per capita supply of water	Coverage of WS connections in 'slum settlements'	Extent of non-revenue water	Efficiency in redressal of customer complaints	Percentage of recruited staff to sanctioned staff	Extent of functional metering of water connections	Unit electricity cost of production of water supply	Efficiency in collection of water supply related charges
	Units		%	LPCD	Hrs	%	%	Ratio	Ratio	%	%	%	%	%	Rs/KL	%
	Average Value		**74**	**82**	**1.4**	**98**	**65**	**0.42**	**1.44**	**56**	**26**	**99**	**62**	**0.8**	**2.9**	**51**
	Class C															
59	Anjar	C	54	86	0.6	100	22	nd	nd	60	nd*	100	54	na*	7.4	46
60	Bagasra	C	58	94	3.0	100	71	nd	nd	na*	nd*	100	nd	na*	nd	39
61	Balasinor	C	118	57	1.8	99	167	0.17	1.08	80	nd*	100	100	na*	0.1	37
62	Bavla	C	97	69	2.0	100	21	nd	nd	80	33	100	nd	na*	3.7	68
63	Chaklasi	C	57	83	4.0	100	22	0.55	nd	78	42	100	nd	na*	2.9	35
64	Chhaya	C	20	267	0.5	100	83	1.04	na	nd*	nd*	88	100	na*	0.2	75
65	Dehgam	C	60	103	1.3	100	38	nd	nd	7	53	100	75	na*	2.8	65
66	Dhanduka	C	110	68	0.8	100	188	0.38	nd	90	nd*	100	33	na*	nd	64
67	Dwarka	C	45	53	0.8	100	34	0.34	nd	1	nd*	100	57	na*	1.0	94
68	Gadhda	C	65	72	2.0	100	26	0.50	nd	17	9	96	75	na*	4.7	15
69	Gariyadhar	C	51	117	0.8	100	49	0.26	nd	61	17	67	33	na*	nd	60
70	Halol	C	54	64	1.0	100	27	nd	nd	5	35	100	64	na*	nd	52
71	Idar	C	61	27	1.0	100	28	nd	nd	73	54	100	50	na*	0.7	38
72	jaffrabad	C	35	79	1.0	100	117	nd	nd	10	nd*	100	na	na*	0.4	65
73	Jambusar	C	114	55	1.1	100	96	nd	nd	60	nd*	100	56	na*	nd	81
74	Jasdan	C	54	89	0.8	100	41	0.42	nd	50	43	100	90	na*	1.9	57
75	Jhalod	C	52	47	0.7	100	18	0.32	1.83	41	57	100	0	na*	1.2	34
76	Kapadvanj	C	87	82	0.8	100	10	0.38	nd	73	9	94	91	na*	nd	48
77	Karamsad	C	44	78	2.5	100	47	nd	nd	64	50	100	nd	na*	1.2	32
78	Karjan	C	63	87	1.0	100	68	nd	nd	85	20	100	50	na*	0.5	49
79	Khambadiya	C	96	64	0.5	100	23	nd	1.59	0	nd*	100	59	na*	2.1	59
80	Khedbrahma	C	69	70	0.8	100	51	0.37	nd	45	14	100	11	na*	1.6	67
81	Kodinar	C	68	48	1.0	94	55	0.10	nd	65	nd*	na*	59	na*	2.1	44
82	Limbdi	C	73	93	1.0	100	115	nd	nd	6	nd*	100	100	na*	0.4	45
83	Lunavada	C	67	32	0.8	100	57	0.44	1.73	20	nd*	100	50	na*	nd	62
84	Manavadar	C	86	23	0.5	100	45	nd	na	100	nd*	100	100	na*	6.4	64
85	Mandavi_K	C	82	78	0.8	100	35	nd	nd	76	35	100	71	na*	17.2	96
87	Mehmadabad	C	70	113	2.5	100	129	0.15	nd	nd*	54	90	33	na*	0.9	22
88	Pardi	C	86	59	2.0	100	6	nd	nd	nd*	13	100	74	na*	nd	55
89	Radhanpur	C	49	114	1.5	100	20	0.12	nd	10	41	100	31	na*	1.6	43
90	Rajola	C	64	64	2.5	100	70	0.16	1.56	13	nd*	80	na	na*	0.1	16
91	Rajpipla	C	78	89	1.4	100	58	nd	nd	60	22	100	20	na*	nd	60
92	Salya	C	59	14	1.0	100	19	nd	nd	0	nd*	100	100	na*	4.8	41
93	Sanand	C	69	83	2.4	100	0	0.56	nd	11	52	100	50	na*	0.3	56
94	Santrampur	C	76	44	1.0	100	164	nd	1.55	50	28	100	0	na*	0.2	36
95	Sihor	C	60	85	1.0	100	13	nd	nd	33	25	100	30	na*	2.1	22
96	Talaja	C	47	107	1.0	100	16	nd	nd	70	19	100	3	na*	2.7	29
97	Thangadh	C	30	93	1.0	100	48	0.51	nd	75	38	100	29	na*	nd	27
98	Umreth	C	85	158	2.0	100	62	0.15	1.55	nd*	22	100	38	na*	1.0	27
99	V.Vidyanagar	C	40	251	9.7	100	121	nd	nd	70	nd*	100	nd	na*	0.0	100
100	Vadnagar	C	72	102	0.6	100	31	0.13	nd	nd*	37	100	64	na*	0.5	99
101	Vyara	C	96	111	1.3	100	31	0.13	nd	nd*	22	100	67	na*	2.4	93
102	Wankaner	C	64	80	0.8	99	35	1.40	nd	50	nd*	78	93	na*	2.3	66
	Average Value		**67**	**83**	**1.5**	**100**	**55**	**0.38**	**1.75**	**47**	**32**	**98**	**55**	**0**	**3.2**	**54**
	Class D															
103	Amod	D	88	97	3.5	100	52	nd	nd	12	50	100	10	na*	1.5	37
104	Anklav	D	37	223	2.0	100	103	0.10	nd	66	nd*	100	0	na*	0.2	48
105	Babra	D	46	101	0.5	100	62	0.27	nd	na*	57	93	50	na*	nd	14
106	Bhachau	D	nd	34	1.0	0	8	nd	nd	63	40	96	100	na*	0.2	70
107	Bareja	D	70	118	2.0	99	69	0.10	nd	70	43	100	100	na*	0.9	44
108	Barvala	D	50	85	2.0	100	nd*	nd	na	90	nd*	100	21	na*	nd	31
109	Bantawa	D	88	20	0.2	100	47	0.63	nd	0	nd*	100	100	na*	8.4	36
110	Bayad	D	62	86	1.5	100	60	0.22	0.64	57	16	100	0	na*	0.7	78
111	Bhabhar	D	63	120	1.0	91	16	0.08	nd	20	32	100	50	na*	2.2	9
112	Bhanvad	D	nd	30	0.5	100	28	nd	nd	43	36	100	100	na*	2.4	47
113	Bhayvadar	D	86	90	0.5	100	38	nd	1.70	51	nd*	100	33	na*	2.1	95
114	Boriyavi	D	38	110	3.6	79	0	nd	nd	63	nd*	100	50	na*	0.0	70
115	Chalal	D	68	103	0.5	100	46	nd	na	90	28	100	100	na*	nd	27
116	Chanasma	D	99	100	1.0	100	64	nd	nd	72	40	100	0	na*	2.6	70
117	Chhota_Udaipur	D	46	83	1.5	100	50	0.30	1.57	nd*	20	100	0	na*	1.2	33
118	Chorvad	D	23	163	0.8	98	11	1.12	nd	25	nd*	100	20	na*	0.6	51
119	Chotila	D	50	55	1.0	89	47	nd	nd	68	17	100	10	na*	0.4	35
120	Dakor	D	63	70	2.0	100	101	0.57	nd	nd*	22	100	100	na*	1.2	54
121	Damnagar	D	63	64	0.7	0	150	0.17	1.56	86	29	100	nd	na*	nd	48
122	DevgadhBariya	D	59	69	1.5	100	131	nd	nd	72	nd*	56	8	na*	nd	36

Sr. No.	Cities	Class	Coverage of water supply connections	Per capita supply of water	Continuity of water supply	Quality of water supplied	Cost recovery (O&M) in water supply services	Spatial variations in water supply coverage	Spatial variations in per capita supply of water	Coverage of WS connections in 'slum settlements'	Extent of non-revenue water	Efficiency in redressal of customer complaints	Percentage of recruited staff to sanctioned staff	Extent of functional metering of water connections	Unit electricity cost of production of water supply	Efficiency in collection of water supply related charges
	Units		**%**	**LPCD**	**Hrs**	**%**	**%**	**Ratio**	**Ratio**	**%**	**%**	**%**	**%**	**%**	**Rs/KL**	**%**
123	Dhanera	D	79	112	2.5	93	42	0.35	nd	90	nd*	100	25	na*	nd	64
124	Dharampur	D	87	64	2.0	100	26	0.61	nd	nd*	40	87	91	na*	1.8	76
125	Dhrol	D	83	105	0.5	99	36	nd	0.47	16	22	100	0	na*	0.2	38
126	Gandevi	D	60	105	2.9	100	216	nd	na	48	nd*	100	40	na*	0.2	6
127	Halvad	D	70	81	0.8	100	49	nd	nd	70	43	100	18	na*	nd	26
128	Harij	D	71	68	1.0	100	82	nd	0.47	95	nd*	100	nd	na*	4.3	21
129	Jamjodhpur	D	109	71	0.8	100	92	0.41	nd	80	nd*	100	100	na*	1.4	92
130	Jam_Rawal	D	41	71	0.8	100	83	nd	1.56	100	nd*	100	0	na*	0.4	20
131	Kaalol	D	87	58	1.3	100	31	0.13	nd	40	nd*	100	275	na*	2.6	49
132	Kalavad	D	nd	26	1.0	100	42	nd	na	70	39	100	100	na*	2.4	64
133	Kanjari	D	47	164	2.0	100	15	nd	nd	16	nd*	100	29	na*	1.2	81
134	Kansad	D	70	111	2.0	100	54	nd	nd	60	nd*	100	0	na*	0.5	5
135	Kathlal	D	112	84	2.0	100	197	0.18	nd	70	nd*	100	100	na*	nd	27
136	Kheda	D	85	45	3.0	100	31	nd	nd	nd*	9	100	50	na*	4.2	64
137	Kheralu	D	66	73	0.7	100	37	nd	0.82	64	27	100	10	na*	1.0	70
138	Kutiyana	D	80	27	0.8	100	48	0.52	nd	48	nd*	100	50	na*	3.6	54
139	Lathi	D	61	81	0.4	100	129	0.15	0.92	69	nd*	100	47	na*	0.1	61
140	Mahudha	D	116	61	1.7	100	69	0.22	nd	22	37	100	100	na*	0.7	56
141	Maliyamiyana	D	16	291	1.0	0	141	nd	nd	20	nd*	100	0	na*	nd	18
142	Mandavi_S	D	60	83	6.0	100	40	nd	nd	20	44	100	60	na*	1.6	60
143	Oad	D	85	93	4.0	100	145	0.26	nd	60	38	100	25	na*	0.1	29
144	Padra	D	113	60	2.0	98	180	nd	nd	80	36	100	80	na*	0.0	64
145	Patdi	D	78	41	2.5	100	103	nd	nd	25	nd*	100	na	na*	nd	95
146	Pethapur	D	34	181	1.9	77	nd*	nd	nd	60	33	100	na	na*	0.5	27
147	Prantij	D	87	60	1.0	100	55	nd	nd	nd*	8	100	100	na*	3.2	2
148	Ranavav	D	38	77	0.5	100	23	nd	0.50	30	nd*	100	nd	na*	0.0	66
149	Rapar	D	97	54	0.9	100	6	0.20	0.92	nd*	nd*	100	75	na*	nd	36
150	Savri	D	41	86	0.6	100	65	0.73	na	91	nd*	100	na	na*	nd	19
151	Shahera	D	47	74	1.0	92	49	1.04	nd	18	nd*	100	0	na*	nd	39
152	Sikka	D	49	96	2.0	100	68	nd	nd	54	nd*	94	29	na*	0.8	9
153	Sojitra	D	83	110	9.0	100	39	0.14	nd	70	nd*	100	33	na*	2.0	37
154	Songadh	D	92	99	1.0	94	20	nd	nd	70	17	100	na	na*	1.9	74
155	Sutarpada	D	0	34	1.2	100	11	nd	na	0	nd*	100	0	na*	0.7	23
156	Talal	D	43	101	1.0	100	16	nd	nd	0	nd*	100	100	na*	1.1	36
157	Talod	D	63	107	1.0	100	39	0.64	nd	60	7	100	100	na*	2.5	67
158	Tarsadi	D	95	14	1.0	99	76	nd	nd	80	nd*	100	0	na*	nd	59
159	Thara	D	36	53	1.5	0	40	nd	nd	14	26	100	nd	na*	17.0	nd*
160	Tharad	D	110	70	0.8	67	14	nd	nd	95	nd*	100	0	na*	2.5	49
161	Thasra	D	52	194	1.3	100	9	0.24	nd	nd*	16	100	na	na*	0.6	49
162	Vadali	D	103	23	0.8	100	81	0.53	nd	52	27	100	14	na*	2.8	41
163	Vallabhipur	D	nd	57	0.8	100	31	nd	nd	44	12	100	0	na*	0.3	37
164	Vanthali	D	109	39	3.0	100	70	0.15	nd	0	nd*	100	75	na*	0.4	42
165	Vijapur	D	52	56	1.0	100	99	0.78	0.17	nd*	nd*	100	33	na*	nd	17
166	Visavadar	D	80	101	0.5	100	71	0.51	nd	84	44	100	50	na*	0.7	61
	Average Value		**68**	**86**	**1.6**	**92**	**62**	**0.39**	**1**	**53**	**30**	**99**	**48**	**0**	**1.8**	**45**

Note : nd indicates Data not available,na indicates not applicable to ULB

Annexure 2.2: - Local Action Indicator

A.Water Supply

															Local Action Indicators		
Sr. No.	Cities	Class	Coverage of distribution network	Percentage of estimated water demand over next 3 years	% of connections that are metered	% of meters that are functional	Average metered consumption per connection	Quality of water supply at WTP	Quality of water at ESR Level	Quality of water at Consumer end	Unit cost of production of water supply	Recovery of O&M costs for water and waste water	Average revenue per connection	Collection period for water supply charges	Billed arrears to total billed demand	Population per shared/ community stand post in slums	% Authorized and unbilled consumption to total supply
	Unit		%	%	%	Lts	%	%	%	Rs/KL	%	Rs	Days	%	Ratio	%	%
							Municipal Corporation										
1	Ahmedabad	MC	41	47	na	na	na	100	100	92	3	47	824	322	56	23	0.18
2	Bhavnagar	MC	80	59	na	66	2223	100	0	100	6	39	959	358	70	110	0.00
3	Jamnagar	MC	91	47	na	70	na	0	0	0	4	48	2012	nd	nd	734	0.14
4	Junagadh	MC	60	54	na	na	na	95	90	90	6	6	212	717	66	968	0.00
5	Rajkot	MC	93	72	5	50	na	99	99	98	6	39	834	441	73	116	0.00
6	Surat	MC	38	49	na	100	15788	100	100	100	2	74	1715	169	19	nd	0.00
7	Vadodara	MC	nd	47	na	75	na	100	98	97	4	59	1579	289	nd	nd	0.00
	Average Value		**67**	**54**		**72**	**9005**	**85**	**70**	**82**	**5**	**45**	**1162**	**383**	**57**	**390**	**0.05**
							Class A										
8	Anand	A	36	108	na	na	na	100	100	100	3	41	510	302.09	40	91	0
9	Bharuch	A	80	31	na	na	na	100	100	100	0.8	98	472	295.04	29	254	0
10	Botad	A	79	34	na	na	na	0	100	100	7	25	559	360.42	65	na	0
11	Gandhidham	A	100	29	na	na	na	100	100	100	7.0	61	1,429	347	56	nd	0
12	Godhara	A	74	47	na	100	na	100	100	100	17.7	17	443	339	63	1,146	0
13	Jetpur	A	100	27	na	na	na	0	100	100	4	23	411	346	30	54	0
14	Kalol	A	93	126	na	na	na	0	100	100	3	138	819	242	50	19289	0
15	Mehsana	A	93	51	na	na	na	100	0	0	6	30	608	411	40	303	0
16	Morbi	A	80	78	na	na	na	0	100	100	4	18	269	281	75	na	0
17	Nadiad	A	86	96	na	na	na	94	0	99	2	73	310	347	59	74	0
18	Navsari	A	94	38	na	na	na	100	100	100	3	41	187	407	6	156	0
19	Palanpur	A	100	106	na	na	na	0	100	100	16	12	335	361	63	3,574	0
20	Patan	A	100	85	na	na	na	67	0	95	6	44	935	366	52	108	0
21	Porbandar	A	80	76	na	na	na	100	100	100	7	17	489	331	64	34	4
22	Surendranagar	A	76	24	na	na	na	100	100.00	100	1	11	176	252	55	476	0
23	Valsad	A	42	58	na	na	na	100	100	100	2	60	499	348	11	124	0
24	Vapi	A	31	155	na	na	na	0	100	100	4	21	704	337	29	536	0
25	Veraval	A	80	45	na	na	na	100	100	99	4	11	363	326	65	318	0
	Average Value		**79**	**67**				**64**	**83**	**94**	**5**	**35**	**529**	**333**	**47**	**1769**	**0**
							Class B										
26	Amreli	B	100	42	na	na	na	0	100	100	2	25	302	366	71	272	0
27	Ankleshwar	B	80	91	na	na	2117	100	100	0	5	42	736	324	20	544	0
28	Bardoli	B	61	38	na	na	na	86	100	100	3	51	426	281	9	111	0
29	Bhuj	B	26	63	0.8	100	na	0	100	100	12	30	997	350	45	528	0
30	Bilimora	B	63	29	na	na	na	100	100	100	3	37	374	352	32	19	0
31	Borsad	B	70	109	na	na	na	100	0	100	1	42	310	284	51	674	0
32	Dabhoi	B	100	112	na	na	na	0	100	0	9	29	496	265	20	53	0
33	Dahod	B	84	26	na	na	na	100	0	97	4	39	629	296	33	175	0
34	Deesa	B	85	52	na	na	na	100	0	100	9	19	358	343	45	41	0
35	Dhangedra	B	70	32	na	na	na	89	100	100	1	30	368	21	68	217	1
36	Dholka	B	nd	88	na	na	na	100	0	100	4	61	530	525	6	146	0
37	Dhoraji	B	80	62	na	na	na	100	100	100	3	20	368	348	67	46	1
38	Gondal	B	nd	38	na	na	na	100	0	100	5	51	751	175	54	86	0
39	Himmatnagar	B	100	42	na	na	na	0	100	100	3	123	891	340	31	179	0
40	Kadi	B	100	57	na	na	na	0	100	0	4	29	300	368	57	2375	0
41	Keshod	B	80	42	na	na	na	0	100	100	5	28	745	532	43	1146	0
42	Khambhat	B	nd	47	na	na	na	100	100	88	11	32	610	359	49	427	2
43	Mahua	B	85	68	na	100	1142	100	0	75	2	19	271	453	39	5651	0
44	Mangrol	B	90	136	na	na	na	0	100	100	4	89	1127	83	60	550	0
45	Modasa	B	nd	91	na	na	na	100	100	100	4	66	564	343	18	11	0
46	Okha	B	80	26	na	na	na	0	100	100	6	19	165	209	53	265	0
47	Palitana	B	100	70	na	na	na	97	94	95	2	30	410	1230	39	23	0
48	Petlad	B	nd	43	na	na	na	0	86	92	1	29	432	342	71	67	0
49	Savarkundla	B	100	199	na	na	na	100	100	100	6.5	31	551	251	73	351	0
50	Siddhpur	B	89	112	na	na	na	100	100	100	8.7	30	598	365	36	42	0
51	Umargam	B	nd	584	na	na	na	100	0	100	6.9	25	384	294	57	9	0
52	Una	B	nd	69	na	na	na	100	100	100	3.9	16	265	322	43	450	0
53	Unjha	B	100	77	na	na	na	0	100	0	1.9	65	694	362	9	312	0
54	Upleta	B	9	144	na	na	na	100	100	90	3.6	29	414	346	23	2,064	0
55	Vadhwan	B	91	127	na	na	na	100	100	100	4.7	37	446	340	60	957	0
56	Vijalpore	B	80	82	na	na	na	100	0	100	2.8	46	191	325	16	198	0
57	Viramgam	B	64	68	na	na	na	100	0	100	1.2	38	539	365	45	594	0
58	Visnagar	B	100	54	na	na	na	100	100	100	6.2	30	596	336	57	46	0

A.Water Supply

																	Local Action Indicators	
Sr. No.	Cities	Class	Coverage of distribution network	Percentage of estimated water demand over next 3 years	% of connections that are metered	% of meters that are functional	Average metered consumption per connection	Quality of water supply at WTP	Quality of water at ESR Level	Quality of water at Consumer end	Unit cost of production of water supply	Recovery of O&M costs for water and waste water	Average revenue per connection	Collection period for water supply charges	Billed arrears to total billed demand	Population per shared/ community stand post in slums	% Authorized and unbilled consumption to total supply
	Unit		%	%	%	Lts	%	%	%	Rs/KL	%	Rs	Days	%	Ratio	%	%
	Average Value		**80**	**89**		**100**	**1629**	**68.83**	**72.12**	**86**	**5**	**36**	**510**	**348**	**42**	**565**	**0**
	Class C																
59	Anjar	C	100	140	na	na	na	100	100	100	14.7	32	507	359	53	1020	0
60	Bagasra	C	100	64	na	na	na	0	100	100	2	40	321	388	56	na	0
61	Balasinor	C	9	76	na	na	na	100	100	99	2	70	567	249	65	254	0
62	Bavla	C	nd	22	na	na	na	100	0	100	5	19	308	292	55	137	0
63	Chaklasi	C	75	106	na	na	na	80	100	100	4	20	306	306	45	0	0
64	Chhaya	C	100	48	na	na	na	0	100	100	1	35	361	329	34	88	0
65	Dehgam	C	nd	59	na	na	na	0	100	100	4	41	550	326	37	480	0
66	Dhanduka	C	95	44	na	na	na	0	100	100	1	44	266	203	27	1083	0
67	Dwarka	C	24	153	na	na	na	0	100	100	11	27	401	352	12	185	0
68	Gadhda	C	92	97	na	na	na	100	0	100	8	35	324	364	56	291	0
69	Gariyadhar	C	100	117	na	na	na	0	100	100	2	20	415	164	22	144	0
70	Halol	C	90	46	na	na	na	100	100	100	3	38	183	324	33	1422	0
71	Idar	C	70	92	na	na	na	0	100	100	7	30	272	324	44	20	4
72	jaffrabad	C	70	122	na	na	na	0	100	100	2	42	569	80	47	2806	0
73	Jambusar	C	100	52	na	na	na	0	100	100	1	170	245	317	64	2981	0
74	Jasdan	C	94	176	na	na	na	100	100	100	3	30	401	319	63	611	0
75	Jhalod	C	15	76	na	na	na	100	100	100	6	18	213	365	43	2,372	0
76	Kapadvanj	C	nd	56	na	na	na	100	100	100	21	12	336	312	55	0	1
77	Karamsad	C	70	78	na	na	na	100	0	100	2	42	249	385	86	0	0
78	Karjan	C	98	101	na	na	na	0	100	100	3	44	538	363	56	860	0
79	Khambadiya	C	100	36	na	na	na	100	100	100	5	9	208	178	66	657	0
80	Khedbrahma	C	80	37	na	na	na	100	0	100	3	30	354	358	34	423	0
81	Kodinar	C	48	114	na	na	na	100	100	91	4	26	441	353	37	nd	0
82	Limbdi	C	86	40	na	na	na	0	100	100	2	114	491	360	64	310	0
83	Lunavada	C	80	71	na	na	na	0	100	100	6	19	293	326	24	17	0
84	Manavadar	C	100	63	na	na	na	0	100	100	11	18	270	362	39	nd	0
85	Mandavi_K	C	100	72	na	na	na	0	100	100	7.4	32	595	221	29	140	1
86	Mansa	C	100	355	na	na	na	100	100	100	57.3	50	882	181	48	56	0
87	Mehmadabad	C	nd	65	na	na	na	0	100	100	1.5	106	757	146	57	0	3
88	Pardi	C	100	24	na	na	na	100	100	100	2.9	8	34	1595	48	142	0
89	Radhanpur	C	49	35	na	na	na	0	100	100	5.0	23	382	331	64	945	0
90	Rajola	C	100	91	na	na	na	0	100	100	2	16	311	230	66	nd	0
91	Rajpipla	C	91	41	na	na	na	0	100	100	1	18	176	420	49	74	1
92	Salya	C	100	101	na	na	na	0	100	100	20	16	244	322	41	na	0
93	Sanand	C	15	31	na	na	na	0	100	100	1	127	368	312	52	162	0
94	Santrampur	C	85	41	na	na	na	0	100	100	2	85	356	335	55	1700	0
95	Sihor	C	70	105	na	na	na	0	100	100	4	8	171	324	54	99	0
96	Talaja	C	87	70	na	na	na	100	100	100	8	18	282	309	34	147	0
97	Thangadh	C	79	37	na	na	na	0	100	0	1	10	133	345	79	376	0
98	Umreth	C	71	67	na	na	na	0	100	100	1	40	347	346	50	0	0
99	V.Vidyanagar	C	nd	65	na	na	na	0	0	100	0	117	64	79	nd	289	0
100	Vadnagar	C	41	57	na	na	na	0	100	100	5	27	434	322	22	170	0
101	Vyara	C	88	20	na	na	na	100	100	100	3	34	461	364	9	53	0
102	Wankaner	C	nd	60	na	na	na	100	100	98	6	24	503	362	31	402	0
	Average Value		**78**	**78**				**40**	**89**	**97**	**6**	**29**	**361**	**332**	**47**	**536**	**0**
	Class D																
103	Amod	D	80	21	na	na	na	0	100	100	1.7	33	321	384	50	529	0
104	Anklav	D	nd	47	na	na	na	100	0	100	0.5	69	295	492	65	642	0
105	Babra	D	95	55	na	na	na	0	100	100	1.5	21	321	170	72	na	0
106	Bhachau	D	100	81	na	na	na	0	0	0	7.6	20	78	131	61	nd	0
107	Bareja	D	100	22	na	na	na	100	0	99	2.5	47	659	361	56	110	0
108	Barvala	D	9	90	na	na	na	0	0	100	0.6	104	705	265	42	na	0
109	Bantawa	D	100	213	na	na	na	100	100	100	15.0	36	456	305	56	567	0
110	Bayad	D	20	70	na	na	na	100	0	100	4.0	58	423	353	21	650	0

A.Water Supply

																Local Action Indicators	
Sr. No.	Cities	Class	Coverage of distribution network	Percentage of estimated water demand over next 3 years	% of connections that are metered	% of meters that are functional	Average metered consumption per connection	Quality of water supply at WTP	Quality of water at ESR Level	Quality of water at Consumer end	Unit cost of production of water supply	Recovery of O&M costs for water and waste water	Average revenue per connection	Collection period for water supply charges	Billed arrears to total billed demand	Population per shared/ community stand post in slums	% Authorized and unbilled consumption to total supply
	Unit		%	%	%	Lts	%	%	%	Rs/KL	%	Rs	Days	%	Ratio	%	%
111	Bhabhar	D	100	21	na	na	na	69	0	100	6.8	13	348	192	53	97	0
112	Bhanvad	D	100	49	na	na	na	0	100	100	4.2	17	134	348	59	168	0
113	Bhayvadar	D	100	30	na	na	na	0	100	100	5.5	36	404	365	4	318	0
114	Boriyavi	D	70	62	na	na	na	100	100	25	2	26	0	0	31	nd	0
115	Chalal	D	nd	59	na	na	na	0	100	100	2	14	199	311	61	24	3
116	Chanasma	D	nd	57	na	na	na	0	100	100	3	56	796	328	34	69	0
117	Chhota_Udaipur	D	80	67	na	na	na	0	100	100	2	38	383	348	58	nd	0
118	Chorvad	D	32	99	na	na	na	0	100	97	6	8	293	244	47	3,202	0
119	Chotila	D	100	71	na	na	na	0	100	83	7	21	364	346	57	350	0
120	Dakor	D	nd	162	na	na	na	100	100	100	2	39	342	327	49	921	0
121	Damnagar	D	nd	93	na	na	na	0	0	0	2	43	455	300	35	108	2
122	DevgadhBariya	D	80	102	na	na	na	0	100	100	2	69	434	295	33	266	0
123	Dhanera	D	100	26	na	na	na	100	100	90	1	13	233	264	52	49	0
124	Dharampur	D	97	56	na	na	na	0	100	100	4	20	319	289	16	nd	0
125	Dhrol	D	22	80	na	na	na	0	98	100	2	15	150	354	70	815	0
126	Gandevi	D	100	74	na	na	na	0	100	100	1	67	404	331	21	35	0
127	Halvad	D	98	33	na	na	na	100	100	100	1	18	211	344	59	158	0
128	Harij	D	88	29	na	na	na	0	100	100	6.4	60	1087	207	71	101	0
129	Jamjodhpur	D	3	29	na	na	na	0	100	100	2.6	48	466	343	25	67	0
130	Jam_Rawal	D	100	37	na	na	na	0	100	100	2.3	41	285	334	40	na	0
131	Kaalol	D	100	69	na	na	na	0	100	100	4.9	53	280	346	53	129	0
132	Kalavad	D	45	29	na	na	na	0	100	100	5.6	23	281	320	53	99	0
133	Kanjari	D	nd	26	na	na	na	0	0	100	1.9	21	83	336	74	984	0
134	Kansad	D	100	64	na	na	na	0	100	100	1.1	25	156	663	36	234	0
135	Kathlal	D	91	36	na	na	na	100	0	100	0.3	54	226	193	62	414	0
136	Kheda	D	nd	62	na	na	na	100	0	100	8.4	37	362	354	65	1222	0
137	Kheralu	D	100	54	na	na	na	0	100	100	9.2	27	563	334	45	38	0
138	Kutiyana	D	70	226	na	na	na	0	100	0	11.2	17	429	338	58	317	0
139	Lathi	D	nd	73	na	na	na	0	100	100	1	38	406	345	39	402	0
140	Mahudha	D	100	16	na	na	na	100	0	100	1	43	310	322	52	205	0
141	Maliyamiyana	D	70	74	na	na	na	0	0	0	0	62	218	365	66	na	0
142	Mandavi_S	D	100	67	na	na	na	100	0	100	2	50	265	306	43	23	0
143	Oad	D	95	71	na	na	na	71	100	100	1	68	377	327	36	540	1
144	Padra	D	100	59	na	na	na	71	100	98	1	46	375	446	45	307	0
145	Patdi	D	100	78	na	na	na	83	100	100	3	52	381	347	47	1,375	0
146	Pethapur	D	nd	17	na	na	na	67	0	100	1	339	1855	114	68	nd	5
147	Prantij	D	70	104	na	na	na	0	100	0	6	48	536	399	27	38	1
148	Ranavav	D	100	25	na	na	na	0	100	100	2	11	172	332	61	85	0
149	Rapar	D	50	46	na	na	na	100	0	0	45	8	610	258	56	1398	0
150	Savri	D	nd	88	na	na	na	0	100	100	6	57	602	363	21	nd	0
151	Shahera	D	50	104	na	na	na	0	100	90	1	36	155	298	56	319	0
152	Sikka	D	72	38	na	na	na	0	100	100	3	49	508	347	61	192	0
153	Sojitra	D	95	43	na	na	na	100	0	100	2	27	250	215	69	253	0
154	Songadh	D	85	27	na	na	na	0	79	97	5	20	419	296	37	25	1
155	Sutarpada	D	100	447	na	na	na	0	100	100	4.4	13	1189	364	81	388	0
156	Talal	D	100	56	na	na	na	100	0	100	2.3	6	92	317	78	na	0
157	Talod	D	100	29	na	na	na	100	100	100	2.9	20	223	298	61	262	0
158	Tarsadi	D	95	462	na	na	na	92	100	100	6.7	46	211	196	74	297	0
159	Thara	D	100	52	na	na	na	0	0	0	22.8	38	890	291	25	3,429	0
160	Tharad	D	100	40	na	na	na	0	80	0	4.4	10	169	646	53	na	0
161	Thasra	D	35	41	na	na	na	100	0	100	1.7	7	68	316	75	148	0
162	Vadali	D	14	158	na	na	na	0	100	100	5.8	67	395	331	45	642	0
163	Vallabhipur	D	100	53	na	na	na	0	100	100	5.2	25	270	363	56	627	0
164	Vanthali	D	100	111	na	na	na	100	100	100	5	43	455	300	47	na	0
165	Vijapur	D	100	56	na	na	na	0	100	100	1	69	184	365	74	na	0
166	Visavadar	D	100	39	na	na	na	100	100	100	2	34	397	316	43	59	0
	Average Value		**82**	**76**				**37**	**70**	**86**	**4**	**35**	**389**	**319**	**51**	**474**	**0**

Note : nd indicates Data not available,na indicates not applicable to ULB

Annexure 2.2: - Local Action Indicat

A.Water Supply

Sr. No.	Cities	Class	% Losses from WTP to WDS	% Losses from WDS to consumer	% of identified illegal connections that are regularized	Water losses per connection (litres)	Real losses per service connection per month per meter (head) Pressure (litres)	Water losses per mains length (litres)	UARL (million litres)	ILI	Annual cost of losses	Total complaints in water supply per 1000 connections per year	Complaints for pipe breaks and leakages per 1000 connections per year	Complaints for low pressure per 1000 connections per year	Complaints for water quality per 1000 connections per year	Total Staff (regular and contract) per 1000 water supply connections
	Unit		%	%	Litres	Litres	Litres	ML	Ratio	Rs	Ratio	Ratio	Ratio	Ratio	Ratio	Ratio
	Municipal Corporation															
1	Ahmedabad	MC	nd	nd	0	0	0	273	610775	478	351282376	367	0	0.0	0.00	0
2	Bhavnagar	MC	nd	26	0	0	nd	371	67360	512	63408623	33	0	0.0	0.00	2
3	Jamnagar	MC	16	26	0	1	0	346	60678	685	55363874	25	0	0.0	0.00	nd
4	Junagadh	MC	20	11	0	0	nd	nd	nd	nd	17214708	49	0	0.0	0.00	7
5	Rajkot	MC	17	nd	30	nd	nd	nd	179629	nd	nd	15	5	3.7	0.15	1
6	Surat	MC	5	16	0	0	0	816	282890	505	120968564	20	18	0.0	0.04	2
7	Vadodara	MC	15	12	0	0	1	529	196512	525	146563155	42	39	0.0	0.23	4
	Average Value		**14**	**18**	**4**	**0**	**0**	**467**	**232974**	**541**	**125800217**	**79**	**9**	**0.5**	**0.06**	**3**
	Class A															
8	Anand	A	nd	nd	0	0	nd	nd	nd	nd	2617917	105	79	0	0.00	2
9	Bharuch	A	nd	nd	100	0	0	366	19291	427	23726	38	38	0	0.00	2
10	Botad	A	nd	nd	0	0	0	979	10824	520	13307596	27	18	9	0.00	2
11	Gandhidham	A	nd	nd	0	0	nd	nd	nd	nd	32,09,180	13	2	4	0.18	5
12	Godhara	A	nd	nd	0	0	nd	nd	nd	nd	2,70,90,636	77	77	0	0.00	5
13	Jetpur	A	nd	nd	0	nd	nd	nd	14853	nd	nd	60	60	0	0.00	0
14	Kalol	A	16	17	0	0	0	nd	nd	nd	3196645	17	15	0	0.22	1
15	Mehsana	A	nd	nd	0	0	nd	3380	26553	471	24367683	10	0	0	0.00	1
16	Morbi	A	nd	nd	0	1	2	132	19053	626	16377617	32	15	17	0.00	1
17	Nadiad	A	nd	nd	0	nd	nd	nd	26750	nd	nd	434	37	199	3.65	2
18	Navsari	A	nd	nd	0	0	0	631	46334	171	88,24,972	25	24	1	0.00	1
19	Palanpur	A	nd	nd	0	nd	nd	nd	nd	nd	nd	8	6	3	0.00	2
20	Patan	A	nd	nd	0	0	nd	nd	nd	nd	4954197	89	82	2	0.19	1
21	Porbandar	A	nd	nd	0	0	nd	62	12917	169	5492473	156	0	117	0.00	3
22	Surendranagar	A	30	13	100	0	0	669	19954	493	3750487	263	40	7	2.44	1
23	Valsad	A	0	41	0	0	0	462	15039	504	4937400	23	23	0	0.00	5
24	Vapi	A	5	36	0	1	0	1333	3901	1025	5068350	145	0	0	0.00	1
25	Veraval	A	nd	nd	0	nd	nd	nd	12606	nd	nd	51	30	0	0.07	4
	Average Value		**13**	**26**	**11**	**0**	**0**	**890**	**19006**	**490**	**8801349**	**87**	**30**	**20**	**0.38**	**2**
	Class B															
26	Amreli	B	nd	nd	0	nd	nd	nd	16066.80	nd	nd	319	96	0	0.00	1
27	Ankleshwar	B	nd	nd	0	0	0	214	11174.80	149	2782562	125	0	0	0.00	4
28	Bardoli	B	nd	nd	0	0	0	21689	7431.30	146	1328573	58	26	32	0.00	4
29	Bhuj	B	nd	nd	0	0	0	115	24776.02	112	10592313	3	3	0	0.00	6
30	Bilimora	B	nd	40	0	0	0	1073	5314.60	505	2632372	328	55	273	0.00	2
31	Borsad	B	30	nd	0	nd	nd	nd	nd	nd	nd	26	19	7	0.00	2
32	Dabhoi	B	nd	5	0	0	nd	41	8620.00	38	1074151	91	57	11	0.00	4
33	Dahod	B	nd	nd	0	nd	nd	nd	9638.20	nd	nd	36	0	0	0.00	3
34	Deesa	B	nd	nd	0	0	0	469	13752.14	199	8270677	34	34	0	0.00	2
35	Dhangedra	B	11	14	0	0	0	252	9532.40	312	1193623	36	21	8	0.00	4
36	Dholka	B	8	1	0	0	0	nd	nd	nd	583616	15	15	0	0.00	nd
37	Dhoraji	B	nd	nd	0	0	0	117	11072.40	223	2705514	31	27	0	0.00	3
38	Gondal	B	nd	nd	40	nd	nd	nd	nd	nd	nd	22	0	0	0.00	3
39	Himmatnagar	B	nd	nd	0	0	0	8	16511.60	94	1743310	102	84	7	0.30	2
40	Kadi	B	nd	nd	0	0	nd	117	12270.31	392	4621004	20	17	0	0.00	0
41	Keshod	B	nd	nd	100	0	nd	nd	nd	nd	2875077	53	8	26	0.00	3
42	Khambhat	B	3	43	100	0	nd	292	13705.40	594	33443887	99	90	7	0.00	2
43	Mahua	B	5	5	45	0	0	163	7767.20	151	888860	84	63	19	0.21	4
44	Mangrol	B	nd	23	100	0	0	36	7442.80	93	1108986	62	0	0	0.00	1
45	Modasa	B	nd	nd	0	nd	nd	nd	8486.00	nd	nd	57	40	0	0.29	3
46	Okha	B	nd	41	0	0	0	33	5201.20	158	1677143	40	26	4	0.00	5
47	Palitana	B	nd	nd	0	0	0	253	5611.60	586	2636722	107	71	0	0.30	10
48	Petlad	B	nd	nd	0	0	0	471	7298.20	97	3,43,667	13	3	0	0.88	2
49	Savarkundla	B	nd	nd	0	nd	nd	nd	nd	nd	nd	16	5	0	0.18	7
50	Siddhpur	B	nd	35	0	0	0	29	9757.60	180	5499157	114	0	39	2.58	3
51	Umargam	B	nd	nd	0	nd	nd	nd	nd	nd	nd	98	98	0	0.00	2
52	Una	B	nd	nd	0	nd	nd	nd	nd	nd	nd	51	16	35	0.00	2
53	Unjha	B	nd	nd	0	0	nd	173	10008.06	171	1187530	28	0	0	0.00	2
54	Upleta	B	nd	nd	0	0	nd	10	8365.81	34	3,60,068	24	18	6	0.00	1
55	Vadhwan	B	nd	17	25	0	0	54	10263.80	102	17,70,625	44	0	0	0.00	2
56	Vijalpore	B	nd	76	0	1	1	nd	nd	nd	4409094	21	18	2	0.00	2
57	Viramgam	B	nd	nd	0	0	nd	nd	nd	nd	1710428	88	37	37	1.22	7
58	Visnagar	B	26	0	0	0	0	102	13594.40	240	6961951	18	3	5	0.25	1

A.Water Supply

Sr. No.	Cities	Class	% Losses from WTP to WDS	% Losses from WDS to consumer	% of identified illegal connections that are regularized	Water losses per connection (litres)	Real losses per service connection per month per meter (head) Pressure (litres)	Water losses per mains length (litres)	UARL (million litres)	ILI	Annual cost of losses	Total complaints in water supply per 1000 connections per year	Complaints for pipe breaks and leakages per 1000 connections per year	Complaints for low pressure per 1000 connections per year	Complaints for water quality per 1000 connections per year	Total Staff (regular and contract) per 1000 water supply connections
	Unit		%	%	Litres	Litres	Litres	ML	Ratio	Rs	Ratio	Ratio	Ratio	Ratio	Ratio	Ratio
	Average Value		**14**	**25**	**12**	**0**	**0**	**1224**	**10569**	**218**	**4096036**	**69**	**29**	**16**	**0.19**	**3**
	Class C															
59	Anjar	C	9	nd	0	nd	nd	nd	12469	nd	nd	27	23	0	0.00	5
60	Bagasra	C	nd	nd	0	nd	nd	nd	3840	nd	nd	127	76	0	0.00	4
61	Balasinor	C	5	nd	0	nd	nd	nd	5834	nd	nd	67	34	34	0.00	1
62	Bavla	C	nd	nd	0	0	nd	nd	nd	nd	2747147	69	47	14	0.00	2
63	Chaklasi	C	100	35	0	0	0	nd	nd	nd	1973990	968	870	0	0.00	1
64	Chhaya	C	nd	nd	0	nd	nd	nd	2956	nd	nd	139	25	38	2.82	3
65	Dehgam	C	nd	54	0	1	nd	315	5477	689	5085871	128	0	0	0.00	3
66	Dhanduka	C	nd	nd	0	0	nd	167	6083	123	231285	40	19	14	0.53	2
67	Dwarka	C	nd	nd	0	nd	nd	nd	5771	nd	nd	122	7	10	4.07	4
68	Gadhda	C	nd	8	0	0	0	14	3683	46	471027	144	69	42	0.46	4
69	Gariyadhar	C	nd	17	0	0	0	14	3678	164	520952	496	0	0	0.00	7
70	Halol	C	nd	nd	0	0	nd	335	4988	269	1427336	70	59	0	0.00	2
71	Idar	C	nd	nd	0	0	0	46	5380	223	3093731	20	10	0	0.00	2
72	jaffrabad	C	nd	nd	100	nd	nd	nd	2716	nd	nd	47	9	33	0.00	2
73	Jambusar	C	nd	nd	100	nd	nd	nd	nd	nd	nd	71	65	4	0.15	1
74	Jasdan	C	2	42	0	0	nd	190	5033	420	2526509	24	20	2	0.00	4
75	Jhalod	C	3	55	0	0	0	128	2913	397	2285726	105	70	0	0.00	3
76	Kapadvanj	C	nd	nd	0	0	nd	19	7673	47	2755393	118	85	0	0.00	5
77	Karamsad	C	nd	nd	0	0	0	1534	2992	513	995548	194	97	0	0.00	2
78	Karjan	C	nd	15	0	0	0	8215	3462	202	413637	333	277	0	0.00	3
79	Khambadiya	C	nd	nd	0	nd	nd	nd	7000	nd	nd	152	64	34	0.36	1
80	Khedbrahma	C	nd	11	0	0	0	72	3243	100	322448	76	30	30	0.00	2
81	Kodinar	C	nd	nd	0	nd	nd	nd	3874	nd	nd	0	0	0	0.00	3
82	Limbdi	C	nd	nd	0	nd	nd	nd	6304	nd	nd	25	8	10	0.14	2
83	Lunavada	C	nd	nd	0	nd	nd	nd	4717	nd	nd	51	31	10	0.17	6
84	Manavadar	C	5	nd	0	nd	nd	nd	7558	nd	nd	23	23	0	0.00	1
85	Mandavi_K	C	nd	nd	0	0	0	1404	7580	278	5647558	23	4	6	0.00	1
86	Mansa	C	nd	nd	0	nd	nd	nd	4989	nd	nd	58	29	29	0.00	4
87	Mehmadabad	C	7	42	100	1	1	nd	nd	nd	1424985	90	40	20	1.67	3
88	Pardi	C	nd	nd	0	0	0	20	3201	87	284947	52	49	0	0.00	5
89	Radhanpur	C	nd	nd	0	0	0	270	3647	517	3427311	409	245	0	0.00	6
90	Rajola	C	nd	nd	0	nd	nd	nd	3584	nd	nd	43	6	14	0.24	5
91	Rajpipla	C	nd	nd	0	0	0	nd	nd	nd	442098	54	45	0	0.00	4
92	Salya	C	nd	nd	0	nd	nd	nd	2549	nd	nd	48	10	5	0.80	4
93	Sanand	C	nd	nd	0	0	nd	724	5363	540	988183	9	7	0	0.15	1
94	Santrampur	C	nd	27	0	0	0	20	3082	109	207893	90	34	34	0.57	3
95	Sihor	C	nd	nd	0	0	0	1045	4884	257	1996998	118	59	20	0.00	8
96	Talaja	C	nd	nd	0	0	0	59	4056	146	1643357	50	50	0	0.00	7
97	Thangadh	C	nd	nd	0	0	0	240	2558	375	309344	77	58	0	0.00	3
98	Umreth	C	nd	23	0	0	0	1388	5061	291	786056	48	19	10	0.00	2
99	V.Vidyanagar	C	nd	nd	0	nd	nd	nd	nd	nd	nd	137	0	0	0.00	nd
100	Vadnagar	C	nd	nd	0	0	nd	182	3478	335	2162922	43	14	29	0.00	4
101	Vyara	C	nd	nd	0	0	0	1083	5218	353	2148010	37	0	0	0.00	6
102	Wankaner	C	nd	nd	0	nd	nd	nd	4840	nd	nd	18	7	7	0.00	3
	Average Value		**19**	**30**	**7**	**0**	**0**	**760**	**4,782**	**282**	**17,15,565**	**115**	**61**	**10**	**0.28**	**3**
	Class D															
103	Amod	D	24	22	0	1	2	39	3252	492	9,62,210	57	38	0	0.00	1
104	Anklav	D	nd	nd	100	nd	nd	nd	nd	nd	nd	67	10	31	0.00	2
105	Babra	D	nd	47	0	1	1	144	1877	616	411206	388	194	100	0.00	4
106	Bhachau	D	nd	29	40	0	0	60	6844	159	2968086	37	29	18	0.61	2
107	Bareja	D	nd	nd	0	0	1	144	2677	536	1237658	15	8	0	0.00	4
108	Barvala	D	nd	nd	0	nd	nd	nd	1829	nd	nd	43	43	0	0.00	1
109	Bantawa	D	nd	nd	61	nd	nd	nd	2445	nd	nd	51	17	13	0.36	2
110	Bayad	D	nd	16	0	0	0	25	2787	88	3,56,531	73	37	0	0.00	5

A.Water Supply

Sr. No.	Cities	Class	% Losses from WTP to WDS	% Losses from WDS to consumer	% of identified illegal connections that are regularized	Water losses per connection (litres)	Real losses per service connection per month per meter (head) Pressure (litres)	Water losses per mains length (litres)	UARL (million litres)	ILI	Annual cost of losses	Total complaints in water supply per 1000 connections per year	Complaints for pipe breaks and leakages per 1000 connections per year	Complaints for low pressure per 1000 connections per year	Complaints for water quality per 1000 connections per year	Total Staff (regular and contract) per 1000 water supply connections
	Unit		%	%	Litres	Litres	Litres	ML	Ratio	Rs	Ratio	Ratio	Ratio	Ratio	Ratio	Ratio
111	Bhabhar	D	nd	28	0	0	0	489	2750	355	23,82,683	46	0	0	0.00	3
112	Bhanvad	D	31	36	0	0	0	18	5282	124	974785	42	6	8	1.04	1
113	Bhayvadar	D	nd	nd	0	nd	nd	nd	3653	nd	nd	40	20	9	0.00	2
114	Boriyavi	D	5	nd	0	nd	nd	nd	nd	nd	nd	711	593	0	0.00	0
115	Chalal	D	nd	25	0	0	nd	32	2505	229	324723	53	26	0	0.00	5
116	Chanasma	D	nd	nd	0	0	0	nd	nd	nd	1886247	1246	1205	0	0.53	2
117	Chhota_Udaipur	D	nd	20	0	0	nd	305	2826	216	4,97,406	69	0	0	0.00	4
118	Chorvad	D	nd	nd	0	nd	nd	nd	1146	nd	nd	371	100	100	7.53	4
119	Chotila	D	nd	nd	0	0	0	12	2186	59	314561	144	0	24	4.01	5
120	Dakor	D	10	13	0	0	0	nd	nd	nd	358753	303	202	101	0.00	2
121	Damnagar	D	nd	28	0	0	0	26	2062	178	185981	80	27	27	0.00	0
122	DevgadhBariya	D	nd	nd	0	nd	nd	nd	2482	nd	nd	198	20	60	0.00	4
123	Dhanera	D	nd	nd	0	nd	nd	nd	2971	nd	nd	246	233	10	0.27	3
124	Dharampur	D	nd	nd	0	0	nd	67	2685	374	14,33,852	91	68	0	0.00	5
125	Dhrol	D	14	8	0	0	0	nd	nd	nd	5,59,798	74	57	6	0.00	4
126	Gandevi	D	60	nd	0	nd	nd	nd	2251	nd	nd	64	64	0	0.00	1
127	Halvad	D	nd	nd	0	0	0	882	3653	483	808992	13	13	0	0.00	2
128	Harij	D	0	nd	0	nd	nd	nd	nd	nd	nd	114	114	0	0.00	0
129	Jamjodhpur	D	nd	nd	0	nd	nd	nd	5367	nd	nd	38	0	11	0.00	2
130	Jam_Rawal	D	nd	nd	0	nd	nd	nd	2030	nd	nd	103	27	5	0.45	2
131	Kaalol	D	nd	nd	0	nd	nd	nd	4080	nd	nd	49	24	24	0.00	4
132	Kalavad	D	nd	38	0	0	0	94	4802	156	15,08,174	58	21	21	0.52	3
133	Kanjari	D	nd	nd	50	nd	nd	nd	nd	nd	nd	373	124	0	0.00	2
134	Kansad	D	nd	nd	0	nd	nd	nd	nd	nd	nd	229	224	5	0.00	1
135	Kathlal	D	nd	nd	0	nd	nd	nd	nd	nd	nd	31	19	9	0.26	1
136	Kheda	D	nd	nd	0	0	nd	nd	nd	nd	363046	126	126	0	0.00	4
137	Kheralu	D	nd	30	0	0	0	105	2935	147	1434528	101	40	0	2.24	1
138	Kutiyana	D	nd	nd	0	nd	nd	nd	2390	nd	nd	429	95	48	0.00	0
139	Lathi	D	nd	nd	0	nd	nd	nd	2974	nd	nd	107	0	53	0.00	3
140	Mahudha	D	nd	nd	0	0	0	nd	nd	nd	516269	940	0	0	0.00	3
141	Maliyamiyana	D	nd	nd	0	nd	nd	nd	932	nd	nd	392	131	0	0.00	1
142	Mandavi_S	D	nd	nd	0	0	0	nd	nd	nd	1087607	38	35	0	0.00	2
143	Oad	D	5	32	0	0	0	nd	nd	nd	247373	30	30	0	0.00	1
144	Padra	D	nd	nd	100	0	1	202	6624	350	583921	37	27	6	0.00	2
145	Patdi	D	nd	nd	0	nd	nd	nd	nd	nd	nd	115	92	23	0.00	5
146	Pethapur	D	nd	nd	100	0	nd	280	1852	454	1,57,859	187	187	0	0.00	3
147	Prantij	D	nd	nd	0	0	nd	nd	nd	nd	271341	792	792	0	0.00	4
148	Ranavav	D	6	nd	0	nd	nd	nd	3554	nd	nd	11	0	11	0.24	3
149	Rapar	D	nd	nd	0	nd	nd	nd	nd	nd	nd	53	53	0	0.00	5
150	Savri	D	nd	nd	0	nd	nd	nd	nd	nd	nd	341	341	0	0.00	3
151	Shahera	D	nd	nd	0	nd	nd	nd	1602	nd	nd	220	220	0	0.00	4
152	Sikka	D	1	nd	52	nd	nd	nd	1857	nd	nd	90	17	0	0.93	1
153	Sojitra	D	32	nd	0	nd	nd	nd	nd	nd	nd	320	160	160	0.00	0
154	Songadh	D	nd	nd	100	0	0	61	3614	237	1516548	857	571	143	0.00	7
155	Sutarpada	D	nd	nd	0	nd	nd	nd	61	nd	nd	1111	0	0	0.00	56
156	Talal	D	nd	nd	0	nd	nd	nd	2842	nd	nd	77	53	0	0.59	6
157	Talod	D	nd	8	0	0	0	6	2880	39	116063	133	133	0	0.00	2
158	Tarsadi	D	nd	nd	50	nd	nd	nd	nd	nd	nd	12	12	0	0.00	1
159	Thara	D	nd	nd	0	0	0	182	2101	86	14,92,967	276	0	0	0.00	3
160	Tharad	D	nd	nd	0	nd	nd	nd	3529	nd	nd	82	27	55	2.28	2
161	Thasra	D	nd	nd	0	0	nd	nd	nd	nd	253582	115	57	0	0.00	4
162	Vadali	D	nd	nd	0	0	nd	nd	nd	nd	450125	52	0	34	0.00	1
163	Vallabhipur	D	nd	nd	0	0	0	10	2984	61	332017	327	0	0	0.00	0
164	Vanthali	D	nd	nd	0	nd	nd	nd	2176	nd	nd	14	0	0	0.00	1
165	Vijapur	D	1	nd	0	nd	nd	nd	nd	nd	nd	397	198	0	0.00	3
166	Visavadar	D	nd	44	0	0	0	202	3013	470	8,54,024	216	60	43	3.88	1
	Average Value		**16**	**26**	**10**	**0**	**0**	**154**	**2913**	**269**	**839029**	**211**	**110**	**18**	**0.40**	**3**

Note : nd indicates Data not available,na indicates no

Sr. No.	Cities	Class	Coverage of toilets (individual+community)	Coverage of waste water network services (resi+non resi)	Collection efficiency of waste water network	Adequacy of waste water treatment capacity	Extent of cost recovery in waste water management	Spatial variations in coverage of individual toilets	Spatial variations in coverage of sewerage connections	Coverage of toilets in slums	Coverage of sewerage connections in slums	Quality of waste water treatment	Extent of reuse and recycling of waste water	Efficiency in redressal of customer complaints	Percentage of recruited staff to sanctioned staff	Efficiency in collection of sewerage related charges
	Unit		%	%	%	%	%	Ratio	Ratio	%	%	%	%	%	%	%
1	Ahmedabad	MC	81.7	65.8	64.9	94.5	98.5	nd	nd	99	64	75	0	99.7	21	58.7
2	Bhavnagar	MC	79	42	nd*	nd*	3	nd	nd	83	60	na*	na*	100	64	0
3	Jamnagar	MC	87	14	na*	na*	6	nd	nd	52	nd*	na*	na*	100	nd	nd*
4	Junagadh	MC	81	nd*	na*	na*	3	nd	nd	63	nd*	na*	na*	96	nd	na*
5	Rajkot	MC	80	49	49	69	89	nd	nd	90	nd*	86	nd*	53	92	53
6	Surat	MC	94.8	74.5	91.5	108.5	37.3	nd	nd	41	41	89	0.6	99	78	79
7	Vadodara	MC	84	44	100	167	108	nd	nd	62	30	88	0	100	nd	83
	Average Value		**84**	**48**	**76**	**110**	**49**			**70**	**49**	**84**	**0.2**	**93**	**64**	**55**
	Class A															
8	Anand	A	93	29	na*	na*	34	nd	nd	34	30	na*	na*	100	56	77
9	Bharuch	A	54	na*	na*	na*	29	nd	na	nd*	na*	na*	na*	95	44	na*
10	Botad	A	71	na*	na*	na*	100	nd	na	70	na*	na*	na*	100	na	22
11	Gandhidham	A	91	61	na*	na*	nd*	nd	nd	3	0	na*	na*	70	75	na*
12	Godhara	A	97	na*	na*	na*	na*	nd	na	33	na*	na*	na*	nd*	na	na*
13	Jetpur	A	91	na*	na*	na*	0.2	nd	na	nd*	na*	na*	na*	100	na	na*
14	Kalol	A	91	52	100	na*	nd*	nd	nd	32	0	na*	na*	100	78	45
15	Mehsana	A	93	11	na*	na*	68	nd	nd	35	1	na*	na*	97	0	85
16	Morbi	A	94	4	na*	na*	5	nd	nd	88	30	na*	na*	94	74	64
17	Nadiad	A	97	46	na*	na*	61	nd	nd	95	48	na*	na*	96	62	50
18	Navsari	A	98	63	na*	na*	121	nd	nd	87	70	na*	na*	100	69	78
19	Palanpur	A	80	5	na*	na*	171	nd	nd	53	0	na*	na*	100	na	na*
20	Patan	A	87	26	64	na*	45	nd	nd	75	0	na*	na*	100	91	66
21	Porbandar	A	41	na*	na*	na*	3	nd	na	53	na*	na*	na*	100	na	na*
22	Surendranagar	A	75	na*	na*	na*	na*	nd	na	68	na*	na*	na*	93	na	na*
23	Valsad	A	41	28	100	137	260	1	1	nd*	7	100	0	100	19	87
24	Vapi	A	81	na*	na*	na*	5	nd	na	37	na*	na*	na*	100	na	na*
25	Veraval	A	93	na*	na*	na*	na*	nd	na	43	na*	na*	na*	100	na	na*
	Average Value		**81**	**33**	**88**	**137**	**69**	**1**	**1**	**54**	**19**	**100**	**0**	**97**	**57**	**64**
	Class B															
26	Amreli	B	95	na*	na*	na*	1	nd	na	82	na*	na*	na*	100	60	na*
27	Ankleshwar	B	57	65	na*	na*	37	nd	nd	85	16	na*	na*	100	nd	67
28	Bardoli	B	99	42	na*	na*	199	nd	nd	57	0	na*	na*	100	na	32
29	Bhuj	B	99	25	na*	32	12	nd	nd	92	nd*	na*	na*	86	53	37
30	Bilimora	B	99	na*	na*	na*	56	nd	na	nd*	na*	na*	na*	100	na	na*
31	Borsad	B	80	40	na*	na*	50	nd	nd	92	na*	na*	na*	100	54	57
32	Dabhoi	B	100	nd*	100	na*	63	nd	nd	30	nd*	nd*	na*	100	72	44
33	Dahod	B	100	na*	na*	na*	68	nd	na	99	na*	na*	na*	100	na	55
34	Deesa	B	92	na*	na*	na*	6	nd	na	26	na*	na*	na*	100	68	na*
35	Dhangedra	B	95	na*	na*	na*	0	nd	na	nd*	na*	na*	na*	nd*	na	na*
36	Dholka	B	81	nd*	na*	na*	nd*	nd	nd	95	nd*	na*	na*	nd*	nd	na*
37	Dhoraji	B	nd*	na*	na*	na*	0	nd	na	87	na*	na*	na*	100	na	na*
38	Gondal	B	84	na*	na*	na*	0	nd	na	97	na*	na*	na*	nd*	40	na*
39	Himmatnagar	B	80	23	na*	na*	21	nd	nd	nd*	0	na*	na*	100	na	100
40	Kadi	B	80	nd*	na*	na*	53	nd	nd	16	nd*	na*	na*	100	na	48
41	Keshod	B	91	na*	na*	na*	0	nd	na	70	na*	na*	na*	100	na	na*
42	Khambhat	B	61	58	na*	na*	nd*	nd	nd	nd*	nd*	na*	na*	100	na	54
43	Mahua	B	81	22	na*	na*	97	nd	nd	68	0	na*	na*	100	85	31
44	Mangrol	B	99	na*	na*	na*	nd*	nd	na	87	na*	na*	na*	100	na	na*
45	Modasa	B	80	na*	na*	na*	29	nd	na	nd*	na*	na*	na*	100	na	na*
46	Okha	B	55	na*	na*	na*	nd*	nd	na	33	na*	na*	na*	nd*	na	na*
47	Palitana	B	55	25	na*	na*	100	nd	nd	nd*	0	na*	na*	100	na	50
48	Petlad	B	21	16	na*	na*	43	nd	1	91	30	na*	na*	100	39	63
49	Savarkundla	B	82	5	na*	na*	41	nd	nd	86	14	na*	na*	100	na	14
50	Siddhpur	B	87	29	na*	na*	53	nd	nd	67	60	na*	na*	100	na	77
51	Umargam	B	82	na*	na*	na*	0	nd	na	nd*	na*	na*	na*	nd*	na	na*
52	Una	B	85	na*	na*	na*	72	nd	na	98	na*	na*	na*	100	100	na*
53	Unjha	B	91	45	na*	na*	24	nd	nd	nd*	nd*	na*	na*	100	85	93
54	Upleta	B	100	10	na*	na*	0	nd	nd	15	0	na*	na*	100	na	na*
55	Vadhwan	B	83	na*	na*	na*	0	nd	na	41	na*	na*	na*	100	na	na*
56	Vijalpore	B	75	59	na*	na*	nd*	nd	nd	nd*	42	na*	na*	100	93	82
57	Viramgam	B	82	31	na*	na*	19	nd	nd	49	50	na*	na*	93	20	56
58	Visnagar	B	83	1	na*	na*	18	nd	nd	nd*	38	na*	na*	100	na	21

Sr. No.	Cities	Class	Coverage of toilets (individual+community)	Coverage of waste water network services (resi+non resi)	Collection efficiency of waste water network	Adequacy of waste water treatment capacity	Extent of cost recovery in waste water management	Spatial variations in coverage of individual toilets	Spatial variations in coverage of sewerage connections	Coverage of toilets in slums	Coverage of sewerage connections in slums	Quality of waste water treatment	Extent of reuse and recycling of waste water	Efficiency in redressal of customer complaints	Percentage of recruited staff to sanctioned staff	Efficiency in collection of sewerage related charges
	Unit		%	%	%	%	%	Ratio	Ratio	%	%	%	%	%	%	%
	Average Value		**82**	**31**			**38**		**1**	**68**	**21**			**99**	**64**	**55**
	Class C															
59	Anjar	C	89	35	na*	na*	nd*	nd	nd	91	50	na*	na*	100	na	54
60	Bagasra	C	90	na*	na*	na*	11	nd	na	na*	na*	na*	na*	100	nd	na*
61	Balasinor	C	98	30	na*	na*	68	nd	nd	nd*	75	na*	na*	100	100	38
62	Bavla	C	88	na*	na*	na*	na*	nd	na	96	na*	na*	na*	nd*	na	na*
63	Chaklasi	C	92	10	na*	na*	0	nd	nd	66	0	na*	na*	nd*	na	na*
64	Chhaya	C	81	na*	na*	na*	na*	nd	na	56	na*	na*	na*	94	na	na*
65	Dehgam	C	64	8	na*	na*	71	nd	nd	nd*	0	na*	na*	100	na	97
66	Dhanduka	C	100	na*	na*	na*	na*	nd	na	51	na*	na*	na*	100	na	na*
67	Dwarka	C	86	na*	na*	na*	nd*	nd	na	39	na*	na*	na*	100	na	na*
68	Gadhda	C	74	36	na*	na*	172	1	nd	61	0	na*	na*	100	0	13
69	Gariyadhar	C	85	19	na*	na*	54	nd	nd	40	nd*	na*	na*	100	na	na*
70	Halol	C	84	na*	na*	na*	na*	nd	na	36	na*	na*	na*	100	na	na*
71	Idar	C	80	na*	na*	na*	na*	nd	na	44	na*	na*	na*	100	na	na*
72	jaffrabad	C	67	na*	na*	na*	13	nd	na	71	na*	na*	na*	100	na	57
73	Jambusar	C	89	19	na*	na*	nd*	nd	nd	96	0	na*	na*	100	na	88
74	Jasdan	C	76	na*	na*	na*	na*	nd	na	71	na*	na*	na*	100	33	na*
75	Jhalod	C	69	na*	na*	na*	na*	nd	na	55	na*	na*	na*	100	na	na*
76	Kapadvanj	C	80	37	68	na*	20	nd	nd	54	nd*	na*	na*	100	73	52
77	Karamsad	C	61	nd*	na*	na*	46	nd	nd	40	nd*	na*	na*	100	nd	32
78	Karjan	C	77	1	na*	na*	31	nd	nd	81	nd*	na*	na*	100	na	28
79	Khambadiya	C	94	na*	na*	na*	na*	nd	na	74	na*	na*	na*	100	80	na*
80	Khedbrahma	C	72	na*	na*	na*	na*	nd	na	53	na*	na*	na*	100	na	na*
81	Kodinar	C	91	na*	na*	na*	na*	nd	na	nd*	na*	na*	na*	nd*	na	na*
82	Limbdi	C	80	na*	na*	na*	0	nd	na	20	na*	na*	na*	100	na	na*
83	Lunavada	C	87	na*	na*	na*	na*	nd	na	59	na*	na*	na*	100	na	na*
84	Manavadar	C	80	na*	na*	na*	2	nd	na	nd*	na*	na*	na*	nd*	36	na*
85	Mandavi_K	C	100	19	100	na*	50	nd	nd	nd*	34	na*	na*	100	na	90
86	Mansa	C	77	na*	na*	na*	na*	nd	na	70	na*	na*	na*	100	53	na*
87	Mehmadabad	C	85	65	na*	na*	64	nd	nd	71	0	na*	na*	92	na	13
88	Pardi	C	87	na*	na*	na*	na*	nd	na	21	na*	na*	na*	100	na	na*
89	Radhanpur	C	92	na*	na*	na*	62	nd	na	38	na*	na*	na*	100	na	na*
90	Rajola	C	82	na*	na*	na*	na*	nd	na	27	na*	na*	na*	80	na	na*
91	Rajpipla	C	96	na*	na*	na*	86	nd	na	32	na*	na*	na*	100	na	52
92	Salya	C	84	na*	na*	na*	na*	nd	na	nd*	na*	na*	na*	100	100	na*
93	Sanand	C	90	na*	na*	na*	na*	nd	na	nd*	na*	na*	na*	100	na	na*
94	Santrampur	C	93	na*	na*	na*	na*	nd	na	66	na*	na*	na*	100	na	na*
95	Sihor	C	84	29	na*	na*	77	nd	nd	44	13	na*	na*	100	30	14
96	Talaja	C	46	51	62	na*	29	nd	nd	nd*	nd*	na*	na*	100	na	70
97	Thangadh	C	52	na*	na*	na*	na*	nd	na	48	na*	na*	na*	100	5	na*
98	Umreth	C	77	48	na*	na*	80	nd	nd	45	0	na*	na*	100	na	28
99	V.Vidyanagar	C	90	65	na*	na*	130	nd	nd	20	nd*	100	0	100	65	87
100	Vadnagar	C	84	na*	na*	na*	na*	nd	na	31	na*	na*	na*	100	na	na*
101	Vyara	C	100	na*	na*	na*	11	nd	na	28	na*	na*	na*	100	na	na*
102	Wankaner	C	93	nd*	na*	na*	8	nd	nd	91	0	na*	na*	75	55	na*
	Average Value		**83**	**32**	**76**		**49**	**1**		**54**	**16**	**100**	**na***	**99**	**53**	**51**
	Class D															
103	Amod	D	97	na*	na*	na*	na*	nd	na	83	na*	na*	na*	100	na	na*
104	Anklav	D	7	na*	na*	na*	148	nd	na	39	na*	na*	na*	100	na	56
105	Babra	D	73	na*	na*	na*	na*	nd	na	na*	na*	na*	na*	nd*	na	na*
106	Bhachau	D	98	35	na*	na*	71	nd	nd	27	nd*	na*	na*	96	40	65
107	Bareja	D	80	na*	na*	na*	na*	nd	na	27	na*	na*	na*	100	na	na*
108	Barvala	D	83	na*	na*	na*	130	nd	na	90	na*	na*	na*	100	na	na*
109	Bantawa	D	91	na*	na*	na*	na*	nd	na	27	na*	na*	na*	100	67	na*
110	Bayad	D	95	na*	na*	na*	na*	nd	na	24	na*	na*	na*	nd*	na	na*

Sr. No.	Cities	Class	Coverage of toilets (individual+community)	Coverage of waste water network services (resi+non resi)	Collection efficiency of waste water network	Adequacy of waste water treatment capacity	Extent of cost recovery in waste water management	Spatial variations in coverage of individual toilets	Spatial variations in coverage of sewerage connections	Coverage of toilets in slums	Coverage of sewerage connections in slums	Quality of waste water treatment	Extent of reuse and recycling of waste water	Efficiency in redressal of customer complaints	Percentage of recruited staff to sanctioned staff	Efficiency in collection of sewerage related charges
	Unit		%	%	%	%	%	Ratio	Ratio	%	%	%	%	%	%	%
111	Bhabhar	D	75	na*	na*	na*	na*	nd	na	44	na*	na*	na*	100	na	na*
112	Bhanvad	D	71	na*	na*	na*	1	nd	na	54	na*	na*	na*	100	33	na*
113	Bhayvadar	D	73	na*	na*	na*	nd*	nd	na	51	na*	na*	na*	100	na	na*
114	Boriyavi	D	7	na*	na*	na*	na*	nd	na	nd*	na*	na*	na*	100	na	na*
115	Chalal	D	79	na*	na*	na*	na*	nd	na	44	na*	na*	na*	100	na	na*
116	Chanasma	D	92	7	na*	na*	74	nd	nd	19	nd*	na*	na*	100	na	na*
117	Chhota_Udaipur	D	nd*	na*	na*	na*	na*	nd	na	36	na*	na*	na*	100	na	na*
118	Chorvad	D	80	na*	na*	na*	183	nd	na	9	na*	na*	na*	100	na	na*
119	Chotila	D	68	na*	na*	na*	na*	nd	na	73	na*	na*	na*	100	na	na*
120	Dakor	D	10	nd*	na*	na*	94	nd	nd	53	nd*	na*	na*	100	100	59
121	Damnagar	D	78	na*	na*	na*	na*	nd	na	39	na*	na*	na*	nd*	na	46
122	DevgadhBariya	D	100	na*	na*	na*	na*	nd	na	65	na*	na*	na*	nd*	na	na*
123	Dhanera	D	66	na*	na*	na*	1	nd	na	52	na*	na*	na*	100	na	na*
124	Dharampur	D	84	na*	na*	na*	243	nd	na	nd*	na*	na*	na*	100	60	na*
125	Dhrol	D	99	18	na*	na*	na*	nd	nd	51	0	na*	na*	100	na	na*
126	Gandevi	D	98	nd*	na*	na*	nd*	nd	nd	70	0	na*	na*	100	na	nd*
127	Halvad	D	83	na*	na*	na*	na*	nd	na	70	na*	na*	na*	100	14	na*
128	Harij	D	83	na*	na*	na*	na*	nd	na	68	na*	na*	na*	100	na	na*
129	Jamjodhpur	D	84	na*	na*	na*	na*	nd	na	69	na*	na*	na*	100	100	na*
130	Jam_Rawal	D	95	na*	na*	na*	0.44	nd	na	100	na*	na*	na*	100	na	na*
131	Kaalol	D	97	na*	na*	na*	na*	nd	na	nd*	na*	na*	na*	100	na	na*
132	Kalavad	D	86	na*	na*	na*	na*	nd	na	49	na*	na*	na*	nd*	100	na*
133	Kanjari	D	4	na*	na*	na*	na*	nd	na	18	na*	na*	na*	100	na	43
134	Kansad	D	95	92	na*	na*	0	nd	nd	50	60	na*	na*	100	na	na*
135	Kathlal	D	70	na*	na*	na*	na*	nd	na	80	na*	na*	na*	100	na	na*
136	Kheda	D	4	na*	na*	na*	11	nd	na	42	na*	na*	na*	100	na	88
137	Kheralu	D	100	na*	na*	na*	na*	nd	na	44	na*	na*	na*	100	na	na*
138	Kutiyana	D	97	na*	na*	na*	1	nd	na	nd*	na*	na*	na*	100	na	na*
139	Lathi	D	82	na*	na*	na*	na*	nd	na	nd*	na*	na*	na*	nd*	na	na*
140	Mahudha	D	80	na*	na*	na*	na*	nd	na	nd*	na*	na*	na*	nd*	na	na*
141	Maliyamiyana	D	81	na*	na*	na*	na*	nd	na	40	na*	na*	na*	100	na	na*
142	Mandavi_S	D	nd*	1	0	na*	112	nd	nd	96	10	na*	na*	100	na	62
143	Oad	D	87	7	100	na*	84	nd	1	70	33	na*	na*	100	38	35
144	Padra	D	97	6	na*	na*	28	nd	nd	94	50	na*	na*	100	na	74
145	Patdi	D	82	na*	na*	na*	40	nd	na	87	na*	na*	na*	100	na	na*
146	Pethapur	D	80	na*	na*	na*	na*	nd	na	71	na*	na*	na*	nd*	na	na*
147	Prantij	D	92	na*	na*	na*	na*	nd	na	2	na*	na*	na*	100	na	na*
148	Ranavav	D	81	na*	na*	na*	na*	nd	na	nd*	na*	na*	na*	100	na	na*
149	Rapar	D	92	na*	na*	na*	60	nd	na	48	na*	na*	na*	100	na	na*
150	Savri	D	99	na*	na*	na*	na*	nd	na	nd*	na*	na*	na*	nd*	na	na*
151	Shahera	D	77	na*	na*	na*	na*	nd	na	74	na*	na*	na*	100	na	na*
152	Sikka	D	91	na*	na*	na*	na*	nd	na	46	na*	na*	na*	44	na	na*
153	Sojitra	D	87	46	na*	na*	18	nd	nd	100	0	na*	na*	100	na	39
154	Songadh	D	90	37	na*	na*	12	nd	nd	53	0	na*	na*	100	na	51
155	Sutarpada	D	81	na*	na*	na*	na*	nd	na	6	na*	na*	na*	nd*	na	na*
156	Talal	D	91	na*	na*	na*	na*	nd	na	45	na*	na*	na*	100	na	na*
157	Talod	D	92	na*	na*	na*	na*	nd	na	56	na*	na*	na*	100	na	na*
158	Tarsadi	D	88	70	na*	na*	22	nd	nd	80	0	na*	na*	100	na	67
159	Thara	D	81	na*	na*	na*	na*	nd	na	29	na*	na*	na*	100	na	na*
160	Tharad	D	55	na*	na*	na*	na*	nd	na	60	na*	na*	na*	100	na	na*
161	Thasra	D	nd*	nd*	na*	na*	1	nd	nd	nd*	0	na*	na*	100	na	19
162	Vadali	D	75	na*	na*	na*	na*	nd	na	12	na*	na*	na*	100	na	na*
163	Vallabhipur	D	65	na*	na*	na*	na*	nd	na	73	na*	na*	na*	100	na	na*
164	Vanthali	D	73	na*	na*	na*	na*	nd	na	24	na*	na*	na*	100	69	na*
165	Vijapur	D	71	na*	na*	na*	na*	nd	na	nd*	na*	na*	na*	100	na	na*
166	Visavadar	D	76	na*	na*	na*	na*	nd	na	64	na*	na*	na*	100	na	na*
	Average Value		**78**	**32**	**50**		**61**		**1**	**53**	**15**			**99**	**62**	**54**

Note : nd indicates Data not available,na indicates not applicable to ULB

Annexure 2.2- Local Action Indicator

B.Waste Water

Local Action Indicators														
Sr. No.	Cities	Class	Total complaints in WW/1000 connections	Complaints for sewerage blocks/1000 connections	Complaints for damaged/overflowing manholes/1000 connections	Complaints for leakage /overflowing lines/1000 connections	Total Staff/1000 connections	Unit cost of WW	Average revenue per connection	Collection period for waste water charges	Billed arrears to total billed demand	% of area covered with sewerage network	% of area covered with sewerage n sullage network	Population per toilet seat in community toilets in slum
	Unit		Ratio	Ratio	Ratio	Ratio	Ratio	Rs/KL	Rs	Days	%	%	%	Ratio
Municipal Corporation														
1	Ahmedabad	MC	348	311	0.0	0	2	1.9	330	871	61	74	74	50
2	Bhavnagar	MC	13	0	0.0	0	6	1.9	24	na	na	69	69	124
3	Jamnagar	MC	202	144	0.0	58	nd	0.5	35	nd	nd	29	29	468
4	Junagadh	MC	nd	nd	nd	nd	nd	0.0	nd	na	na	10	89	312
5	Rajkot	MC	27	9	3.8	14	5	1.5	286	1057	49	57	95	5
6	Surat	MC	162	162	0.0	0	2	1.5	145	414	na	37	37	0
7	Vadodara	MC	294	0	0.0	0	0	1.8	737	369	na	65	65	6
	Average Value		**174**	**104**	**0.6**	**12**	**3**	**1.3**	**259**	**678**	**55**	**49**	**66**	**138**
Class A														
8	Anand	A	180	103	52	0	5	8	689	439	41	7	31	944
9	Bharuch	A	nd	0	0	0	nd	0	nd	na	na	na	80	0
10	Botad	A	na	0	0	0	na	0	na	453	49	na	70	149
11	Gandhidham	A	190	100	17	23	3	1	367	na	na	92	92	1,227
12	Godhara	A	na	0	0	0	na	na	na	na	na	na	70	1339
13	Jetpur	A	na	0	0	0	na	na	na	na	na	na	80	22
14	Kalol	A	17	17	0	0	nd	1	658	538	55	70	91	1,024
15	Mehsana	A	117	0	0	0	2	1	260	443	34	33	55	172
16	Morbi	A	1,501	838	663	0	38	1	216	1052	67	28	73	77
17	Nadiad	A	208	85	76	47	2	3	404	744	54	69	69	74
18	Navsari	A	263	261	0	1	1	1	180	318	10	89	89	102
19	Palanpur	A	57	0	57	0	3	1	1,010	na	na	35	100	402
20	Patan	A	69	60	4	4	1	2	326	446	30	53	71	125
21	Porbandar	A	na	0	0	0	na	0	na	na	na	na	80	464
22	Surendranagar	A	na	0	0	0	na	na	na	na	na	na	81	143
23	Valsad	A	90	77	13	0	10	0	482	376	8	21	31	54
24	Vapi	A	na	0	0	0	na	0	na	na	na	na	100	375
25	Veraval	A	na	0	0	0	na	0	na	na	na	na	60	141
	Average Value		**269**	**86**	**49**	**4**	**6**	**1**	**459**	**534**	**39**	**50**	**73**	**380**
Class B														
26	Amreli	B	na	na	na	na	na	2	na	329	100	na	90	71
27	Ankleshwar	B	113	0	0	0	1	4	253	255	8	95	95	95
28	Bardoli	B	249	83	50	116	na	0	60	2,046	11	70	77	207
29	Bhuj	B	14	4	0	9	4	1	30	8,121	96	25	44	93
30	Bilimora	B	na	na	na	na	na	0	na	na	na	na	75	31
31	Borsad	B	18	18	0	0	5	1	168	886	61	32	32	12
32	Dabhoi	B	nd	nd	nd	nd	nd	1	nd	342	22	70	90	182
33	Dahod	B	na	na	na	na	na	4	na	43	55	na	98	74
34	Deesa	B	na	na	na	na	na	0	na	na	na	na	80	459
35	Dhangedra	B	na	na	na	na	na	0	na	na	na	na	49	15
36	Dholka	B	nd	nd	nd	nd	nd	0	nd	na	na	nd	nd	4
37	Dhoraji	B	na	na	na	na	na	na	na	na	na	na	90	88
38	Gondal	B	na	na	na	na	na	na	na	na	na	na	28	91
39	Himmatnagar	B	13	6	6	0	na	0	7	181	na	8	8	62
40	Kadi	B	nd	nd	nd	nd	nd	1	nd	774	37	70	70	238
41	Keshod	B	na	na	na	na	na	na	na	na	na	na	nd	354
42	Khambhat	B	41	45	0	0	0	0	186	924	61	71	71	3
43	Mahua	B	61	35	14	12	8	2	284	652	40	64	64	587
44	Mangrol	B	na	na	na	na	na	na	na	892	94	na	nd	136
45	Modasa	B	na	na	na	na	na	na	na	na	na	25	91	31
46	Okha	B	na	na	na	na	na	na	na	na	na	na	nd	207
47	Palitana	B	268	223	0	45	na	1	347	940	45	71	71	17
48	Petlad	B	306	0	122	0	11	1	530	1909	81	54	54	60
49	Savarkundla	B	621	0	104	518	na	0	72	5255	93	50	63	67
50	Siddhpur	B	158	86	32	11	2	2	275	516	32	90	100	133
51	Umargam	B	na	na	na	na	na	1	na	na	na	na	nd	13
52	Una	B	na	na	na	na	na	na	na	na	na	na	13	58
53	Unjha	B	36	0	0	0	2	4	235	410	11	48	48	0
54	Upleta	B	246	180	66	0	na	1	0	na	na	3	9	856
55	Vadhwan	B	na	na	na	na	na	na	na	na	na	na	4	162
56	Vijalpore	B	34	0	0	0	2	0	147	365	5	75	75	47
57	Viramgam	B	386	386	0	0	5	2	121	679	68	64	64	286
58	Visnagar	B	nd	nd	nd	nd	nd	0	nd	1159	83	62	100	4
	Average Value		**171**	**71**	**26**	**47**	**4**	**1**	**181**	**1334**	**53**	**55**	**63**	**144**

Annexure 2.2- Local Action Indicator

B.Waste Water

Local Action Indicators														
Sr. No.	Cities	Class	Total complaints in WW/1000 connections	Complaints for sewerage blocks/1000 connections	Complaints for damaged/overflowing manholes/1000 connections	Complaints for leakage /overflowing lines/1000 connections	Total Staff/1000 connections	Unit cost of WW	Average revenue per connection	Collection period for waste water charges	Billed arrears to total billed demand	% of area covered with sewerage network	% of area covered with sewerage n sullage network	Population per toilet seat in community toilets in slum
	Unit		Ratio	Ratio	Ratio	Ratio	Ratio	Rs/KL	Rs	Days	%	%	%	Ratio
							Class C							
59	Anjar	C	192	192	0	0	0	0	192	544	36	90	90	53
60	Bagasra	C	na	na	na	na	na	0	na	na	na	na	70	na
61	Balasinor	C	195	33	163	0	3	3	435	575	58	8	8	26
62	Bavla	C	na	na	na	na	na	0	na	na	na	na	nd	55
63	Chaklasi	C	0	0	0	0	0	4	0	na	na	7	7	4
64	Chhaya	C	na	na	na	na	na	0	na	na	na	na	73	110
65	Dehgam	C	375	0	0	0	0	1	446	288	29	56	82	31
66	Dhanduka	C	na	na	na	na	na	0	na	na	na	na	8	9
67	Dwarka	C	na	na	na	na	na	na	na	na	na	na	5	211
68	Gadhda	C	624	312	208	104	3	0	155	506	43	80	80	140
69	Gariyadhar	C	90	90	0	0	5	0	62	na	na	70	100	178
70	Halol	C	na	na	na	na	na	1	na	na	na	na	18	1,029
71	Idar	C	na	na	na	na	na	9	na	na	na	na	25	365
72	jaffrabad	C	na	na	na	na	na	17	na	86	68	na	70	187
73	Jambusar	C	673	437	236	0	2	0	670	434	60	80	80	70
74	Jasdan	C	na	na	na	na	na	na	na	na	na	na	65	5
75	Jhalod	C	na	na	na	na	na	na	na	na	na	na	75	499
76	Kapadvanj	C	141	0	114	26	3	3	103	847	57	80	99	126
77	Karamsad	C	154	154	0	0	0	1	46	6668	84	71	71	232
78	Karjan	C	3,810	3,810	0	0	26	0	535	592	41	20	39	425
79	Khambadiya	C	na	na	na	na	na	0	na	na	na	na	100	77
80	Khedbrahma	C	na	na	na	na	na	0	na	na	na	na	nd	284
81	Kodinar	C	na	na	na	na	na	0	na	na	na	na	24	38
82	Limbdi	C	na	na	na	na	na	na	na	na	na	na	65	415
83	Lunavada	C	na	na	na	na	na	na	na	na	na	na	80	109
84	Manavadar	C	na	na	na	na	na	1	na	na	na	na	78	35
85	Mandavi_K	C	247	185	46	15	0	1	168	416	21	80	80	12
86	Mansa	C	na	na	na	na	na	2	na	na	na	na	40	90
87	Mehmadabad	C	54	9	43	2	2	5	387	520	47	19	19	114
88	Pardi	C	na	na	na	na	na	na	na	na	na	na	nd	0
89	Radhanpur	C	na	na	na	na	na	na	na	na	na	na	45	551
90	Rajola	C	na	na	na	na	na	0	na	na	na	na	39	433
91	Rajpipla	C	na	na	na	na	na	0	na	453	36	na	91	232
92	Salya	C	na	na	na	na	na	4	na	na	na	na	78	na
93	Sanand	C	na	na	na	na	na	na	na	na	na	na	15	17
94	Santrampur	C	na	na	na	na	na	2	na	na	na	na	85	122
95	Sihor	C	426	236	0	0	5	0	81	681	48	60	100	350
96	Talaja	C	75	37	0	37	5	3	132	552	36	50	71	33
97	Thangadh	C	na	na	na	na	na	0	na	na	na	na	79	387
98	Umreth	C	66	44	0	22	3	1	294	744	53	90	90	563
99	V.Vidyanagar	C	112	0	0	0	2	4	1,434	213	19	100	100	nd
100	Vadnagar	C	na	na	na	na	na	na	na	na	na	na	41	162
101	Vyara	C	na	na	na	na	na	0	na	na	na	na	70	1,949
102	Wankaner	C	nd	nd	nd	nd	nd	0	nd	na	na	45	91	84
	Average Value		**452**	**346**	**51**	**13**	**4**	**2**	**321**	**882**	**46**	**59**	**62**	**239**
							Class D							
103	Amod	D	na	na	na	na	na	0	na	na	na	na	nd	73
104	Anklav	D	na	na	na	na	na	0	na	1002	40	na	50	5
105	Babra	D	na	na	na	na	na	1	na	na	na	na	100	na
106	Bhachau	D	50	48	27	18	2	0	10	na	na	65	65	230
107	Bareja	D	na	na	na	na	na	1	na	na	na	na	nd	183
108	Barvala	D	na	na	na	na	na	1	na	na	na	na	9	94
109	Bantawa	D	na	na	na	na	na	1	na	na	na	na	78	347
110	Bayad	D	na	na	na	na	na	0	na	na	na	na	nd	0

Annexure 2.2- Local Action Indicator

B.Waste Water

Local Action Indicators

Sr. No.	Cities	Class	Total complaints in WW/1000 connections	Complaints for sewerage blocks/1000 connections	Complaints for damaged/overflowing manholes/1000 connections	Complaints for leakage /overflowing lines/1000 connections	Total Staff/1000 connections	Unit cost of WW	Average revenue per connection	Collection period for waste water charges	Billed arrears to total billed demand	% of area covered with sewerage network	% of area covered with sewerage n sullage network	Population per toilet seat in community toilets in slum
	Unit		Ratio	Ratio	Ratio	Ratio	Ratio	Rs/KL	Rs	Days	%	%	%	Ratio
111	Bhabhar	D	na	na	na	na	na	0	na	na	100	na	100	0
112	Bhanvad	D	na	na	na	na	na	0	na	na	na	na	75	252
113	Bhayvadar	D	na	na	na	na	na	0	na	na	na	na	100	153
114	Boriyavi	D	na	na	na	na	na	0	na	na	na	na	67	42
115	Chalal	D	na	na	na	na	na	2	na	na	na	na	0	823
116	Chanasma	D	nd	nd	nd	nd	nd	0	0	0	na	30	100	141
117	Chhota_Udaipur	D	na	na	na	na	na	0	na	na	na	na	80	0
118	Chorvad	D	na	na	na	na	na	0	na	na	na	na	nd	3915
119	Chotila	D	na	na	na	na	na	0	na	na	na	na	70	88
120	Dakor	D	na	na	na	na	na	0	nd	731	48	nd	nd	77
121	Damnagar	D	na	na	na	na	na	1	na	na	64	na	100	129
122	DevgadhBariya	D	na	na	na	na	na	1	na	na	na	na	80	238
123	Dhanera	D	na	na	na	na	na	1	na	na	na	na	100	159
124	Dharampur	D	na	na	na	na	na	0	na	na	na	na	0	20
125	Dhrol	D	450	200	250	0	na	1	na	na	na	6	28	117
126	Gandevi	D	nd	nd	nd	nd	na	0	nd	367	16	80	100	78
127	Halvad	D	na	na	na	na	na	0	na	na	na	na	0	210
128	Harij	D	na	na	na	na	na	0	na	na	na	na	75	152
129	Jamjodhpur	D	na	na	na	na	na	0	na	na	na	na	3	78
130	Jam_Rawal	D	na	na	na	na	na	1	na	na	na	na	14	0
131	Kaalol	D	na	na	na	na	na	0	na	na	na	na	nd	52
132	Kalavad	D	na	na	na	na	na	1	na	na	na	na	98	109
133	Kanjari	D	na	na	na	na	na	0	na	na	22	na	59	nd
134	Kansad	D	612	0	612	0	0	0	nd	na	na	98	100	nd
135	Kathlal	D	na	na	na	na	na	8	na	na	na	na	22	nd
136	Kheda	D	na	na	na	na	na	1	na	344	47	na	80	9
137	Kheralu	D	na	na	na	na	na	0	na	na	na	na	100	170
138	Kutiyana	D	na	na	na	na	na	22	na	na	na	na	0	46
139	Lathi	D	na	na	na	na	na	0	na	na	na	na	100	27
140	Mahudha	D	na	na	na	na	na	0	na	na	na	na	22	12
141	Maliyamiyana	D	na	na	na	na	na	0	na	na	na	na	10	0
142	Mandavi_S	D	nd	nd	nd	nd	na	0	nd	532	35	65	65	56
143	Oad	D	nd	nd	nd	nd	na	1	nd	911	63	80	80	202
144	Padra	D	nd	nd	nd	nd	na	1	nd	652	44	80	80	121
145	Patdi	D	na	na	na	na	na	0	na	na	na	na	nd	103
146	Pethapur	D	na	na	na	na	na	1	na	na	na	na	nd	121
147	Prantij	D	na	na	na	na	na	0	na	na	na	na	100	2828
148	Ranavav	D	na	na	na	na	na	3	na	na	na	na	57	34
149	Rapar	D	na	na	na	na	na	0	na	na	na	na	nd	159
150	Savri	D	na	na	na	na	na	0	na	na	na	na	nd	18
151	Shahera	D	na	na	na	na	na	2	na	na	na	na	50	100
152	Sikka	D	na	na	na	na	na	0	na	na	na	na	96	219
153	Sojitra	D	17	13	0	4	nd	2	117	762	50	27	27	51
154	Songadh	D	480	240	240	0	5	0	14	6534	36	60	61	158
155	Sutarpada	D	na	na	na	na	na	0	na	na	na	na	0	2,094
156	Talal	D	na	na	na	na	na	0	na	na	na	na	nd	89
157	Talod	D	na	na	na	na	na	1	na	na	na	na	70	111
158	Tarsadi	D	77	0	77	0	1	10	78	625	50	54	100	0
159	Thara	D	na	na	na	na	na	1	na	na	na	na	80	0
160	Tharad	D	na	na	na	na	na	1	na	na	na	na	70	0
161	Thasra	D	na	na	na	na	na	0	nd	1841	79	nd	nd	nd
162	Vadali	D	na	na	na	na	na	0	na	na	na	na	10	788
163	Vallabhipur	D	na	na	na	na	na	0	na	na	na	na	32	126
164	Vanthali	D	na	na	na	na	na	0	na	na	na	na	100	288
165	Vijapur	D	na	na	na	na	na	0	na	na	na	na	100	27
166	Visavadar	D	na	na	na	na	na	0	na	na	na	na	100	69
	Average Value		**281**	**84**	**201**	**4**	**2**	**1**	**44**	**1192**	**50**	**59**	**63**	**268**

Note : nd indicates Data not available,na indicates not applicable to ULB

Annexure 2.1- Key Performance Indicator

C.Solid Waste Management

Golden Goals and Reforms Indicators													
Sr. No.	**Cities**	**Class**	**Household level coverage of SWM services**	**Efficiency of collection of municipal solid waste**	**Extent of segregation of municipal solid waste**	**Extent of municipal solid waste recovered**	**Extent of cost recovery (O&M) in SWM services**	**Spatial variations in HH level coverage of SWM services**	**HH level coverage of SWM services in 'slum settlements'**	**Extent of scientific disposal of municipal solid waste**	**Efficiency in redressal of customer complaints**	**Percentage of recruited staff to sanctioned staff**	**Efficiency in collection of SWM related charges**
	Unit		**%**	**%**	**%**	**%**	**%**	**Ratio**	**%**	**%**	**%**	**%**	**%**
	Municipal Corporation												
1	Ahmedabad	MC	75.7	72.9	2.7	17.5	26.2	nd	60	0.0	99.9	95	58.6
2	Bhavnagar	MC	66	92	0	nd*	58	nd	65	na*	100	82	57
3	Jamnagar	MC	nd*	96	0	nd*	1	nd	nd*	na*	90	nd	nd*
4	Junagadh	MC	81	90	0	36	4	nd	nd*	na*	100	88	nd*
5	Rajkot	MC	56	74	73	74	26	nd	nd*	55	90	94	55
6	Surat	MC	90.3	87.6	13.1	19.4	83.0	nd	59.0	0.8	100	78	85.2
7	Vadodara	MC	111	87	11	64	1	nd	nd*	na*	100	48	nd*
	Average Value		**80**	**86**	**14**	**42**	**28**		**61**	**18**	**97**	**81**	**64**
	Class A												
8	Anand	A	76	84	10	14	23	nd	100	na*	100	56	72
9	Bharuch	A	51	92	0	na*	0	nd	nd*	na*	88	55	65
10	Botad	A	72	83	2	na*	17	nd	100	na*	100	91	9
11	Gandhidham	A	74	90	0	na*	28	nd	0	na*	78	68	2
12	Godhara	A	58	90	0	na*	44	nd	0	na*	100	53	37
13	Jetpur	A	100	84	100	na*	18	nd	95	na*	100	73	40
14	Kalol	A	80	98	0	na*	67	nd	8	na*	100	61	45
15	Mehsana	A	59	84	0	na*	1	nd	0	na*	98	32	na*
16	Morbi	A	32	90	0	na*	21	nd	20	na*	91	87	32
17	Nadiad	A	80	81	0	na*	93	nd	80	na*	100	82	55
18	Navsari	A	89	95	100	na*	33	nd	100	na*	100	34	77
19	Palanpur	A	32	98	11	na*	3	nd	0	na*	100	94	14
20	Patan	A	97	88	100	na*	17	nd	0	na*	100	75	52
21	Porbandar	A	76	92	0	na*	10	nd	0	na*	100	60	46
22	Surendranagar	A	51	83	4	na*	1	nd	0	na*	100	83	20
23	Valsad	A	52	93	55	100	28	nd	100	na*	100	73	75
24	Vapi	A	100	89	0	na*	16	nd	0	na*	100	76	60
25	Veraval	A	95	85	0	na*	0	nd	80	na*	100	43	na*
	Average Value		**71**	**89**	**21**	**57**	**23**		**40**	**na***	**97**	**67**	**44**
	Class B												
26	Amreli	B	85	84	100	10	3	nd	80	na*	100	78	33
27	Ankleshwar	B	90	76	0	na*	0	nd	0	na*	100	nd	59
28	Bardoli	B	100	94	6	29	72	nd	100	na*	100	52	24
29	Bhuj	B	26	98	2	2	7	nd	nd*	na*	77	88	1
30	Bilimora	B	100	90	0	na*	34	nd	100	na*	100	55	72
31	Borsad	B	65	95	20	na*	2	nd	50	na*	100	80	na*
32	Dabhoi	B	82	63	0	na*	36	nd	80	na*	100	52	46
33	Dahod	B	86	92	0	na*	0	nd	0	na*	100	33	52
34	Deesa	B	80	96	3	3	23	nd	nd*	na*	94	75	48
35	Dhangedra	B	85	91	0	na*	3	nd	0	na*	100	61	38
36	Dholka	B	80	94	0	na*	0	nd	60	na*	100	nd	0
37	Dhoraji	B	111	88	3	3	0	nd	nd*	na*	100	67	na*
38	Gondal	B	92	94	2	2	25	nd	nd*	na*	100	78	34
39	Himmatnagar	B	66	91	0	na*	6	nd	78	na*	100	48	64
40	Kadi	B	100	88	3	3	30	nd	100	na*	100	21	44
41	Keshod	B	29	94	6	6	0	nd	0	na*	100	70	36
42	Khambhat	B	78	93	5	5	78	nd	nd*	na*	100	53	52
43	Mahua	B	55	88	0	na*	1	nd	0	na*	100	87	8
44	Mangrol	B	94	83	0	na*	8	nd	60	na*	100	75	20
45	Modasa	B	100	89	0	50	188	nd	100	na*	100	31	66
46	Okha	B	88	95	0	na*	12	nd	22	na*	100	nd	39
47	Palitana	B	62	90	7	7	7	nd	100	na*	100	56	na*
48	Petlad	B	111	95	100	na*	9	nd	100	na*	99	56	53
49	Savarkundla	B	74	96	0	na*	0	nd	68	na*	100	67	na*
50	Siddhpur	B	80	77	0	na*	15	nd	87	na*	100	62	62
51	Umargam	B	70	71	0	na*	18	nd	68	na*	100	11	65
52	Una	B	100	96	0	28	4	nd	100	na*	100	35	60
53	Unjha	B	100	81	0	33	0	nd	100	na*	nd*	87	na*
54	Upleta	B	73	91	5	5	6	nd	50	na*	100	63	72
55	Vadhwan	B	77	87	0	na*	2	nd	0	na*	100	48	25
56	Vijalpore	B	100	94	2	2	77	nd	100	na*	100	91	69
57	Viramgam	B	87	77	10	30	0	nd	90	na*	93	55	44
58	Visnagar	B	75	80	0	na*	1	nd	0	na*	100	22	31

Golden Goals and Reforms Indicators													
Sr. No.	Cities	Class	Household level coverage of SWM services	Efficiency of collection of municipal solid waste	Extent of segregation of municipal solid waste	Extent of municipal solid waste recovered	Extent of cost recovery (O&M) in SWM services	Spatial variations in HH level coverage of SWM services	HH level coverage of SWM services in 'slum settlements'	Extent of scientific disposal of municipal solid waste	Efficiency in redressal of customer complaints	Percentage of recruited staff to sanctioned staff	Efficiency in collection of SWM related charges
	Unit		%	%	%	%	%	Ratio	%	%	%	%	%
	Average Value		**82**	**88**	**8**	**14**	**20**		**60**		**99**	**59**	**43**
	Class C												
59	Anjar	C	26	88	2	2	48	nd	0	na*	100	36	41
60	Bagasra	C	82	89	0	21	3	nd	na*	na*	100	nd	26
61	Balasinor	C	83	60	17	77	21	nd	nd*	na*	100	100	37
62	Bavla	C	120	75	0	na*	16	nd	79	na*	100	nd	61
63	Chaklasi	C	98	89	0	63	17	nd	2	na*	100	0	20
64	Chhaya	C	79	82	0	na*	18	nd	100	na*	97	90	51
65	Dehgam	C	86	86	0	23	45	nd	58	na*	100	60	71
66	Dhanduka	C	9	84	8	8	4	nd	20	na*	100	47	8
67	Dwarka	C	83	93	0	21	18	nd	23	na*	100	38	85
68	Gadhda	C	75	68	0	na*	96	nd	0	na*	100	43	16
69	Gariyadhar	C	60	100	0	33	0	nd	nd*	na*	100	38	23
70	Halol	C	97	80	0	50	55	nd	nd*	na*	100	58	39
71	Idar	C	71	94	0	na*	34	nd	0	na*	100	68	29
72	jaffrabad	C	90	88	100	11	0	nd	45	na*	100	56	64
73	Jambusar	C	80	94	0	37	0	nd	85	na*	100	58	85
74	Jasdan	C	53	82	0	44	7	nd	80	na*	100	53	39
75	Jhalod	C	76	93	3	3	19	nd	50	na*	100	0	30
76	Kapadvanj	C	76	91	0	41	15	nd	80	na*	na*	nd	53
77	Karamsad	C	100	88	0	29	38	nd	100	na*	100	nd	27
78	Karjan	C	92	98	0	63	24	nd	0	na*	100	57	41
79	Khambadiya	C	66	95	0	22	0	nd	92	na*	100	6	na*
80	Khedbrahma	C	96	91	0	30	11	nd	72	na*	100	23	65
81	Kodinar	C	74	84	0	22	10	nd	100	na*	na*	50	23
82	Limbdi	C	85	100	8	33	0	nd	70	na*	100	100	88
83	Lunavada	C	94	95	0	na*	0	nd	92	na*	100	39	29
84	Manavadar	C	82	82	0	25	4	nd	80	na*	100	100	65
85	Mandavi_K	C	52	91	0	na*	23	nd	0	na*	100	69	83
86	Mansa	C	100	94	0	41	182	nd	100	na*	100	82	63
87	Mehmadabad	C	87	75	0	na*	266	nd	0	na*	87	67	19
88	Pardi	C	62	75	0	33	11	nd	nd*	na*	100	71	59
89	Radhanpur	C	50	96	0	33	33	nd	50	na*	100	84	39
90	Rajola	C	100	95	0	na*	0	nd	27	na*	80	0	20
91	Rajpipla	C	100	86	0	na*	0	nd	100	na*	100	59	na*
92	Salya	C	73	74	0	nd*	17	nd	0	na*	100	100	34
93	Sanand	C	114	86	0	na*	142	nd	0	na*	100	81	48
94	Santrampur	C	100	91	0	na*	8	nd	50	na*	100	2	36
95	Sihor	C	65	85	4	4	0	nd	30	na*	100	33	na*
96	Talaja	C	100	88	7	64	17	nd	100	na*	100	38	57
97	Thangadh	C	59	94	6	56	0	nd	0	na*	100	10	na*
98	Umreth	C	109	75	0	na*	0	nd	nd*	na*	100	11	na*
99	V.Vidyanagar	C	70	92	0	na*	99	nd	58	na*	100	74	85
100	Vadnagar	C	87	86	0	50	19	nd	nd*	na*	100	16	71
101	Vyara	C	100	95	0	na*	43	nd	100	na*	100	69	91
102	Wankaner	C	92	93	0	46	13	nd	50	na*	100	49	59
	Average Value		**81**	**87**	**4**	**34**	**31**		**51**		**99**	**51**	**48**
	Class D												
103	Amod	D	87	93	0	na*	19	nd	60	na*	100	4	33
104	Anklav	D	21	65	0	56	0	nd	nd*	na*	100	0	47
105	Babra	D	77	89	0	na*	0	nd	na*	na*	100	35	7
106	Bhachau	D	93	88	0	29	57	nd	59	na*	80	71	6
107	Bareja	D	74	40	23	23	27	nd	nd*	na*	100	100	44
108	Barvala	D	78	89	13	13	0	nd	0	na*	100	27	33
109	Bantawa	D	70	83	0	38	21	nd	0	na*	100	35	24
110	Bayad	D	60	61	0	na*	0	nd	nd*	na*	100	0	75

Golden Goals and Reforms Indicators													
Sr. No.	**Cities**	**Class**	**Household level coverage of SWM services**	**Efficiency of collection of municipal solid waste**	**Extent of segregation of municipal solid waste**	**Extent of municipal solid waste recovered**	**Extent of cost recovery (O&M) in SWM services**	**Spatial variations in HH level coverage of SWM services**	**HH level coverage of SWM services in 'slum settlements'**	**Extent of scientific disposal of municipal solid waste**	**Efficiency in redressal of customer complaints**	**Percentage of recruited staff to sanctioned staff**	**Efficiency in collection of SWM related charges**
	Unit		**%**	**%**	**%**	**%**	**%**	**Ratio**	**%**	**%**	**%**	**%**	**%**
111	Bhabhar	D	0	90	0	na*	0	nd	0	na*	100	50	8
112	Bhanvad	D	89	76	0	38	10	nd	50	na*	100	35	41
113	Bhayvadar	D	88	81	0	50	19	nd	100	na*	100	37	89
114	Boriyavi	D	42	80	0	28	51	nd	nd*	na*	100	33	62
115	Chalal	D	100	88	0	100	0	nd	91	na*	100	100	nd*
116	Chanasma	D	95	92	0	45	35	nd	85	na*	100	15	na*
117	Chhota_Udaipur	D	30	94	0	na*	6	nd	nd*	na*	100	40	39
118	Chorvad	D	74	92	0	25	0	nd	67	na*	100	3	2
119	Chotila	D	66	89	8	8	0	nd	nd*	na*	100	24	12
120	Dakor	D	nd*	80	0	na*	1	nd	nd*	na*	100	100	41
121	Damnagar	D	95	89	0	na*	7	nd	0	na*	100	nd	45
122	DevgadhBariya	D	95	93	0	na*	52	nd	58	na*	nd*	17	30
123	Dhanera	D	100	86	10	10	0	nd	100	na*	100	33	47
124	Dharampur	D	75	100	0	20	11	nd	nd*	na*	100	60	66
125	Dhrol	D	50	84	0	50	7	nd	nd*	na*	100	40	14
126	Gandevi	D	77	90	0	na*	16	nd	100	na*	100	89	83
127	Halvad	D	28	92	8	8	1	nd	nd*	na*	100	59	na*
128	Harij	D	80	94	0	44	29	nd	100	na*	nd*	nd	3
129	Jamjodhpur	D	100	89	0	na*	7	nd	92	na*	100	100	61
130	Jam_Rawal	D	80	81	0	43	13	nd	100	na*	100	0	16
131	Kaalol	D	50	88	0	38	131	nd	100	na*	100	38	46
132	Kalavad	D	72	82	0	31	0	nd	70	na*	100	91	na*
133	Kanjari	D	nd*	100	0	na*	35	nd	nd*	na*	100	3	na*
134	Kansad	D	98	93	3	na*	0	nd	100	na*	100	0	na*
135	Kathlal	D	85	82	0	na*	28	nd	nd*	na*	100	100	25
136	Kheda	D	nd*	60	13	100	48	nd	nd*	na*	nd*	70	45
137	Kheralu	D	97	57	57	100	10	nd	100	na*	100	52	57
138	Kutiyana	D	70	89	0	25	15	nd	7	na*	100	59	51
139	Lathi	D	82	96	0	52	0	nd	0	na*	100	78	52
140	Mahudha	D	86	95	13	13	27	nd	84	na*	100	100	50
141	Maliyamiyana	D	80	64	0	na*	2	nd	10	na*	100	0	na*
142	Mandavi_S	D	100	53	67	67	44	nd	100	na*	100	43	49
143	Oad	D	83	75	0	33	18	nd	80	na*	100	36	37
144	Padra	D	100	95	0	na*	25	nd	100	na*	100	57	73
145	Patdi	D	54	75	0	na*	14	nd	40	na*	100	na	24
146	Pethapur	D	66	93	0	na*	0	nd	nd*	na*	100	na	21
147	Prantij	D	100	95	0	38	33	nd	nd*	na*	0	34	na*
148	Ranavav	D	85	91	0	25	11	nd	100	na*	100	63	57
149	Rapar	D	57	83	0	33	35	nd	100	na*	100	82	14
150	Savri	D	88	95	0	na*	48	nd	80	na*	100	na	33
151	Shahera	D	65	92	5	na*	51	nd	80	na*	100	0	30
152	Sikka	D	65	90	11	11	31	nd	60	na*	100	17	5
153	Sojitra	D	60	100	0	na*	19	nd	nd*	na*	100	21	na*
154	Songadh	D	100	88	0	33	21	nd	100	na*	100	na	51
155	Sutarpada	D	87	77	0	na*	14	nd	100	na*	100	0	6
156	Talal	D	100	86	0	na*	1	nd	75	na*	100	50	12
157	Talod	D	97	85	0	12	14	nd	100	na*	nd*	50	64
158	Tarsadi	D	91	99	10	10	0	nd	60	na*	100	0	na*
159	Thara	D	0	80	0	na*	22	nd	0	na*	100	nd	0
160	Tharad	D	73	92	0	8	6	nd	66	na*	100	0	46
161	Thasra	D	50	98	77	na*	0	nd	nd*	na*	100	na	na*
162	Vadali	D	72	86	0	na*	0	nd	100	na*	100	86	35
163	Vallabhipur	D	100	75	0	na*	0	nd	0	na*	100	4	na*
164	Vanthali	D	80	59	0	50	28	nd	0	na*	100	43	37
165	Vijapur	D	71	93	0	60	0	nd	100	na*	100	52	17
166	Visavadar	D	86	86	0	56	11	nd	100	na*	100	54	54
	Average Value		**75**	**85**	**5**	**37**	**18**		**67**		**98**	**43**	**37**

Note : nd indicates Data not available,na indicates not applicable to ULB

Annexure 2.2- Local Action Indicator

C.Solid Waste Management

Local Action Indicators												
Sr. No.	Cities	Class	Total complaints in solid waste per 1000 HH	Complaints related to collection per 1000 HHs/year	Complaints related to sweeping per 1000 HHs/year	Complaints related to dumpsites, etc per 1000 HHs/yr	Total Staff (regular and contract) per 1000 households	Total sweepers per km of road length swept	Unit cost of transportation of solid waste	Average revenue per HH	Collection period for SWM charges	Billed arrears to total billed demand
	Unit		Ratio	Ratio	Ratio	Ratio	Ratio	Ratio	Rs/Tonne	Rs	%	%
Municipal Corporation												
1	Ahmedabad	MC	1	0	0	0	6	4.8	1314	262	354	47
2	Bhavnagar	MC	18	0	0	0	11	3	1324	637	439	65
3	Jamnagar	MC	114	0	0	0	nd	nd	1961	nd	nd	nd
4	Junagadh	MC	4	0	0	0	10	4	1,425	47	na	na
5	Rajkot	MC	5	1	2	0	3	3	4,156	408	476	64
6	Surat	MC	133	0	0	0	7	2	949	315	427	28
7	Vadodara	MC	13	0	0	0	3	2	2104	6	nd	nd
	Average Value		**41.2**	**0**	**0**	**0**	**6.6**	**3.1**	**1890.6**	**279.1**	**424.1**	**51.1**
Class A												
8	Anand	A	25	0	0	0	4	2	1472	160	298	na
9	Bharuch	A	20	0	0	0	9	5	262	0	0	na
10	Botad	A	5	5	0	0	3	3	742	33	365	80
11	Gandhidham	A	25	3	5	3	5	1	1,212	156	319	na
12	Godhara	A	7	7	0	0	5	2	1442	155	353	40
13	Jetpur	A	3	3	0	0	6	2	1,118	90	350	32
14	Kalol	A	4	0	0	0	5	2	1,713	347	232	na
15	Mehsana	A	94	0	0	0	4	5	2,256	11	0	na
16	Morbi	A	19	5	0	0	4	2	2,018	387	364	na
17	Nadiad	A	6	0	0	0	7	1	1,456	652	78	30
18	Navsari	A	9	0	1	0	5	1	1,138	203	279	6
19	Palanpur	A	4	0	0	0	8	8	242	4	12,158	46
20	Patan	A	254	235	19	0	9	2	1,966	228	361	54
21	Porbandar	A	32	0	32	0	12	9	1,131	132	364	16
22	Surendranagar	A	26	4	8	0	7	1	1,413	13	3,676	55
23	Valsad	A	2	1	0	0	10	4	1,580	148	326	26
24	Vapi	A	21	10	5	0	6	3	1,003	70	363	30
25	Veraval	A	18	9	0	0	9	25	1,539	0	0	na
	Average Value		**32**	**16**	**4**	**0**	**7**	**4**	**1317**	**155**	**1105**	**38**
Class B												
26	Amreli	B	18	9	0	0	7	3	951	13	3,202	na
27	Ankleshwar	B	11	0	0	0	3	1	1,154	16	2,375	12
28	Bardoli	B	77	26	19	0	13	0	915	434	140	15
29	Bhuj	B	5	0	4	0	6	1	1,599	312	892	na
30	Bilimora	B	341	0	341	0	9	1	2,024	245	248	21
31	Borsad	B	3	3	0	0	10	4	641	9	na	na
32	Dabhoi	B	4	4	0	0	6	3	596	49	363	na
33	Dahod	B	14	14	0	0	18	4	1,117	0	0	15
34	Deesa	B	9	2	7	0	10	2	1,822	228	355	na
35	Dhangedra	B	15	0	0	0	11	1	2,864	22	297	76
36	Dholka	B	7	0	7	0	nd	nd	970	0	0	29
37	Dhoraji	B	6	0	3	0	6	1	2,583	na	na	0
38	Gondal	B	14	0	0	0	6	1	2113	182	350	32
39	Himmatnagar	B	22	4	7	4	17	2	124	3	37684	na
40	Kadi	B	15	4	4	0	8	4	1345	141	523	40
41	Keshod	B	133	56	16	0	9	1	1542	0	0	na
42	Khambhat	B	8	0	0	0	15	3	1671	1080	41	49
43	Mahua	B	18	12	0	0	12	2	2126	7	4316	na
44	Mangrol	B	21	0	0	0	10	2	1,335	55	294	na
45	Modasa	B	22	8	0	0	10	nd	404	202	365	19
46	Okha	B	20	0	7	3	20	5	1,742	106	341	na
47	Palitana	B	41	0	0	0	11	19	1,157	47	na	na
48	Petlad	B	140	0	0	0	14	3	2181	152	302	na
49	Savarkundla	B	28	0	0	0	6	10	1,908	na	na	na
50	Siddhpur	B	9	0	0	3	12	2	4,436	172	361	31
51	Umargam	B	157	0	157	0	8	3	1,260	72	358	na
52	Una	B	60	0	60	0	8	1	1,177	28	1,744	na
53	Unjha	B	nd	nd	nd	nd	10	1	107	0	na	na
54	Upleta	B	40	0	3	0	8	1	1,616	86	365	na
55	Vadhwan	B	67	0	0	0	11	3	2,632	11	492	88
56	Vijalpore	B	37	0	0	0	7	nd	271	162	364	28
57	Viramgam	B	142	0	0	142	6	3	1622	0	0	32
58	Visnagar	B	14	7	3	2	5	2	929	3	138	73

Local Action Indicators												
Sr. No.	Cities	Class	Total complaints in solid waste per 1000 HH	Complaints related to collection per 1000 HHs/year	Complaints related to sweeping per 1000 HHs/year	Complaints related to dumpsites, etc per 1000 HHs/yr	Total Staff (regular and contract) per 1000 households	Total sweepers per km of road length swept	Unit cost of transportation of solid waste	Average revenue per HH	Collection period for SWM charges	Billed arrears to total billed demand
	Unit		Ratio	Ratio	Ratio	Ratio	Ratio	Ratio	Rs/Tonne	Rs	%	%
	Average Value		**47**	**5**	**20**	**5**	**10**	**3**	**1483**	**124**	**1997**	**35**
						Class C						
59	Anjar	C	1	nd	nd	nd	4	2	959	188	346	25
60	Bagasra	C	20	8	0	0	7	5	386	5	1,201	7
61	Balasinor	C	39	4	0	0	18	5	2,519	163	274	53
62	Bavla	C	21	15	2	0	8	3	1,975	80	365	37
63	Chaklasi	C	118	0	59	0	5	nd	1,361	57	365	18
64	Chhaya	C	30	9	10	9	2	0	859	44	365	35
65	Dehgam	C	12	nd	nd	nd	7	1	1,339	157	516	27
66	Dhanduka	C	43	nd	7	nd	3	1	1,711	589	195	68
67	Dwarka	C	37	5	6	12	14	2	1,715	165	219	na
68	Gadhda	C	19	8	4	0	4	2	181	44	476	na
69	Gariyadhar	C	17	14	0	0	15	5	1,432	0	0	na
70	Halol	C	77	32	45	0	10	3	1,955	279	172	5
71	Idar	C	75	12	50	0	6	1	1,599	176	363	32
72	jaffrabad	C	42	nd	nd	nd	2	0	1,428	65	424	28
73	Jambusar	C	16	8	0	0	10	4	0	0	0	24
74	Jasdan	C	55	nd	nd	nd	6	1	900	54	365	na
75	Jhalod	C	67	10	0	48	7	3	1,367	100	409	18
76	Kapadvanj	C	na	na	na	na	7	2	2,899	213	329	50
77	Karamsad	C	11	nd	na	nd	6	1	1,343	154	94	85
78	Karjan	C	209	139	0	0	9	2	1,306	174	365	41
79	Khambadiya	C	38	15	10	0	8	1	3,740	na	na	na
80	Khedbrahma	C	20	20	0	0	7	2	2,090	65	309	19
81	Kodinar	C	na	na	na	na	7	16	1,608	98	186	na
82	Limbdi	C	25	15	5	0	12	2	6	0	0	77
83	Lunavada	C	44	7	15	0	9	2	923	0	0	na
84	Manavadar	C	20	0	17	0	5	1	3,408	36	363	na
85	Mandavi_K	C	21	6	3	5	13	1	1272	188	280	23
86	Mansa	C	25	nd	nd	nd	8	1	52	76	1,059	30
87	Mehmadabad	C	22	nd	nd	nd	7	2	363	150	332	27
88	Pardi	C	29	0	14	0	7	2	2,109	58	269	25
89	Radhanpur	C	84	nd	nd	nd	7	3	678	85	365	na
90	Rajola	C	48	19	13	0	13	9	2,212	0	0	67
91	Rajpipla	C	43	22	0	0	15	2	1,921	1	0	na
92	Salya	C	24	6	12	3	6	3	811	74	301	27
93	Sanand	C	21	nd	nd	nd	5	2	127	92	363	31
94	Santrampur	C	42	4	18	0	14	1	243	10	5,149	na
95	Sihor	C	75	50	13	0	12	9	1,531	2	0	na
96	Talaja	C	66	33	26	0	14	2	2,359	114	318	na
97	Thangadh	C	6	0	6	0	4	2	1,055	na	na	na
98	Umreth	C	58	15	15	15	8	3	1,834	2	0	na
99	V.Vidyanagar	C	111	nd	nd	nd	15	2	1,659	764	174	20
100	Vadnagar	C	33	0	22	0	9	2	1209	92	326	na
101	Vyara	C	18	9	9	0	12	nd	1,241	281	334	12
102	Wankaner	C	15	3	6	0	8	1	1,617	127	200	30
	Average Value		**43**	**16**	**12**	**3**	**8**	**3**	**1393**	**120**	**409**	**34**
						Class D						
103	Amod	D	7	nd	nd	0	15	4	851	127	433	33
104	Anklav	D	103	10	21	31	2	8	351	0	0	72
105	Babra	D	39	31	0	0	9	3	1,348	na	0	na
106	Bhachau	D	49	nd	nd	nd	5	1	854	201	197	46
107	Bareja	D	6	6	0	0	9	2	2,787	129	359	52
108	Barvala	D	27	0	14	0	11	2	923	0	0	33
109	Bantawa	D	31	8	8	4	9	1	1,087	107	71	na
110	Bayad	D	36	24	12	0	5	2	88	na	0	19

Local Action Indicators												
Sr. No.	Cities	Class	Total complaints in solid waste per 1000 HH	Complaints related to collection per 1000 HHs/year	Complaints related to sweeping per 1000 HHs/year	Complaints related to dumpsites, etc per 1000 HHs/yr	Total Staff (regular and contract) per 1000 households	Total sweepers per km of road length swept	Unit cost of transportation of solid waste	Average revenue per HH	Collection period for SWM charges	Billed arrears to total billed demand
	Unit		Ratio	Ratio	Ratio	Ratio	Ratio	Ratio	Rs/Tonne	Rs	%	%
111	Bhabhar	D	20	nd	nd	nd	10	3	761	0	0	18
112	Bhanvad	D	24	6	6	6	4	2	2,633	94	339	na
113	Bhayvadar	D	3	0	3	0	8	1	1,335	79	381	na
114	Boriyavi	D	72	36	12	0	2	1	653	207	159	23
115	Chalal	D	16	0	16	0	1	nd	2,179	0	6,693	62
116	Chanasma	D	3	nd	nd	nd	6	0	947	190	0	na
117	Chhota_Udaipur	D	28	nd	nd	nd	10	2	237	5	8513	43
118	Chorvad	D	40	5	0	35	6	3	692	na	0	na
119	Chotila	D	60	0	36	24	13	4	1624	na	na	na
120	Dakor	D	158	140	0	0	6	6	1326	7	341	63
121	Damnagar	D	89	0	89	0	10	nd	1203	35	362	0
122	DevgadhBariya	D	38	5	15	0	6	1	2631	298	360	18
123	Dhanera	D	57	29	29	0	12	2	1544	1	20237	na
124	Dharampur	D	18	0	11	0	12	2	1939	117	365	2
125	Dhrol	D	30	0	30	0	11	4	2018	104	285	na
126	Gandevi	D	14	0	42	0	7	2	2261	125	343	21
127	Halvad	D	28	0	20	0	10	2	1507	5	na	na
128	Harij	D	nd	nd	nd	nd	16	4	1656	186	350	na
129	Jamjodhpur	D	10	10	0	0	7	5	1323	45	169	na
130	Jam_Rawal	D	27	0	11	11	1	1	667	21	350	na
131	Kaalol	D	661	165	495	0	15	2	721	836	295	na
132	Kalavad	D	25	22	0	3	7	1	1101	na	na	na
133	Kanjari	D	88	0	29	0	6	nd	329	61	na	na
134	Kansad	D	9	nd	nd	nd	0	1	778	na	na	na
135	Kathlal	D	11	11	0	0	16	6	735	130	364	43
136	Kheda	D	nd	nd	nd	nd	12	2	5909	414	129	50
137	Kheralu	D	36	0	24	0	11	5	4332	64	260	na
138	Kutiyana	D	61	nd	nd	nd	21	3	3585	323	310	na
139	Lathi	D	135	0	135	0	6	2	1361	0	na	29
140	Mahudha	D	721	nd	nd	nd	20	5	1269	219	422	44
141	Maliyamiyana	D	27	0	6	0	2	5	157	1	0	na
142	Mandavi_S	D	14	14	0	0	11	2	733	79	366	40
143	Oad	D	34	34	0	0	12	1	1383	78	340	29
144	Padra	D	39	9	18	0	19	2	1151	307	304	na
145	Patdi	D	27	nd	nd	nd	10	2	2361	81	1,496	na
146	Pethapur	D	51	45	0	0	6	1	37	0	0	62
147	Prantij	D	0	0	0	0	14	2	971	156	na	na
148	Ranavav	D	3	1	1	0	4	4	818	35	360	25
149	Rapar	D	26	0	0	26	7	1	888	89	387	64
150	Savri	D	14	0	14	0	15	1	1273	211	261	23
151	Shahera	D	14	0	14	0	11	1	418	123	368	9
152	Sikka	D	33	0	11	8	1	0	688	81	339	50
153	Sojitra	D	13	nd	nd	nd	11	4	814	85	na	na
154	Songadh	D	55	28	0	0	6	2	1900	200	182	38
155	Sutarpada	D	21	21	0	0	4	3	978	63	364	na
156	Talal	D	17	3	14	0	4	2	1708	3	7,980	48
157	Talod	D	0	0	0	0	6	2	2844	106	190	34
158	Tarsadi	D	28	0	16	0	11	3	37	na	na	na
159	Thara	D	9	nd	nd	nd	4	3	225	11	2861	28
160	Tharad	D	24	0	6	0	14	11	1209	38	3,542	na
161	Thasra	D	33	nd	nd	nd	2	2	313	na	na	na
162	Vadali	D	11	0	11	0	15	3	190	na	na	13
163	Vallabhipur	D	145	nd	nd	nd	8	5	684	na	na	na
164	Vanthali	D	11	11	0	0	4	1	4246	395	194	na
165	Vijapur	D	109	60	48	0	5	7	241	0	na	na
166	Visavadar	D	113	17	51	28	7	1	1681	70	364	na
	Average Value		**59**	**15**	**26**	**4**	**9**	**3**	**1336**	**117**	**1215**	**35**

Note : nd indicates Data not available,na indicates not applicable to ULB

Annexure 2.1- Key Performance Indicator

C.Storm Water Drainage

Golden Goals and Reforms Indicators				
Sr. No.	**Cities**	**Class**	**Coverage of Storm water drainage network**	**Incidence of water logging / flooding**
	Unit		**100%**	**0**
	Municipal Corporation			
1	Ahmedabad	MC	69.6	214
2	Bhavnagar	MC	nd*	4
3	Jamnagar	MC	nd*	nd*
4	Junagadh	MC	nd*	nd*
5	Rajkot	MC	3	2
6	Surat	MC	44.1	239
7	Vadodara	MC	23	nd*
	Average Value		**35**	**115**
	Class A			
8	Anand	A	17	2
9	Bharuch	A	9	nd*
10	Botad	A	nd*	nd*
11	Gandhidham	A	9	9
12	Godhara	A	13	nd*
13	Jetpur	A	121	2
14	Kalol	A	nd*	2
15	Mehsana	A	16	2
16	Morbi	A	130	12
17	Nadiad	A	9	2
18	Navsari	A	nd*	1
19	Palanpur	A	nd*	1
20	Patan	A	1	4
21	Porbandar	A	2	3
22	Surendranagar	A	6	4
23	Valsad	A	70	6
24	Vapi	A	79	4
25	Veraval	A	42	nd*
	Average Value		**37**	**4**
	Class B			
26	Amreli	B	164	nd*
27	Ankleshwar	B	16	3
28	Bardoli	B	2	nd*
29	Bhuj	B	nd*	4
30	Bilimora	B	nd*	1
31	Borsad	B	nd*	nd*
32	Dabhoi	B	8	nd*
33	Dahod	B	14	1
34	Deesa	B	22	nd*
35	Dhangedra	B	2	1
36	Dholka	B	nd*	nd*
37	Dhoraji	B	2	2
38	Gondal	B	nd*	nd*
39	Himmatnagar	B	nd*	1
40	Kadi	B	4	1

Golden Goals and Reforms Indicators				
Sr. No.	**Cities**	**Class**	**Coverage of Storm water drainage network**	**Incidence of water logging / flooding**
	Unit		**100%**	**0**
41	Keshod	B	10	nd*
42	Khambhat	B	nd*	nd*
43	Mahua	B	8	3
44	Mangrol	B	12	1
45	Modasa	B	nd*	4
46	Okha	B	nd*	2
47	Palitana	B	5	1
48	Petlad	B	59	nd*
49	Savarkundla	B	nd*	nd*
50	Siddhpur	B	nd*	1
51	Umargam	B	nd*	1
52	Una	B	1	nd*
53	Unjha	B	10	nd*
54	Upleta	B	nd*	nd*
55	Vadhwan	B	nd*	1
56	Vijalpore	B	25	nd*
57	Viramgam	B	16	2
58	Visnagar	B	33	nd*
	Average Value		**22**	**2**
	Class C			
59	Anjar	C	2	nd*
60	Bagasra	C	129	nd*
61	Balasinor	C	nd*	nd*
62	Bavla	C	nd*	1
63	Chaklasi	C	nd*	1
64	Chhaya	C	nd*	2
65	Dehgam	C	7	1
66	Dhanduka	C	nd*	nd*
67	Dwarka	C	nd*	1
68	Gadhda	C	4	1
69	Gariyadhar	C	51	3
70	Halol	C	9	3
71	Idar	C	nd*	nd*
72	jaffrabad	C	72	nd*
73	Jambusar	C	nd*	2
74	Jasdan	C	nd*	nd*
75	Jhalod	C	nd*	nd*
76	Kapadvanj	C	9	nd*
77	Karamsad	C	6	nd*
78	Karjan	C	nd*	nd*
79	Khambadiya	C	nd*	2
80	Khedbrahma	C	nd*	nd*
81	Kodinar	C	7	nd*
82	Limbdi	C	9	1
83	Lunavada	C	151	nd*
84	Manavadar	C	nd*	nd*
85	Mandavi_K	C	13	nd*
86	Mansa	C	8	nd*
87	Mehmadabad	C	9	nd*
88	Pardi	C	27	nd*
89	Radhanpur	C	nd*	nd*

Golden Goals and Reforms Indicators				
Sr. No.	**Cities**	**Class**	**Coverage of Storm water drainage network**	**Incidence of water logging / flooding**
	Unit		**100%**	**0**
90	Rajola	C	nd*	2
91	Rajpipla	C	6	nd*
92	Salya	C	nd*	nd*
93	Sanand	C	2	nd*
94	Santrampur	C	9	nd*
95	Sihor	C	nd*	nd*
96	Talaja	C	5	nd*
97	Thangadh	C	nd*	nd*
98	Umreth	C	15	1
99	V.Vidyanagar	C	nd*	nd*
100	Vadnagar	C	nd*	nd*
101	Vyara	C	20	nd*
102	Wankaner	C	nd*	nd*
	Average Value		**26**	**2**
	Class D			
103	Amod	D	4	nd*
104	Anklav	D	nd*	nd*
105	Babra	D	nd*	nd*
106	Bhachau	D	nd*	nd*
107	Bareja	D	34	nd*
108	Barvala	D	nd*	nd*
109	Bantawa	D	nd*	nd*
110	Bayad	D	nd*	4
111	Bhabhar	D	10	3
112	Bhanvad	D	nd*	nd*
113	Bhayvadar	D	nd*	nd*
114	Boriyavi	D	nd*	6
115	Chalal	D	nd*	1
116	Chanasma	D	nd*	nd*
117	Chhota_Udaipur	D	5	nd*
118	Chorvad	D	nd*	1
119	Chotila	D	nd*	nd*
120	Dakor	D	nd*	2
121	Damnagar	D	nd*	nd*
122	DevgadhBariya	D	nd*	nd*
123	Dhanera	D	5	12
124	Dharampur	D	5	2
125	Dhrol	D	nd*	nd*
126	Gandevi	D	nd*	4
127	Halvad	D	104	nd*
128	Harij	D	nd*	2
129	Jamjodhpur	D	nd*	nd*
130	Jam_Rawal	D	nd*	3
131	Kaalol	D	nd*	nd*
132	Kalavad	D	nd*	nd*
133	Kanjari	D	30	2
134	Kansad	D	nd*	nd*
135	Kathlal	D	nd*	nd*
136	Kheda	D	139	nd*
137	Kheralu	D	nd*	nd*
138	Kutiyana	D	nd*	nd*

Golden Goals and Reforms Indicators				
Sr. No.	**Cities**	**Class**	**Coverage of Storm water drainage network**	**Incidence of water logging / flooding**
	Unit		**100%**	**0**
139	Lathi	D	6	1
140	Mahudha	D	nd*	3
141	Maliyamiyana	D	nd*	4
142	Mandavi_S	D	65	nd*
143	Oad	D	39	nd*
144	Padra	D	8	nd*
145	Patdi	D	22	nd*
146	Pethapur	D	nd*	nd*
147	Prantij	D	nd*	nd*
148	Ranavav	D	nd*	nd*
149	Rapar	D	nd*	nd*
150	Savri	D	nd*	1
151	Shahera	D	68	nd*
152	Sikka	D	nd*	5
153	Sojitra	D	nd*	1
154	Songadh	D	27	nd*
155	Sutarpada	D	nd*	1
156	Talal	D	nd*	nd*
157	Talod	D	24	nd*
158	Tarsadi	D	38	nd*
159	Thara	D	nd*	2
160	Tharad	D	53	2
161	Thasra	D	17	nd*
162	Vadali	D	nd*	nd*
163	Vallabhipur	D	133	3
164	Vanthali	D	nd*	nd*
165	Vijapur	D	43	nd*
166	Visavadar	D	nd*	nd*
	Average Value		**40**	**3**

Note : nd indicates Data not available,na indicates not applicable to ULB

Annexure 3 : Reliability Band

Key Performance Indicators for Goals and Reforms : Water supply

1. Coverage of water supply connections(%) : a/b *100

	Reliability A+	Reliability A	Reliability B	Reliability C	Reliability D
a)	Number of HHs with individual connections as maintained in records	Number of HHs with individual connections as maintained in records	Number of HHs with individual connections estimated on the basis of average number of HHs per connection and number of connections.	Number of HHs with individual connections estimated on the basis of number of domestic connections	Number of HHs with individual connections estimated on the basis of number of domestic connections
b)	Total number of HHs in the ULB (as projected from census)	Total number of HHs in the ULB (as projected from census)	Total number of HHs in the ULB (as projected from census)	Total number of HHs in the ULB (as projected from census)	Total number of HHs in the ULB (as projected from census)
c)	Do formats record number of HHs served per connection?	Do formats record number of HHs served per connection?	Do formats record number of HHs with individual connections?	Does ULB maintain and update the connection records regularly ?	
d)	Are computerised systems used to record connections data?	Are computerised systems used to record connections data?	Does ULB maintain and update the connection records regularly ?		
e)	Is GIS database of property level details and water connections maintained?				

2. Per capita supply of water (lpcd): (a-b)/c

	Reliability A+	Reliability A	Reliability B	Reliability C	Reliability D
a)	Water supplied into the distribution system (in litres per day),ex treatment plant, ground water and bulk treated water (measured through flow meters)	Water supplied into the distribution system (in litres per day),ex treatment plant, ground water and bulk treated water (measured through flow meters)	Water supplied into the distribution system (in litres per day),ex treatment plant, ground water and bulk treated water	Water supplied into the distribution system (in litres per day),ex treatment plant, ground water and bulk treated water (estimated on the basis of pump operation details/level measurements)	Quantity of water produced as specified by ULB(in litres per day)(as said by ULB)
b)	Quantity of water supplied for bulk and industrial connections (large industrial estates)	Quantity of water supplied for bulk and industrial connections (large industrial estates)	Quantity of water supplied for bulk and industrial connections (large industrial estates)	Quantity of water supplied for bulk and industrial connections (large industrial estates)	Quantity of water supplied for bulk and industrial connections (large industrial estates)
c)	Population served (includes floating population where relevant)	Population served (includes floating population where relevant)	Population served (includes floating population where relevant)	Population served (includes floating population where relevant)	Population served (includes floating population where relevant)
d)	Is quantity of water produced computed on the basis of bulk flow meters, and automated systems?	Is quantity of water produced computed on the basis of bulk flow meters, and automated systems?	Is quantity of water produced computed on the basis of bulk flow meters, and manual records?	Is quantity of water produced computed on the basis of pump/ level details, and manual records?	Is quantity of water produced computed as said by ULB with no records maintained?
e)	Are GIS based systems used to map network and related data?				

3. Continuity of water supply (hrs per day): a

	Reliability A+	Reliability A	Reliability B	Reliability C	Reliability D
a)	Weighted average of hours of pressurized water supply per day for a zone (hrs)	Weighted average of hours of pressurized water supply per day for a zone (hrs)	Weighted average of hours of pressurized water supply per day for a zone (hrs)	Weighted average of hours of pressurized water supply per day for a zone (hrs)(no records maintained)	Average no. of hours for city as a whole (no zone level population estimates, no records maintained)
b)	Are automated systems in place (like SCADA) to monitor hours of supply?	Are automated systems in place (like SCADA) to monitor hours of supply?	Are manual records maintained to monitor hours of supply?	Is zone wise population estimated as told by ULB?	
c)	Is zone wise population estimated on the basis of past trends/ surveys?	Is zone wise population estimated on the basis of past trends/ surveys?	Is zone wise population estimated on the basis of past trends/ surveys?		
d)	Are automated systems (like SCADA) linked to GIS database systems?				

Annexure 3 : Reliability Band

Key Performance Indicators for Goals and Reforms : Water supply

4. Quality of water supplied (%): (b/a)* 100

	Reliability A+	Reliability A	Reliability B	Reliability C	Reliability D
a)	Total number of samples that are conducted in a year(RC, TDS, Bacteriological; Groundwater: Fluoride)	Total number of samples that are conducted in a year(RC, TDS, Bacteriological; Groundwater: Fluoride)	Total number of samples that are conducted in a year(RC, TDS, Bacteriological; Groundwater: Fluoride)	Total number of samples that are conducted in a year(RC, TDS, Bacteriological; Groundwater: Fluoride)	Total number of samples that are conducted in a year
b)	Number of samples that meet or exceed the standards in that year (RC, TDS, Bacteriological; Groundwater: Fluoride)	Number of samples that meet or exceed the standards in that year (RC, TDS, Bacteriological; Groundwater: Fluoride)	Number of samples that meet or exceed the standards in that year (RC, TDS, Bacteriological; Groundwater: Fluoride)	Number of samples that meet or exceed the standards in that year (RC, TDS, Bacteriological; Groundwater: Fluoride)	Number of samples that meet or exceed the standards in that year
c)	Are records of tests computerised and linked to GIS database systems?	Are records of tests conducted computerised?	Are manual records of tests conducted maintained?	Are manual records of tests conducted maintained?	
d)	Is consumer end tests conducted through proper sampling regimen?	Is consumer end tests conducted through proper sampling regimen?	Are independent but occasional/ ad-hoc audits on water quality conducted?	Are periodic internal audits on water quality conducted?	
e)	Is independent and periodic audit of water quality conducted?	Is independent and periodic audit of water quality conducted?			

5.Cost recovery (O&M) in water supply services (%): (b/a)*100

	Reliability A+	Reliability A	Reliability B	Reliability C	Reliability D
a)	Total annual operating expenses in water supply (Rs) (excluding loan interest and depreciation)	Total annual operating expenses in water supply (Rs) (excluding loan interest and depreciation)	Total annual operating expenses in water supply (Rs) (excluding loan interest and depreciation)	Total annual operating expenses in water supply (Rs) (excluding loan interest and depreciation)	Total annual operating expenses in water supply (Rs) (excluding loan interest and depreciation)
b)	Total annual operating revenues (billed) in water supply (Rs)(excluding revenue grants)	Total annual operating revenues (billed) in water supply (Rs)(excluding revenue grants)	Total annual operating revenues in water supply (Rs)(excluding revenue grants)	Total annual operating revenues in water supply (Rs)(excluding revenue grants)	Total annual operating revenues in water supply (Rs)(excluding revenue grants)
c)	Are budget heads related to water fully segregated?	Are budget heads related to water fully segregated?	Are budget heads related to water partially segregated?	Are budget heads related to water partially segregated?	Is cash based accounting system practised?
d)	Is regular reporting of the financial statements conducted?	Is regular reporting of the financial statements conducted?	Is accrual based double entry accounting system practised?	Is cash based accounting system practised?	
e)	Are accounting systems computerised and accrual based double entry?	Is accrual based double entry accounting system practised parallel to cash based accounting?			
f)		Are accounting systems computerised and accrual based double entry?			

6. Spatial variation in coverage of water supply connections (Ratio): a/b

	Reliability A+	Reliability A	Reliability B	Reliability C	Reliability D
a)	Standard deviation of zonal values for HHs with individual connections	Standard deviation of zonal values for HHs with individual connections	Standard deviation of zonal values for HHs with individual connections	Standard deviation of zonal values for number of residential connections	Standard deviation of zonal values for number of residential connections
b)	Average of zonal values for for HHs with individual connections	Average of zonal values for for HHs with individual connections	Average of zonal values for for HHs with individual connections	Average of zonal values for number of residential connections	Average of zonal values for number of residential connections
c)	Do formats record number of HHs served per connection by ward?	Do formats record number of HHs served per connection by ward?	Do formats record number of HHs served per connection by ward?	Are records of water connections regularly (quarterly/annually) updated by ULB ?	
d)	Are computerised systems used to record connections data?	Are computerised systems used to record connections data?	Are records of water connections regularly (quarterly/annually) updated by ULB ?		
e)	Is GIS database of property level details and water connections maintained?				

Annexure 3 : Reliability Band

Key Performance Indicators for Goals and Reforms : Water supply

7. Spatial variation in per capita supply of water (Ratio): a/b

	Reliability A+	Reliability A	Reliability B	Reliability C	Reliability D
a)	Standard deviation of zonal values for per capita supply of water	Standard deviation of zonal values for per capita supply of water	Standard deviation of zonal values for per capita supply of water	Standard deviation of zonal values for per capita supply of water	Standard deviation of zonal values for per capita supply of water
b)	Average of zonal values for per capita supply of water	Average of zonal values for per capita supply of water	Average of zonal values for per capita supply of water	Average of zonal values for per capita supply of water	Average of zonal values for per capita supply of water
c)	Is quantity of water produced computed on the basis of bulk flow meters, and automated systems?	Is quantity of water produced computed on the basis of bulk flow meters, and automated systems?	Are daily production quantities measured using flow meters and maintained by manual records?	Are daily production quantities measured using pump/ level details and maintained by manual records?	
d)	Is zone wise population estimated on the basis of past trends/ surveys?	Is zone wise population estimated on the basis of past trends/ surveys?	Is zone wise population estimated on the basis of past trends/ surveys?	Is zone wise population as given by ULB; no records maintained?	
e)	Are GIS based systems used to map network and related data?				

8. Coverage of water supply connections in 'slum settlements' (%): (b/a)*100

	Reliability A+	Reliability A	Reliability B	Reliability C	Reliability D
a)	Total no of households in the slums within the service area (as maintained in computerised records)	Total no of households in the slums within the service area (as maintained in computerised records)	Total no of households in the slums within the service area	Total no of households in the slums within the service area	Total no of households in the slums within the service area
b)	Total no of households in the slums with direct water supply connection in the service area	Total no of households in the slums with direct water supply connection in the service area	Total no of households in the slums with direct water supply connection in the service area	Total no of households in the slums with direct water supply connection in the service area	Total no of households in the slums with direct water supply connection in the service area
c)	Are households and services estimated on the basis of computerised records?	Are households and services estimated on the basis of manual records?	Are households and services estimated on the basis of recent surveys?	Are households and services estimated on the basis of past surveys?	

9. Extent of non-revenue water (%): [(a - c)/a]*100

	Reliability A+	Reliability A	Reliability B	Reliability C	Reliability D
a)	Quantity of water produced (million liters per month)	Quantity of water produced (million liters per month)	Quantity of water produced (million liters)	Quantity of water produced (million liters)	Quantity of water produced,as specified by ULB (million litres)
b)	Is quantity of water produced computed on the basis of bulk flow meters, and automated systems?	Is quantity of water produced computed on the basis of bulk flow meters, and automated systems?	Is quantity of water produced computed on the basis of bulk flow meters, and manual records?	Is quantity of water produced computed on the basis of pump/ level details, and manual records?	Quantity of water billed as reported by ULB (million litres)
c)	Total quantum of water billed (million liters per month)	Total quantum of water billed (million liters per month)	Billed authorised consumption on the basis of metered quantity for bulk consumers (million litres)	Total quantum of water billed (million liters per month)	
d)	Is 100% consumer metering system present?	Is 100% consumer metering system present?	Household consumption monitored on the basis of periodic survey (million litres)	Does household consumption is estimated by using spot survey?	
e)	Is automated meter reading available at consumer end?		Is all Bulk and commercial consumers have metering system?		
f)	Are GIS based systems used to map network and related data?		Does household consumption is estimated by using periodic survey?		

10.Efficiency in redressal of customer complaints (%): (b/a)*100

	Reliability A+	Reliability A	Reliability B	Reliability C	Reliability D
a)	Total no. of water supply complaints received annually	Total no. of water supply complaints received annually	Total no. of water supply complaints received annually	Total no. of water supply complaints received annually	Total no. of water supply complaints received annually, as estimated by the ULB
b)	Total no. of water supply complaints redressed annually	Total no. of water supply complaints redressed annually	Total no. of water supply complaints redressed annually	Total no. of water supply complaints redressed annually	Total no of water supply complaints redressed annually, as estimated by the ULB
c)	Are complaint redressal systems automated?	Are complaint redressal systems automated?	Are records of complaints received and redressed maintained?	Are records of complaints received and redressed maintained?	
d)	Are complaint redressal systems linked to GIS database?	Are complaints segregated into different categories?	Are complaints segregated into different categories?		
e)	Are complaints segregated into different categories?	Are complaints received through various means collated?	Are complaints received through various means collated?		
f)	Are complaints received through various means collated?				

Annexure 3 : Reliability Band

Key Performance Indicators for Goals and Reforms : Water supply

11.Percentage of recruited staff to sanctioned staff (%): (a/b)*100

	Reliability A+	Reliability A	Reliability B	Reliability C	Reliability D
a)	Number of recruited staff in water supply	Number of recruited staff in water supply	Number of recruited staff in water supply	Not Applicable	Number of recruited staff in water supply
b)	Number of sanctioned staff in water supply	Number of sanctioned staff in water supply	Number of sanctioned staff in water supply		Number of sanctioned staff in water supply
c)	Are automated systems for staff records used?	Are manual records maintained for staff related data?	Are records of sanctioned staff maintained by the ULB?		

12.Extent of functional metering of water connections (%): a

	Reliability A+	Reliability A	Reliability B	Reliability C	Reliability D
a)	Percentage of metered connections that are functional in the city	Percentage of metered connections that are functional in the city	Percentage of metered connections that are functional in the city	Percentage of metered connections that are functional in the city	Percentage of metered connections that are functional in the city
b)	Are records of metered connections maintained?	Are records of metered connections maintained?	Are records of metered connections maintained?	Are records of metered connections maintained?	
c)	Are records of metered connections that are functional maintained?	Are records of metered connections that are functional maintained?	Are records of metered connections that are functional maintained?		
d)	Are automated meter reading systems installed for consumer connections?	Are automated meter reading systems installed for consumer connections?			
e)	Are connections linked to GIS database?	Is the process of installation of new water connections, new meters, and generation of water bills interlinked?			
f)	Is the process of installation of new water connections, new meters, and generation of water bills interlinked?				

13.Unit cost of electricity of production (Rs/Kl): a/b

	Reliability A+	Reliability A	Reliability B	Reliability C	Reliability D
a)	Average daily electricity expenditure in water supply (Rs)	Average daily electricity expenditure in water supply (Rs)	Average daily electricity expenditure in water supply (Rs)	Average daily electricity expenditure in water supply (Rs)	Average daily electricity expenditure in water supply (Rs)
b)	Water supplied into the distribution system from source (Kl)	Water supplied into the distribution system from source (Kl)	Water supplied into the distribution system from source (Kl)	Water supplied into the distribution system from source (Kl)	Water supplied into the distribution system from source (Kl)
c)	Is quantity of water produced computed on the basis of bulk flow meters, and automated systems?	Is quantity of water produced computed on the basis of bulk flow meters, and automated systems?	Is quantity of water produced computed on the basis of bulk flow meters, and manual records?	Is quantity of water produced computed on the basis of pump/ level details, and manual records?	
d)	Are GIS based systems used to map network and related data?	Are budget heads related to electricity expenses in water clearly segregated?	Are budget heads related to electricity expenses in water clearly segregated?	Is limited segregation of electricity expenses related to water possible?	
e)	Are budget heads related to electricity expenses in water clearly segregated?	Is double entry accrual based computerised system, and regularly updated practised?	Is accrual based double entry accounting system practised?		
f)	Is double entry accrual based computerised system, and regularly updated practised?				

14.Efficiency in collection of water supply related charges (%): (a/b)*100

	Reliability A+	Reliability A	Reliability B	Reliability C	Reliability D
a)	Current revenues (taxes and charges) in water supply collected in the given year (Rs)	Current revenues (taxes and charges) in water supply collected in the given year (Rs)	Current revenues (taxes and charges) in water supply collected in the given year (Rs)	Current revenues (taxes and charges) in water supply collected in the given year (Rs), inclusive of arrears	Current revenues (taxes and charges) in waste water collected in the given year (Rs); as reported by ULB, no DCB tables
b)	Current revenues (taxes and charges) in water supply billed in the given year (Rs)	Current revenues (taxes and charges) in water supply billed in the given year (Rs)	Current revenues (taxes and charges) in water supply billed in the given year (Rs)	Current revenues (taxes and charges) in water supply billed in the given year (Rs), inclusive of arrears	Current revenues (taxes and charges) in waste water billed in the given year (Rs); as reported by ULB, no DCB tables
c)	Are DCB tables computerised and automatically generated, with accrual double entry sytem?	Are accrual based double entry accounting systems followed?	Is accrual based double entry accounting system practised parallel to cash based accounting?	Is cash based accounting system practised?	
d)	Are DCB tables linked to billing and collection system?	Are DCB tables linked to billing and collection system?	Are DCB tables properly maintained and updated?		
e)	Are DCB tables properly maintained and updated?	Are DCB tables properly maintained and updated?			

SUMMARY OF RELIABILITIES FOR CITIES IN GUJARAT

State: Gujarat (166 cities)															
	Reliability					nd			Reliability in %						
Performance indicators	A+	A	B	C	D	(0)	na	Total	A+	A	B	C	D	nd (0)	na
Water supply															
Coverage of water supply connections	0	65	1	94	5	1	0	166	0	39	1	57	3	1	0
Per capita supply	0	1	21	53	91	0	0	166	0	1	13	32	55	0	0
Continuity of water supply	0	0	0	54	112	0	0	166	0	0	0	33	67	0	0
Quality of water supplied	0	0	0	8	154	4	0	166	0	0	0	5	93	2	0
Cost recovery: O&M	4	0	160	0	0	2	0	166	2	0	96	0	0	1	0
Coeffecient of variation (CV) in water supply coverage	0	53	11	17	0	85	0	166	0	32	7	10	0	51	0
Coeffecient of variation (CV) in per capita supply	0	0	0	2	39	125	0	166	0	0	0	1	23	75	0
Coverage of WS connections in slums	0	1	5	6	121	33	0	166	0	1	3	4	73	20	0
Extent of NRW to total water supplied	0	0	0	0	164	2	0	166	0	0	0	0	99	1	0
Efficiency in redressal of customer complaints	0	4	57	20	84	1	0	166	0	2	34	12	51	1	0
Recruited staff to sanctioned (percentage)	0	129	0	0	0	37	0	166	0	78	0	0	0	22	0
Extent of functional metering of water connections	0	0	8	0	0	158	0	166	0	0	5	0	0	95	0
Electricity expenditure as a share of water production	0	1	2	10	126	27	0	166	0	1	1	6	76	16	0
Collection efficiency for water charges	48	0	116	0	0	2	0	166	29	0	70	0	0	1	0
Waste water															
Coverage of toilets	0	1	0	2	157	6	0	166	0	1	0	1	95	4	0
Coverage of waste water network	0	12	7	1	38	108	0	166	0	7	4	1	23	65	0
Collection efficiency of waste water network	0	1	0	1	4	8	152	166	0	1	0	1	2	5	92
Adequacy of waste water treatment capacity	0	1	0	4	0	9	152	166	0	1	0	2	0	5	92
Cost recovery: O&M	0	0	97	0	0	69	0	166	0	0	58	0	0	42	0
CV in coverage of individual toilets	0	0	0	0	4	162	0	166	0	0	0	0	2	98	0
CV in individual sewerage connections	0	3	1	4	3	155	0	166	0	2	1	2	2	93	0
Coverage of individual toilets in slums	0	1	5	6	137	17	0	166	0	1	3	4	83	10	0
Coverage of individual sewerage connections in slums	0	1	3	1	19	142	0	166	0	1	2	1	11	86	0
Quality of waste water treatment	0	0	0	1	5	160	0	166	0	0	0	1	3	96	0
Extent of reuse and recycling of waste water	0	0	0	0	1	13	152	166	0	0	0	0	1	8	92
Efficiency in redressal of customer complaints	0	4	46	21	75	20	0	166	0	2	28	13	45	12	0
Recruited staff to sanctioned (percentage)	0	46	0	0	0	120	0	166	0	28	0	0	0	72	0
Collection efficiency for waste water charges	25	0	36	0	0	105	0	166	15	0	22	0	0	63	0
Solid Waste Management															
Coverage of HH collection of SWM	0	0	16	0	145	5	0	166	0	0	10	0	87	3	0
Collection efficiency of MSW	0	0	0	28	138	0	0	166	0	0	0	17	83	0	0
Extent of segregation of MSW	0	1	0	3	3	159	0	166	0	1	0	2	2	96	0
Extent of MSW recovered	0	3	3	27	32	101	0	166	0	2	2	16	19	61	0
Cost recovery: O&M	3	0	130	0	0	33	0	166	2	0	78	0	0	20	0
CV in coverage of SWM	0	0	1	0	5	160	0	166	0	0	1	0	3	96	0
Coverage of HH collection of SWM in slums	0	0	2	2	96	66	0	166	0	0	1	1	58	40	0
Extent of scientific disposal of MSW	0	2	0	0	0	164	0	166	0	1	0	0	0	99	0
Efficiency in redressal of customer complaints	0	3	53	22	80	8	0	166	0	2	32	13	48	5	0
Recruited staff to sanctioned (percentage)	0	138	0	0	0	28	0	166	0	83	0	0	0	17	0
Collection efficiency for SWM charges	41	0	97	0	0	28	0	166	25	0	58	0	0	17	0

State: Gujarat	Ahmedabad	Bhavnagar	Surat	Jamnagar	Junagadh	Vadodara	Rajkot	Total						
Performance indicators														
Water supply								A+	A	B	C	D	nd	na
Coverage of water supply connections	A	C	A	A	A	A	A	0	6	0	1	0	0	0
Per capita supply	C	C	A	B	D	C	C	0	1	1	4	1	0	0
Continuity of water supply	D	D	D	C	D	C	C	0	0	0	3	4	0	0
Quality of water supplied	D	D	C	D	D	D	C	0	0	0	2	5	0	0
Cost recovery: O&M	B	B	B	B	B	B	B	0	0	7	0	0	0	0
Coeffecient of variation (CV) in water supply coverage	0	0	A	B	0	A	0	0	2	1	0	0	4	0
Coeffecient of variation (CV) in per capita supply	0	0	0	D	0	C	C	0	0	0	2	1	4	0
Coverage of WS connections in slums	C	D	D	C	D	B	C	0	0	1	3	3	0	0
Extent of NRW to total water supplied	D	D	D	D	D	D	D	0	0	0	0	7	0	0
Efficiency in redressal of customer complaints	C	C	A	C	C	C	A	0	2	0	5	0	0	0
Recruited staff to sanctioned (percentage)	A	A	A	0	A	A	A	0	6	0	0	0	1	0
Extent of functional metering of water connections	0	B	B	B	0	B	B	0	0	5	0	0	2	0
Electricity expenditure as a share of water production	C	C	A	B	D	C	C	0	1	1	4	1	0	0
Collection efficiency for water charges	A+	B	A+	0	B	A+	A+	4	0	2	0	0	1	0
Waste water														
Coverage of toilets	C	D	A	D	D	D	D	0	1	0	1	5	0	0
Coverage of waste water network	D	D	A	D	0	D	B	0	1	1	0	4	1	0
Collection efficiency of waste water network	C	0	A	na	na	D	D	0	1	0	1	2	1	2
Adequacy of waste water treatment capacity	C	0	A	na	na	C	C	0	1	0	3	0	1	2
Cost recovery: O&M	B	B	B	B	B	B	B	0	0	7	0	0	0	0
CV in coverage of individual toilets	0	0	0	0	0	0	0	0	0	0	0	0	7	0
CV in individual sewerage connections	0	0	0	0	0	D	0	0	0	0	0	1	6	0
Coverage of individual toilets in slums	C	D	D	C	D	B	C	0	0	1	3	3	0	0
Coverage of individual sewerage connections in slums	C	D	0	0	0	B	0	0	0	1	1	1	4	0
Quality of waste water treatment	D	0	C	0	0	D	D	0	0	0	1	3	3	0
Extent of reuse and recycling of waste water	0	0	D	na	na	0	0	0	0	0	0	1	4	2
Efficiency in redressal of customer complaints	C	C	A	C	C	C	A	0	2	0	5	0	0	0
Recruited staff to sanctioned (percentage)	A	A	A	0	0	0	A	0	4	0	0	0	3	0
Collection efficiency for waste water charges	A+	0	A+	0	0	A+	A+	4	0	0	0	0	3	0
Solid Waste Management														
Coverage of HH collection of SWM	B	D	B	0	D	B	B	0	0	4	0	2	1	0
Collection efficiency of MSW	C	D	C	D	D	C	D	0	0	0	3	4	0	0
Extent of segregation of MSW	0	0	0	0	0	0	A	0	1	0	0	0	6	0
Extent of MSW recovered	A	0	A	0	B	A	B	0	3	2	0	0	2	0
Cost recovery: O&M	B	B	B	A	B	B	B	0	1	6	0	0	0	0
CV in coverage of SWM	0	0	B	0	0	0	0	0	0	1	0	0	6	0
Coverage of HH collection of SWM in slums	C	D	D	0	0	0	0	0	0	0	1	2	4	0
Extent of scientific disposal of MSW	0	0	A	0	0	0	A	0	2	0	0	0	5	0
Efficiency in redressal of customer complaints	C	C	C	C	C	C	A	0	1	0	6	0	0	0
Recruited staff to sanctioned (percentage)	A	A	A	0	A	A	A	0	6	0	0	0	1	0
Collection efficiency for SWM charges	A	B	A	0	0	0	A	0	3	1	0	0	3	0

State: Gujarat	Morbi	Kalol	Anand	Nadiad	Gandhidham	Bharuch	Patan	Palanpur	Mehsana	Godhara	Vapi	Valsad	Navsari	Botad	Jetpur	Surendranagar	Veraval	Porbandar		Total					
Performance indicators																									
Water supply																				**A+**	**A**	**B**	**C**	**D**	**nd**
Coverage of water supply connections	A	A	C	C	C	C	A	A	C	C	C	C	A	C	C	C	C	C		0	5	0	13	0	0
Per capita supply	D	C	D	C	D	B	D	B	B	C	B	C	B	C	D	D	D	D		0	0	5	5	8	0
Continuity of water supply	D	D	D	D	C	D	D	D	D	D	D	D	D	D	D	C	D	D		0	0	0	2	16	0
Quality of water supplied	D	D	D	C	D	D	C	D	D	D	D	D	D	D	D	D	D	D		0	0	0	2	16	0
Cost recovery: O&M	B	B	B	B	B	B	B	B	B	A+	B	B	B	B	B	B	A+	A+		3	0	15	0	0	0
Coeffecient of variation (CV) in water supply coverage	C	A	0	0	0	0	A	A	0	0	0	C	0	0	0	0	0	0		0	3	0	2	0	13
Coeffecient of variation (CV) in per capita supply	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	D	0	0		0	0	0	0	1	17
Coverage of WS connections in slums	D	D	D	D	0	0	C	0	A	D	0	B	D	D	D	D	D	D		0	1	1	1	11	4
Extent of NRW to total water supplied	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D		0	0	0	0	18	0
Efficiency in redressal of customer complaints	B	D	B	B	D	D	B	D	C	C	D	B	A	D	D	C	B	D		0	1	6	3	8	0
Recruited staff to sanctioned (percentage)	A	A	A	A	A	A	A	A	A	A	0	A	A	A	A	A	A	A		0	17	0	0	0	1
Extent of functional metering of water connections	0	0	0	0	0	0	0	0	0	B	0	0	0	0	0	0	0	0		0	0	1	0	0	17
Electricity expenditure as a share of water production	D	D	D	D	D	D	D	D	D	D	D	C	D	D	D	0	D	D		0	0	0	1	16	1
Collection efficiency for water charges	A+	B	A+	B	B	A+	A+	B	A+	A+	B	B	B	B	B	A+	B	A+		8	0	10	0	0	0
Waste water																									
Coverage of toilets	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D		0	0	0	0	18	0
Coverage of waste water network	D	D	D	B	D	0	D	D	D	0	0	B	A	0	0	0	0	0		0	1	2	0	7	8
Collection efficiency of waste water network	na	na	na	na	na	na	na	na	na	na	na	D	na	na	na	na	na	na		0	0	0	0	1	0
Adequacy of waste water treatment capacity	na	na	na	na	na	na	na	na	na	na	na	C	na	na	na	na	na	na		0	0	0	1	0	0
Cost recovery: O&M	B	B	B	B	B	B	B	B	B	0	B	B	B	B	B	0	0	B		0	0	15	0	0	3
CV in coverage of individual toilets	0	0	0	0	0	0	0	0	0	0	0	D	0	0	0	0	0	0		0	0	0	0	1	17
CV in individual sewerage connections	0	0	0	0	0	0	0	0	0	0	0	C	0	0	0	0	0	0		0	0	0	1	0	17
Coverage of individual toilets in slums	D	D	D	D	0	0	C	D	A	D	D	B	D	D	D	D	0	D		0	1	1	1	12	3
Coverage of individual sewerage connections in slums	D	0	D	D	0	0	0	0	A	0	0	B	D	0	0	0	0	0		0	1	1	0	4	12
Quality of waste water treatment	0	0	0	0	0	0	0	0	0	0	0	D	0	0	0	0	0	0		0	0	0	0	1	17
Extent of reuse and recycling of waste water	na	na	na	na	na	na	na	na	na	na	na	0	na	na	na	na	na	na		0	0	0	0	0	1
Efficiency in redressal of customer complaints	B	D	B	B	D	D	B	D	C	0	D	B	A	D	D	C	C	D		0	1	5	3	8	1
Recruited staff to sanctioned (percentage)	A	A	A	A	A	A	A	0	0	0	0	A	A	0	0	0	0	0		0	9	0	0	0	9
Collection efficiency for waste water charges	A+	B	A+	B	0	0	A+	0	A+	0	0	B	B	B	0	0	0	0		4	0	5	0	0	9
Solid Waste Management																									
Coverage of HH collection of SWM	D	B	B	D	B	D	D	D	D	B	D	D	B	D	D	D	D	D		0	0	5	0	13	0
Collection efficiency of MSW	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D		0	0	0	1	17	0
Extent of segregation of MSW	0	0	0	0	0	0	0	0	0	0	0	0	D	0	D	0	0	0		0	0	0	0	2	16
Extent of MSW recovered	0	0	D	0	0	0	0	0	0	0	0	C	0	0	0	0	0	0		0	0	0	1	1	16
Cost recovery: O&M	B	B	B	A	B	0	B	B	B	B	B	B	B	B	B	B	0	B		0	1	15	0	0	2
CV in coverage of SWM	0	0	0	0	0	D	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	1	17
Coverage of HH collection of SWM in slums	D	D	D	D	0	0	0	0	0	0	0	B	D	D	D	0	D	0		0	0	1	0	8	9
Extent of scientific disposal of MSW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	18
Efficiency in redressal of customer complaints	B	D	C	C	D	D	B	D	C	C	D	B	A	D	D	C	B	D		0	1	4	5	8	0
Recruited staff to sanctioned (percentage)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		0	18	0	0	0	0
Collection efficiency for SWM charges	A	B	A	B	B	A	A	B	0	A	B	B	B	B	B	A	0	A		0	7	9	0	0	2

State: Gujarat	Upleta	Deesa	Bhuj	Dholka	Petlad	Borsad	Khambhat	Virmagam	Dahod	Dabhoi	Bardoli	Umargam	Vijalpore	Bilimora	Ankleshwar	Visnagar	Himmatnagar	Modasa	Kadi	Unjha	Siddhpur	Palitana	Mahuva	Savarkundla	Amreli	Gondal	Dhoraji	Vadhwan	Dhangedra	Una	Mangrol	Keshod	Okha		Total						
Performance indicators																																									
Water supply																																			**A+**	**A**	**B**	**C**	**D**	**0**	**na**
Coverage of water supply connections	A	C	C	C	C	A	C	C	A	C	A	A	A	A	A	A	A	A	A	C	A	C	A	C	C	A	C	B	A	D	C	C	A		0	17	1	14	1	0	0
Per capita supply	C	D	D	C	D	C	C	D	C	D	D	D	C	C	D	D	D	B	D	D	C	C	D	D	D	C	C	C	C	C	D	C			0	0	1	15	17	0	0
Continuity of water supply	D	D	D	D	C	D	D	D	D	C	D	C	D	C	D	C	D	D	D	C	C	D	D	D	D	C	D	D	C	C	C	D			0	0	0	11	22	0	0
Quality of water supplied	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	D	D	D	D			0	0	0	1	32	0	0
Cost recovery: O&M	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			0	0	33	0	0	0	0
Coeffecient of variation (CV) in water supply coverage	A	0	C	A	A	B	0	B	A	C	A	A	0	A	A	A	A	A	A	0	A	B	A	0	0	A	0	0	A	0	0	0	0		0	16	3	2	0	12	0
Coeffecient of variation (CV) in per capita supply	0	0	0	0	0	0	0	0	D	D	0	D	0	D	0	D	0	0	0	0	D	0	0	0	0	D	0	0	D	0	D	0	0		0	0	0	0	9	24	0
Coverage of WS connections in slums	D	D	D	D	D	D	D	D	0	D	0	D	D	D	B	D	0	D	0	0	D	D	D	D	D	D	D	D	D	D	D	0	0		0	0	1	0	25	7	0
Extent of NRW to total water supplied	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D		0	0	0	0	33	0	0
Efficiency in redressal of customer complaints	D	D	B	D	A	B	B	D	D	D	D	D	D	B	D	D	D	B	D	D	D	D	D	D	B	D	D	C	B	D	B	D			0	1	9	1	22	0	0
Recruited staff to sanctioned (percentage)	A	A	A	0	A	A	0	A	A	A	A	A	A	A	0	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	0		0	29	0	0	0	4	0
Extent of functional metering of water connections	0	0	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B	0	0	0	0	0	0	0	0	0	0		0	0	2	0	0	31	0
Electricity expenditure as a share of water production	C	D	D	D	D	D	D	D	0	D	D	D	D	D	D	D	D	D	D	D	D	D	C	0	D	D	C	C	D	D	D	D		0	0	0	4	27	2	0
Collection efficiency for water charges	A+	B	A+	B	B	B	B	A+	B	B	B	B	B	B	A+	B	A+	B	A+	A+	B	A+	B	B	B	B	B	B	A+	B	B	A+	B		10	0	23	0	0	0	0
Waste water																																									
Coverage of toilets	D	D	D	D	0	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D		0	0	0	0	32	1	0
Coverage of waste water network	D	0	D	0	D	D	D	D	0	0	D	0	A	0	D	B	D	0	0	D	D	B	A	D	0	0	0	0	0	0	0	0	0		0	2	2	0	12	17	0
Collection efficiency of waste water network	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na		0	0	0	0	0	0	33
Adequacy of waste water treatment capacity	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na		0	0	0	0	0	0	33
Cost recovery: O&M	B	B	B	B	B	B	B	B	B	B	0	B	B	B	B	B	B	B	B	B	B	B	B	B	B	0	0	0	0	B	B	0	B		0	0	27	0	0	6	0
CV in coverage of individual toilets	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	33	0
CV in individual sewerage connections	0	0	0	0	C	0	0	C	0	0	0	0	A	0	0	0	0	0	0	0	0	B	A	0	0	0	0	0	0	0	0	0	0		0	2	1	2	0	28	0
Coverage of individual toilets in slums	D	D	D	D	D	D	D	D	D	D	D	D	D	B	D	D	D	0	0	D	D	D	D	D	D	D	D	D	D	D	D	D	D		0	0	1	0	30	2	0
Coverage of individual sewerage connections in slums	0	0	0	0	D	0	0	D	0	0	0	0	D	0	B	D	0	0	0	0	D	0	0	D	0	0	0	0	0	0	0	0	0		0	0	1	0	6	26	0
Quality of waste water treatment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	33	0
Extent of reuse and recycling of waste water	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na		0	0	0	0	0	0	33
Efficiency in redressal of customer complaints	D	D	B	0	A	B	B	D	D	D	D	0	D	B	D	D	D	C	D	D	D	D	D	B	D	0	B	D	0	B	D	B	0		0	1	8	1	18	5	0
Recruited staff to sanctioned (percentage)	0	A	A	0	A	A	0	A	0	A	0	A	0	0	0	0	0	0	0	A	0	0	A	0	A	A	0	0	0	A	0	0	0		0	12	0	0	0	21	0
Collection efficiency for waste water charges	0	0	A+	0	B	B	B	A+	B	B	B	0	B	0	A+	B	A+	0	A+	A+	B	A+	B	B	0	0	0	0	0	0	0	0	0		7	0	11	0	0	15	0
Solid Waste Management																																									
Coverage of HH collection of SWM	D	D	B	D	D	D	D	D	D	D	D	D	D	D	D	D	B	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D		0	0	2	0	31	0	0
Collection efficiency of MSW	C	D	D	D	D	D	D	D	C	D	D	D	D	D	D	C	D	D	C	D	D	C	D	D	D	D	D	D	D	D	D	D	D		0	0	0	5	28	0	0
Extent of segregation of MSW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C	0	0	0	0	0	0	0	0		0	0	0	1	0	32	0
Extent of MSW recovered	0	0	0	0	0	0	0	D	0	0	C	0	0	0	0	0	0	C	0	C	0	0	0	0	0	0	0	0	0	D	0	0	0		0	0	0	3	2	28	0
Cost recovery: O&M	B	B	B	0	B	B	B	0	0	B	B	B	B	B	0	B	B	B	B	B	B	B	B	0	B	B	B	B	B	B	0	B			0	0	27	0	0	6	0
CV in coverage of SWM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	D	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	1	32	0
Coverage of HH collection of SWM in slums	D	0	0	D	D	D	0	D	0	D	D	D	D	D	0	0	D	D	D	D	D	D	0	D	D	0	0	0	0	D	D	0	D		0	0	0	0	21	12	0
Extent of scientific disposal of MSW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	33	0
Efficiency in redressal of customer complaints	D	D	B	D	A	B	B	D	D	D	D	D	B	D	D	D	B	D	0	D	D	D	B	D	D	B	D	C	B	D	B	D		0	1	9	1	21	1	0
Recruited staff to sanctioned (percentage)	A	A	A	0	A	A	A	A	A	A	A	A	A	0	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	0		0	30	0	0	0	3	0
Collection efficiency for SWM charges	A	B	A	0	B	0	B	A	B	B	B	B	B	B	A	B	A	B	A	0	B	0	B	0	B	B	0	B	A	B	B	A	B		0	8	19	0	0	6	0

State: Gujarat	Jasdan	Dhanduka	Sanand	Chaklasi	Mehmadabad	Bavla	Kapadvanj	Balasinor	Dehgam	Karamsad	V.Vidyanagar	Anjar	Mandavi-K	Kanjan	Umreth	Lunavada	Santrampur	Jhalod	Halol	Rajpipla	Vyara	Pardi	Jambusar	Radhanpur	Mansa	Vadnagar	Idar	Khed Brahma	Gadhda	Sihor	Gariyadhar	Talaja	Rajola	Jaffrabad	Wankaner	Thangadh	Khambadiya	Salya	Limbdi	Bagasra	Kodinar	Manavdar	Chhaya	Dwarka	Total						
Performance indicators																																																	
Water supply																																												**A+**	**A**	**B**	**C**	**D**	**0**	**na**
Coverage of water supply connections	C	C	A	A	C	C	C	C	A	C	D	C	A	A	A	A	A	C	A	C	C	A	C	A	A	A	C	A	A	C	A	C	C	C	A	C	C	C	C	C	A		0	19	0	24	1	0	0
Per capita supply	C	D	B	D	D	D	B	D	D	D	D	D	C	C	C	D	C	D	D	D	B	C	C	D	D	B	D	D	C	C	C	D	D	D	D	D	D	B	D	D	C	C		0	0	5	12	27	0	0
Continuity of water supply	D	D	D	D	D	D	D	C	C	D	D	D	D	D	C	C	C	C	D	C	C	D	D	C	D	D	D	D	D	D	D	C	C	D	D	D	C	D	C	D	D	C		0	0	0	15	29	0	0
Quality of water supplied	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	D	D	D	D	D	D	C	D	D	D	D	D	D	D	D		0	0	0	2	42	0	0
Cost recovery: O&M	B	B	0	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A+	B	B	B	B	B	B	B	B	B	B		1	0	42	0	0	1	0
Coeffecient of variation (CV) in water supply co	C	C	A	A	C	0	A	A	0	0	0	0	0	A	A	0	C	0	0	C	0	0	A	A	A	0	A	A	0	A	B	0	A	B	0	0	0	0	C	0	B	A		0	14	3	6	0	21	0
Coeffecient of variation (CV) in per capita suppl	0	0	0	0	0	0	0	D	0	0	0	0	0	0	D	D	D	D	0	0	0	0	0	0	0	0	0	0	0	0	0	D	0	0	0	D	0	0	0	0	D	D	0		0	0	0	0	9	35	0
Coverage of WS connections in slums	D	D	D	B	0	D	D	D	D	D	D	D	D	D	0	D	D	D	D	D	0	0	D	D	D	0	B	D	D	D	D	D	D	D	D	0	0	D	0	D	D	0	D		0	0	2	0	33	9	0
Extent of NRW to total water supplied	D	0	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D		0	0	0	0	43	1	0
Efficiency in redressal of customer complaints	B	D	B	D	B	C	B	B	D	D	D	B	C	D	B	D	D	D	D	D	D	D	B	B	D	B	B	D	C	D	D	D	B	D	B	D	C	B	B	D	0	B	B	B		0	0	18	4	21	1	0
Recruited staff to sanctioned (percentage)	A	A	A	0	A	0	A	A	A	0	0	A	A	A	A	A	0	0	A	A	A	A	A	A	A	A	A	A	A	A	A	A	0	0	A	A	A	A	A	0	A	A	A	A		0	35	0	0	0	9	0
Extent of functional metering of water connectio	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	44	0
Electricity expenditure as a share of water prod	D	0	D	D	D	D	0	D	D	D	D	D	C	D	D	0	D	D	0	0	B	0	0	D	D	D	D	D	D	D	0	D	D	D	D	0	D	D	D	0	D	D	D		0	0	1	1	32	10	0
Collection efficiency for water charges	A+	B	A+	B	B	B	A+	A+	A+	B	A+	B	B	B	B	B	B	B	B	A+	B	B	B	A+	B	A+	B	A+	A+	B	A+	B	B	B	B	B	B	B	A+	B	B	B	B		12	0	32	0	0	0	0
Waste water																																																		
Coverage of toilets	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D		0	0	0	0	44	0	0
Coverage of waste water network	0	0	0	D	D	0	D	D	A	D	A	A	A	A	D	D	0	0	0	0	0	0	0	D	0	0	0	0	0	A	B	D	D	0	0	0	0	0	0	0	0	0	0		0	5	1	0	10	28	0
Collection efficiency of waste water network	na	na	na	na	na	na	na	na	na	na	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	D	na	na	0	na	na	na	na	na	na	na		0	0	0	0	1	2	41
Adequacy of waste water treatment capacity	na	na	na	na	na	na	na	na	na	na	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0	na	na	0	na	na	na	na	na	na	na		0	0	0	0	0	3	41
Cost recovery: O&M	0	0	0	0	B	0	B	B	B	B	B	B	B	B	0	0	B	B	B	0	B	B	0	B	B	0	0	0	B	B	B	B	0	B	B	0	0	0	B	B	0	B	0	B		0	0	25	0	0	19	0
CV in coverage of individual toilets	0	0	0	0	0	0	0	0	0	0	0	0	0	0	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	D	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	2	42	0
CV in individual sewerage connections	0	0	0	0	0	0	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	1	1	42	0
Coverage of individual toilets in slums	D	D	0	B	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	0	B	D	D	D	D	D	D	D	D	D	D	D	0	D	D	0	D		0	0	2	0	38	4	0
Coverage of individual sewerage connections in	0	0	0	0	0	0	0	D	0	0	0	D	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	D	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	4	40	0
Quality of waste water treatment	0	0	0	0	0	0	0	0	0	0	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	1	43	0
Extent of reuse and recycling of waste water	na	na	na	na	na	na	na	na	na	na	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0	na	na	0	na	na	na	na	na	na	na		0	0	0	0	0	3	41
Efficiency in redressal of customer complaints	C	D	B	0	B	0	B	B	D	D	D	B	C	D	B	D	D	D	D	D	D	D	B	B	D	B	C	D	C	D	D	D	B	D	B	D	C	B	B	D	0	0	B	B		0	0	15	5	20	4	0
Recruited staff to sanctioned (percentage)	A	0	0	0	0	0	A	A	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	0	0	A	0	0	0	0	A	A	A	A	0	0	0	A	0		0	11	0	0	0	33	0
Collection efficiency for waste water charges	0	0	0	0	B	0	A+	A+	A+	B	A+	B	B	B	B	0	0	0	0	B	0	0	B	0	0	0	0	0	B	A+	0	B	0	B	0	0	0	0	0	0	0	0	0	0		5	0	11	0	0	28	0
Solid Waste Management																																																		
Coverage of HH collection of SWM	B	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	B	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D		0	0	2	0	42	0	0
Collection efficiency of MSW	D	C	D	D	D	D	D	D	D	D	D	D	C	D	D	C	C	D	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	D		0	0	0	6	38	0	0
Extent of segregation of MSW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	D	0	0	0	0	0	0	0	0	0	0		0	0	0	1	43	0
Extent of MSW recovered	D	0	0	C	0	0	C	D	C	D	0	0	C	0	0	0	0	C	0	0	C	D	C	D	C	0	D	0	0	D	D	0	0	C	D	D	0	C	D	D	D	0	D		0	0	0	10	14	20	0
Cost recovery: O&M	B	B	B	B	B	B	A	B	B	B	B	B	B	B	0	B	B	B	B	B	B	0	B	B	B	B	B	B	B	0	B	0	0	B	0	0	B	0	B	B	B	B	B		0	1	35	0	0	8	0
CV in coverage of SWM	0	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	D	0	0	0	0	0	0	0		0	0	0	0	2	42	0
Coverage of HH collection of SWM in slums	D	D	0	B	0	D	D	0	D	D	D	0	0	0	0	D	D	D	0	D	D	0	D	D	D	0	0	D	0	D	0	D	D	D	D	0	D	0	D	0	D	D	D		0	0	1	0	27	16	0
Extent of scientific disposal of MSW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	44	0
Efficiency in redressal of customer complaints	B	D	B	D	B	C	0	B	D	D	D	B	C	D	B	D	D	D	D	D	D	D	B	B	D	B	B	D	C	D	D	D	B	D	B	D	C	B	B	D	0	B	B	B		0	0	17	4	21	2	0
Recruited staff to sanctioned (percentage)	A	A	A	0	A	0	0	A	A	0	A	A	A	A	A	A	0	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	0	A	A	A	A	A	A	0	A	A	A	A		0	37	0	0	0	7	0
Collection efficiency for SWM charges	A	B	A	B	B	B	A	A	A	B	A	B	B	B	0	B	B	B	B	0	A	B	B	B	A	B	A	A	A	B	0	B	B	B	B	B	0	0	A	B	B	B	B	B		0	11	28	0	0	5	0

State: Gujarat	Chanasma	Dhrol	Kutiyana	Kanjari	Bareja	Kheda	Mahudha	Kathlal	Pethapur	Boriyavi	Sojitra	Anklav	Dakor	Thasra	Rapar	Bachau	Oad	Padra	Patdi	Shahera	Devgadh Baria	Savri	Kaalol	Chhota Udaipur	Songadh	Dharampur	Gandevi	Tarsadi	Mandavi-S	Kansad	Amod	Harij	Vijapur	Kheralu	Vadali	Prantij	Talod	Bayad	Tharad	Dhanera	Bhabhar	Thara	Barvala	Vallabhipur	Damnagar	Lathi	Chalal	Babra	Bhayvadar	Maliyamiyana	Bhanvad	Chotila	Halvad	Jamjodhpur	Visavadar	Kalvad	Jam_Rawal	Sikka	Sutarpada	Talal	Chorvad	Vanthli	Bantawa	Ranavav	Totals						
Performance indicators																																																																						
Water supply																																																																	A+	A	B	C	D	0	na
Coverage of water supply connections	C	C	A	D	C	C	C	C	C	A	C	C	C	C	A	C	A	C	C	A	C	A	C	C	C	A	C	C	C	D	A	C	A	A	C	C	A	A	C	C	A	C	A	C	A	C	D	C	C	C	C	C	C	A	A	C	C	C	0	C	C	A	C	C	0	18	0	42	3	1	0
Per capita supply	B	B	D	C	D	D	D	D	D	C	D	D	D	D	B	B	D	D	D	D	C	D	C	D	C	D	D	D	D	D	C	D	D	B	D	D	D	D	D	C	D	C	C	C	D	D	D	C	C	B	C	D	D	C	D	D	C	B	B	D	B	C	D	C	0	0	9	17	38	0	0
Continuity of water supply	D	C	D	D	D	D	D	D	C	D	D	C	D	C	C	D	D	D	D	D	D	C	D	C	D	D	C	D	D	D	D	C	C	C	D	D	D	C	D	D	D	D	C	C	C	C	C	D	C	D	D	D	D	D	D	C	C	D	C	D	C	D	D	C	0	0	0	23	41	0	0
Quality of water supplied	D	D	D	D	D	D	D	D	C	D	D	D	D	D	D	0	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	0	D	D	0	D	D	D	D	0	D	D	D	D	D	D	D	D	D	D	D	D	D	D	0	0	0	1	59	4	0
Cost recovery: O&M	B	B	B	B	B	B	B	B	B	0	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	0	0	63	0	0	1	0
Coeffecient of variation (CV) in water supply coverage	0	0	A	0	C	0	A	C	0	0	C	A	A	A	A	0	A	0	0	A	0	A	B	C	0	A	0	0	0	0	0	0	A	0	A	0	A	A	0	B	A	0	0	0	A	B	0	B	0	0	0	0	0	C	A	0	0	0	0	0	C	A	C	0	0	18	4	7	0	35	0
Coeffecient of variation (CV) in per capita supply	0	D	0	0	0	0	0	0	0	0	0	0	0	0	D	0	0	0	0	0	0	D	0	D	0	0	D	0	0	0	0	D	D	D	0	0	0	D	0	0	0	0	D	D	D	D	D	0	D	0	0	0	0	0	0	D	D	0	D	0	0	0	0	D	0	0	0	0	19	45	0
Coverage of WS connections in slums	D	D	D	D	D	0	D	C	D	D	D	D	0	0	0	C	D	D	D	D	D	D	D	0	D	0	D	D	D	D	D	D	0	D	D	0	D	D	D	D	D	D	D	D	D	D	D	0	D	D	D	D	D	D	D	D	D	D	0	0	D	0	0	D	0	0	0	2	49	13	0
Extent of NRW to total water supplied	D	D	D	D	D	D	D	D	D	0	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	0	0	0	0	63	1	0
Efficiency in redressal of customer complaints	B	C	D	D	D	B	D	B	B	B	B	B	C	B	B	B	C	D	C	D	B	D	D	D	D	D	D	D	C	D	D	D	D	D	D	D	D	C	D	D	D	D	B	D	D	B	D	B	B	C	B	D	D	B	D	B	B	D	D	B	B	B	B	B	0	0	24	7	33	0	0
Recruited staff to sanctioned (percentage)	0	0	A	A	A	A	A	A	0	A	A	0	A	0	A	A	A	A	0	0	A	0	A	0	0	A	A	0	A	0	A	0	A	A	A	A	A	0	0	A	A	0	A	0	0	A	A	A	A	0	A	A	A	A	A	A	0	A	0	A	A	A	A	0	0	42	0	0	0	22	0
Extent of functional metering of water connections	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	0
Electricity expenditure as a share of water production	D	D	D	D	D	D	D	0	D	D	D	D	D	D	0	D	D	D	D	0	0	0	D	D	D	D	D	0	D	D	D	D	0	D	D	D	D	D	D	0	D	D	0	D	0	D	0	0	D	0	D	D	0	D	D	D	D	D	D	D	D	D	D	D	0	0	0	0	50	14	0
Collection efficiency for water charges	A+	B	B	B	B	A+	A+	A+	A+	A+	B	A+	A+	A+	B	A+	B	B	A+	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A+	B	B	B	B	A+	A+	0	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	14	0	49	0	0	1	0
Waste water																																																																							
Coverage of toilets	D	D	D	0	D	0	D	D	D	C	D	0	0	0	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	0	0	0	1	58	5	0
Coverage of waste water network	B	D	0	0	0	0	0	0	0	0	D	0	0	0	0	D	A	A	0	0	0	0	0	0	D	0	0	C	A	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1	5	54	0
Collection efficiency of waste water network	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0	na	na	na	na	na	0	na	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0	0	0	0	0	5	59
Adequacy of waste water treatment capacity	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0	na	na	na	na	na	0	na	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0	0	0	0	0	5	59
Cost recovery: O&M	B	0	B	0	0	B	0	0	0	0	B	B	B	B	B	B	B	B	B	0	0	0	0	0	B	B	B	B	B	0	0	0	0	0	0	0	0	0	0	B	0	0	B	0	0	0	0	0	B	0	B	0	0	0	0	0	B	0	0	0	B	0	0	0	0	0	23	0	0	41	0
CV in coverage of individual toilets	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	D	0	0	0	0	0	0	0	0	0	0	0	0	1	63	0
CV in individual sewerage connections	0	0	0	0	0	0	0	0	0	0	D	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	62	0
Coverage of individual toilets in slums	0	D	D	D	0	0	D	C	D	D	D	D	0	D	D	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	0	D	D	D	D	D	D	D	D	0	D	D	0	D	D	D	D	D	D	D	D	D	D	D	0	D	D	D	D	0	0	0	2	54	8	0
Coverage of individual sewerage connections in slums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	D	D	0	0	0	0	0	0	0	0	0	0	D	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	60	0
Quality of waste water treatment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	0
Extent of reuse and recycling of waste water	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0	na	na	na	na	na	0	na	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0	0	0	0	0	5	59
Efficiency in redressal of customer complaints	B	C	D	D	D	B	0	B	0	C	B	B	B	B	B	B	C	D	C	D	0	0	D	D	D	D	D	D	C	D	D	D	D	D	D	D	D	0	D	D	D	D	B	D	0	0	D	0	B	C	B	D	D	B	D	0	B	D	0	C	B	B	B	B	0	0	18	7	29	10	0
Recruited staff to sanctioned (percentage)	0	0	0	0	0	0	0	0	0	0	0	0	A	0	0	A	A	0	0	0	0	0	0	0	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A	0	A	A	0	A	0	0	0	0	0	A	A	0	0	10	0	0	0	54	0
Collection efficiency for waste water charges	0	0	0	B	0	A+	0	0	0	0	B	A+	A+	A+	0	A+	B	B	0	0	0	0	0	0	B	0	B	B	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	9	0	0	50	0
Solid Waste Management																																																																							
Coverage of HH collection of SWM	D	D	D	0	D	D	B	D	D	D	D	D	0	D	D	D	B	B	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	0	0	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	0	0	3	0	57	4	0
Collection efficiency of MSW	D	D	D	D	C	D	D	D	D	D	D	D	C	D	C	D	C	D	D	D	D	D	D	C	C	D	D	D	C	D	C	D	D	D	C	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	D	D	D	D	C	D	D	D	D	C	D	D	D	0	0	0	13	51	0	0
Extent of segregation of MSW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C	0	0	0	0	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	62	0
Extent of MSW recovered	D	D	D	0	0	D	0	0	0	B	0	D	0	0	C	D	C	0	0	0	0	0	D	0	C	C	0	0	0	0	0	C	C	C	0	C	C	0	D	0	0	0	0	0	0	C	D	0	D	0	C	0	0	0	D	C	D	0	0	0	C	D	D	D	0	0	1	13	15	35	0
Cost recovery: O&M	B	B	B	B	B	B	B	B	0	B	B	0	B	0	B	B	B	B	B	B	B	B	B	B	B	B	B	0	B	0	B	B	0	B	0	B	B	0	B	0	0	B	0	0	B	0	B	0	B	B	B	0	B	B	B	0	B	B	B	B	0	B	B	B	0	0	47	0	0	17	0
CV in coverage of SWM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	63	0
Coverage of HH collection of SWM in slums	D	0	D	0	0	0	D	0	D	0	0	0	0	0	D	C	D	D	D	D	D	D	D	0	D	0	D	D	D	D	D	D	D	D	D	0	D	0	D	D	0	0	0	0	0	0	D	0	D	D	D	0	0	D	D	D	D	D	D	D	D	0	0	D	0	0	0	1	38	25	0
Extent of scientific disposal of MSW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	0
Efficiency in redressal of customer complaints	B	C	D	D	D	0	D	B	B	B	B	B	B	B	B	B	C	D	C	D	0	D	D	D	D	D	D	D	C	D	D	0	D	D	D	0	0	C	D	D	D	D	B	D	D	B	D	B	B	C	B	D	D	B	D	B	B	D	D	B	B	B	B	B	0	0	23	6	30	5	0
Recruited staff to sanctioned (percentage)	A	A	A	A	A	A	A	A	0	A	A	0	A	0	A	A	A	A	0	0	A	0	A	A	0	A	A	0	A	0	A	0	A	A	A	A	A	0	0	A	A	0	A	A	0	A	A	A	A	0	A	A	A	A	A	A	0	A	0	A	A	A	A	A	0	47	0	0	0	17	0
Collection efficiency for SWM charges	0	B	B	0	B	A	A	A	A	A	0	A	A	0	B	A	B	B	A	B	B	B	B	B	B	B	B	0	B	0	B	B	B	B	A	0	B	B	B	A	A	0	B	0	B	B	B	B	B	0	B	B	0	B	B	0	B	B	B	B	B	B	B	B	0	12	40	0	0	12	0