



Sanitation Mapping, Visakhapatnam

Capacity Building for Swachh Bharat Mission (Urban) – Sanitation Mapping Visakhapatnam

Data Analysis Report



September 2016

All photographs are by UMC unless otherwise mentioned. Data from this document may be used and quoted with due acknowledgement to the organization.

Project Team:

Anurag Anthony, Arvind Singh, Janumi Rathod, Krunal Parmar, Manvita Baradi, Meghna Malhotra, Nivedita Mahotra, Perez Christian, Pooja Shetty, Pratosh Karbhari, Satyam Dave, Sujay Chokshi and Vinay Patel.

This report was prepared, in September 2016, under the contract for Capacity Building for Swachh Bharat Mission (Urban) – Sanitation Mapping Visakhapatnam awarded to Urban Management Centre (UMC) by Water and Sanitation for the Urban Poor Advisory (WSUP-A). Greater Visakhapatnam Municipal Corporation (GVMC) is the local government partner for Sanitation Mapping Visakhapatnam. GVMC is supporting the project team for all tasks under this project. This Data Analysis report has the following additional information:

Appendix I: Thematic maps and Ward Atlas

Appendix II: Survey data, Dashboard and Profiles of OD spots and Public Conveniences

Appendix III: Secondary Data

Appendix IV: GIS database, KM Database tool and its user manual



WSUP Advisory (WSUP-A) provides technical assistance to those seeking to improve WASH services to low income urban consumers across the world. By providing a consultancy service covering all aspects of low income service provision, drawing heavily on its own experience of delivering effective service models under the WSUP Programme, WSUP-A are scaling up impact for low income consumers. WSUP-A has delivered substantial results for low income consumers in eight countries in Africa and South East Asia since 2006. WSUP-A combines its unique access to expertise with an unrivalled ability to tailor make specialist teams to address the specific needs of each assignment, helping its clients to find effective solutions in a highly complex environment. WSUP Advisory CIC is a Community Interest Company registered in England and Wales (Number of 9461206). It is a wholly owned subsidiary of Water & Sanitation for the Urban Poor (WSUP). Profits generated by WSUP Advisory are transferred to WSUP to support its urban WASH development activities. WSUP Advisory is also registered in India as WSUP Advisory India (U90009DL2015PTC287912).



The Urban Management Centre (UMC) is a women promoted not-for-profit organization, that works towards professionalizing urban management in India and worldwide. UMC provides technical assistance and support to city governments and facilitates change through peer-to-peer learning processes. It enhances the capacity of city governments by providing expertise and ready access to innovations on good governance implemented in India and abroad. UMC extensively works in the areas of urban water and sanitation, heritage management, planning, urban health, municipal finance, urban management, urban transportation and institutional restructuring. UMC is a legacy organization of International City/County Management Association (ICMA) and hence is also known as ICMA-South Asia. For more information, visit our website: www.umcasia.org.

Sanitation Mapping, Visakhapatnam

Capacity Building for Swachh Bharat Mission (Urban) – Sanitation Mapping Visakhapatnam

Data Analysis Report

September 2016



Water & Sanitation for the Urban Poor Advisory

Prepared by



Urban Management Centre

For more details, contact:

Manvita Baradi

A 202, GCP Business Centre

Opposite Memnagar Fire Station, Navrangpura

Ahmedabad – 380009; Gujarat

T: +91 79 26400306; E: manvita@umcasia.org

Disclaimer

This report is an outcome of (a) secondary data collected from Greater Visakhapatnam Municipal Corporation (GVMC), and assessment of this data with respect to the system of maintenance, and (b) Primary survey of open defecation spots, public and community toilets, focus group discussions in slums, and key informant interviews with specific categories of people, and pertains to the larger intent of a roll-out and service delivery under the Swachh Bharat Mission (SBM) in the city.

The report refers information collected during Urban Management Centre's (UMC) team's site visits, secondary information provided by the staff of various departments of the Greater Visakhapatnam Municipal Corporation (GVMC) and Water and Sanitation for the Urban Poor-Advisory (WSUP-A).

During the course of the study and report preparation we were provided with both written and verbal information. We also supplemented the study with hand drawn sketches and digital drawings. Nothing has come to our attention to cause us to believe that the data or maps provided by various sources are not true or not correct. We believe this information to be authentic and therefore has not conducted an independent audit of the same. No investigations of the title of the tangible and intangible assets has been made and matters of a legal nature relating to the title of the assets have not been considered.

Nothing contained herein, to the contrary and in no event shall UMC or any of its staff or any of its contractors be liable for any loss of profit or revenues and any direct, incidental, consequential damages incurred by any user of this document. In case this document is to be made available or disclosed to any third party, this disclaimer must be issued to the concerned party.

Acknowledgements

We thank the staff of Greater Visakhapatnam Municipal Corporation (GVMC); Sri. M. Hari Narayanan, IAS, Municipal Commissioner, Mr. GVVS Murthy, Additional Commissioner (General) and In-Charge Chief Medical Officer of Health; Mr. V. Ravindra, Deputy Commissioner (Revenue); Mr. D Venkatarathnam, Chief City Planner; Mr. Murli, Additional Medical Officer of Health; Mr. M Venkateshwara Rao, Superintending Engineer, Water Supply Projects; Mr. G V Pallam Raju, Executive Engineer, Zone IV; Mr. Amar Nadh, Complaints Cell/ Call Centre; Ms. Parvathi, IT Cell; Mr. D. Rambabu, Project Co-ordinator, Urban Community Development (UCD); Mr. D. Srinivasan, Project Director, UCD; Mr. Sanjeev Kumar, Senior Medical Officer, Public Health Department; Mr. Rambabu, Deputy City Planner II; Mr. Vijay Kumar, Pradhan Mantri Awas Yojana Cell; Mr. Vijay Kumar, F-Section Clerk, Sanitary Inspectors of all the 72 wards and the Slum level federators who have helped us during this project.

We would like to specially acknowledge the valuable support provided by Mr. Praveen Kumar, IAS, former Municipal Commissioner, GVMC, to the project during his period as the commissioner.

We would like to thank WSUP-A team including Akhilesh Gautam, Pramod Dabrase, Uday Singh, Kanha Godha, Prasanna Lakshmi, Anwesha De, Jyoti Verma, and Rachna Bhist for the assistance and support provided to Urban Management Centre's team in data collection, coordination, feedback on methodology and logistics support in Visakhapatnam. Last, but not the least, we also acknowledge USAID's support to the project.

Abbreviations

ADC	Additional Commissioner
AE	Assistant Engineer
AEE	Assistant Executive Engineer
AKP	Anakapalle
API	Application Program Interface
APL	Above Poverty Line
ARI	Acute Respiratory Infection
BIS	Bureau of Indian Standards
BML	Bheemunipatnam
BPL	Below Poverty Line
Cap-Ex	Capital Expenditure
CCP	Chief City Planner
CEE	Centre for Environment Education
CPHEEO	Central Public Health and Environmental Engineering Organization (India)
CT	Community Toilet
DPR	Detailed Project Report
EE	Executive Engineer
FRU	First Referral Unit
GIS	Geographic Information System
GLA	Greater London Authority
GPS	Global Positioning System
GVMC	Greater Visakhapatnam Municipal Corporation
IHHT	Individual Household Toilets
IS	Indian Standard
IT	Information Technology
KM Tool	Knowledge database Management Tool
kml	keyhole markup language
lpcd	litres per capita per day
Ltd.	Limited
LTP	Licensed Technical Person
MoA	Memorandum of Agreement
MoU	Memorandum of Understanding
MS Excel	Microsoft Excel
MS Word	Microsoft Word
NA	Not Applicable
NBC	National Building Code
ND	No Data
NRSC	National Remote Sensing Centre
NUEPA	National University of Educational Planning and Administration
NUHM	National Urban Health Mission
OD	Open Defecation
ODF	Open Defecation Free
OPD	Out Patient Department
Op-EX	Operating Expenditure
PF	Piped Flow
PMAY	Pradhan Mantri Awas Yojana

POI	Point of Interest
PPP	Public Private Partnership
PRA	Participatory Rural Appraisal
PT	Public Toilet
Pune WISE	Pune Ward Infrastructure Services and Environment
Pvt.	Private
RAY	Rajiv Awas Yojana
SAC	Swachh Andhra Corporation
SBM	Swachh Bharat Mission
SLB	Service Level Benchmark
SMOH	Senior Medical Officer of Health
SOP	Standard Operating Procedure
SRC	School Report Card
STPs	Sewage Treatment Plants
SVM	Swachh Visakha Mission
SWD	Storm Water Drainage
SWM	Solid Waste Management
TA	Technical Assistance
TPBO	Town Planning and Building Officer
TPO	Town Planning Officer
UCD	Urban Community Development
UGD	Under Ground Drainage
UHC	Urban Health Centre
ULBs	Urban Local Bodies
UMC	Urban Management Centre
URDPFI	Urban and Regional Development Plans Formulation and Implementation
USAID	United States Agency for International Development
VMR	Visakhapatnam Metropolitan Region
VUDA	Visakhapatnam Urban Development Authority
WC	Water Closet
WI	Works Inspector
WSUP-A	Water & Sanitation for the Urban Poor
WTP	Water Treatment Plant

Table of contents

Executive Summary	xiv
1. Introduction	1
2. Survey of Open defecation spots	4
2.1. Methodology for surveying open defecation spots.....	4
2.2. Survey Findings.....	5
2.2.1. Location of OD spots.....	5
2.2.2. Intensity of Open defecation	7
2.2.3. Categories of Open Defecators.....	11
2.2.4. Reported reasons for open defecation.....	14
2.2.5. Cleaning of OD spots	16
2.3. Conclusions.....	16
3. Survey of Public Conveniences	18
3.1. Methodology of the technical audit of public conveniences.....	18
3.2. Survey Findings.....	20
3.2.1. Adequacy and location of toilets for resident population	20
3.2.2. Adequacy and location of toilets for floating population.....	21
3.2.3. Locational attributes of existing PT/CTs	22
3.2.4. Utilization of existing PT/CTs	23
3.2.5. Surroundings and accessibility of facilities.....	27
3.2.6. Infrastructure and design	28
a. Water supply in facilities.....	28
b. Water facility inside the cubicles	30
c. Waste water disposal type:	31
d. Accessibility and inclusiveness	33
e. Daylight and Ventilation	36
3.2.7. O&M and management of facilities	37
a. Modes of operation	37
b. Directional signage and signage on facilities	39
c. Building condition and cleanliness	40
d. Cleanliness.....	42
e. Facilities and consumables	43
3.2.8. Scoring of PT/CTs.....	43
3.3. Conclusion.....	44
4. Focus Group Discussions and Key Informant Interviews	45
4.1. Methodology for FGDs	45
4.2. Methodology for Key Informant Interviews.....	49

4.3.	<i>Findings from FGDs</i>	52
a.	Households with lack of access to toilets.....	53
b.	Members of IHHT-owning households defecating in the open	55
4.4.	<i>Findings of key informant interviews</i>	57
a.	Daily commuters.....	57
b.	Customers/ shop owners/ workers in markets	57
c.	Truck drivers and their helpers.....	58
d.	Construction workers	59
4.5.	<i>Conclusion</i>	60
5.	Secondary Data Collection	61
5.1.	<i>Administrative Structure of GVMC</i>	61
5.2.	<i>Data collected during the project</i>	62
5.2.1.	<i>Administrative</i>	62
5.2.2.	<i>Land-Use and natural features</i>	63
5.2.3.	<i>Demography</i>	64
5.2.4.	<i>Water Supply</i>	67
5.2.5.	<i>Waste Water Disposal</i>	69
5.2.6.	<i>Storm Water Drainage</i>	70
5.2.7.	<i>Solid Waste Management</i>	72
5.2.8.	<i>Individual Household Toilets (IHHT)</i>	73
5.2.9.	<i>Public Conveniences</i>	75
5.2.10.	<i>School Sanitation</i>	76
5.2.11.	<i>Open Defecation (OD) spots</i>	77
5.2.12.	<i>Health and Hygiene</i>	79
5.3.	<i>Suggestions for improving data collection and maintenance</i>	81
6.	GIS and Knowledge Management database	84
6.1.	<i>About the KM tool</i>	84
6.2.	<i>Components of the tool</i>	85
a.	Main-page	85
b.	Options-page.....	86
c.	Data-sheet.....	86
d.	Data Updation Page	86
6.3.	<i>Using the tool</i>	87
a.	Opening the tool	87
b.	Navigating across sheets and viewing data	87
c.	Updating data	88
i.	Individual household toilets	88
ii.	Survey data- OD spots and Public conveniences.....	90
6.4.	<i>Features of the tool</i>	93
a.	Privacy:.....	94
b.	Quick access within sheets:	94
c.	Easy printing.....	94

6.5. <i>Potential for further enhancement of the tool</i>	95
7. Knowledge Management Best Practices	96
8. Recommendations	106
Advisory note on planning public toilets in commercial areas as per the SBM (Draft)	110
References	113
Annexure	115

List of tables

Table 1 Number of OD spots in GVMC.....	5
Table 2 OD spots with highest number of defecators.....	8
Table 3 Total number of defecators from the list given by SI	12
Table 4 Type wise functionality of public facilities	20
Table 5 List of PT/CTs proposed in GVMC.....	21
Table 6 Toilet seats with number of users	24
Table 7 Number of PT/CTs with seat utilization.....	24
Table 8 Mode of payment in public conveniences.....	39
Table 9 Categories of respondents for FGDs and KIIs	45
Table 10 Number of Total FGDs and KIIs conducted within GVMC Jurisdiction.....	45
Table 11 Summary of data gaps and recommendations to data collection and maintenance system.....	81
Table 12 List of 26 sectors calculated for the prabhag indices.....	96

List of figures

Figure 1 OD spots in different zones in GVMC.....	6
Figure 2 Categories of location where OD spots are located	7
Figure 3 Zone-wise Open defecators.....	8
Figure 4 City-wide Category of Open defecators.....	11
Figure 5 Percentage classification of OD spots by gender.....	11
Figure 6 Proportion of OD spots where children (below 5yrs) defecate	11
Figure 7 Number of children (below 5yrs) who defecate in the open	12
Figure 8 Reported reasons for defecating in the open in the city	14
Figure 9 Cleaning Frequency of OD spots in the city	16
Figure 10 Method of Cleaning (city-wide)	16
Figure 11 Disinfecting methods	16
Figure 12 Location attributes of PT/CTs	23
Figure 13 Citywide accessibility of facilities	27
Figure 14 Types of obstructions.....	27
Figure 15 PT/CTs where OD was observed	28
Figure 16 Zone wise water supply source for the facility	29
Figure 17 Method of water provision inside the cubicle.....	30
Figure 18 Citywide functional flush in PT/CTs	30
Figure 19 Citywide waste water disposal facilities in PT/CTs.....	32
Figure 20 Zone wise waste water disposal facilities in PT/CTs	32
Figure 21 Citywide accessibility by wheelchair.....	33
Figure 22 Citywide availability of grab bar in CT/PT	33
Figure 23 Plan types of PT/CTs.....	34
Figure 24 PT/CTs with separate sections for men and women	34
Figure 25 Plan type of PT/CTs in the city	35
Figure 26 PT/CTs with traces of anti-social activities	35
Figure 27 Reasons reported by women for not feeling safe at some PT/CTs.....	36
Figure 28 Day light in facilities	36
Figure 29 Ventilation in facilities	36
Figure 30 Functional and adequate electric lighting in PT/CTs	37
Figure 31 Citywide responsible agencies for O & M of the facility.....	38
Figure 32 Overall cleanliness of PT/CTs under different modes of operation	38
Figure 33 PT/CTs with good and legible signage	40
Figure 34 Overall condition of building of PT/CTs	41
Figure 35 Condition of doors in PT/CTs.....	41
Figure 36 Functional latch in doors of PT/CTs.....	41
Figure 37 Overall cleanliness of toilets (left), Cleanliness condition of toilet cubicles (right)	42
Figure 38 Number of times PT/CTs are cleaned in a day in the city	42
Figure 39 Facilities available at PT/CTs	43
Figure 40 Sample image of a ward profile scoring.....	44
Figure 41 IHHT ownership and open defecation among slum households	52
Figure 42 Reasons reported for open defecation during OD survey	52
Figure 43 KIIs at the RTC complex (left & centre) and at Maddipalem Bus-stop (right);	57
Figure 44 KIIs with customers and shopkeepers at Rythu Bazar	58
Figure 45 KIIs with Truckers drivers (left), truck driver displaying his parking bill.	59
Figure 46 Toilets at a construction site (left); interview with a construction worker (right)	59
Figure 47 Assessment of selected Knowledge Management Case Studies	105

List of images

Image 1 Image on left: OD at the beach in Zone 3, Ward 21; Image on right: Woman heading for OD in Desapatranipalem, in Zone 5, Ward 55	6
Image 2 Vacant plot: OD within vicinity of toilet block	7
Image 3 Beach side: OD location behind Kamat hotel	7
Image 4 Beach side: OD location (zone 3, ward 22)	7
Image 5 Child Defecating behind the VUDA office in central city (zone 3, ward 19).....	12
Image 6 Closed community toilet building in Zone 8 (Bheemunipatnam)	20
Image 7 Under construction toilet building in Zone 8 (Bheemunipatnam)	20
Image 8 Public toilet near RK Beach	23
Image 9 Community toilet along the road	23
Image 10 Community toilet only for females in fish market (zone 3, ward 26)	27
Image 11 Dedicated seats for children in the same community toilet	27
Image 12 Garbage littered in front of PT/CT	28
Image 13 No approach road for the facility	28
Image 14 OD outside the toilet facility near Santhabayalu junction (zone 7, ward 26)	28
Image 15 A bore-well in community toilet of Santhinagar.....	29
Image 16 Open water storage tank for users in community toilet of Anakapalle.....	30
Image 17 Functional tap within cubicle in community toilet, opposite to hospital building	30
Image 18 A community toilet with waste water outlet into an open drain near Raythu bazaar, Bowdara road (ward 29)	31
Image 19 Septic tanks in community toilet near Nookambhika temple (zone 7, ward 21)	32
Image 20 Toilet cubicle with grab bar	33
Image 21 Same facility near Gurudwara-non-accessible toilet cubicle for wheelchair.....	33
Image 22 Separate sections in community toilet near Greta eye hospital, Anakapalle (zone 7, ward 13)	34
Image 23 Empty boxes of alcohol found in the facility near beach road (zone 3, ward 24)	35
Image 24 Good Day lighting in community toilet, Sathyammathali gudi road (zone 7, ward 21)	37
Image 25 No Day lighting in community toilet near Hanuman temple (zone 4, ward 35).....	37
Image 26 Non-functional electric lighting in community toilet near Gavanapalem road (zone 7, ward 21)	37
Image 27 No Ventilation and no exhaust fan in free to use community toilet facility, near Bheemunipatnam Beach.....	37
Image 28 A toilet in a free to use facility	39
Image 29 A toilet in a pay & use facility	39
Image 30 Proper signage at a public toilet near RK beach	40
Image 31 Poor condition of facility building in Venkateshwara colony (zone 4, ward 33)	41
Image 32 No door in a CT at Lal Bahadur Shashtri Municipal Market (zone 8, ward 19)	41
Image 33 Toilet cleaned 4 times a day at a CT at Gurudwara temple Bus stop (zone 2, ward 1)	42
Image 34 FGD being carried out using PRA method in Vasavanipalem slum	46
Image 35 Orientation meeting at GVMC's Zone - 5 Office	47
Image 36 Orientation meeting at GVMC Main Office	47
. Image 37 FGDs with the slum dwellers	53
Image 38 Space constraint in slum	54
Image 39 Non-functional community toilets in Visakhapatnam	55
Image 40 Mobile toilet in Pydyamba colony.....	55
Image 41 Condition of IHHT in some slum households.....	56
Image 42 Data collection system improvement report.....	81
Image 43 Main-page of the KM tool.....	85
Image 44 One of the options page in the KM tool	86
Image 45 Data sheet page.....	86
Image 46 Data updation page.....	87
Image 47 Password prompt in the tool	87

Image 48 Screenshot where data for IHHT will be updated	88
Image 49 Screenshot showing IHHT status data page	89
Image 50 Selecting IHHT status data	90
Image 51 View of the OD survey data sheet	91
Image 52 Inserting rows to add new data	92
Image 53 Password prompt to edit cells	92
Image 54 Refreshing the pivot table to update OD survey data	93
Image 55 Scrolling down in a sheet	94
Image 56 Screenshot showing page-break view button in excel	94
Image 57 Screenshot showing spatial information available to citizens on Our Pune Our Budget website	97
Image 58 Example of Prabhag 17 Sanitation Data: Pune WISE Index	97
Image 59 Screenshot London DataStore Home page	98
Image 60 Screenshot showing type of data available on London DataStore	99
Image 61 Screenshot of London DataStore portal showing activity Stream of each dataset	99
Image 62 Screenshot showing reports available on London DataStore	100
Image 63 Screenshot showing the maps portal on the Boston city government webpage	101
Image 64 Screenshot of BostonMaps showing Flood Hazard Areas in 2009 and 2016	101
Image 65 Screenshot showing interactive map for trash collection days in Boston	102
Image 66 Screenshot of the data available on Melbourne DATA	102
Image 67 Screenshot showing public toilet details on Melbourne Data	103
Image 68 Screenshot showing spatial information on buildings	103
Image 69 Screenshot showing types of information available Melbourne Data	103

List of Maps

Map 1 Visakhapatnam city and its location.....	2
Map 2 Location of OD spots.....	9
Map 3 Estimated number of daily open defecators	10
Map 4 OD spots with slums and public conveniences within 500m	13
Map 5 Map showing open defecation spots where habit was reported as one of the reasons	15
Map 6 Locations of PT/CTs in Visakhapatnam.....	25
Map 7 Map depicting distribution of PT/CT seats in the city.....	26
Map 8 Map showing slum locations where FGDs were conducted	48
Map 9 Map showing the locations where KIIs were conducted	51

List of Annexures

Annexure 1 Tool for survey of open defecation spots in GVMC.....	115
Annexure 2 Tool for survey of public conveniences	117
Annexure 3 List of closed public conveniences	122
Annexure 4 List of demolished public conveniences	123
Annexure 5 List of PT/CTs where obstructions to the main access were reported	124
Annexure 6 List of PT/CTs in/around which OD was found.....	125
Annexure 7 List of PT/CTs with water facility to the block but no water inside the cubicle	128
Annexure 8 List of PT/CTs where waste water is discharged into open (storm water) drains	129
Annexure 9 List of PT/CTs where women reported feeling unsafe	130
Annexure 10 List of PT/CTs where anti-social activities were reported	132
Annexure 11 List of PT/CTs rated 'Bad' for their overall building condition.....	133
Annexure 12 List of PT/CTs without functional latch on doors	134
Annexure 13 List of PT/CTs where electricity is rated 'Bad' on functionality and adequacy	136
Annexure 14 List of slums where FGDs were conducted.....	137
Annexure 15 List of places where KIIs were located	138
Annexure 16 List of slums/pockets/colonies from where open defecators came to the OD spot.....	139
Annexure 17 Survey tool for FGDs in slums.....	141
Annexure 18 List and details of orientation meetings for FGDs	145
Annexure 19 Survey tool for KIIs with daily commuters	146
Annexure 20 Survey tool for KIIs at markets	148
Annexure 21 Survey tool for KIIs with Truck drivers.....	152
Annexure 22 Survey tool for KIIs with construction workers.....	154
Annexure 23 List of data contained under each data-heads in the cover page	157

Executive Summary

With around 60% of the world's open defecators, India is considered to be a prime example of the global sanitation challenge (Elledge & McClatchey, 2013). In India, historically, the focus on sanitation has been largely rural-specific. Focus on sanitation for the urban areas in India can be called relatively new since it was only in 2009 that, in a first, the Government of India formalized a National Urban Sanitation Policy (NUSP). But our service delivery on the sanitation front has not been able to keep pace with the rapid urbanization. According to Census 2011, around 19% of urban households in India lacked access to individual household toilets; nearly 6% of the total households used community toilets and 12% of them defecated in the open (Indian Institute for Human Settlements, 2014). In this context, the Swachh Bharat Mission (SBM)'s aim to improve sanitation and mandate to the ULBs to become open defecation free calls for commitments from the city governments to achieve the same.

Visakhapatnam's jump from 205th rank in 2015, to 5th position in 2016¹ is laudable. However, it is acknowledged across the country that sanitation needs a lot of improvements even in the country's best performing cities. GVMC has made an objective of making the city Open Defecation Free (ODF), on a priority basis, and realizes that a lot needs to be done to curb the wide-spread practice of open defecation in the city. The city has a high proportion of its population living in slums (35%, according to Census 2011). Also, according to the Census 2011, 26.5% of households in GVMC, Anakapalle and Bheemunipatnam combined, did not have individual household toilets (IHHT).

Urban Management Centre (UMC)'s survey of 204 open defecation spots in 2016 found that there are more than 20,000 open defecators in the city. Nearly half of these are slum-dwellers lacking access to toilets (IHHT or PT/CT) and daily commuters that either do not use the nearby public toilets or are not aware about one near them. The reasons reported for open defecation can be grouped into three categories- lack of IHHT or PT/CTs (40%), various issues with existing PT/CTs (32%), and Habit (28%). It was found from the FGDs, that the lack of IHHT in the city is due to the following reasons- lack of funds or delay of the scheme money, rejection of IHHT applications, and lack of willingness to construct. Further, it was found that 26% of the slum households have member(s) in their family that defecate in the open despite having an IHHT. The reasons for this are- personal preference, large household sizes, inadequate water supply, and fear of the septic tank or soak-pit getting filled up early.

According to GVMC's own assessment of IHHT coverage done in 2014, there were nearly 31,000 households that do not have IHHTs. Against this, GVMC's IHHT construction target under SBM is 16,658 toilets². Since it estimates that around 11,000 households already depend upon the 269 PT/CTs (215 community and 54 public toilets) in the city, it has proposed to add 11 new public toilets (PTs) and 31 new community toilets (CTs) containing

¹ Visakhapatnam's 205th rank in the 2014-15 survey was out of the 476 Class-I cities with a population of above 1 lakh people (Ministry of Urban Development, Government of India, 2016), while the 2016 ranking was based on 73 cities with a population of above 10 lakh people (India Today, 2016).

² Source: data presented for GVMC, Anakapalle and Bheemunipatnam on the Swachh Andhra Corporation (SAC) website.

176 seats, to the existing 269 toilets³. During the survey of public conveniences carried out for this project, it was found that only 197 PT/CT blocks (153 community, and 44 public toilets) consisting of 3033 toilet seats of these 269 PT/CTs were functional; the rest were closed (54), under construction or under-repair (14), or demolished (4). Even with these 197 functional PT/CTs, it was found that there are issues that include design flaws, poor maintenance, inadequate infrastructure, insufficient seats, and anti-social activities as well as lack of privacy and hence lack of safety for women.

Existing issues with public and community toilets in Visakhapatnam:

1. **Adequacy:** Out of the 269 PT/CTs surveyed, there were only 197 PT/CTs that are found functional. These functional toilets, combined, have around 3033 seats. There are 18 wards where there are no PT/CTs at present. Also, a GIS based spatial analysis done by UMC found that out of the 793 notified and non-notified slums in GVMC, 395 slums did not have a PT/CT within a distance of 500 metres. Key Informant Interviews (KIIs) conducted by GVMC revealed that daily commuters at transit nodes and customers in markets urinated in the open because of lack of public toilets.
2. **Design shortcomings:** There were only three PT/CTs that had grab-bars to assist the differently abled, elderly and pregnant women. Western toilet seats are available for the men at four PT/CTs, and at three PT/CTs for women. None of the facilities was found to be able to cater to the physically disabled- there were two PT/CTs with ramps, but neither of them was conducive for a free movement of a wheel-chair inside the cubicles. Only one CT was child-friendly. Poor ventilation and day-light was found in many PT/CTs. During KIIs, it was found that most of the commuters did not know about the nearest public toilet since there were no signage leading people to the nearest public toilet.
3. **Infrastructure gaps:** These issues include inadequate water supply, plumbing issues due to which there is no water inside the cubicles, dysfunctional doors in cubicles, poor electrical lighting, and lack of washbasins. Municipal water supply was available at only 39 PT/CTs. Majority of toilets depend upon bore-wells. Many PT/CTs depend on multiple sources since municipal water supply was inadequate. In one-fourth PT/CTs users have to fetch water from a tank outside. Reportedly, municipal sewer connection was available at only 20% of the PT/CTs; 65% depended on septic tanks or soak-pits. The rest discharged waste water into open drains. Around 13% of PT/CTs don't have washbasins, and where they are provided, at 85% PT/CTs they have a single basin for both men and women. Electrical lighting was rated 'good' only in 14% of the PT/CTs.
4. **Obstructions to access:** Nearly 1/4th of PT/CTs have some kind of obstruction at the main access. These included garbage, stray animals, anti-social activities, and water-logging. Open defecation was found within or in immediate vicinity of 56 PT/CTs.
5. **Operation and Management:** Around 33% PT/CTs have 'bad' cleanliness of the toilet building, and 37% have 'bad' cleanliness condition inside the cubicles. Almost 39% of PT/CTs were not cleaned at least twice a day. Only six PT/CTs maintained a register for cleaning supplies. At none of the PT/CTs was it reported that a register was kept to note users and charges paid. More than 80% of toilets were reported not operational 24x7. GVMC operated toilets were not kept as clean as the privately run toilets. 50% of GVMC toilets, as compared to 70% of privately run toilets were rated 'good' on cleanliness of toilet blocks. Similarly, free-to-use toilets (44%) were not as clean as pay and use toilets (72%).

³ Source: List of proposed public and community toilets provided by the Public Health Department, GVMC

Having adequate and well maintained PT/CTs is critical to GVMC from two aspects: (a) findings of the OD survey indicate that lack of toilets, and issues with the PT/CTs constitute 70% of the reasons reported for open defecation, and (b) GVMC envisages that around 50% of the households that do not have IHHTs would be provided with a community toilet near them.

In addition to this, there is also a need in GVMC for a system by which not only vital information would be managed properly, but also by which it would be possible to plan keeping in view sustenance of efforts. During the secondary data collection, UMC observed that the existing GIS database lay unutilized. The present SBM activities of IHHT and PT/CT construction are resulting in a generation of substantial amount of information on geo-tags

Some shortcomings in existing data management linked to SBM's application:

1. IHHT construction:

- Third party inspection of toilets is not done. At present, site inspection and verification by Assistant Engineer (works) or the Works Inspector is the only mechanism by which quality check takes place.
- Reportedly, information on sewer connections to the SBM IHHTs is not passed on to the underground drainage department
- IHHTs built under SBM choose septic tank for disposal of waste even where the proposed toilet lies within 30 metres of an existing sewer network. This is in conflict with SBM Guideline (section 4.2.1).

2. PT/CTs:

- The process of identifying location of PT/CTs was reportedly ad hoc to a certain extent.
- Regular monitoring of maintenance information not done.

3. Open defecation spots:

- Geo-spatial database created by Sanitary Inspectors' use of the SAC's Mobileapp facility to update OD spots not utilized for spatial representation
- Penalty framework for penalizing open defecators yet not in place

4. Building permission process:

- Neither the Licensed Technical Person (LTP), nor the Town Planning Building officer (TPBO) are asked to verify if the proposed building has a safe waste-disposal mechanism, before the construction commences.
- Geo-spatial database generated by the use of the Pre-DCR software can capture the aforementioned details.

(geographical locations) that could be pooled into the GIS database for future spatial assessments with suitable additions.

Recommendations: Based on UMC's own understanding of the sector, field surveys and discussions with officials in GVMC during secondary data collection, UMC recommends the following in order to buttress the existing activities in GVMC to achieve its ODF objectives:

1. Generating demand for IHHTs through local-level IEC: to dispel notion amongst many people who find shelling out money on toilet construction financially burdening, or who still have expressed no interest in the scheme. This should also include ensuring that there are no unnecessary delays in disbursement of SBM funds to the beneficiaries at any stage.

2. Behaviour change campaigns to stop people from defecating in the open: Behaviour change campaigns are already being conducted in various parts of the city. Despite this, there are people who prefer defecating in the open out of habit. With the help of ODF Coordination Committee, GVMC needs to identify such people, and ensure that suitable tactics for behaviour change activities are employed.

3. Capturing them young: At around 70% of the OD spots in the city, children (below 5 years) defecate in the open. Since, arresting this behaviour can be done best at young age, it is suggested that behaviour change activities target children. Also since SBM emphasises on the need to procure declaration from schools about children using toilets at home and in schools, schools in the city should ensure safe and healthy sanitary practices are taught to the children.

4. Enforcing public health by-laws stringently: Constituting a penalization framework to penalize open defecators has been indicated as pivotal in the ODF guidelines under SBM. GVMC needs to create this at an early basis so that people are discouraged to defecate in open before declaring any of its wards ODF.

5. Ensuring toilets are designed properly: PT/CTs in the city had many flaws, for which the following further suggestions are made:

- i. Ensure all PT/CTs have ramps with sufficient width inside its cubicles for wheel-chairs, grab-bars inside the cubicles. Also, every PT/CT should have at least one western toilet seat for both men and women. Additionally, it needs to ensure that proper design consideration is given to day-light and ventilation.
- ii. Quality of construction is key to the success of PT/ CT. Poor quality toilets even if built as per the standards may fail if, say, the slopes are faulty and water gets accumulated on the floors or, faulty waste water outlet design/ location leading to frequent clogging. This should be kept in mind while design and implementation of the toilets.
- iii. Install adequate signage at all public places so that people know about their nearest public toilet, instead of defecating or urinating in the open.

6. Ensuring toilets are built at the right locations: It is very important that provision of public conveniences, both community and public, is made through a rational assessment of demand which would entail micro-planning exercise including parameters such space requirements, availability, distance within which a user without IHHT would be willing to walk to the toilet and existing coverage of IHHTs. For public toilets UMC recommends that GVMC undertakes an exercise of creating an inventory of public places and conducting a footfall count at these places with the help of sanitary inspectors. This is elaborated in the advisory note presented in the annexure.

7. Maintaining PT/CTs right: Issues about improper O&M of toilets collectively sum up as the third major reason for open defecation. In order to ensure that O&M is done well, UMC recommends the following:

- i. Survey data reveals that private operators run the PT/CTs better than GVMC. However, since it has also been observed that private operators lack capacity to manage multiple PT/CTs well, it is recommended that GVMC assesses capacity of the private sector for O&M of PT/CTs. If required, it can also explore possibilities of (a) building capacity of existing local private sector and encourage incubation of new private sector firms, (b) introduce bulk performance-based O&M contracts that attract national facilities management companies that includes provision for a strict and transparent monitoring regime and capturing user feedback.
- ii. To ensure that all PT/CTs are well managed, GVMC should initiate a system whereby each PT/CT is checked for its infrastructural adequacy (if repairs are required), cleanliness and other maintenance issues, and to ensure that they are resolved. This should be done regularly.
- iii. GVMC should undertake a structural assessment of these toilets in order to decide if they need to be demolished or if they could be still retrofitted
- iv. Prepare a plan to cover all the PT/CTs by a municipal water supply and sewer connections.

8. Optimal utilization of semi-public toilets: Constructing public toilets along all the roads and every public hotspot to try to cater to the needs of every person is practically not feasible. Hence, GVMC should bring the semi-public toilets (from shopping complexes, street-shops, petrol-pumps, restaurants etc.) into use for commuters. For this:

- i. Citizens need to be made aware about such toilets and should be educated about the necessity of proper etiquettes of using the toilets.
- ii. Owners of these semi-public toilets can choose to charge per use to encourage bringing more such toilets into public realm and so that maintenance expenditure of these toilets can be met.

9. Prepare a faecal-sludge management plan: At present, GVMC does not provide Faecal Sludge Management (FSM) services for waste disposal into septic tanks or soak pits. Also one of the reasons mentioned for not using IHHT where households have one, was the fear of getting the septic tank/soak pit filled up early. In order that GVMC may be able to monitor and ensure that all such waste water disposal facilities are cleaned regularly, it will have to take the following steps:

- i. Ensure all new buildings have a safe and adequate waste water disposal facility. For this it is necessary that the Pre-DCR software makes it mandatory to submit detailed information regarding it during submission of building plans. Site inspection reports submitted by the TPO/TPBOs should also mandatorily should also include verification of the same.

- ii. Undertake property tax assessment, which has been long over-due since 2014. While that is done, GVMC should also collect information on the type of water and waste disposal facility available with each property. This will bring to it, information on illegal/unregistered connections.
 - iii. Utilize the geo-tag information collected through the PreDCR software of the TPOs/TPBOs during their site verification to collect information on the category of waste disposal facility. GVMC could then monitor these buildings whether they undertake sludge removal activity at regular intervals.
 - iv. Utilize the geo-tag information of IHHTs on GIS platform to be able to make spatial assessments such as those IHHTs with septic tanks/ soak-pits that might come under eventual implementation of UGD master plan.
10. **Prepare a Web-GIS for sanitation using KM tool:** the KM tool prepared by UMC has organized data that would guide future development into a web-GIS based platform. In the next phase of development, the tool should be available online, on a web-page and on a mobile app/mobile compatible interface. This would enable anybody to view data from anywhere. User IDs for municipal officials to access the tool individually on a computer/mobile, allowing them to manage relevant data for their respective departments. The online tool should allow the user to view the data over Google Maps, Bing, ESRI or other popular easy to use open source maps. The tool should also enable running queries and generation of reports.

1. Introduction

According to Census 2011, around 19% of urban households in India lacked access to individual household toilets; nearly 6% of the total households used community toilets and 12% of them defecated in the open.

In this context, the Government of India launched Swachh Bharat Mission (SBM) in 2014, making sanitation a national commitment, under which, the objectives for the urban local bodies (ULBs) to achieve are the following:

- Elimination of open defecation
- Eradication of manual scavenging
- Modern and Scientific Municipal Solid Waste Management
- To effect behavioural change regarding healthy sanitation practices
- Generate awareness about sanitation and its linkage with public health
- Capacity Augmentation for ULB's
- To create an enabling environment for private sector participation in Cap-Ex (capital expenditure) and Op-Ex (operation and maintenance)

SBM and its respective state counterpart missions provide funds to ULBs for the following activities:

1. Construction of new individual household toilets (IHHT) and conversion of existing insanitary IHHTs to sanitary toilets,
2. Construction of community level toilets,
3. Construction of public toilets (funding through PPP),
4. Providing end-to-end solid waste management (SWM) services.

Under SBM, Greater Visakhapatnam Municipal Corporation (GVMC) has been trying to improve sanitation in Visakhapatnam. It has jumped from 205th rank in the national Swachh Bharat rankings in 2015, to 5th position in 2016⁴. GVMC has made an objective of making the city, Open Defecation Free (ODF), on a priority basis. As it strives to do better to achieve the SBM goals, Water and Sanitation for the Urban Poor Advisory (WSUP-A), through funding from USAID, is providing technical support to GVMC in designing, planning, implement and monitoring of sanitation activities in the city.

WSUP-A contracted the Urban Management Centre (UMC) to conduct a sanitation mapping exercise in the city. Under this project, UMC has conducted primary surveys of open defecation spots, public and community toilets (PT/CTs), and at selected locations, Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs). It has also had discussions with officials/personnel in GVMC over the secondary data that was to be collected.

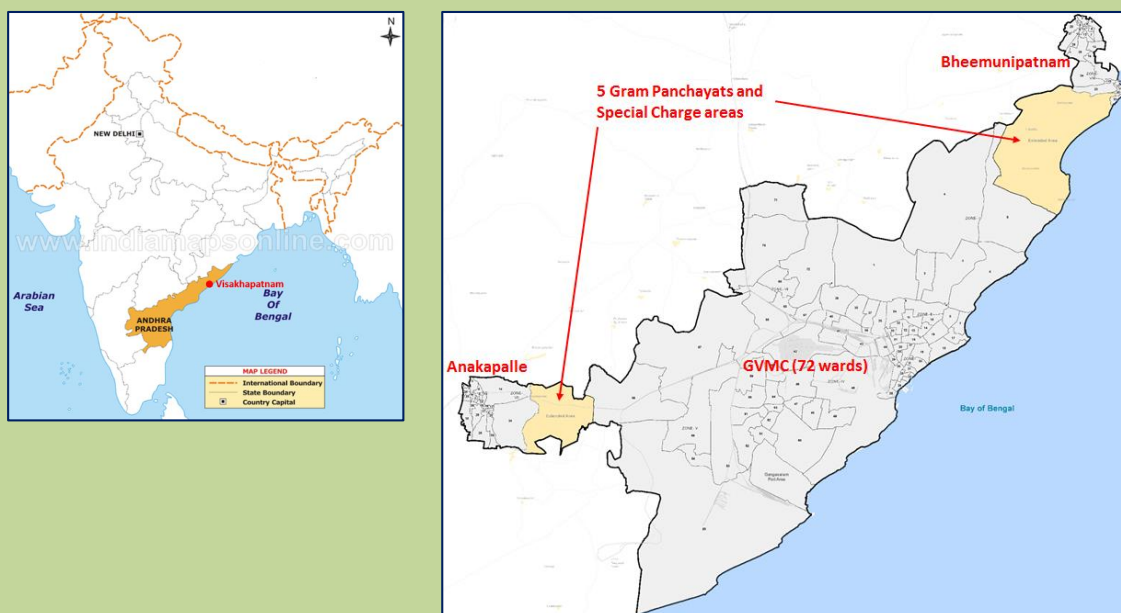
⁴ Visakhapatnam's 205th rank in the 2014-15 survey was out of the 476 Class-I cities with a population of above 1 lakh people (Ministry of Urban Development, Government of India, 2016), while the 2016 ranking was based on 73 cities with a population of above 10 lakh people (India Today, 2016).

About the city:

Visakhapatnam is a city of around 2 million people spread over an area of 681.96 sqkm (Greater Visakhapatnam Municipal Corporation, 2016). It is the capital of the state of Andhra Pradesh. It lies on the southeast coast of the Bay of Bengal and it is the third largest city on the eastern coast of India after Kolkata and Chennai. It is an important industrial and naval city in the region.

Administratively, Visakhapatnam is divided into eight zones. Anakapalle and Bheemunipatnam, that were separate municipalities earlier, were added to GVMC in 2013, and are now the seventh and eight zones.

Map 1 Visakhapatnam city and its location



Sources: www.indiamapsonline.com (image on left), UMC (image on right)

This report is an outcome of the sanitation mapping exercise carried out by UMC with WSUP's support. It attempts to answer the following key questions required for strategizing an ODF plan:

- A. Open Defecation
 - a. How large is the problem of open defecation (how many people)?
 - b. Who are these people that are defecating in the open?
 - c. Where do they defecate? At what kind of locations?
 - d. Why do they defecate?
- B. Public Conveniences (PT/CTs)
 - a. Are the existing PT/CTs in the city adequate?
 - b. How does one calculate the number of public and community toilets and where should they be located?
 - c. What should be the design specifications?
 - d. Should GVMC maintain PT/CTs itself or outsource the O&M to private contractors?

- e. In either cases, how should it be ensured that the operation and maintenance is done properly?
 - f. What should be the user charge for a PT/CT?
 - g. How can PT/CTs be made financially sustainable?
- C. How can GVMC organize, manage and publish its data?

The report is organized into four sections- Primary data, Secondary data, GIS & Knowledge database Management (KM) Tool, and Recommendations. The first section presents the reader with the detailed findings of the surveys of OD spots, public conveniences, FGDs and KIIIs respectively. The second section briefly discusses the data collection and maintenance system in general administration, water supply, public health, underground drainage, revenue, education, urban community development and town planning departments in the Greater Visakhapatnam Municipal Corporation (GVMC). It concludes with suggestions in those sectors that pertain to realization of the SBM goals in the city. The third section talks about the brief GIS training conducted in GVMC and also introduces the Knowledge Management Tool - an MS Excel based tool that combines the primary and secondary data collected during this project. The tool's user manual and a way forward for GVMC for effective use of the city's database and its periodic updation are also given in this section. In the last section, UMC summarizes recommendations based on inputs from WSUP, GVMC officials, other stakeholders and our own sector expertise.

2. Survey of Open defecation spots

Open defecation (OD) poses a significant risk to environment and health. According to the slum data from the Pradhan Mantri Awas Yojana (PMAY) cell in GVMC, 47% of city population resided in slum in 2015. According to Census 2011, Vishakhapatnam has only 73.5% of its households having access to individual household toilets (IHHT). The remaining 26.5% of the households either depend on a community (CT) or a public toilet (PT) or would defecate in the open.

According to the sanitary inspectors of GVMC, as of early 2016, around 18,000 persons are defecating in the open at nearly 164 OD spots in 72 wards, excluding Anakapalle and Bheemunipatnam. Around 1/4th of the persons defecating in the open are children. According to the primary survey carried out by UMC in GVMC (72 wards, Anakapalle and Bheemunipatnam) between April and June, 2016, 204 OD spots were found.

The following section describes the methodology and discusses the survey findings.

2.1. Methodology for surveying open defecation spots

UMC conducted a primary survey based on the list of OD spots provided by the Sanitary Inspectors (SIs). During the survey UMC discovered many more OD spots and hence, increasing the total number of OD spots to 204.

UMC prepared a survey tool/ form for the OD survey and a training manual for enumerators. Four teams comprising of two members (one male and one female) were deployed with at least one Telugu speaking member.

The survey tools have been created on 'UMC CityCollect' – an android based app owned by UMC. UMC used 7 inch android tablets to collect information during the survey. The app enables the enumerators to fill forms, geo-tag the point of interest (POI) using in-built GPS and click photographs of the POI using the device's camera. In addition to the app, the enumerators use a stand-alone 'point and shoot' camera. The data from the app is synced with a centralised server located at UMC's Ahmedabad office.

UMC appointed a survey manager who reviewed each entry uploaded by the enumerators for its completion of the form, accuracy of the geotagged location and quality of images clicked. Upon satisfactory entries, the survey manager approved and validated each entry.

UMC prepared a survey tool for (see Annexure 1) capturing information about each OD spot. Information is captured based on the observations of the enumerator and feedback by respondent(s). The captured information includes:

- General information about the OD spot
 - location of the spot – along railway tracks, streets, water body, open drain, beach/ port area, on vacant plots, in garden/ public space or within the premises of public/ community toilets
 - Name of the respondent and his/ her relationship with the OD spot. The respondent could be a user of the OD spot, a hawker/ vendor, resident in its close proximity, sanitation worker/ cleaner of the spot or operator/ caretaker of a public/ community toilet nearby.

- Duration for which the OD spot has been in use – Less than 1 year, 1-2 years or more than 2 years.
- Users' profile
 - Reasons reported by respondents for OD which may include lack of individual toilets, unclean PTs/ CTs nearby, inadequate seats in the PTs/ CTs, PTs/ CTs are not operational 24x7 or by habit.
 - Type of users which could include slum dwellers, commuters, truckers construction workers of a nearby construction site, port workers, visitors/ workers in a nearby shop/ market
 - An estimate by the respondent of the daily number of users
 - List of areas/ slums from where people come to use the OD spot
 - Gender of the users, whether the OD spot is used by children under 5 years of age
- Cleaning of the OD spot
 - Frequency and method of cleaning OD spot
 - Employer of the cleaner of the OD spot which may include GVMC, private contractor of GVMC, Visakhapatnam Port Trust (VPT), local community/ shop owners/ vendors and others.

2.2. Survey Findings

This section includes analysis of the survey data on the 204 OD spots visited during the survey conducted by UMC.

Table 1 Number of OD spots in GVMC

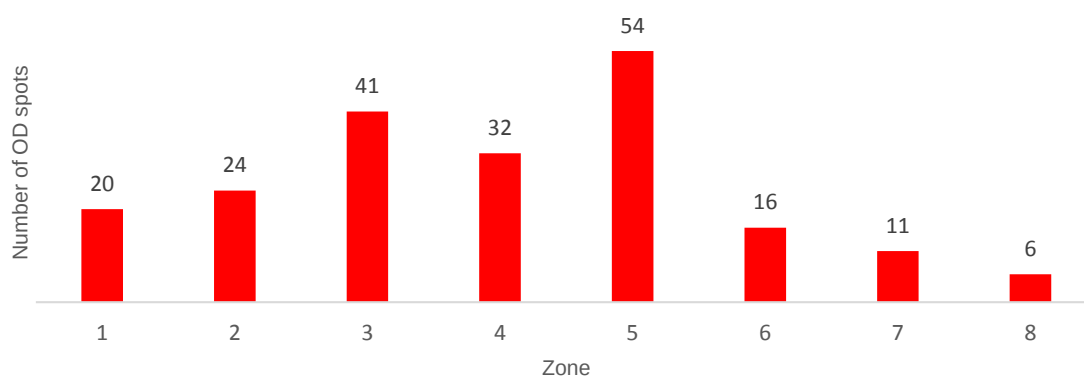
Details	Number
Total OD spots as per GVMC list	169
New OD spots found during the survey	35
Total identified OD spots	204

The survey analysis has been conducted based on the location, number of people defecating in the open, category of users of the OD spots, reasons reported for OD and cleaning of the spots.

2.2.1. Location of OD spots

The survey revealed that nearly half of the OD spots are located in zones 5 and 3. Zone 5 is predominantly industrial and houses the Gangavaram Port and Vizag Steel Plant. It has 54 OD spots with an average of nearly 100 defecators at each spot. Zone 5 has around 70,000 people without access to an IHHT. They are served by only 150 toilets seats in 18 public conveniences, which are insufficient.

Figure 1 OD spots in different zones in GVMC



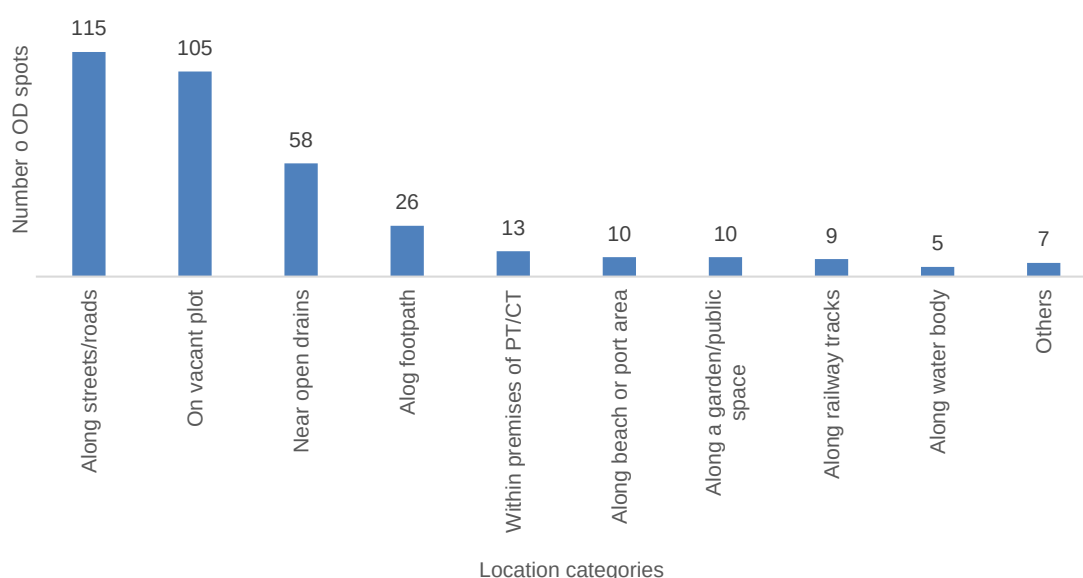
Zone 3 forms the core of the city and it has many large markets, commercial areas, public places, fishing villages and Vishakhapatnam port. Zone 3 is also one of the densest areas in the city with a density of 25,013 people per sqkm. The majority of open defecators reported were daily commuters. Though this zone has the maximum number of functional public conveniences, i.e. 55 and 84.1% coverage of IHHT, but still the OD is being practiced in huge numbers. The average number of open defecators at each location is around 150. The primary reason reported for OD is by habit.

Image 1 Image on left: OD at the beach in Zone 3, Ward 21; Image on right: Woman heading for OD in Desapatranipalem, in Zone 5, Ward 55



It was found that most of the OD spots were characterized by vacant spaces and/or open drains. As indicated in Figure 2 below, most of the OD takes place along road and streets and at vacant spaces. At the same time OD is also observed near or within the premises of public conveniences or along the beach/ port areas, or at public places such as gardens.

Figure 2 Categories of location where OD spots are located



Around 2/3rd of OD spots along roads are in zones 2, 3 and 4 as these form the core of the city. Other zones are sparsely inhabited with ample open spaces. Likewise, nearly 2/3rd of the OD spots along open drains fall in zones 2 and 3.

Image 2 Vacant plot: OD within vicinity of toilet block (zone 7, ward 26)



Image 3 Beach side: OD location behind Kamat hotel (zone 2, ward 7)



Image 4 Beach side: OD location (zone 3, ward 22)



2.2.2. Intensity of Open defecation

Survey data of the 204 OD spots indicates that Zone 3 (~6,000 users and 30% share), and Zone 5 (~5,000 users and 25% share) have most number of open defecators. Commuters and slum-dwellers constitute majority of open defecators in zones 3 and 5, respectively. It has to be noted that these two zones comprise 48% of the slum population in the city. It is also important to note that these two zones have only 18 functional public conveniences and as discussed in subsequent sections, the primary reason reported for OD is lack of access to a toilet.

Figure 3 Zone-wise Open defecators

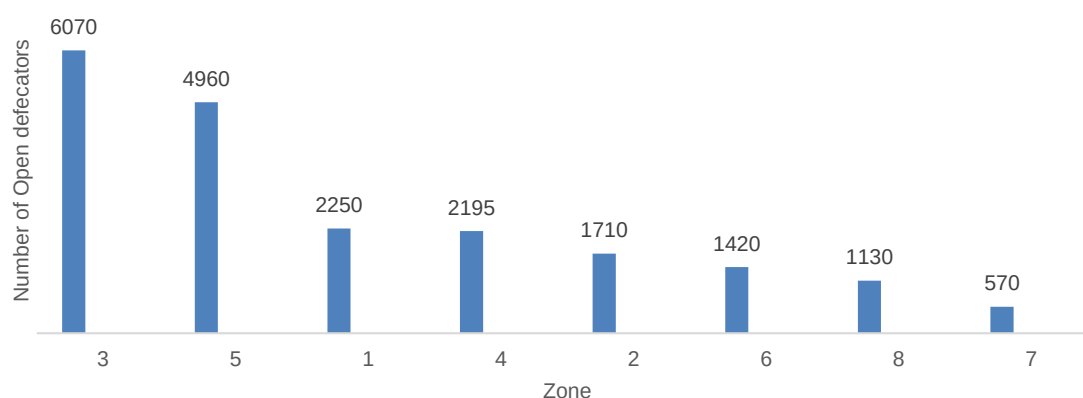
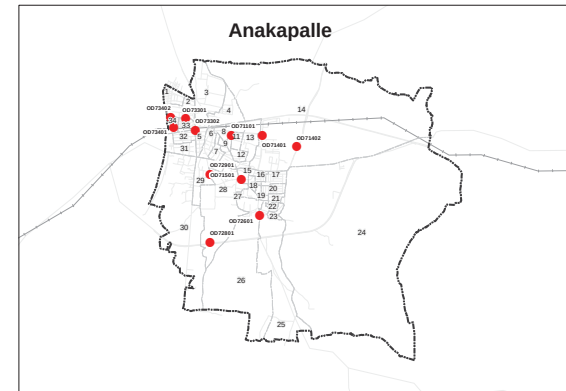
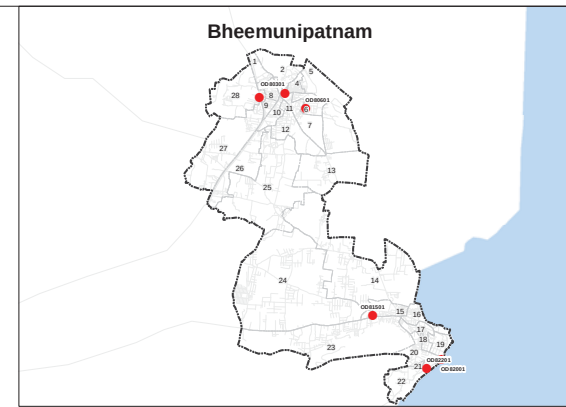
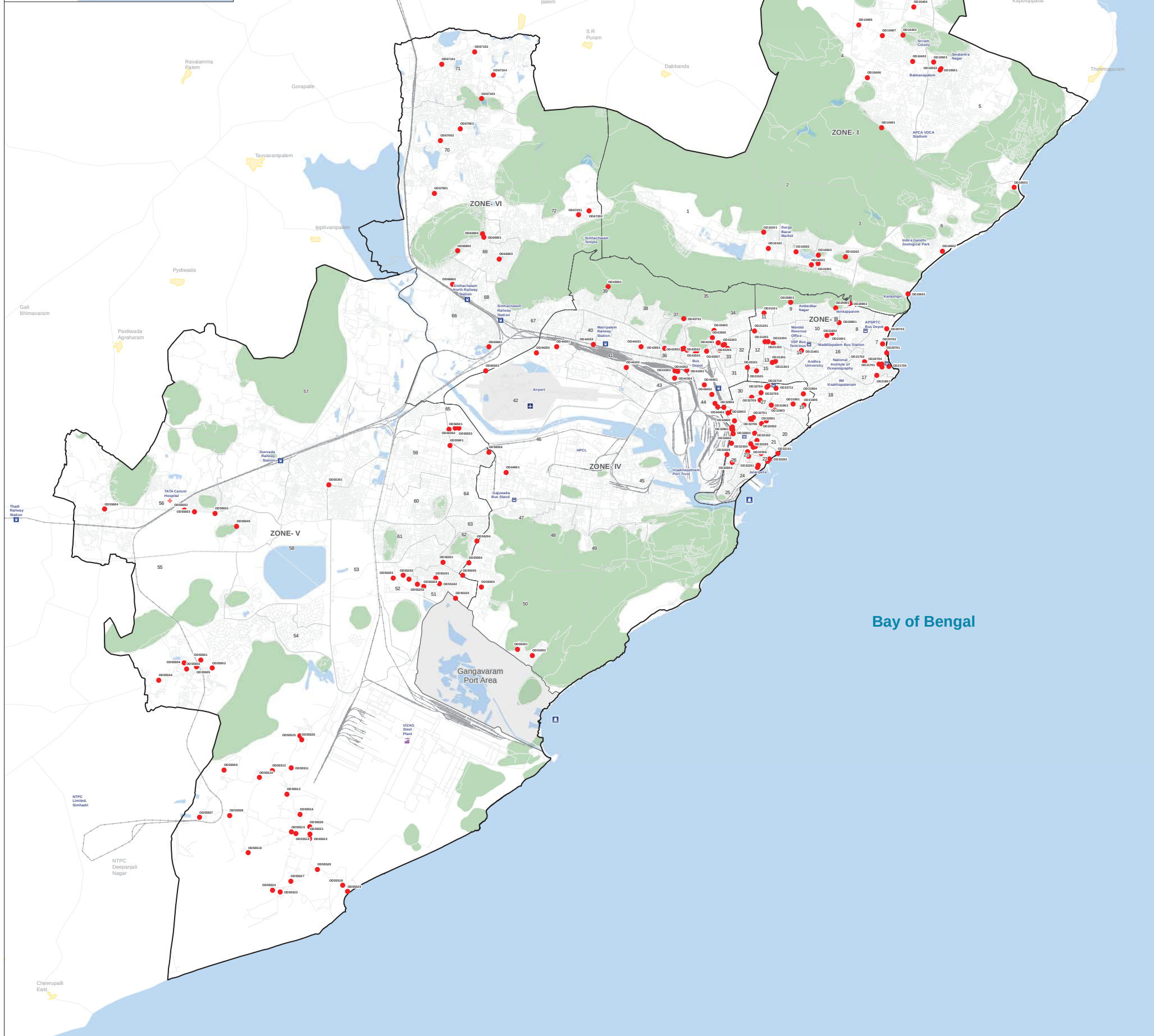
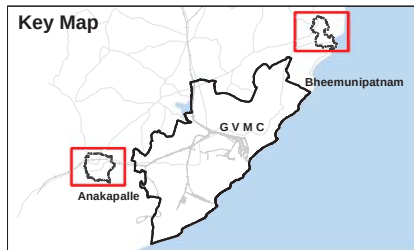


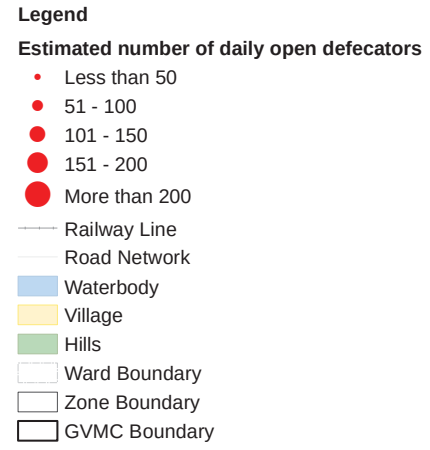
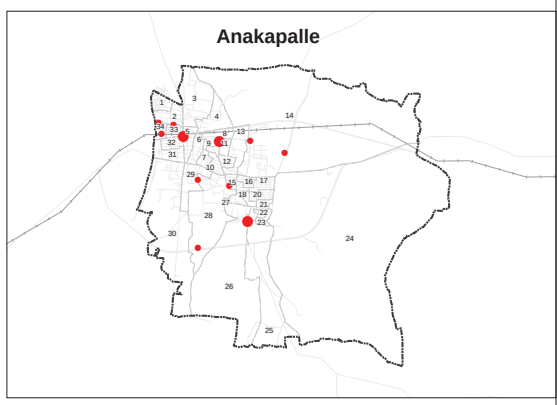
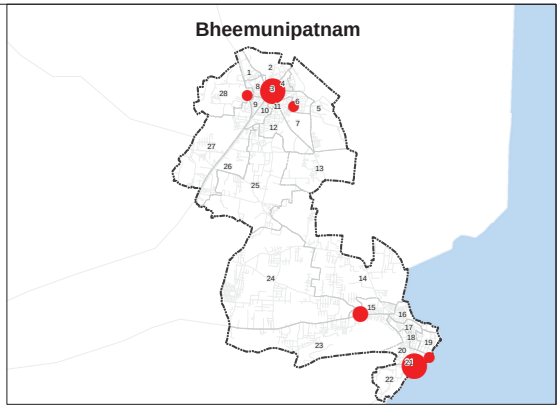
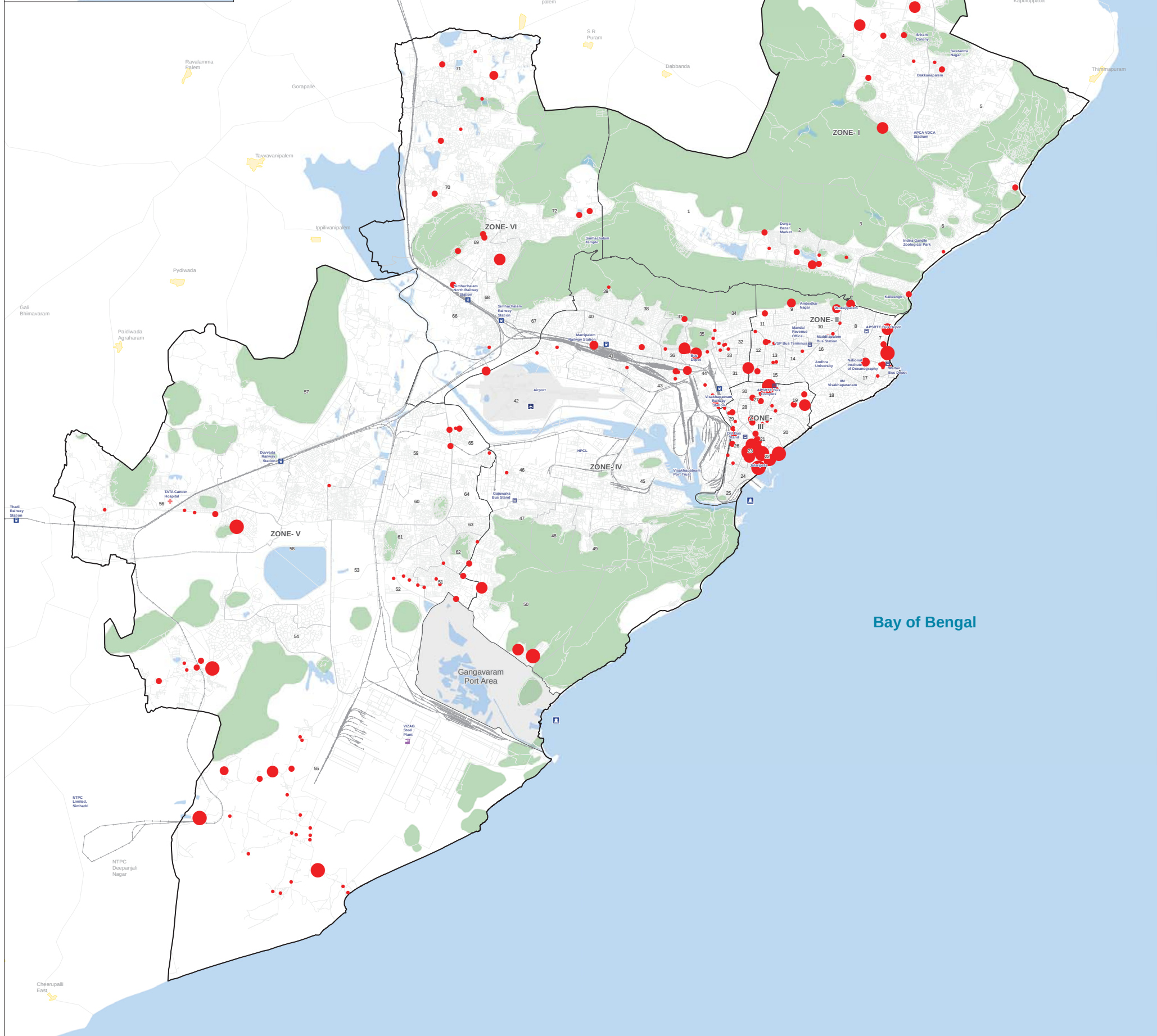
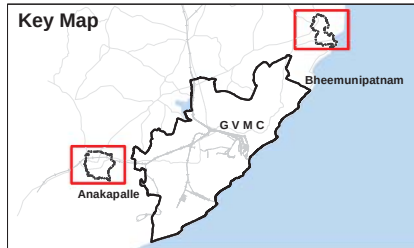
Table 2 OD spots with highest number of defecators

OD Spots and their location	Estimated people defecating at the OD spot	Category of users	Reported reasons
Sand Beach Ward 21, Zone 3	1500	Slum dweller, Port workers	Lack of individual toilets No water and/or drainage for individual toilets By Habit
Near BNR Nagar Ward 3, Zone 1	500	Slum dweller	Lack of individual toilets PT/ CT not operational 24/7
KSN ,Reddy Nagar Ward 56, Zone 5	450	Slum dweller	Lack of individual toilets No PT/ CT nearby
Pittavanipalem, Ward 55, Zone 5	400	Slum dweller	No PT/ CT nearby
Murabai, Ward 55, Zone 5	400	Slum dweller	Insufficient number of seats in PT/ CT



- Legend**
- Open Defecation Spot
 - Railway Line
 - Road Network
 - Waterbody
 - Village
 - Hills
 - Ward Boundary
 - Zone Boundary
 - GVMC Boundary





2.2.3. Categories of Open Defecators

The survey shows that most of open defecators are slum dwellers (40.3%). This can be attributed to high proportion of the city's population living in slums. With a share of 25.6% of the total open defecators, daily commuters are the second most type of people who defecate in the open. According to the survey, truckers, industrial workers, construction and port workers constitute 18.2% of the open defecators in the city.

Figure 4 City-wide Category of Open defecators

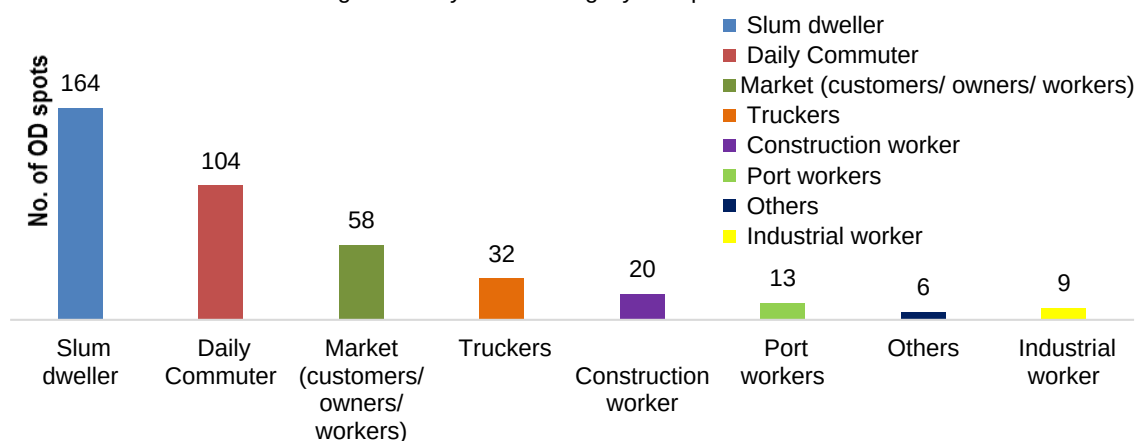


Figure 5 Percentage classification of OD spots by gender

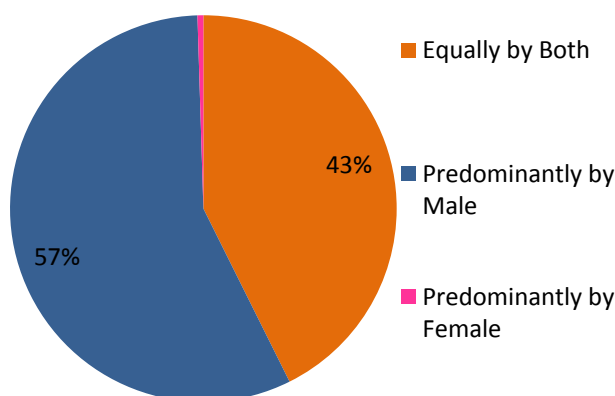
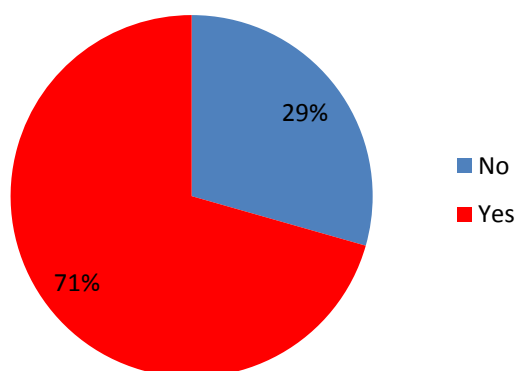


Figure 6 Proportion of OD spots where children (below 5yrs) defecate



Regarding the gender of the open defecators, it was found that at 57% of the locations it was men who were the predominant ones. There was only one spot predominantly used by women. This location is in Anakapalle at a place behind the Venkateshwara Temple (Chenthavari Vedhi). Around 42% of the OD spots were used as equally by women as men. Women defecating in the open are exposed to the risk of physical and sexual harassment and it also risks their dignity. It was also seen that children constituted the defecators at 71% of such spots. In this context it should be recalled that insanitary practices may lead to increased risk of diseases like diarrhoea, hepatitis, worm infection etc. (World Health Organization, 2009). Further persistent or repeated diarrhoea can push especially children into a vicious cycle of stunted growth, lower immunity development and susceptibility to other infections, even worm infestations. India, has the highest number of deaths of children under 5yrs due to diarrhoea (UNICEF, 2016).

According to the initial list of 164 OD spots that was prepared by the SIs, there were around 18,000 open defecators in GVMC of which 50% were male, 26%, female, and 24% were children.

Table 3 Total number of defecators from the list given by SI

Vishakhapatnam	Male	Female	Children
Total number defecators- 18227	9090	4680	4457

Figure 7 Number of children (below 5yrs) who defecate in the open

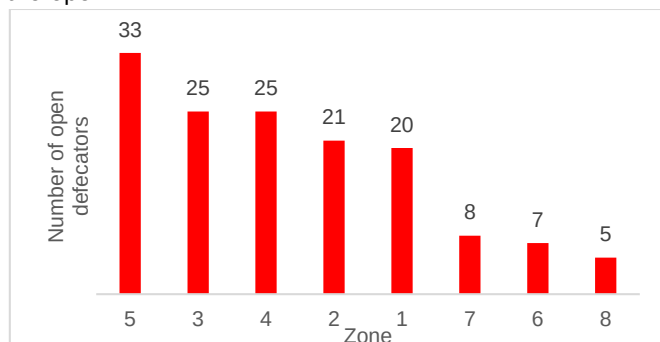
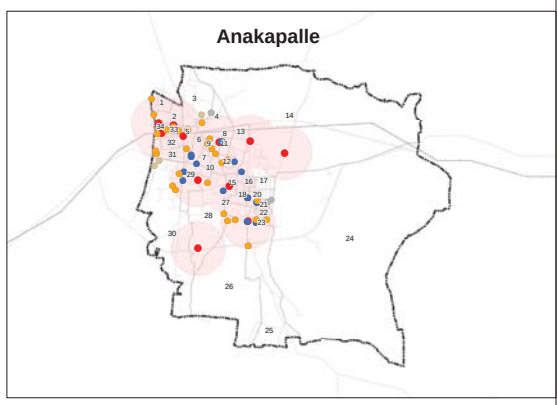
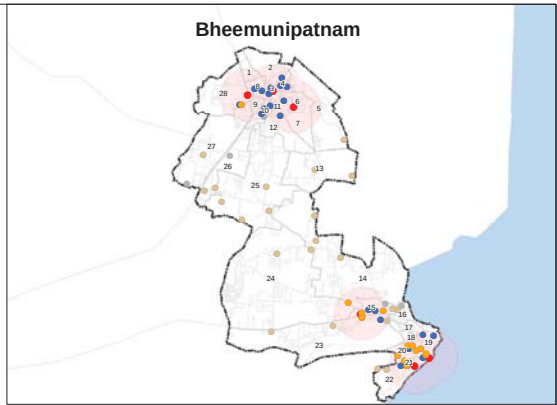
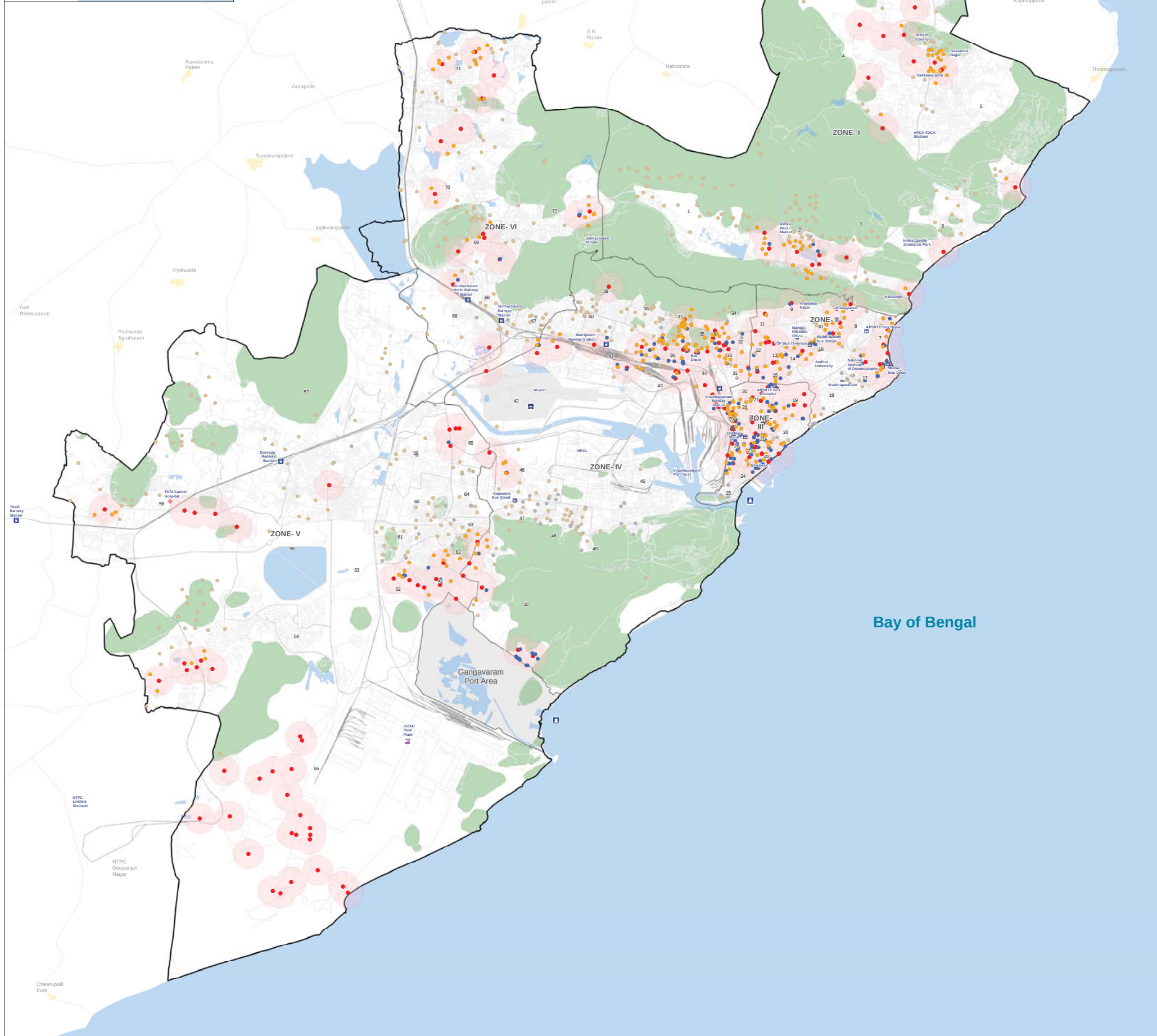
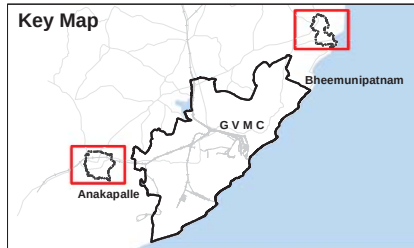


Image 5 Child Defecating behind the VUDA office in central city (zone 3, ward 19)



Out of a total of 144 OD spots used by children below 5 years, most are living in the nearby slums. As discussed in the subsequent section on public conveniences, none of the public conveniences have child-friendly design making it less likely for children to use them. Another reason could be that parents find it convenient for children below 5 years to defecate in close proximity to their house.

Zone 3 has 17.3% of OD spots where children defecate in open. Also it has been seen that the daily commuters or customers have the tendency to make their children sit on the road side, or on footpaths, avoiding searching for public conveniences.



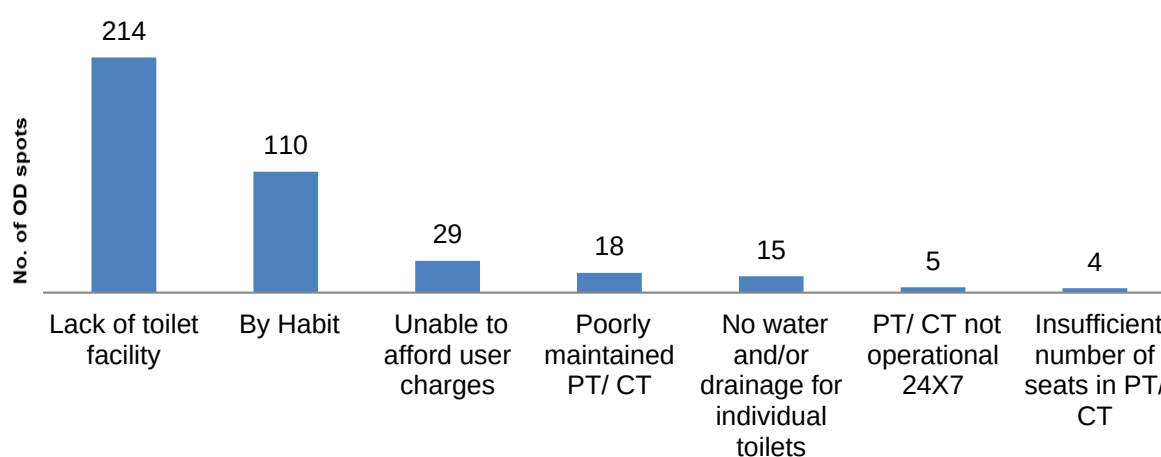
- Legend**
- Slums lies within premises of OD Spots
 - Other Slum
 - PTCT spots lies within premises of OD Spots
 - Other PTCT
 - Open Defecation Spot
 - Railway Line
 - Road Network
 - OD Spots 500mt Buffer
 - Village
 - Waterbody
 - Hills
 - Ward Boundary
 - Zone Boundary
 - GVMC Boundary

2.2.4. Reported reasons for open defecation

Overall, survey data shows that there are two major reasons for the prevalence of OD practice in the city- Lack of access to toilets (individual or public/community), and habit. These constitute 54% and 27.8% of the instances where these reasons have been reported (See Figure 8).

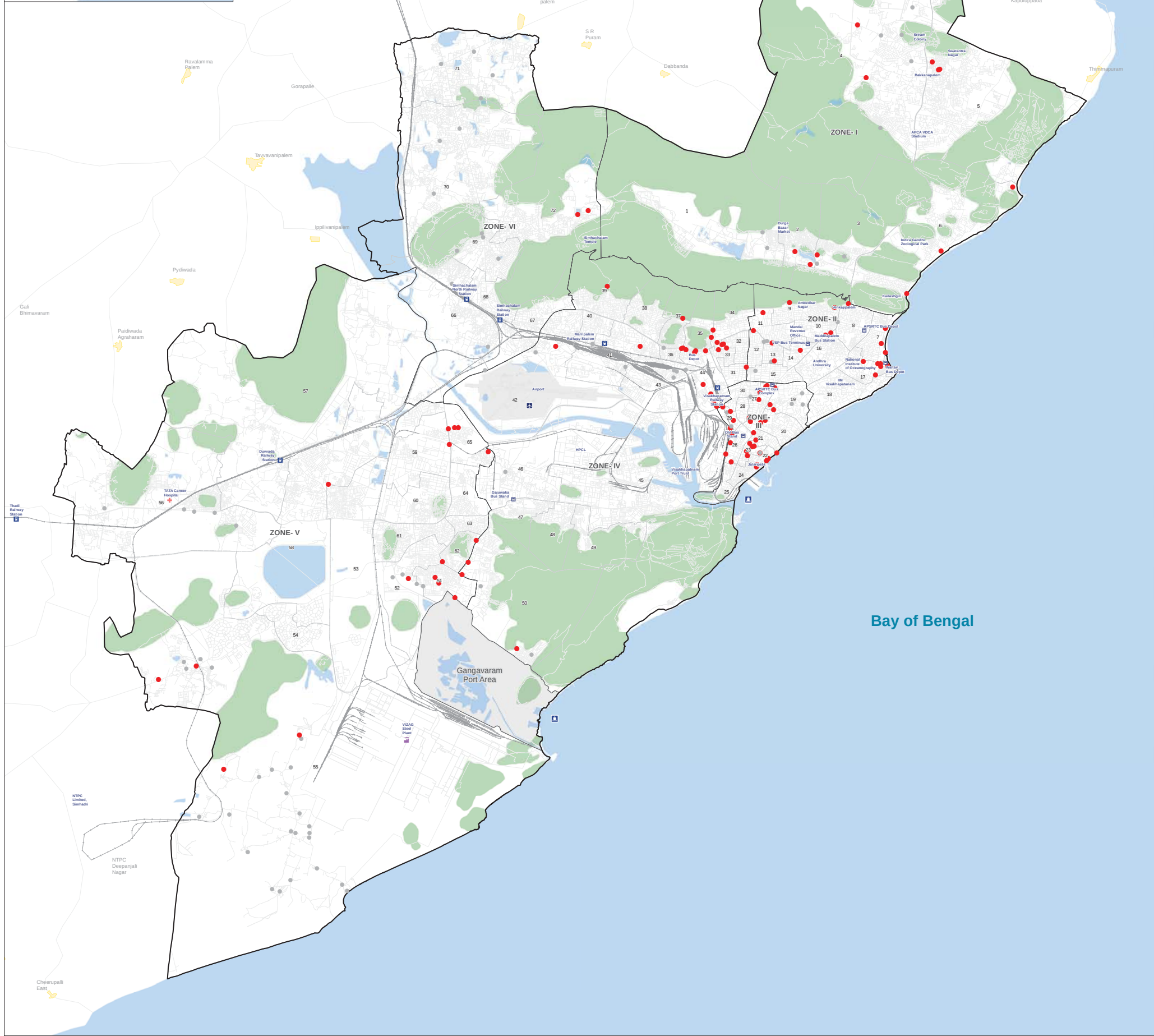
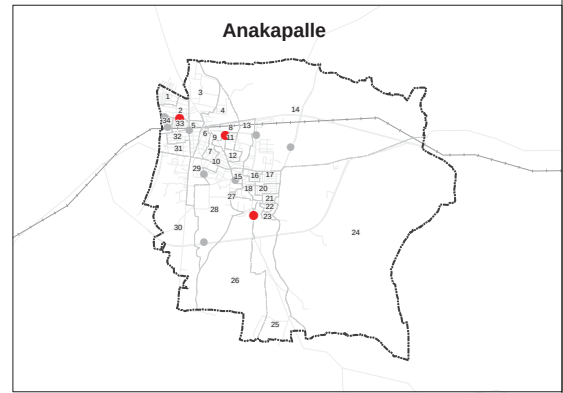
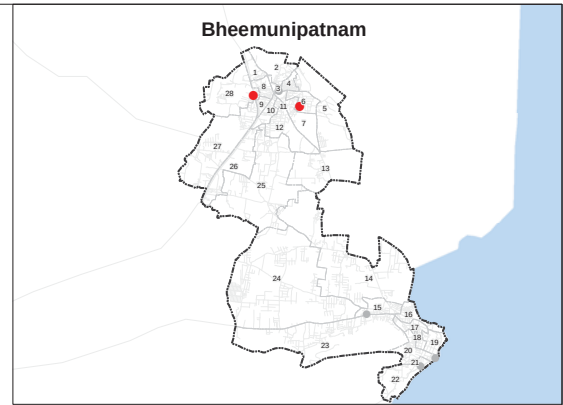
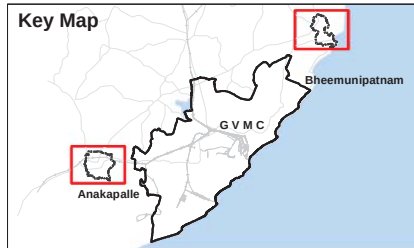
It has been observed that even though the people might be knowing about the nearest public convenience, there are issues regarding cleanliness or basic facilities such as water and unaffordability that keep them away from easily utilizing them. However, it can be noticed that of the 204 OD spots surveyed, only at 29 locations open defecators have reported unaffordability as the reason. It is the slum dwellers and daily commuters that claim this. Generally, it has been understood that people are indeed willing to pay at public conveniences, provided these are well maintained.

Figure 8 Reported reasons for defecating in the open in the city



At 56 OD spots (including affordability, poor maintenance, operational timings, and insufficient number of seats), one of the reasons reported for OD are directly linked to the operation and maintenance of public conveniences.

Nearly half of the OD spots where habit has been reported as the reason for OD fall in zones 2 and 3. These zones combined have 90% IHHHT coverage and house nearly half (1,441 out of 3,033) PT/CT seats.



- Legend**
- Reasons behind defecating in open**
- By Habit
 - Others
 - Railway Line
 - Road Network
 - Village
 - Waterbody
 - Hills
 - Ward Boundary
 - Zone Boundary
 - GVMC Boundary

2.2.5. Cleaning of OD spots

Nearly 52% the OD spots in the city have been reported as 'not cleaned at all'. Barring one, the rest of them have been reported as cleaned manually. Cleaning is done by the street sweeping staff. One OD spot, opposite Pendurthi bus stop in the 71st ward, was reportedly cleaned by a jetting machine. It should be noted here that manual cleaning is a violation of the 'Prohibition of employment as manual scavengers and their rehabilitation Act, 2013.

Out of the 97 OD spots that were reported as being cleaned manually by the sweepers, only 67 were disinfected by fogging (19) or spreading of bleaching powder (48).

Most of the OD spots were not cleaned regularly (see Figure 9). Around 84% of such spots were reported to be cleaned at varying but long intervals- once or twice a week, once in two or three weeks, etc.

Figure 9 Cleaning Frequency of OD spots in the city

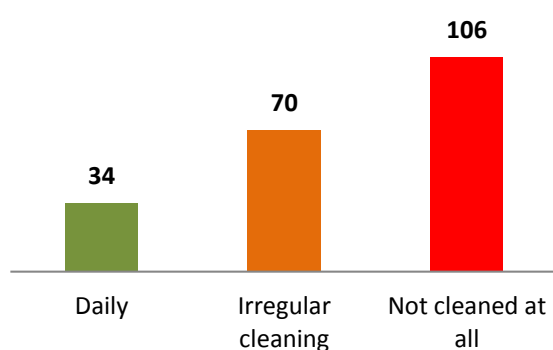


Figure 10 Method of Cleaning (city-wide)

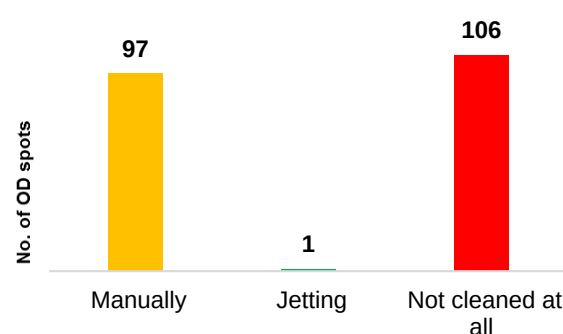
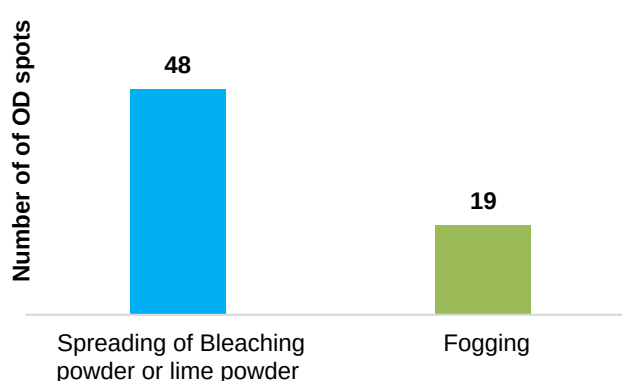


Figure 11 Disinfecting methods



2.3. Conclusions

The primary reason for OD being practiced in Visakhapatnam has been found to be lack of access to toilets- either individual or community/public toilets. As reported by the respondent another major reasons for the prevalence of open defecation are habit and poor management of public conveniences.

The survey highlights spatial variation in the occurrence of OD, different categories of open defecators with varying behaviour. To understand this further, Focus Group Discussions

(FGDs) and Key-Informant Interviews (KIIs) were conducted with different categories of users including slum dwellers, commuters, truck drivers, customers and shopkeepers at market and construction workers at select location in the city. The findings of the FGDs and KIIs have been discussed in section 4.

3. Survey of Public Conveniences

As concluded by the open defecation survey, poor management of public conveniences has been reported as one of the key reasons for open defecation in Visakhapatnam. UMC conducted a survey of all public conveniences to assess their location, design, functionality, cleanliness, and management.

SBM defines Public toilets as those that are provided for the floating population/general public in places such as markets, train stations, tourist places, near office complexes, or other public areas where there are considerable number of people passing by. Whereas, Community toilets are provided for a group of residents or an entire settlement. Community toilet blocks are used primarily in low-income and/or informal settlements/slums, where space and/or land are constraints in providing a household toilet. These are for a more or less fixed user group. According to GVMC's classification⁵, there are nine public toilets and 260 community toilets. However, survey data has classified them as either community of public based on their existing user profile in accordance with the SBM classification. Post completion of the survey, GVMC has approved/initiated construction of new public conveniences.

3.1. Methodology of the technical audit of public conveniences

GVMC's list of public conveniences shared with UMC consisted of location, number of seats for men and women, present condition of the facility, name and contact number (if available) of the person in-charge of its maintenance and notes on previous repair/ renovation of the facility. Based on this list UMC prepared a ward-wise schedule of survey.

The survey tool for public conveniences (see Annexure 2) was designed to capture information that included:

- General information about the public/ community facility
 - Unique ID, name of the area, address, location with respect to its surroundings (along the road, open spaces, market, beach, public transit zones or institutional areas)
 - Type of facility (public or community toilet) and whether the facility is 'free to use' or 'pay and use'
 - Information about the caretaker/ attendant – his/ her phone number, whether the facility has separate cleaner
 - Plan type of the facility – side-by-side, back-to-back, one followed by the other or disjointed. In case of any other plan type, the 'Others' option maybe selected and a diagram/ sketch may be drawn to explain it.
- Qualitative assessment

⁵ GVMC classifies those public conveniences that are constructed on a Build Operate Transfer (BOT) basis as 'public toilets'.

- Condition of the immediate surroundings of the facility including OD/ stray animals, secondary collection bin, littered garbage, water logging or anti-social activities (alcohol/ prohibited drugs consumption, prostitution, etc.) in/ around the facility
- Overall condition of the building including doors, windows, flooring, daylight, ventilation, toilet seats and fixtures, obstructions to the main access of the building and overall cleanliness of the facility
- Infrastructure provision
 - Number of toilet seats, wash basins, urinals, bathing units and clothes washing units/ spaces available in the facility
 - Provision and functionality of flush, grab-rail for elderly/ differently-abled, door latches, hooks for clothes, mirrors, dustbin, electric plug points, exhaust fans/ system, disposal/ incineration of sanitary napkins
 - Signage for user charges, timings, contacts details of the operators, etc.
 - Source of water supply, water provision in the toilet/ bathing cubicles (tap, storage outside the cubicles or no water provision), method of disposal of waste water
- Operation and maintenance of the facility
 - Organization that constructed the facility (GVMC/ PPP/ NGOs/ port trust/ not known)
 - Operational timing, organization responsible for maintenance (GVMC/ private contractor appointed by the GVMC/ PPP/ local community), actual cleaner of the facility (GVMC/ PPP/ self-appointed/ not-maintained), availability of inventory of supplies
 - Information about the caretaker/ attendant including gender, if resides in the facility/ attached to the facility, dressed in a uniform and availability of identity card
 - Frequency of cleaning of the facility and availability of cleaning schedule, method of cleaning (water tanker/ *safai kamdar*/ not cleaned at all), availability of cleaning supplies such as brooms, mops, detergents and hand washing soap/liquid
 - User charges (daily/ monthly individual pass/ monthly household pass) for use of urinals, toilets, bathing cubicles and clothes washing areas by men, women and children, estimated number of users per day, daily earnings from user charges
- Community feedback
 - Inclusive design and use of the facility by men, women, children, elderly, differently-abled and operation timing of the facility
 - Safety of women and causes of feeling unsafe, if applicable. These could include fear of caretaker/ attendants' cabin, exposure to men's section, men loitering around the main entrance of the facility or past cases of harassment of women
 - User charges – comparison with the information provided by the caretaker/ attendant
 - Areas in need of urgent attention (cleanliness, lighting, ventilation, safety of women, user charges, water, timing issues, location)

The survey team was organized and equipped in the same manner as described for the survey of OD spots in section 2.1.

3.2. Survey Findings

Out of the 269 public conveniences surveyed, 197 were found functional. The analysis hereafter is based on these 197 toilet blocks.

The analysis has covered aspects such as locations of the facility, modes of operation, numbers of seat, numbers of user of the facility, its surrounding, accessibility, facility's infrastructure, toilet design and operation and maintenance of the facility, etc.

3.2.1. Adequacy and location of toilets for resident population

Details on the functional status of the 269 public conveniences is given in Table 4. Around 20% of the toilets were closed. At half of the locations where the toilets were found close, the residents nearby have reported that they require the toilet to be open. Open defecation is found at these places. While, at the rest of the places, respondents have expressed their desire to have the toilet demolished since they have IHHTs and that they no longer require them.

There are 3033 seats in 197 functional public conveniences in the city.

Table 4 Type wise functionality of public facilities

Functionality of toilets	Community toilet	Public toilet	Total
Functional	153	44	197
Closed	49	5	54
Under construction	9	4	13
Demolished	4	0	4
Under repair	0	1	1
Total	215	54	269

Image 6 Closed community toilet building in Zone 8 (Bheemunipatnam)



Image 7 Under construction toilet building in Zone 8 (Bheemunipatnam)



Details of the closed and demolished public conveniences are given in Annexure 3 and Annexure 4 respectively.

According to the Public Health Department at GVMC, a total of 30,769 households do not have IHHT. Out of these, GVMC proposed to provide IHHTs to 16,658 households under SBM. GVMC estimates that around 4,655 households would still be dependent on CT/PTs.

In order to cater to the remaining 9,456 households (around 36,000 persons⁶), GVMC has proposed 42 facilities (31 CTs and 11 PTs) containing around 176 seats at a cost of INR 1.02crores⁷. Construction of all these toilets are in progress (see Table 5). These 176 seats would cater to around 4500 persons. For the remaining 31,500 persons, 1260 seats are required.

It can be assumed that most, if not all, of these 31,500 people are spread across the 395 out of 793 slums in GVMC, which do not have a functional PT/CT within 500m of the slum⁸. The number of seats required for each of the future PT/CT blocks can be determined by finding out the number of households without IHHTs in each slum. A micro-plan of each slum shall decide location of the PT/CT within or adjacent to the slum.

Assuming an average of 10 seats per CT/PT, GVMC would be providing 420 CT/PT seats.

Table 5 List of PT/CTs proposed in GVMC

Zone	No. of HHs	No. of HHs having toilets	No. of HHs without IHHTs	IHHT target under SBM	HHs dependent on PT/CTs	CTs existing	PTs existing	CTs proposed	PTs proposed
I	71529	68042	3487	3033	454	4	0	1	3
II	81029	79390	1639	836	46	9	26	1	1
III	66814	64429	2385	182	264	62	15	4	1
IV	111480	107157	4323	2532	435	63	0	15	1
V	100558	93707	6851	5408	124	32	0	4	3
VI	59988	56469	3519	2584	935	6	0	2	1
AKP*	18384	15710	2674	534	2140	22	0	0	1
BML*	12573	6682	5891	1549	257	26	0	4	0
Total	522355	491586	30769	16658	4655	224	41	31	11

*AKP and BML refer to Anakapalle and Bheemunipatnam in the above table.

Source: Public Health Department, GVMC, 2016

3.2.2. Adequacy and location of toilets for floating population

According to SBM, a public toilet will have to be provided within one kilometre of every public space. SBM, however, does not define a public space. But, we assume it includes market, transit nodes, open spaces, recreational areas, etc.

⁶ Assuming an average household size of 3.8.

⁷ Public Health Department, GVMC, in their proposed list of public and community toilets.

⁸ Based on the RAY slums mapped on GIS, and existing PT/CTs of this primary survey, UMC conducted a proximity analysis of those slums that did not have a PT/CT within 500 meters distance.

UMC recognizes that public space can constitute of what can be categorized as,
(a) Catered (controlled/designed) domain, and
(b) Un-catered domain (develops out of the former).

While unorganized spaces are un-catered, organized spaces can be both. For example, Connaught Place in New Delhi, has built areas (building blocks) housing show-rooms, restaurants, and offices that will contain toilets as per their applicable building norms. This is the catered domain. Within Connaught Place, there are other activity-areas in the open spaces, including corridors, vending areas and parking and parks. This is the un-catered domain. Our interpretation of what the SBM says about catering to the floating population is about catering to the un-catered space.

Again, in historic core of most of the cities, there are organized spaces/building are un-catered most of the times, such as traditional markets for jewellery, cloth, etc. An assessment on adequacy of public toilets at such places would first require having a list of all such spots/areas in the city where after a foot fall count can be made to find out the floating population. Since at present, GVMC does not have an inventory of public spaces and even for popular places such as bus stands, recreational areas etc. and since they do not have an estimated number of daily visitors thereby, we cannot comment on the adequacy right now. However, at the end of the last section of this report, there is an advisory note suggesting how a city can move forward into carrying out as assessment as to where toilets should be built so that they are adequate.

3.2.3. Locational attributes of existing PT/CTs

The previous section assessed the location of PT/CTs at the city level. In this section, the location of existing public conveniences is assessed with respect to their surroundings. Information on location of the PT/CTs was captured vis-à-vis its surroundings such as, along the road, open space, market, beach, public transit zones or institutional areas spot.

Most (75%) of the facilities were found to be along major roads and/or in the slums followed by open spaces (16%), and market areas (13%) (See Figure 12 and Map 6).

Zones 2, 3 and 4, the core of the city, together have 61% of the city population, 65% of the slum households, and 77% of the number of PT/CT seats.

Figure 12 Location attributes of PT/CTs

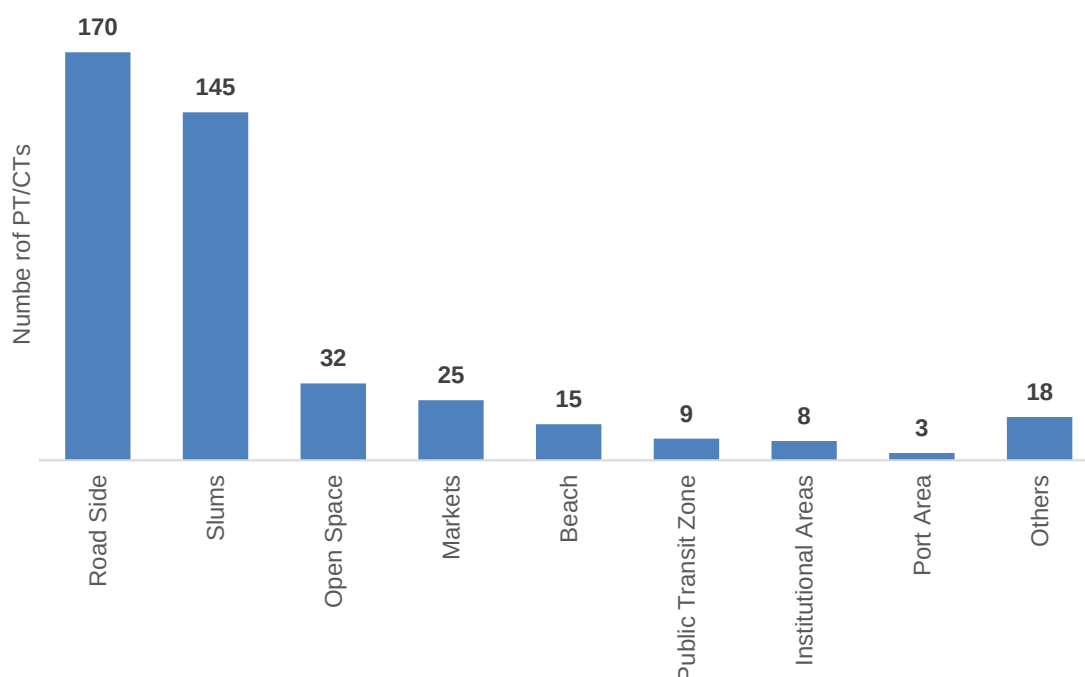


Image 8 Public toilet near RK Beach



Image 9 Community toilet along the road



Although KIIs will be discussed later, it is important to note here that nearly half of the respondents during the KIIs across all locations were not aware about the PT/CT located nearby despite PT/CTs being present. Also, no signage, providing information to visitors/commuters to their nearest PT/CTs, were found.

3.2.4. Utilization of existing PT/CTs

The city has 3,033 seats in 197 functional toilet blocks. Table 6 below shows total number of seats available in the city and the estimated number of users reported by the caretaker at these PT/CT blocks. The thumb-rule followed while making assessment on the adequacy of toilet seats was to consider 25 users per seat⁹ to be the upper threshold beyond which a toilet can be said to be over utilized.

⁹ As recommended in IS 1172 : 1993 (Reaffirmed 2007)

Table 6 Toilet seats with number of users

Type of toilet	Number of toilet seats	Estimated number of users	Number of facilities with less than 25 users per seat ¹⁰	Number of facilities with more than 25 users per seat
Community toilets	2455	15035	138	10
Public toilets	578	6755	36	8
Total	3033	21790	174	18

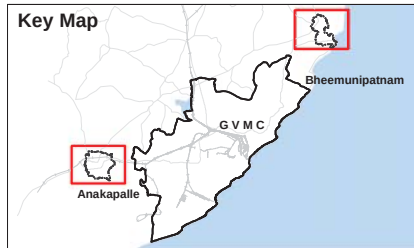
The number of users in the table above, is an estimate reported by the caretaker at the toilet- mostly under-reported. In reality, however; based on the number of households without IHHT in each ward, facilities in many wards are stressed. Add on this, there are 18 wards with households without IHHT but no PT/CT seats.

Total 3,033 seats are almost equally distributed among men and women. 148 facilities are for both the genders. 27 and 22 facilities are exclusively for men and women respectively. One facility at the fish market in ward number 26, has eight seats for children and 62 seats for women. This is a women-only toilet and has the highest number of seats amongst all the PT/CTs in the city.

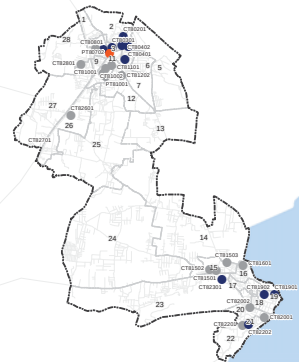
Table 7 Number of PT/CTs with seat utilization

Number of seats	Number of PT/CTs
Less than 10 seats	76
11- 24 seats	100
25 seats and above	21

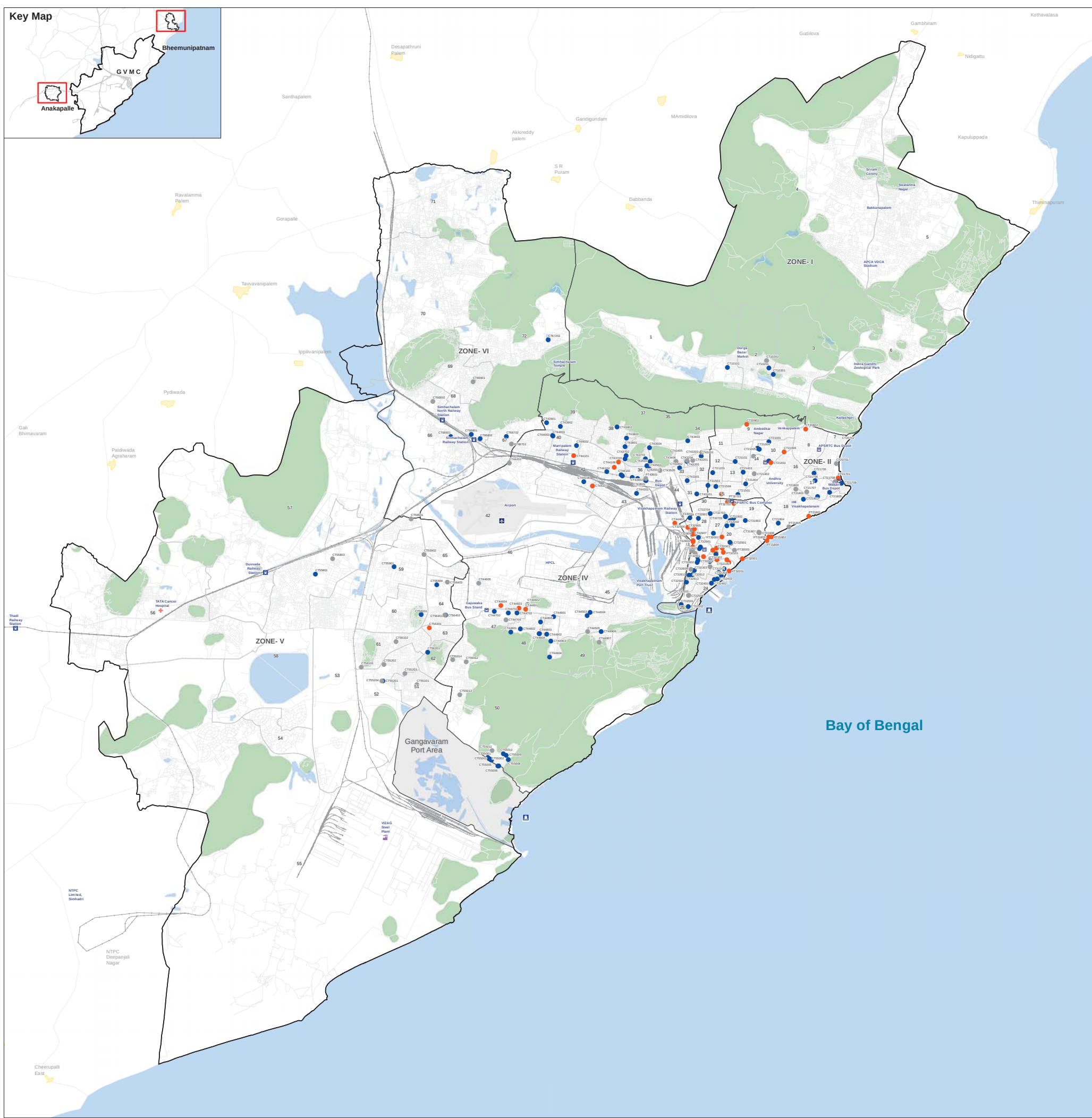
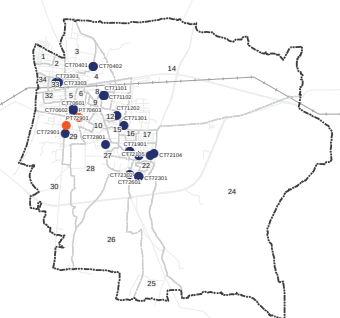
¹⁰ At five PT/CT respondents could not provide an estimate the number of users.



Bheemunipatnam



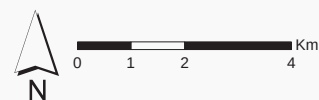
Anakapalle

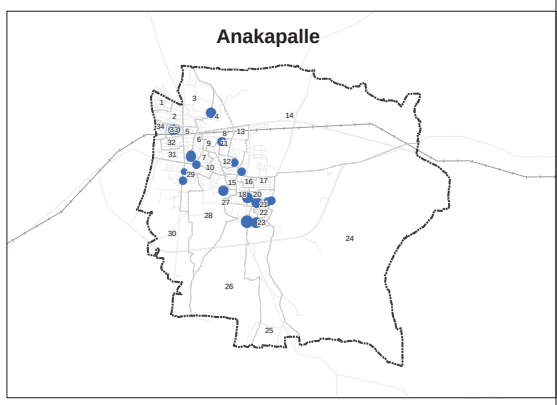
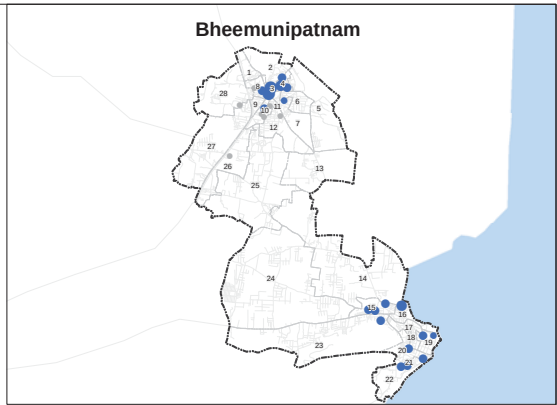
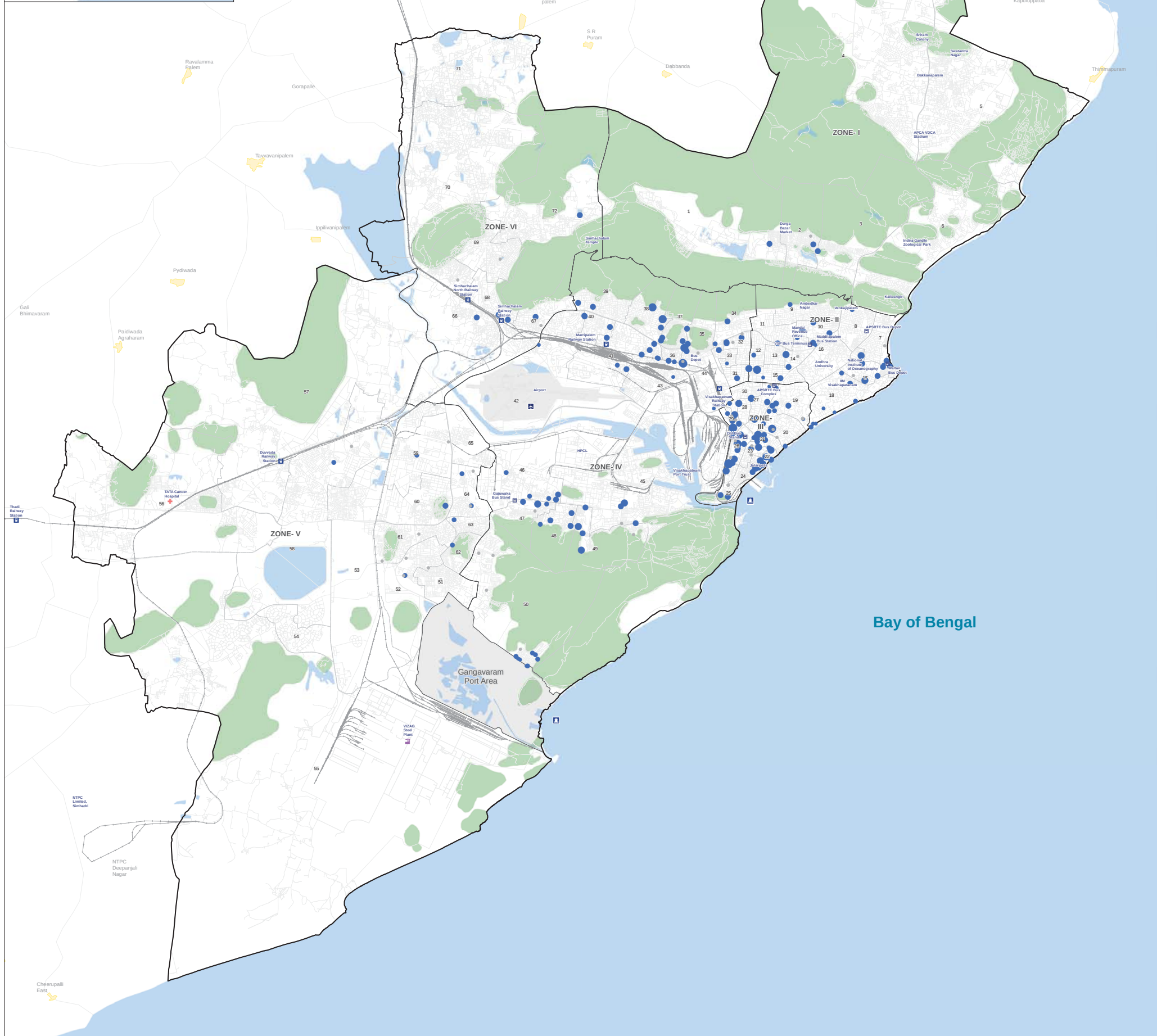
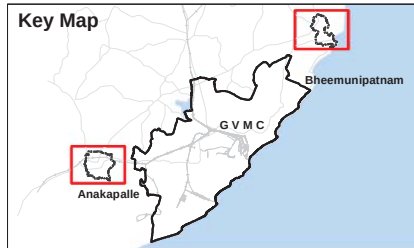


Legend

Public Conveniences by type

- Public Toilet
- Community Toilet
- Non-functional Toilet
- Railway Line
- Road Network
- Waterbody
- Village
- Hills
- Ward Boundary
- Zone Boundary
- GVMC Boundary





- Legend**
- Number of seats per toilet block**
- Non-functional toilet
 - 1 - 5
 - 6 - 10
 - 11 - 20
 - 21 - 30
 - 31 - 40
 - More than 40
- Railway Line
- Road Network
- Waterbody
- Hills
- Village
- Ward Boundary
- Zone Boundary
- GVMC Boundary

Image 10 Community toilet only for females in fish market (zone 3, ward 26)



Image 11 Dedicated seats for children in the same community toilet



This assessment shows a need to appropriately locate the facilities with adequate number of seats in certain wards.

3.2.5. Surroundings and accessibility of facilities

Respondents were asked to report obstructions to the main access at each PT/CTs. While most of the facilities did not have obstructions hindering access, nearly 1/4th (25) of the facilities had some form of obstructions to the main access of the facility. At most facilities, multiple types of obstruction were reported.

Zone 7 and 8 had about 50% (16 out of 34) facilities reported as not accessible.

Figure 13 Citywide accessibility of facilities

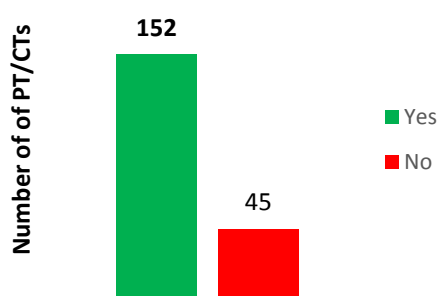
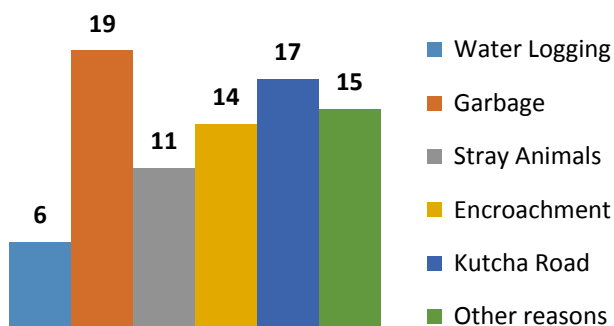


Figure 14 Types of obstructions



In 19 facilities the issue of garbage as an obstruction has been reported. It was one of the frequent cases across the 45 facilities. In 17 facilities respondents have reported *kutcha* road as an impediment to access.

A list of such 45 inaccessible facilities with details about the nature of obstruction is provided in Annexure 5.

Image 12 Garbage littered in front of PT/CT



Image 13 No approach road for the facility



Additionally, the status of the environs surrounding the public conveniences also points to issues of garbage littering, water logging and stray animals around the facilities. However, it was felt that these issues were not so serious so as to render the facility inaccessible.

OD has also been found in the premises of public conveniences and their immediate surroundings. Human faecal matter was found at 56 such toilets. List of such toilets is provided in Annexure 6. Poor cleanliness and maintenance of PT/CT encourages open defecation in its immediate vicinity.

Figure 15 PT/CTs where OD was observed

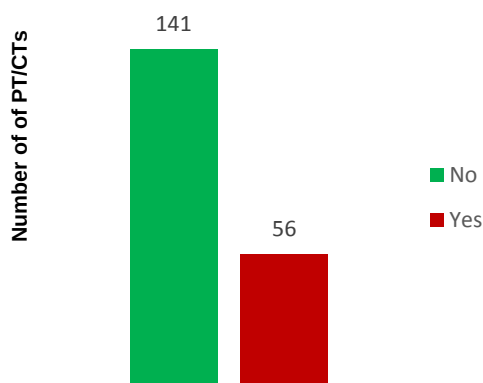


Image 14 OD outside the toilet facility near Santhabayalu junction (zone 7, ward 26)



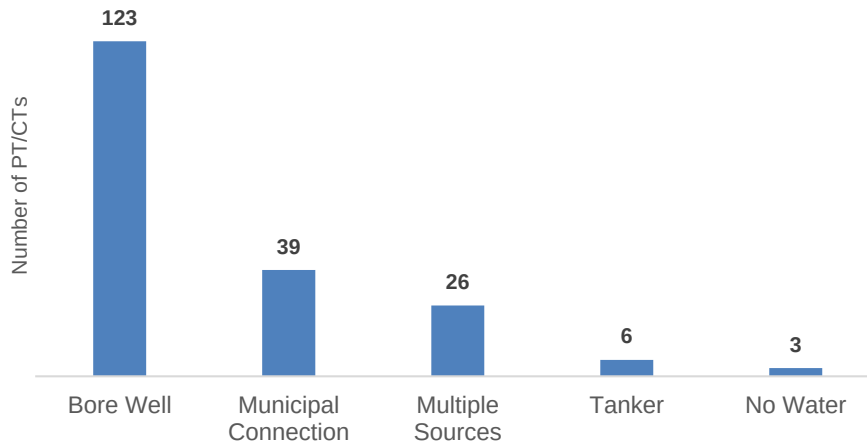
3.2.6. Infrastructure and design

Infrastructure:

a. Water supply in facilities

Water is not only required for flushing but also for hand wash and cleaning of facilities. In Visakhapatnam, 123 facilities have bore-wells as their primary water supply source, followed by 39 facilities with municipal water supply connections as their primary source. Three facilities reportedly have no water supply. List of these facilities is given in Annexure 7.

Figure 16 Zone wise water supply source for the facility



Some facilities have multiple sources to augment the water supply. In case of inadequate municipal water supply, they use bore-well. GVMC also supplies water through tankers at many facilities.

According to the Water Supply department of GVMC, 32% of the population is covered with piped water connection and GVMC provides 45 min per day water supply in the morning. As informed by the GVMC, work is under process and soon all the community and public toilets would be connected to the municipal pipelines.

Image 15 A bore-well in community toilet of Santhinagar



It has been observed from the primary survey data that there is no strong correlation between having adequate water supply and cleanliness of the facilities. This does not mean that having adequate water supply is immaterial, but even where facilities have adequate water, cleanliness is an issue. This means that cleanliness issue has more to do with maintenance practice by the operators than only water supply.

As per the PT/CT O&M contracts, contractor has to ensure the availability of water supply at all times for general cleanliness of the facilities and for the use of public visiting these facilities. The supply shall be arranged by contractors. And they are permitted to dig their own bore-well to draw water in each toilet facility. In case, contractor does not get ground water through bore-well, GVMC will supply water through water tankers free of cost for proper functioning of toilet facility. GVMC will provide all assistance in various clearances from government.

b. Water facility inside the cubicles

Out of all functional PT/CTs, 122 (61%) had functional taps inside the cubicles. In 49 (25%) facilities, users have to fetch water from storage tank outside the cubicle, and 23 (11%) facilities had no water inside the cubicles. Six (3%) facilities had non-functional taps inside. Amongst the 23 PT/CTs without water inside the cubicles, 21 have water supply to the PT/CT block. It can be inferred that there are internal plumbing problems in these PT/CTs, a list of which is given in Annexure 7.

Figure 17 Method of water provision inside the cubicle

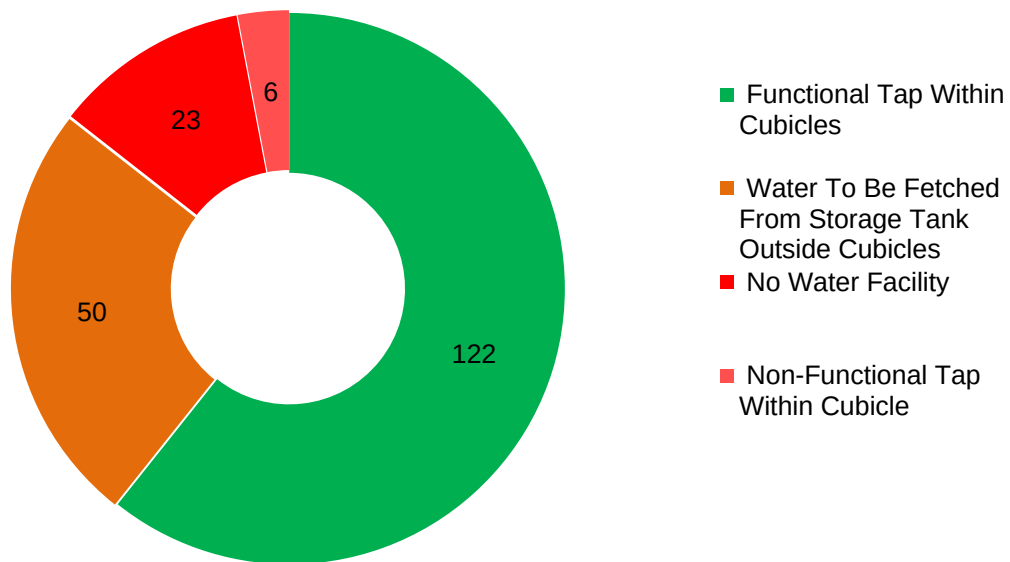


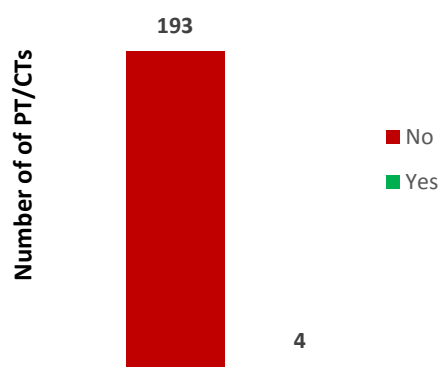
Image 16 Open water storage tank for users in community toilet of Anakapalle



Image 17 Functional tap within cubicle in community toilet, opposite to hospital building



Figure 18 Citywide functional flush in PT/CTs



In PT/CTs constructed by GVMC and maintained by a contractor, there is a lack of clarity about whose responsibility it is to repair/replace plumbing, electrical fixtures, doors/windows. In PT/CTs built on Public private partnership (PPP), such responsibility rests with the private partner.

Only four of all the functional PT/CTs have functional flush in the facility, and all of these are pay & use public toilets. These are also the ones that have building condition and overall toilet cleanliness rated 'good' in the survey.

c. Waste water disposal type:

Only 19.7% of households have registered municipal sewer connection¹¹. For better functionality of the public toilet facility, it is crucial to have proper waste water disposal system. From the contract between GVMC and contractor, it was found that it is contractor's responsibility to arrange the sewage connection for facility and in case of no sewerage the contractor has to construct septic tank.

The chart below shows different types of waste water disposal methods, across different CT/PT of Visakhapatnam. About 65% (128) of toilet facilities are connected to septic tanks or Soak pits. 19% facilities have municipal sewer connections while, 16% facilities dispose their waste directly into storm water drains, and are categorized as unsafe disposal. A list of these facilities is given in Annexure 8.

Of the 65% blocks connected to septic tanks, the effluent discharge point could not be identified. However, during the discussion with GVMC officials and the WSUP team, it was discussed that many septic tanks discharge effluent into storm water drains.

Image 18 A community toilet with waste water outlet into an open drain near Raythu bazaar, Bowdara road (ward 29)



¹¹ SLB data, GVMC

Figure 19 Citywide waste water disposal facilities in PT/CTs

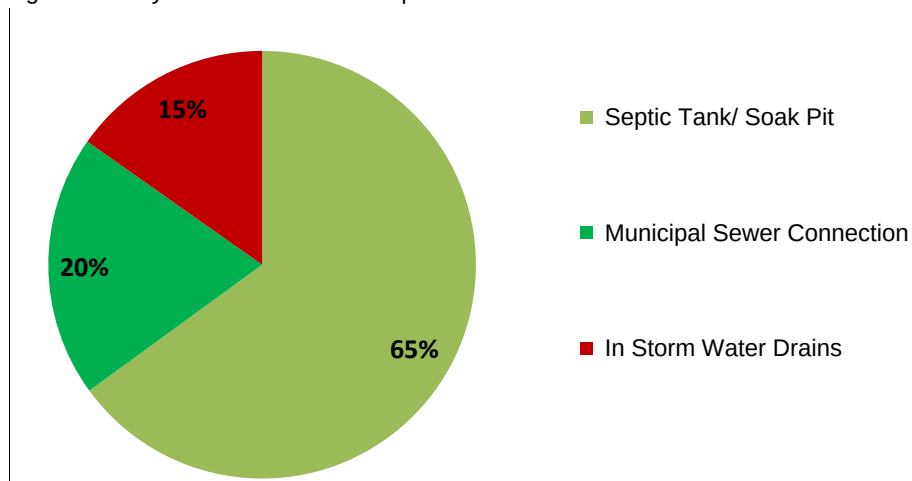
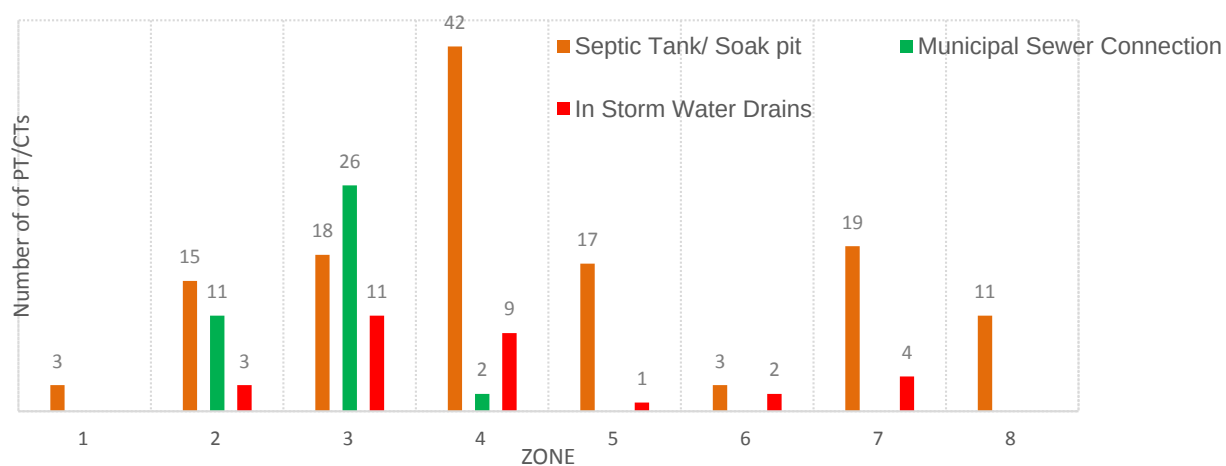


Image 19 Septic tanks in community toilet near Nookambhika temple (zone 7, ward 21)



Figure 20 Zone wise waste water disposal facilities in PT/CTs



As per discussions with GVMC, it was revealed that, GVMC does not provide septage cleaning services. So, operators have to rely upon private contractors for sludge removal. Periodic sludge removal is not mentioned in the contract document either.

Toilet design:

d. Accessibility and inclusiveness

No PT/CT was found that was accessible to all kinds of people. There were two facilities with a ramp at the front entrance of the block, but the internal design was non-conducive for the movement of a wheel chair. Only three facilities had a grab-bar inside the cubicle to assist the differently abled, elderly and pregnant women. Western toilet seats are available for the men at four PT/CTs whereas at three PT/CTs for women.

Figure 21 Citywide accessibility by wheelchair

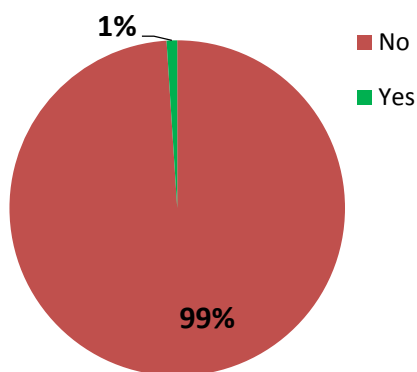


Image 20 Toilet cubicle with grab bar



Figure 22 Citywide availability of grab bar in CT/PT

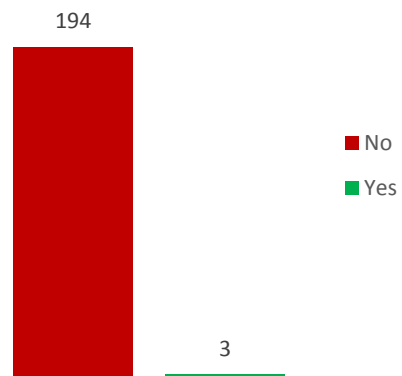


Image 21 Same facility near Gurudwara-non-accessible toilet cubicle for wheelchair

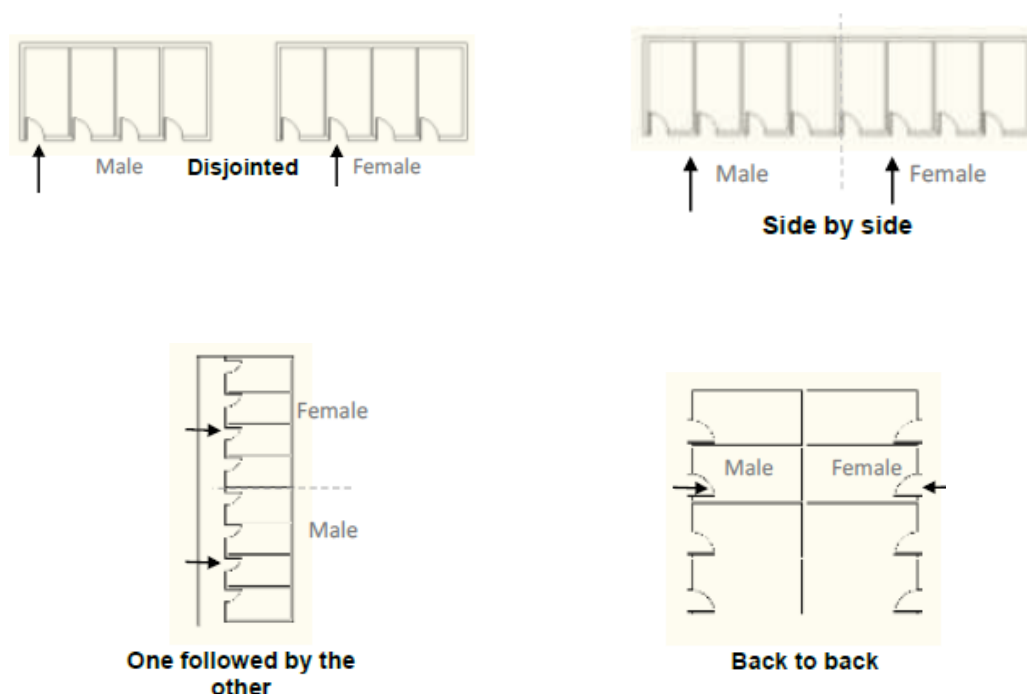


As mentioned earlier, there is only one community toilet having eight seats dedicated for children. However, these toilet's cubicles are not child friendly. Its fixtures and design is not appropriate for children's use.

Out of 197 facilities, 148 are accessible to both genders with separate sections for each. There are 27 and 22 PT/CTs exclusively for men and women respectively.

Separate sections of the facilities have mainly four types of plans in Visakhapatnam.

Figure 23 Plan types of PT/CTs



129 facilities are constructed in “side by side” manner, 15 in “back to back” manner, 2 are “disjointed” and 1 is “one followed by other” manner. Except “one followed by other” design, all other plan types are acceptable for both the genders. Upon discussing with the women users at this facility, they expressed no discomfort or fear of using this facility.

Figure 24 PT/CTs with separate sections for men and women

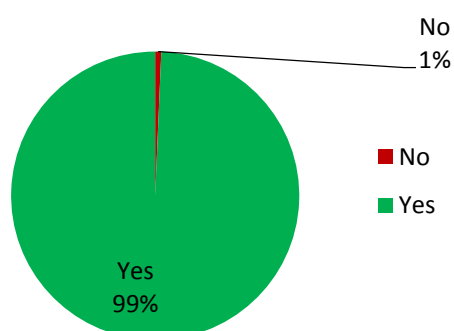
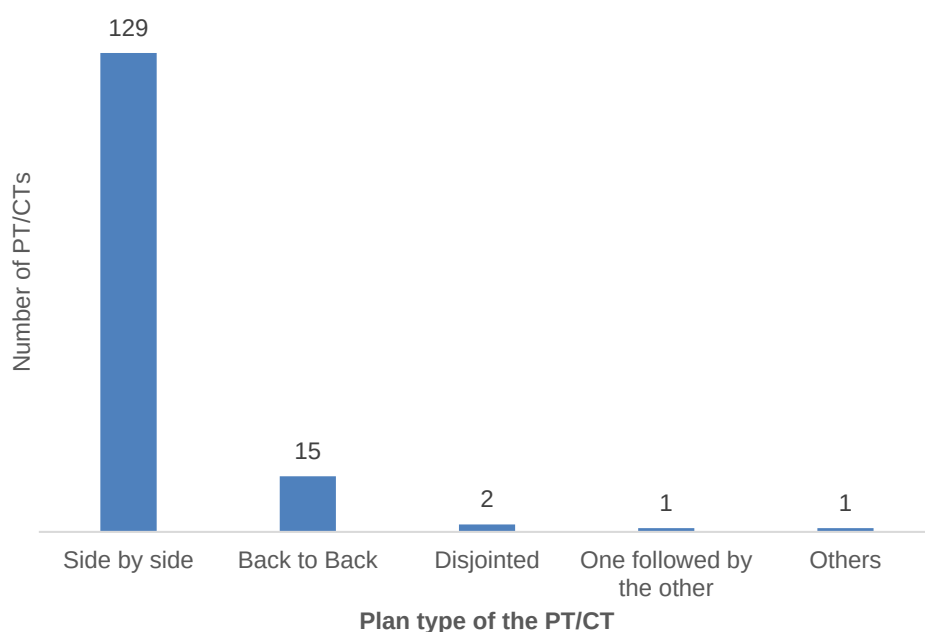


Image 22 Separate sections in community toilet near Greta eye hospital, Anakapalle (zone 7, ward 13)



Figure 25 Plan type of PT/CTs in the city



Respondents have reported anti-social activities at 14 PT/CTs. The nature of anti-social activities included women harassment, chain snatching and consumption of alcohol at the facilities. Among 14 facilities, where traces of anti-social activities have found, in 9 facilities women feel unsafe for using the facility. (Refer the list in Annexure 9).

Figure 26 PT/CTs with traces of anti-social activities

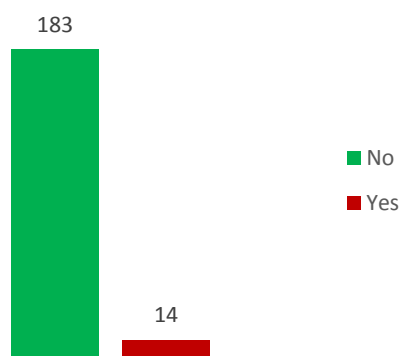
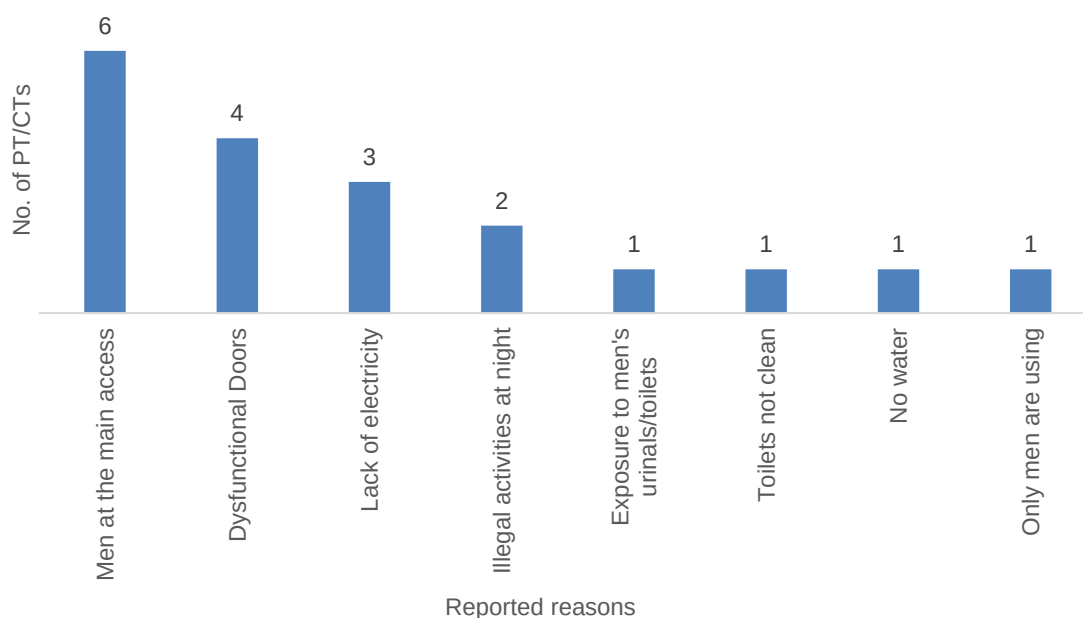


Image 23 Empty boxes of alcohol found in the facility near beach road (zone 3, ward 24)



In addition to the antisocial activities, the other reasons that women reported for feeling unsafe include men loitering at the access, exposure to men's urinals, lack of adequate lighting inside the toilets, and dysfunctional cubicle doors.

Figure 27 Reasons reported by women for not feeling safe at some PT/CTs



e. Daylight and Ventilation

Nearly half of the PT/CTs have good daylight. Eighteen PT/CTs were found to have 'bad' day-light inside. Nearly 60% of the facilities did not have functional electrical lighting.

Twenty-six PT/CTs have 'bad' natural ventilation, often coupled with bad day-light. Only three facilities had electrical exhaust systems. 79 facilities in all had bad odour, but it is interestingly that 11 of these facilities have 'good' natural ventilation.

Figure 28 Day light in facilities

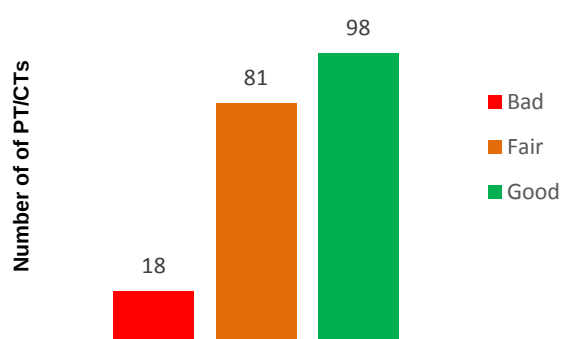


Figure 29 Ventilation in facilities

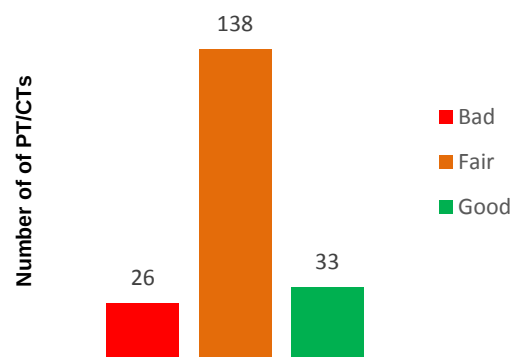


Figure 30 Functional and adequate electric lighting in PT/CTs

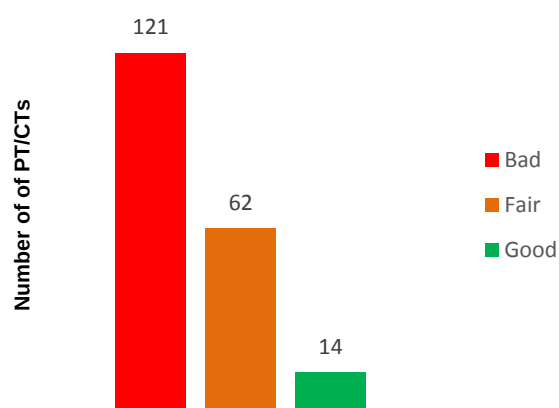


Image 24 Good Day lighting in community toilet, Sathyammathali gudi road (zone 7, ward 21)



Image 25 No Day lighting in community toilet near Hanuman temple (zone 4, ward 35)



Image 26 Non-functional electric lighting in community toilet near Gavanapalem road (zone 7, ward 21)



Image 27 No Ventilation and no exhaust fan in free to use community toilet facility, near Bheemunipatnam Beach



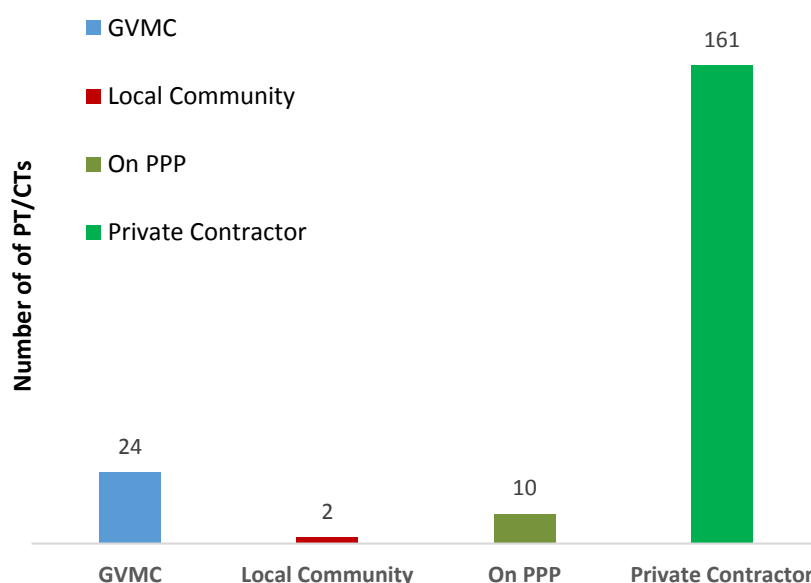
3.2.7.O&M and management of facilities

a. Modes of operation

Of the 197 functional toilets, GVMC has constructed 182 of them while the rest have been constructed on a PPP mode or by trusts/port authorities. GVMC maintains 24 PT/CTs

(twenty two constructed by itself and two handed over to it by private trusts/NGOs). O&M of the rest has been outsourced to private contractors.

Figure 31 Citywide responsible agencies for O & M of the facility



Around 50% toilets maintained by GVMC were rated either 'fair' or 'good' in overall cleanliness. The figure for toilets maintained by private contractors/community/PPP is 70%.

Twenty seven facilities are free to use, of which two-thirds are maintained by GVMC; the remaining 170 facilities are operated on a pay & use mode.

Based on the findings from the KIIs (discussed in Section 4), most of the respondents have shown willingness to pay for a well maintained public toilet.

Cleanliness of nearly 72% of pay and use facilities was either good or fair; while the figure for the free to use toilets was around 44%.

Figure 32 Overall cleanliness of PT/CTs under different modes of operation

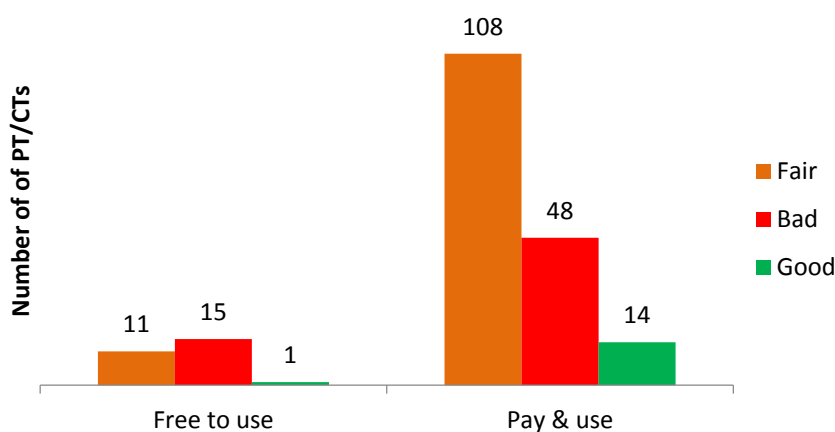


Image 28 A toilet in a free to use facility



Image 29 A toilet in a pay & use facility



Table 8 Mode of payment in public conveniences

Type of toilet	Free	Pay & use	Total
Community toilet	23	130	153
Public toilet	4	40	44
Total	27	170	197

UMC had given scores to all the facilities based on six holistic parameters (viz. Condition of building and fixtures, Accessibility and environment, Cleanliness, Infrastructure, Internal Design, and Inclusiveness) as explained in section 3.2.8. According to it, the average scoring of all 197 functional is 39, while the best rated toilets score 79.25.

When you look at overall rating as well as rating based on overall cleanliness of toilet building and cubicles, it is found that there is a more or less equal distribution of private contractors with top scoring toilets and those with lowest scores. Functional GVMC-operated toilets have scored low. Also, private operators managing only one or two PT/CTs perform better than those that manage multiple toilets. However, this is not to discount the fact that there are single toilet operators whose toilets score the lowest.

Amongst the large operators (those operating multiple toilets), Mother Teresa Youth Welfare Association performs better. The average score of the nine toilets that it operates is 42.7.

In all, the following broad inferences can be:

- Private sector should operate
- Currently, private sector in the city does not seem to have large scale (multiple PT/CTs) O&M capacity.
- Since more or less an equal number of privately operated toilets are seen to score both highly as well as least, there is no clear indication whether performance is best done when operators do it individually or grouped/as organizations.

b. Directional signage and signage on facilities

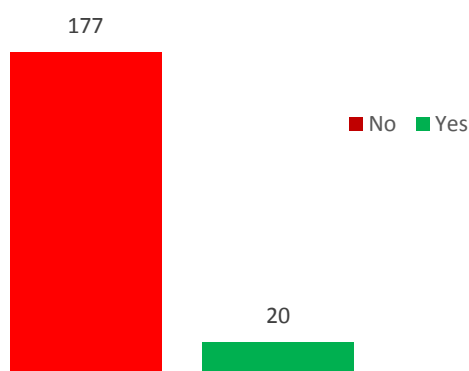
Directional signage for the users is recommended for optimum utilization of the facility, especially in markets, bus stands, and tourist spots. In fact, during the KIIs, it was observed that more than half of the respondents did not know about the nearest PT/CT even while

these facilities were present nearby. In the survey, no directional signage was found in Visakhapatnam. Only about 10% toilets have legible signage providing information about user-charges, timings, etc. However, the 148 facilities with separate sections for men and women were identified with texts/pictures.

Image 30 Proper signage at a public toilet near RK beach



Figure 33 PT/CTs with good and legible signage



c. Building condition and cleanliness

Enumerators noted the overall building conditions in three categories. Maximum (121) toilets are categorized into “fair” category for overall building condition. 57 categorized as “good” and 19 as “bad”. In all “bad” categorized buildings, there is no clean toilet seat either. List of 19 bad buildings of the facilities is given in Annexure 11.

Women have reported that they feel unsafe using toilets with dysfunctional/broken doors. Further, it was noted, amongst these 57 PT/CTs with poor condition of doors, none of the toilets was clean.

Figure 34 Overall condition of building of PT/CTs

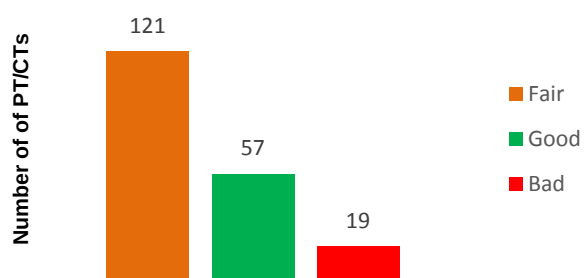


Figure 35 Condition of doors in PT/CTs

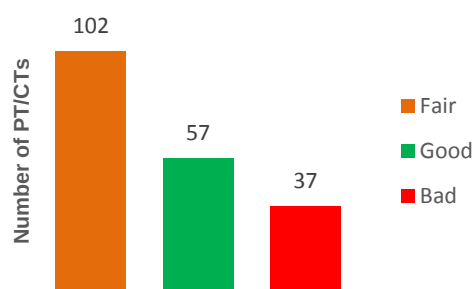


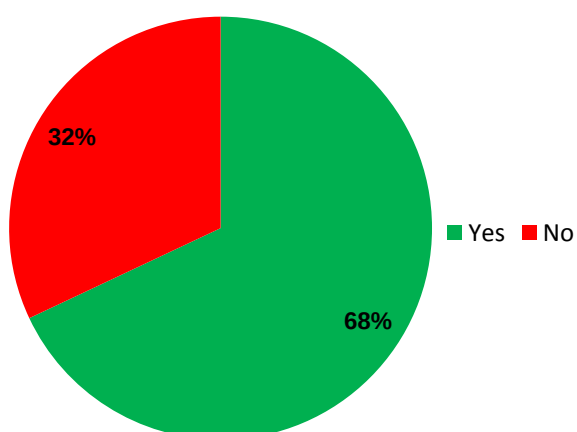
Image 31 Poor condition of facility building in Venkateshwara colony (zone 4, ward 33)



Image 32 No door in a CT at Lal Bahadur Shashtri Municipal Market (zone 8, ward 19)



Figure 36 Functional latch in doors of PT/CTs



From the survey it was found that, in 133 (68%) toilets functional latch was missing in 64 (32%) PT/CTs. Among these 64 facilities (refer list in Annexure 12), 34 facilities had poor condition of doors too. As per the O&M contracts, it is the responsibility of the contractor to repair parts of the toilet block when damaged.

d. Cleanliness

Very few toilets in GVMC have scored ‘good’ in terms of cleanliness of the toilet block as well as cleanliness of the cubicles.

Figure 37 Overall cleanliness of toilets (left), Cleanliness condition of toilet cubicles (right)

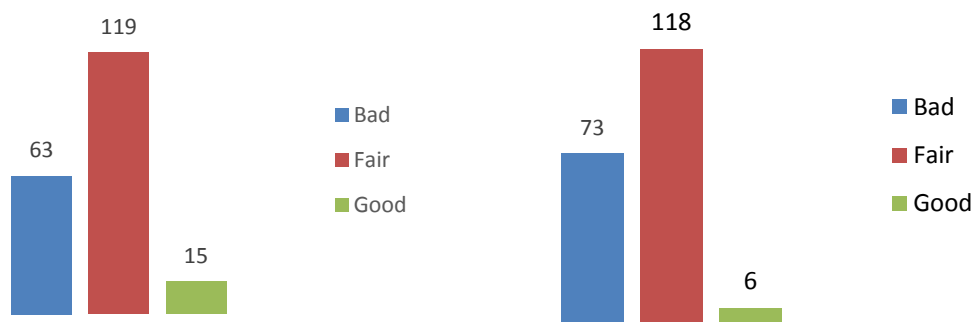


Figure 38 Number of times PT/CTs are cleaned in a day in the city

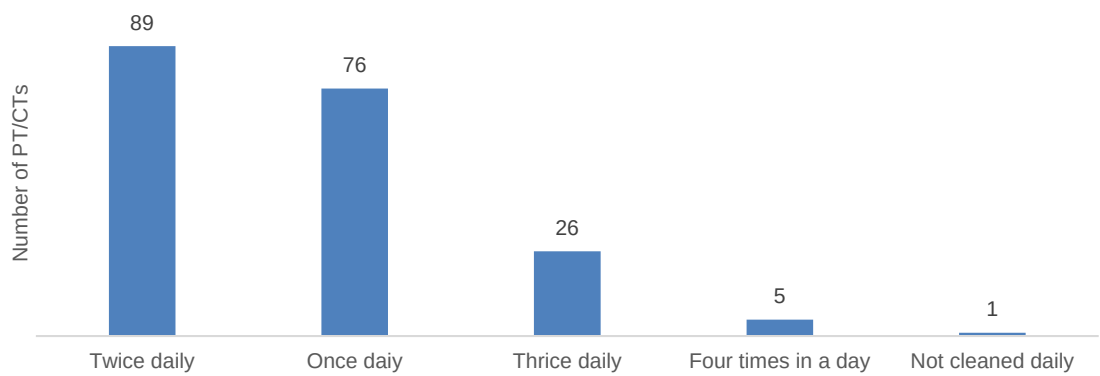
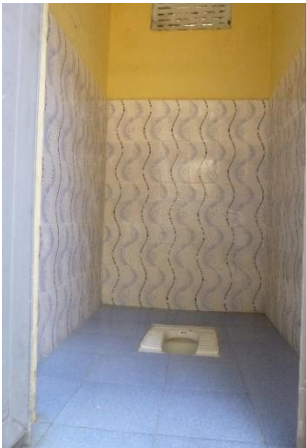


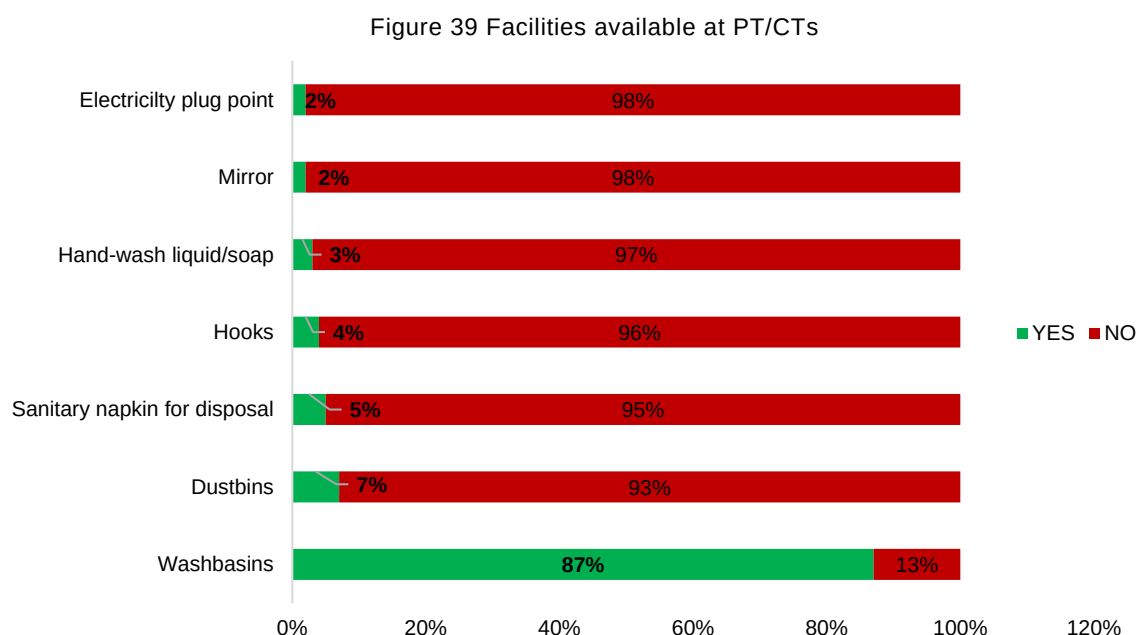
Image 33 Toilet cleaned 4 times a day at a CT at Gurudwara temple Bus stop (zone 2, ward 1)



e. Facilities and consumables

For better functioning of the facility, it is advisable to have certain facilities and consumables like sanitary napkin disposal bin, hooks, dust bins, mirror, janitor's room, electric plug point and hand wash liquids and soaps. Absence of soap for hand-wash in around 97% of the facilities is also a major issue. Especially in women's blocks, sanitary napkin disposal facility should be a priority to ensure the women users. Dustbins in the facility ensure cleanliness in the toilet blocks.

Figure 39 represents the availability of such facilities. From the survey it is evident that, not even 10% PT/CTs have such facilities. Most important consumable like hand wash and soap is not available in almost any facility.



3.2.8. Scoring of PT/CTs

Several parameters were considered for calculating the score of the PT/CTs. There are six such parameters - Building Conditions and Fixtures, Accessibility and environment, Cleanliness, Infrastructure, Internal Design, Gender and Inclusiveness. Each parameter has been given weightage on a scale of 100.

- Any facility that gets a score of above 75 is rated "Good" and is highlighted with a green dot,
- Any facility with a score of above or equal to 50 and below or equal to 75 is rated "Fair" and will display a yellow dot,
- Any facility that gets a score of below 50 is rated "Bad" and will display a dot (see Figure 40).

Using this rating, every facility is scored. Scores for each ward are also generated, which are a simple average of the scores of all the facilities in that ward.

Figure 40 Sample image of a ward profile scoring¹²

Ward Number	15	OVERALL SCORE OF WARD  36.1	
Public Conveniences ID	Score of facility	General information	
PT21501	32.5	Ward Population (Census 2011)	21,878
CT21503	38.25	Zone Number	2
CT21501	43	Number of Facilities	4
CT21504	30.5	Estimated Number of Users	610

3.3. Conclusion

Survey findings on open defecation spots revealed that major reason for open defecation is lack of access to toilets (both IHHT and PT/CT). Even where PT/CTs were present, issues about lack of cleanliness, accessibility, affordability and functionality were reported. This highlights existence of various issues with the existing PT/CTs in the city. Survey data of the public conveniences reveal these issues specifically.

Out of the 269 PT/CT blocks in GVMC today, only 197 are functional. These toilet blocks have 3033 seats. When one looks at the distribution of PT/CTs adequately across the city, it can be found at present that there are many wards where not entire population has access to IHHTs and these wards do not have any PT/CTs. Hence, existing PT/CTs are not adequate in their numbers and distribution.

The survey also highlights the design flaws, existent gaps in infrastructure provision and issues in O&M. Almost all toilets lack user-friendliness for the differently abled and those with special needs, such as the elderly, physically handicapped, children and pregnant women. Infrastructure in the PT/CTs are varying levels of provision- many toilets do not have municipal connection to water supply and drainage, have plumbing issues due to which there is no running water inside the cubicle, doors are either broken or not there, and in many cases, latch to close the door for privacy is missing.

Almost none of the PT/CTs have a proper system of maintenance of register for cleaning, cleaning-supplies/consumables, and for recording the number of users. Obstructions such as garbage, water-logging, and encroachments to the main access can be found at many PT/CTs. Also, survey data suggests that there is no clear distinction between PT/CT scores of those operated by GVMC and those by private operators. However, it may be noted that the most recent public toilets constructed or being constructed Lotus international Pvt. Ltd. score the highest.

¹² Refer Volume 3 for facility scores and profiles

4. Focus Group Discussions and Key Informant Interviews

According to the primary survey, lack of access to toilets (IHHTs and/or PT/CTs) and habit together constitute more than 80% of the reasons for OD. The survey also reports that slum dwellers, daily commuters, workers & visitors in markets, truck drivers & their helpers, and Construction workers constituted more than 95% of the open defecators in the city. Focus group discussions (FGDs) and key informant interviews (KIIs) were conducted to probe into the two key reasons of OD and to understand behavioural aspects of different categories of open defecators.

This section explains the methodology for conducting the FGDs and KIIs are conducted and the survey findings.

FGDs were conducted in 28 slums across the city and the KIIs were carried out at 21 different locations. A complete list of locations where these FGD and KIIs were conducted has been attached in Annexure 14 and Annexure 15. Category of respondents with whom discussions were carried out for FGDs and KIIs is given Table 9.

A local NGO with expertise in community participation activities was roped in to assist in the field work. The survey was carried out by three, two-member teams led by a community expert for focussed group discussion (FGD). Slum Level Federators (SLFs) and Sanitary Inspectors (SIs) also joined the survey team during some of these surveys.

Table 9 Categories of respondents for FGDs and KIIs

FGDs	Slum dwellers
KIIs	Daily commuters
	Construction workers
	Truck drivers
	Shops/ market (customers/ owners/ workers)

Table 10 Number of Total FGDs and KIIs conducted within GVMC Jurisdiction

Location	FGD/KII	Numbers
Slums	FGDs	28
Construction sites	KIIs	5
Markets	KIIs	5
Truck drivers' parking spots	KIIs	6
Transit nodes	KIIs	5
Total FGDs/KIIs		49

4.1. Methodology for FGDs

Survey Tool: Survey tool has been designed to identify open defecators from the larger group of participants and understand the behavioural aspects of those respondents. The tool comprises two sections- observations of the enumerators, and feed-back of the respondents.

The tool starts with generic questions on availability of water supply, IHHT, PT/CTs, method of waste water disposal, and in the last section, it zeroes down to people who do not have access to or do not use toilets, and the underlying reasons. The responses have been noted down based on show of hands. This structure ensures not antagonizing open defecators (from the group of participants) and at the same time it brings out a reliable information. The survey tool is given in Annexure 14.

Participatory Rural Appraisal (PRA) method was employed for two FGDs.

The term PRA, denotes “Participatory Rural Appraisal”. It is a method that promotes active involvement of the community. It prompts the community to think about their own problems and evaluate their respective solutions.

The following activities were done :

- Group collectively mapped their own community, identifying OD hotspots, location of PT/CTs, public stand posts, and other such features they felt were relevant for water sanitation and hygiene. The group also mapped houses (including their own) from which some members of the family were defecating in the open despite having an IHHT.
- This method helped the community realize the impact of poor sanitation on their health based on the distance between the open defecation spots, homes, and water source.
- Once they understood the spatial relation between OD spots and their homes, the participants themselves came up with ideas to minimize the negative impact. After spatial mapping they also understood the necessity of collective efforts required to improve overall sanitation in their slums.

Image 34 FGD being carried out using PRA method in Vasavanipalem slum



Site selection process: From the primary survey of 204 OD spots, 164 locations were being used by slum dwellers with 73 being used exclusively by them. Out of these 73 OD spots, at 39 spots, the respondents had given names of colonies/ pockets/ slums from where people come to defecate. These 39 OD spots (listed in Annexure) form the basis for selection of 35 colonies/ pockets/ slums for conducting the FGDs.

UMC's survey team narrowed this list to 22 colonies/ pockets/ slums on the basis of the following criteria:

- The location should cover all administrative zones
- The location should have a large number of open defecators
- The location should cover OD spots used exclusively by either gender, as well as both gender including children (below 5yrs).

With inputs from the WSUP team, Vasavanipalem was added to the list, and it was finalized with 23 locations. During the survey, the Zonal Commissioner of Bheemunipatnam, requested UMC to include colonies/ pockets/ slums around all six OD spots in the zone. FGDs were conducted at a total of 28 locations.

Field work: The following activities were performed at each slum during the FGDs:

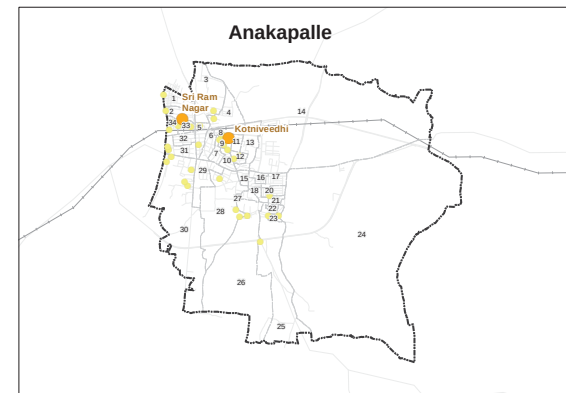
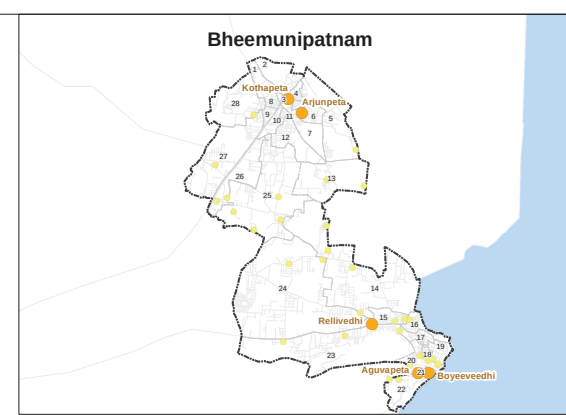
- Zone level Orientation meetings :In order to conduct FGDs efficiently, it was important to coordinate with the respective zonal officers, ward sanitary inspectors, self-help groups and/or slum level federators operating in the orientation meetings were conducted. Local NGOs and members of the ward's ODF committee were also included. The meetings were conducted to apprise the stakeholders regarding their role in implementing the FGDs.
- Each FGD started with meeting the local facilitator and doing a transect walk in and around the slum, during which the team also started gathering people
- Eventually, when all participants were gathered at a spot, they were introduced to the purpose and theme of the FGD. This was followed by the discussions based on the structure of the survey tool.
- During this process, potential team leaders/facilitators, who evinced interest to take responsibility of continuing efforts towards making the slum ODF were identified. Post, the FGD, the team had a one-to-one chat with them.

Image 35 Orientation meeting at GVMC's Zone - 5 Office



Image 36 Orientation meeting at GVMC Main Office





4.2. Methodology for Key Informant Interviews

There are several category of open defecators. While some have a long term of association with the physical space/location (in slums or other residential areas), the rest may have a very short-term association, ranging from a few minutes (e.g. commuters, shoppers etc.) to a few months (e.g. construction workers). So, while FGDs dealt with people residing at those locations, where IHHT and PT/CT together constitute access to toilet; KIIs have been performed at non-residential locations (except for construction sites) where public toilets were the only factor determining access to toilets for those people. Also, unlike slums, where a large number of participants can be engaged for a long period of time (for an hour or above), at places such as markets, transit nodes, construction sites, parking spots of truckers, it is not feasible to have a long duration of engagement or gather a large number of participants.

Based on this understanding, the methodology for KIIs was different from the FGDs, and it has been explained below:

Survey tool: The tool has two sections- observations of the enumerator, and the feed-back from the respondents. The questions were structured around the awareness in the participants about toilets nearby and the level of satisfaction with it. The tool also captures their willingness to pay for a clean and well-maintained public toilet.

The survey tool has been provided in the Annexure 19 for KIIs with daily commuters, Annexure 20 for KIIs at markets, Annexure 21 for KIIs with truck drivers, and in Annexure 22 for KIIs with construction workers.

Site selection process: The process carried out for selecting sites for various category of interviewees described below. While selecting locations, data from the survey of OD spots was kept as the primary basis.

a. Shop-keepers/customers/workers in market areas

According to the primary survey of OD spots, there were no OD spots exclusively used by customers/ shop owners/ workers in/from market areas; but, there were 58 OD spots where these were reported as one of the categories of defecators. UMC did a proximity analysis of these 58 spots and identified major formal and informal market areas including city level, neighbourhood level, product-specific (vegetable markets) and mixed retail markets within their 500 metres. Based on this, KIIs with Shop-keepers/customers/workers were conducted at five locations.

b. Daily commuters

UMC listed key transit zones in the city such as auto-rickshaw hubs, bus stops/depot, and railway stations and checked if there were any open defecation spots within 500 metres of these places. Based on this analysis, the largest ones covering all major transport modes were chosen for KIIs with the commuters.

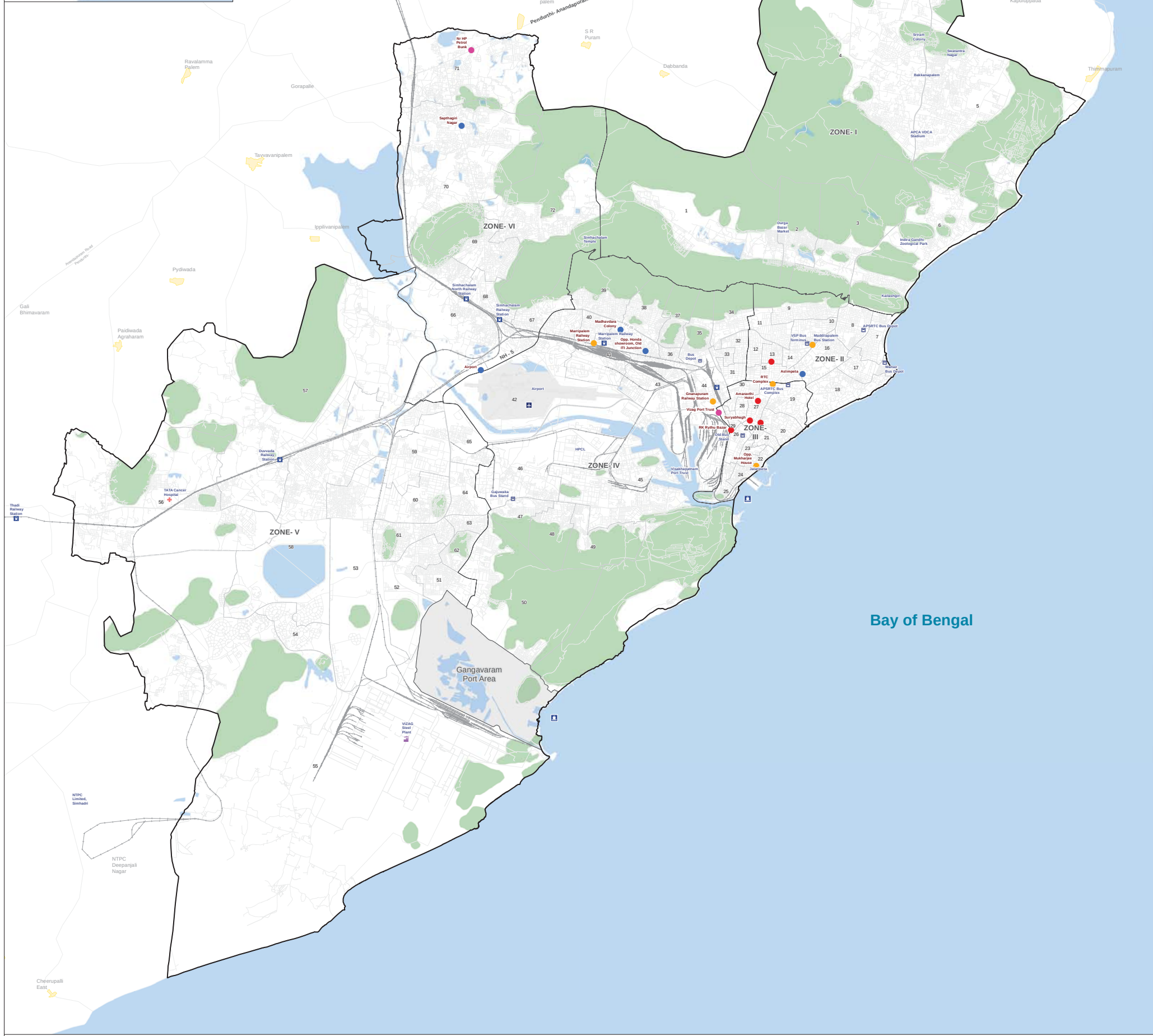
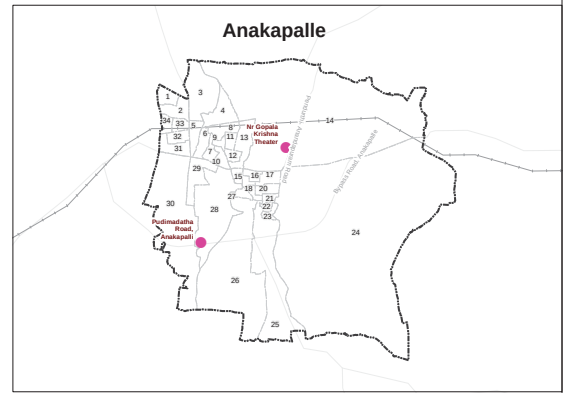
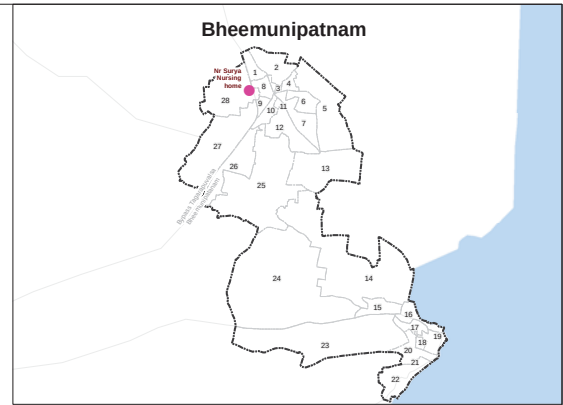
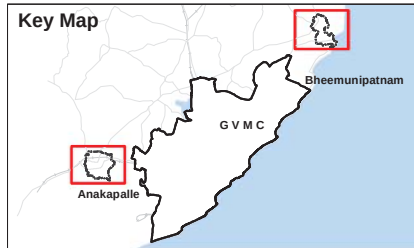
c. Construction workers

Information on existing construction sites was obtained from GVMC's planning department. This list was tallied with the OD survey data to ensure that there were open defecation spots within 500 metres of the construction sites. The survey team

visited a five construction sites including a mix of public works and private sites of varying scale.

d. Truck-drivers

A proximity analysis of all 42 spots where the user category were truck drivers from the OD survey data was done to identify truck parking/ waiting areas and port entry/ exit within 500m of the OD spots. The survey team also visited major truck halting and parking areas along the national highway. Based on this six locations were identified.



- Legend**
- Key Informant Interview with**
- Construction workers
 - Shopkeepers / Customers / Workers
 - Daily Commuters
 - Truck Drivers
 - Railway Line
 - Road Network
 - Waterbody
 - Hills
 - Village
 - Ward Boundary
 - Zone Boundary
 - GVMC Boundary

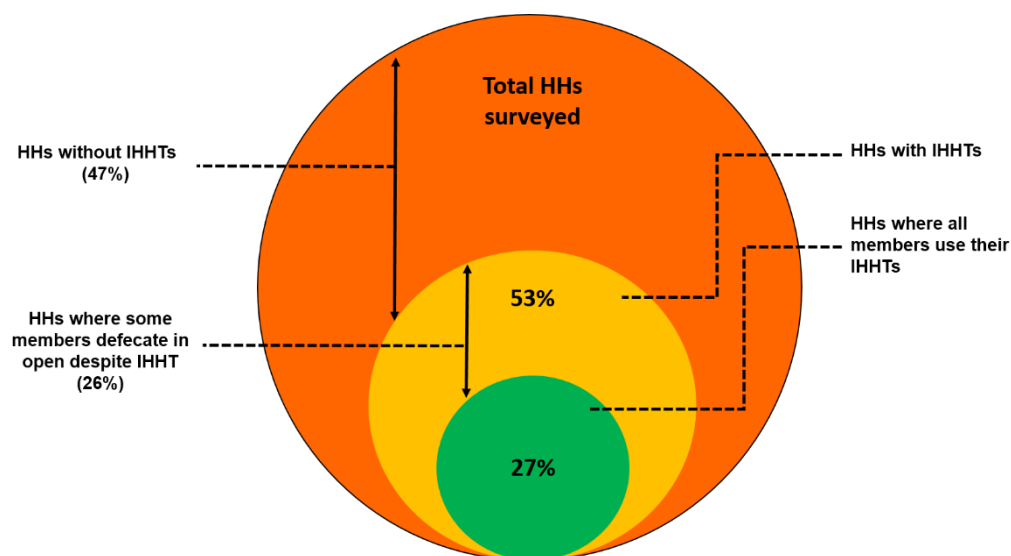
4.3. Findings from FGDs

A total of 654 households (5% of the total households in the selected slums) were reached through the focus group discussions where, 72% participants were women, and 28% were men. This gender parity is either because many men were away at work or were less interested in discussion about sanitation and hygiene as compared to women.

Majority of the slum dwellers were found to be daily wagers, and belong to economically weaker section of the society.

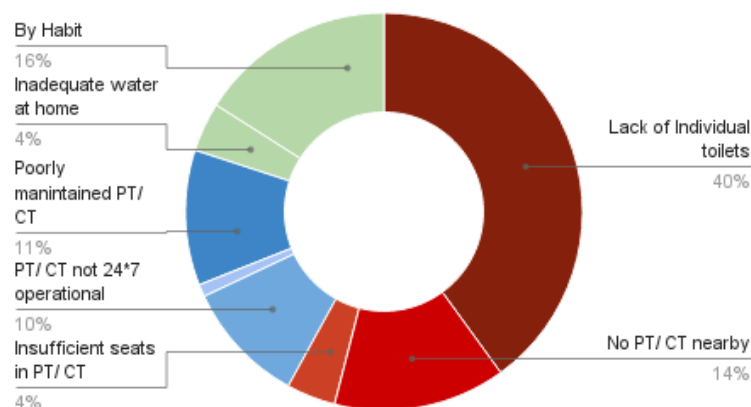
Of the total householders who participated in the FGDs, only 53% of them had IHHTs at their homes. Nearly half of the slum households that had IHHTs (26% of the total households), had members of their family who still defecate in the open (see Figure 41).

Figure 41 IHHT ownership and open defecation among slum households



The key reasons reported for open defecation in the FGDs include lack of access to toilets (IHHTs or PT/CTs). This reason can be further subdivided in the following:

Figure 42 Reasons reported for open defecation during OD survey



The shades of red and brown represent lack of access to toilets (58%) while the shades of blue represent operations and management issues with the existing PT/ CTs (such as

timings, unaffordability and cleanliness) and the shades of green represent behaviour and inadequate water as deterrents to use toilets.

The following sections analyses the above reasons deeper based on the categories of open defecators – the ones who do not have access to toilets and the one who do, but still defecate in the open.

. Image 37 FGDs with the slum dwellers



a. Households with lack of access to toilets

Nearly half the residents of the slums where FGDs were conducted lacked access to IHHTs. The key reasons for not having IHHTs include:

- i. Lack of space to construct IHHT: Nearly 1/3rd households do not have space to construct IHHTs.
- ii. Lack or delay of funds for construction of IHHTs: Nearly 1/4th of the total households were waiting for release of subsidy amount to continue construction of the IHHTs. In addition to these households, another 18% households are unable to construct IHHTs due to lack of funds. For many households, their first instalment for construction of IHHTs has not been released despite approval of the application. In the absence of approval documents available at the venue during the FGDs, these

claims remain unverified. Many households also stated that the subsidy is not sufficient for an IHHT and they do not have additional funds to fill this gap.

- iii. Rejection of IHHT applications: an additional 10% applications had been rejected by GVMC as reported by the participants. This claim too remains unverified due to unavailability of records at the venue during the FGD.
- iv. Lack of willingness (demand) to construct an IHHT: a small percentage of households have not applied for an IHHT and some expressed no interest to do so in the future. A small 3% of the households reported land dispute as the reason why they do not have an IHHT. These slums include Pydyamba Colony (on Indian Railway's land) and Kotapetha – land reportedly belonging to a private jute mill. These claims are as reported by the participants during the FGDs.

Image 38 Space constraint in slum



As reported, nearly half (47%) the households in the slums where FGDs were conducted do not have an IHHT, of which, around 3% and 2% of these households depend on PTs and CTs, respectively. The rest 42% households without IHHT defecate in the open. Add to this there are 26% households that have IHHT, but still defecate in the open.

In around 68% households in the slums where FGDs were conducted, either all, or some members defecate in the open.

Primary survey of all PT/ CTs in GVMC revealed the reasons for poor performance of the PT/ CTs in the order of their significance include lack of sufficient PT/ CT seats (3 CT seats for 500 households in Aguvpeta), poor cleanliness and operational timings of PT/ CTs. Other reasons included distance of the household from the PT/ CT, obstructions to the main access of the PT/ CT, broken doors (complete lack of privacy) and in some cases, lack of water provision at the facilities. Some women reported that they feel unsafe while using the PT/ CTs.

Image 39 Non-functional community toilets in Visakhapatnam



Image 40 Mobile toilet in Pydyamba colony



b. Members of IHHT-owning households defecating in the open

It is interesting to note that out 53% households have an IHHT, and in nearly half of them, some or all members still defecate in the open. The key reasons reported for this include:

- i. Personal preference: Nearly half of the population of the slums where FGDs were conducted defecates in the open due to their personal preference. None of the participants could elaborate further than this. The six slums where this was the only reason reported include Vasavanipalem, Sri Ram Nagar, Kotniveedhi, Gandhi Nagar, Gangavaram and Akkireddy Palem Nagar.
- ii. Large household sizes: around 20% of the households reported that single individual toilet was not enough for their large household sizes and thus, some members of the family defecate in the open.
- iii. Inadequate water supply: in 20% of the households, all members of the family do not use IHHTs due to lack of water. The primary source of water in these slums (Vasvanipalem and Gangawaram) is private bore wells supplemented by water tanker-based supply by GVMC once in 4-5 days. The participants at Vasvanipalem

reported that they have few stand-posts but were inadequate for the slum comprising 1500 households.

- iv. Fear of the septic tank/pit getting filled up: around 13% of the households fear their septic tank/pit being filled-up and hence, all members of the family do not use the IHHTs. Mostly the men defecated in the open while the women used the IHHTs connected to septic tanks/ soak pits. Around the Gangavaram Port, many households get their septic tanks/ soak pits emptied once every 3-4 years and they feel it as a financial burden. It is interesting to note that the CPHEEO recommends emptying of septic tanks once every 2-3 years.

Image 41 Condition of IHHT in some slum households



IHHT in Mindi Ram Nagar



IHHT under construction



Functional toilet facility



Concrete rings for pit

The FGDs revealed micro-issues at the slum level. While the findings of the 28 FGDs have been generalised in this document, we recommend slum level consultation and planning for provision of toilets (IHHTs and PT/ CTs) and for behaviour change activities.

The following section presents the findings of the key informant interviews conducted across the city.

4.4. Findings of key informant interviews

Key informant interviews were conducted with shopkeepers/ workers at markets, shoppers/ customers at markets; truck drivers and their helpers; construction workers and commuters at major transit nodes. The key findings have been elaborated below:

a. Daily commuters

Daily commuters were the second largest (~26%) category of open defecators in the OD survey. During the KIIs, six people were interviewed at 5 different locations- two at railway stations, two at bus stands, and one at the beach. Of these six respondents, two were female and four were men.

Three transit nodes had their own toilets, but commuters were aware about it at two nodes. Around 60% of the commuters were aware about the public toilets nearby. The only reason reported by the commuters for not using it or for not being satisfied with these PTs was poor cleanliness. At the RTC Complex, Dwarkanagar, many commuters were found urinating along the boundary wall and between parked buses, despite availability of toilets within the complex and a public toilet nearby.

All commuters interviewed, were willing to pay Rs. 2-3 per use for urination and defecation.

Figure 43 KIIs at the RTC complex (left & centre) and at Maddipalem Bus-stop (right);



b. Customers/ shop owners/ workers in markets

Customers/ shop owners/ workers in markets formed the third largest category of open defecators (15%) after slum dwellers and daily commuters as per the OD survey. Since nature of engagement and duration of stay in the market for the shopkeepers and customers varies, they were interviewed separately using the survey tool designed separately for them (see Annexure 20).

Interviews were conducted at five markets- Daba Gardens, Ram Krishna Rythu Bazar, Market around Margadharshi Chit Funds, Market near Zone-3 Office, and Jagadamba Center, covering 17 male and 10 female respondents.

Around 80% of the respondents said they used the nearest public conveniences - a PT is located within 500 metres of the all these markets. The remaining reported distance and cleanliness as reasons for defecating in the open. Even amongst the 80% respondents who used the PT, felt that the toilets were far and unclean. As per the SBM guidelines, every

commercial area should have a PT within one kilometre. However, shopkeepers have claimed that even 500 metres was too long a distance for them to use a PT.

Many women preferred using toilets at their homes since they lived nearby. This was also owing to the lack of adequate cleanliness at the available public toilets. Nearly 90% of all the respondents gave these two reasons for their dissatisfaction with the nearby PT.

All of the respondents have expressed willingness to pay for using public conveniences provided they are well maintained and within close proximity.

All shopkeepers, both men and women, are willing to pay Rs.2 per use for defecation and urination, in a clean PT nearby- less than 300 metres.

Based on the KIIs conducted with customers at the selected markets, none of the respondents defecate in the open. At Rythu bazar, Kobarithota, our team observed men urinating along the railway track nearby. 60% of the respondents were not aware of the nearby PT. Our team observed that there were no signage directing people to the nearest PTs.

Figure 44 KIIs with customers and shopkeepers at Rythu Bazar



All respondents were willing to pay Rs.2 per use as user charges for a well maintained toilet nearby. One respondent was not willing to pay for urination, and preferred urinating along the railway line nearby.

c. Truck drivers and their helpers

KIIs with truck drivers, their helpers covered 40 respondents at 6 different locations. Respondents at two locations knew about the nearby public toilets but not all of them used them due to lack of cleanliness. At Akkereddy Palem truck drivers pay and park at the petrol pump and use its toilets. However the toilet is not open 24x7, and hence they reported defecating in the open. At other locations, most of the truck-drivers defecate in the open spaces along the highway and around the parking spots.

Truck-drivers are willingness to pay for Rs. 1-3 per use for urination and Rs. 2-5 per use to defecate.

Figure 45 KIIs with Truckers drivers (left), truck driver displaying his parking bill.



d. Construction workers

The KIIs for construction workers have been carried out at large public and private construction sites at different locations the city. Five construction sites were visited of which four were private and one was public works. At two locations, some construction workers resided at the site. Fifty one people were interviewed, of which 41 were women.

Only two sites had toilets made of tin-sheets, and had water facility for the construction workers. Female construction workers at both the sites which with toilet are not satisfied with the facility since the toilets were not clean. At the sites with toilets for construction workers, three-fourths of the respondents used them. At other sites, most of the workers defecate in the open.

Figure 46 Toilets at a construction site (left); interview with a construction worker (right)



One of the sites (at the new ITI Junction) had a public toilet nearby, but the construction workers found it unaffordable. The public works site had toilets, but they were inaccessible to the construction workers.

At all but one site, respondents expressed willingness to use a public/mobile toilet provided by GVMC.

4.5. Conclusion

The most significant finding of the FGDs is that merely ensuring 100% IHHT coverage is not sufficient for ensuring that open defecation is curbed. Reasons such as habit, large family sizes, inadequate water at homes, and fear of the septic tank/ soak-pit getting filled up have surfaced during the survey. Further, many households either lack space or funds to build IHHTs. At many places, the SBM subsidy is reportedly not sufficient for them to build it. Also, in many instances, they are yet awaiting the first instalment of the subsidy before work on IHHT could be commenced. Along with this, there is a small percentage of households that has expressed lack of interest in applying for IHHTs. Even in those educated households there is a prevalence of open defecation.

In public places, most of the people are not aware of the nearest public toilets. At places where participants in the KIIs were aware of the nearest PT/CTs, they were not satisfied with the cleanliness of the toilet. However at most places, people have expressed willingness to pay for using a well maintained toilet.

5. Secondary Data Collection

GVMC is organized into 11 different departments based on their roles and responsibility. UMC visited these departments to collect the secondary data enlisted by WSUP-A (Annexure 23). These eleven departments are:

- i. General Administration
- ii. Projects
- iii. Engineering
- iv. Revenue
- v. IT & Governance
- vi. Town Planning
- vii. Education
- viii. Public Health
- ix. Finance
- x. Horticulture
- xi. Under-Ground Drainage

For other relevant data, UMC consulted the Visakhapatnam Urban Development Authority (VUDA) and the Swachh Andhra Corporation (SAC).

This section provides a concise understanding of each data in terms of the following:

- Details covered/Meta-data
- Department maintaining the data
- Official/personnel who handed over the data
- Year(s) for which data was available
- Existing data collection mechanism
- Frequency of updation of data

In this section, UMC also makes suggestions for data collection and maintenance for sectors pertinent from view point of achieving the SBM objectives in the city.

Before proceeding, let us understand briefly, the administrative structure of GVMC.

5.1. Administrative Structure of GVMC

GVMC comprises of eight administrative zones including Anakapalle and Bheemunipatnam. In addition to the eight zones, there are five gram panchayats under the GVMC. GVMC's jurisdiction area expanded in 2013 to include Anakapalle, Bheemunipatnam and the five gram panchayats.

Each zone is headed by a zonal commissioner. There are three Additional Commissioners (ADCs) - ADC (General), ADC (Finance), and ADC (Projects) at the city level, who over-look the administration under each of these zonal commissioners. The Municipal Commissioner, at the city level handles the over-all municipal administration.

Although administratively integrated, data is maintained separately for the erstwhile GVMC (comprising of six zones), Anakapalle and Bheemunipatnam.

5.2. Data collected during the project

Information that was collected is organized into the following data-heads:

- Administrative
- Land-Use and natural features
- Demography
- Water Supply
- Waste Water disposal
- Storm Water Drainage
- Solid Waste Management
- Individual Household Toilets
- Public Conveniences
- School Sanitation
- Open Defecation Spots
- Health and Hygiene

All of this data collected from these departments is compiled in raw format (on a CD) as well as in the Knowledge Management Tool along with this report (refer section 6).

In this section we shall look at the data one by one.

5.2.1. Administrative

Data collected	1. Administrative details 2. Administrative boundaries
1. Administrative Details	
Details covered:	Number of wards, areas covered.
Source:	Various sources mentioned below.
Type of the document	Hard Copy
Year of the data	2016
Existing data collection mechanism:	The CCP maintains such hard-copies as a ready-reckoner. This list was for 72 wards and had information on population and area for Anakapalle, Bheemunipatnam, and the five Gram Panchayats and Special charge areas aggregated. For Anakapalle, the zonal commissioner provided a similar ready-reckoner showing the 34 wards, areas they cover, and the area of each ward. No such document was available for Bheemunipatnam
Frequency of updation:	NA
Remarks:	Information on status of IHHT construction for Anakapalle is compiled on the SAC website for 39 wards. The AutoCAD file provided by the Zonal Commissioner for Anakapalle had 34 wards. Also, census' information for Anakapalle is available for 20 wards. In this regard, the zonal commissioner has informed that there are 34 wards in the zone.
2. Administrative boundaries	
Details covered:	Administrative boundaries
Source:	Various sources mentioned below
Type of the document	Soft Copy- GIS Shapefiles (GVMC's 72 wards), AutoCAD (for Anakapalle and Bheemunipatnam)
Year of the data	GIS shapefiles- 2011 AutoCAD- 2015-16

Existing data collection mechanism:	GVMC has GIS shapefiles for the 72 wards. This was handed over by the Computer Operator in CCP's office. Administrative boundary including the five Gram Panchayats and the special charge areas was made available from the Chief City Planner, GVMC's office in AutoCAD file. The AutoCAD files for Anakapalle and Bheemunipatnam were handed over by the Zonal Commissioner and the Town Planning Officer at the zonal offices at their respective locations.
Frequency of updation:	Not done.
Remarks:	The computer operator at the CCP's office in GVMC is not really aware and well conversant with all the data available with him. Hence, at present, GVMC officials are not in a position to make use of these GIS files. AutoCAD maps for Anakapalle and Bheemunipatnam were prepared by a private firm, outsourced for the same.

5.2.2. Land-Use and natural features

Data collected	1. VUDA Master Plan (2011-2021) 2. Satellite image 3. Water Bodies
1. VUDA Master Plan	
Details covered:	VUDA Master Plan document Master Plan Map
Source:	Chief Urban Planner, Planning Department, Visakhapatnam Urban Development Authority
Type of the document	Soft Copy (PDF) for the document, AutoCAD file for the map.
Year of the data	2011
Existing data collection mechanism:	Master Plan document are maintained by the Chief Urban Planner both in hard copy (book) as well as soft copy (PDF). The map is available in AutoCAD format.
Frequency of updation:	NA
Remarks:	VUDA is responsible for preparing the master plan for the entire Visakhapatnam Metropolitan Region (VMR). GVMC, along with Anakapalle and Bheemunipatnam are a part of VMR. However, land-use classification is not available disaggregated for GVMC, Anakapalle and Bheemunipatnam. The AutoCAD file lacks clarity in its layers- various layers such as administrative boundaries and colour coding for land-use (marked using polygons of different colours) are broken and not consistent in many cases. In their present form they do not allow a justifiable processing to generate a precise map; however, UMC has generated a representative land use map for GVMC.

2. Satellite Image from NRSC	
Details covered:	Satellite image
Source:	National Remote Sensing Centre (NRSC), Hyderabad
Type of the document	Soft copy (high resolution JPEGs)
Year of the data	2016
Existing data collection mechanism:	GVMC does not maintain this data. This data is available from NRSC on payment of required amount.
Frequency of updation:	NA
Remarks:	-
3. Water Bodies	
Details covered:	Name of water bodies
Source:	Chief City Planner, Planning Department, Visakhapatnam Urban Development Authority
Type of the document	GIS shape files
Year of the data	
Existing data collection mechanism:	GVMC does not maintain this information as such, however, UMC obtained this information based on the GIS shapefiles available from the town planning department.
Frequency of updation:	NA
Remarks:	-

5.2.3. Demography

Data collected	1. Census population figures for 2001 and 2011 2. Household amenities 3. Slum population (Census) 4. Slum population (from GVMC) 5. Floating population
1. Census' population figures for 2001 and 2011	
Details covered:	Ward-wise information on the following- • Household size • Total population • Number of male, female and children • Decadal growth rate of population,
Source:	WSUP/Census of India (website)
Type of the document	MS Excel
Year of the data	2001, 2011
Existing data collection mechanism:	Census of India conducts the survey once in every decade.

Frequency of updation:	NA
Remarks:	Data for Anakapalle is available for 20 wards for the year 2011. For the year 2001, data is available for the entire city only for Anakapalle and Bheemunipatnam.
2. Household amenities	
Details covered:	Ward-wise information with figures on the number of households with the following- • Type of house/ structure • Material of roof, wall, floor • Household size • Ownership status • Main source of drinking water • Location of drinking water • Main source of lighting • Number of HHs having IHHTs • Types of waste water disposal mechanisms • Types of assets
Source:	Census of India 2011.
Type of the document	Soft copy (MS Excel document)
Year of the data	2011
Existing data collection mechanism:	-
Frequency of updation:	NA
Remarks:	The number of wards for Bheemunipatnam in this excel document are different from the number of wards in the population sheet of the census. The data is available only in percentage household format. Raw data, i.e. absolute number of households in each data is not shared by the Census in public domain.
3. Slum population (from Census)	
Details covered:	• List of slums • Notified/ Non-notified • Approx. population • Length of paved roads • System of drainage • Number of toilets-private latrines by type and CTs. • Number of electricity connections • Number of taps/public hydrants installed
Source:	WSUP
Type of the document	MS Excel

Year of the data	2011
Existing data collection mechanism:	NA
Frequency of updation:	NA
Remarks:	For Anakapalle and Bheemunipatnam, the slum list did not have ward details. UMC has made ward entries for those slums by referring to the data available from Rajiv Awas Yojana (RAY) survey.
4. Slum population (from GVMC)	
Details covered:	· List of 793 Slums · Notified/Non-notified · Number of households · Ownership of land · Infrastructure details- roads, UGD,CT, Drinking water · Low-lying · Water-logging · Unhygienic locality · Open defecation (YES/NO format)
Source:	PMAY Cell, Urban Community Department (UCD),GVMC
Type of the document	Soft copy (MS Excel)
Year of the data	2014-15
Existing data collection mechanism:	This data was compiled by the UCD department for the <i>Pradhan Mantri Awas Yojana</i> (PMAY) scheme of the central government.
Frequency of updation:	This data is surveyed and compiled only when a new scheme for slums is announced or if an existing scheme would be renewed.
Remarks:	Information was readily available from the PMAY cell in GVMC. However, infrastructure/ facility details are not available by number of households, but in YES and NO format for the entire slum. Also, geographical spread of the slums is not available. UMC has been able to map 789 slums of these 793 slums based on data available from National Urban Health Mission (NUHM)
5. Floating Population	
Details covered:	Total floating population of the city
Source:	UMC
Type of the document	NA
Year of the data	2011
Existing data collection mechanism:	Not maintained or compiled at present by any department.
Frequency of updation:	NA

Remarks:	UMC has calculated and provided this information according to the SBM-Urban guidelines. Additionally, UMC has also prepared and submitted a brief note on how to arrive at the floating population for the purpose of providing public toilets in various places in the city.
----------	---

5.2.4. Water Supply

Data collected	1. Brief Note on status of water supply in the city 2. Profile of each water supply zone 3. Water connection tariff 4. Number of water supply connections
1. Brief Note on status of water supply in the city	
Details covered:	• Total quantity of water supplied to the city per person everyday • Sources of water for the city • Water levels at reservoirs • Name of locations with Water Treatment Plants (WTPs) and numbers • Number of connections • Number of Tanker trips • Map depicting water supply sources • Proposed water supply projects
Source:	Executive Engineer, Water Supply Department, GVMC
Type of the document	Soft copy (MS Word document)
Year of the data	2015
Existing data collection mechanism:	The department prepares such brief note regularly. It is done by the Executive engineer with the help of AE's of each ward.
Frequency of updation:	Word Document updated as and when required. No particular fixed time period.
Remarks:	The map image used in the brief note and in presentations was reportedly taken from a recent DPR prepared; however, the officials were not able to provide the original source file of the master plan. Also, water supply network map was not available. UMC has prepared a representative map showing water sources and treatment plans by using the image from this document.
2. Profile of each water supply zone	
Details covered:	Water supply is monitored by an Assistant Engineer (AE) for each water supply zone. Data is collated and compiled from each AE and includes the following details: • Population (projected for the year 2015) • Number of reservoirs, • Water Treatment Plants (WTPs) • Areas served • Number of BPL and APL connections

	• Semi-bulk connections • PFs • Frequency/Duration • Number of bore-wells and tanker-trips
Source:	Executive Engineer, Water Supply Department, GVMC
Type of the document	Soft copy (MS Excel)
Year of the data	ND
Existing data collection mechanism:	The EE maintains this sheet and information can be added upon completion of new works
Frequency of updation:	Updated periodically, but the time frame not specified- as and when the AEs are called for a compilation.
Remarks:	-
3. Water Tariff	
Details covered:	Tariff for BPL and general connections
Source:	Executive Engineer, Water Supply Department, GVMC
Type of the document	Softcopy (MS Word document)
Year of the data	2016
Existing data collection mechanism:	This information is maintained as a ready-reckoner in the files of the officials concerned/involved with the process of facilitating water supply connection.
Frequency of updation:	NA
Remarks:	The information was readily available.
4. Number of water supply connections	
Details covered:	• Door Number of (address) of the connection • Type of connection (residential and non-residential) • Size of the pipe
Source:	Head, Property Tax Department
Type of the document	Soft copy (MS Excel document)
Year of the data	2010
Existing data collection mechanism:	Data from the Water Supply department supplied to the Property tax department in a CD. The Property tax department compiles it into its own software from which it can easily access and assess data. Data is maintained by the Property tax department in a software. Connections are categorized as 'residential' and 'non-residential' type only.
Frequency of updation:	As and when updated is supplied by the Water Supply Department. Also, property tax assessment that GVMC has to do every four years was last done in 2010.
Remarks:	At present, the Property tax Department is charging user charges to only those connections information of which was shared with it by the

	Water Supply department in 2010. Although the Water Supply Department keeps its own list updated, it has not shared this information. To provide information to UMC, the department exported data from its software in excel format. In this data, ward numbers were filled as '99' for a lot of connections. These connections were those that did not belong to any of the 72 wards of GVMC. UMC believes that property tax assessment can help GVMC not only locate properties that have obtained water supply connections since 2007, but also those that have various types of waste water disposal facilities.
--	---

5.2.5. Waste Water Disposal

Data collected	1. Brief note on Underground drainage system in the city 2. Number of sewer connections 3. Details of Sewage Treatment Plants (STPs)
1. Brief Note on status of water supply in the city	
Details covered:	• Status of sewerage zones • Sewage projects till year 2044 • Phase-wise UGD schemes with wards covered covering the following details: • Area and population covered • Location of STPs • length of network • commissioning date • Total number of connections • Effluent disposal • STPs under construction • Proposed STPs • Ongoing projects • Proposed projects • Funding requirement s
Source:	Executive Engineer, Under Ground Drainage (UGD) Department, GVMC
Type of the document	Soft copy (MS Word document)
Year of the data	2016
Existing data collection mechanism:	The department prepares such brief note regularly. It is done by the Executive engineer with the help of AE's of each ward.
Frequency of updation:	As and when required.
Remarks:	-

2. Number of sewer connections	
Details covered:	• Name for which connection was taken • Door Number (address) • Type of connection (residential/non-residential) • Ward number
Source:	Property tax department
Type of the document	Soft copy (MS Excel document)
Year of the data	2007
Existing data collection mechanism:	Data from the UGD Department supplied to the Property tax department in a CD. The Property tax department compiles it into its own software from which it can easily access and assess data.
Frequency of updation:	As and when updated is supplied by the UGD Department. As mentioned earlier, the Property tax department is yet to conduct assessments that it has to do every four years; this data could be updated if the assessment is done.
Remarks:	-
3. Details of STPs	
Details covered:	• Location • O&M responsibility • Disposal mechanism • Re-use of treated water (Yes/No) • Purpose recycled water used for • Inflow quantity • Frequency of tests • Treatment Level • Functional Status • Contact person
Source:	UMC
Type of the document	Soft copy (MS Excel document)
Year of the data	2016
Existing data collection mechanism:	Information has been obtained by UMC by visiting the STPs.
Frequency of updation:	NA
Remarks:	UMC has digitized the locations of the STPs on GIS.

5.2.6. Storm Water Drainage

Data collected	1. Brief note on Storm Water Drainage (SWD) in the city 2. Power Point presentation by the SWD dept. 3. Storm Water Drainage map 4. Water logging/ inundancy areas map
----------------	---

1. Brief Note on status of water supply in the city	
Details covered:	• Status of sewerage zones • Sewage projects till year 2044 • Phase-wise UGD schemes with wards covered covering the following details: • Area and population covered • Location of STPs • length of network • commissioning date • Total number of connections • Effluent disposal • STPs under construction • Proposed STPs • Ongoing projects • Proposed projects • Funding requirement s
Source:	Executive Engineer, Under Ground Drainage (UGD) Department, GVMC
Type of the document	Soft copy (MS Word document)
Year of the data	2016
Existing data collection mechanism:	The department prepares such brief note regularly. It is done by the Executive engineer with the help of AE's of each ward.
Frequency of updation:	As and when required.
Remarks:	-
2. Presentation made by SWD department	
Details covered:	• Situation analysis on number of drainage zones • Locations where drains discharge • %age length of drains that are regulated • Issues and action plan
Source:	Assistant Engineer, UGD Department, GVMC
Type of the document	Soft copy (MS Power Point Presentation)
Year of the data	2015
Existing data collection mechanism:	Such presentations are compiled by the department for meetings by referring to the brief note prepared.
Frequency of updation:	Not specified.
Remarks:	-
3. Storm Water Drainage Map	
Details covered:	• Storm water zones • Existing and proposed (master plan) drains

Source:	Assistant Engineer, UGD Department, GVMC
Type of the document	Soft copy (PDF)
Year of the data	2007
Existing data collection mechanism:	The PDF file was created during the preparation of the SWD master plan by an outsourced firm.
Frequency of updation:	NA
Remarks:	The AE has not shared the original AutoCAD file of the master plan. However, UMC has prepared a representative map on GIS using this PDF file,
4. Water-logging/ Inundancy areas Map	
Details covered:	Location of 14 water-logging areas in GVMC
Source:	Assistant Engineer, UGD Department, GVMC
Type of the document	Soft copy (AutoCAD)
Year of the data	2007
Existing data collection mechanism:	The inundancy areas were demarcated by the department based on the most frequently inundated areas in GVMC during preparation of the SWD master plan.
Frequency of updation:	Not done ever since.
Remarks:	Not available for Anakapalle and Bheemunipatnam.

5.2.7. Solid Waste Management

Data collected	1. Solid Waste Management DPR for the city 2. Annual report on Solid Waste Management
1. DPRs	
Details covered:	• General information on the city • Assessment of existing solid waste management system • Financial Aspect • Population and Waste projection • Proposed action plan and integrated MSWM plan • Proposed design for integrated waste management • Environmental Impact assessment • Institutional Strengthening and capacity building • Environmental Monitoring Plan • Existing regulatory Framework for SWM • Financial aspects of the proposed project
Source:	Computer operator, Public health department
Type of the document	Soft copy (PDF)
Year of the data	2015
Existing data	The DPR was prepared by a private consulting firm.

collection mechanism:	
Frequency of updation:	NA
Remarks:	The DPR is however not yet ratified by GVMC.
2. Annual Report on Solid Waste Management	
Details covered:	• Quantity of waste generated and processed • Location of land fill • Waste storage facilities/Containers • Transportation of waste
Source:	Sanitary Supervisor, Public Health Department, GVMC
Type of the document	Hard Copy
Year of the data	2015
Existing data collection mechanism:	This is an annual report to be submitted by the ULBs to the state urban development department.
Frequency of updation:	Annually, by collating information from the engineering section in the public health department
Remarks:	-

5.2.8. Individual Household Toilets (IHHT)

Data collected	1. Target status of SBM's IHHT construction 2. Operational guidelines for IHHT construction under SBM 3. Govt. Circular on additional IHHT guidelines- mode of construction through SLFs 4. Model TPA toilet construction agreement (Telugu)
1. Target status of SBM's IHHT construction	
Details covered:	• Ward number • Number of households verified by AE/AEE (Total, Eligible, Ineligible) • Number of beneficiary led IHHTs • Number of SLF led IHHTs Number of households with phase-wise payment and • Geo-tagging completion
Source:	Swachh Andhra Corporation (SAC) website.
Type of the document	Soft copy (MS Excel document)
Year of the data	2016
Existing data collection mechanism:	Works Inspector/AE's upload the information on the SAC website with the help of the Computer operator at the Public Health Department
Frequency of updation:	Continuously updated every fortnight on the SAC website.
Remarks:	Geo-tags that are updated by the AE/WIs on the SAC website could

	be used by GVMC or spatial assessment and evaluation of its SBM implementation.
2. Operational guidelines for IHHT construction under SBM	
Details covered:	• Constituents of District and ULB level committees • Physical verification of beneficiaries • Finalization of beneficiaries • Preconstruction activities • Materials to be used • Activities to be performed during construction • Post-construction activities • Role of SHGs • Recording and payment system
Source:	WSUP
Type of the document	MS Power Point Presentation
Year of the data	2015
Existing data collection mechanism:	Prepared for information dissemination by WSUP, based on the SBM or the state government circulars circulated to ULBs
Frequency of updation:	NA
Remarks:	-
3. Govt. Circular on additional IHHT guidelines- mode of construction through SLFs	
Details covered:	• Material Procurement process • Roles and responsibilities of District and ULB level swachhta committees • Roles and responsibilities of SLFs • Incentives for SLFs • Timelines
Source:	Computer Operator, Public Health Department
Type of the document	Soft copy (MS Word document)
Year of the data	2015
Existing data collection mechanism:	NA
Frequency of updation:	NA
Remarks:	-
4. Model TPA toilet construction agreement (Telugu)	
Details covered:	Toilet construction agreement
Source:	Computer Operator, Public Health Department
Type of the document	Soft copy (MS Word document)
Year of the data	2015

Existing data collection mechanism:	NA
Frequency of updation:	NA
Remarks:	-

5.2.9. Public Conveniences

Data collected	1. List of public and community toilets 2. List of proposed public conveniences 3. Memorandum of Agreement (MoA) between GVMC and Lotus Pvt. Ltd.
1. List of public and community toilets	
Details covered:	• Ward Number of • Area • Location (address) • Number of seats for male, female users • Present condition • Maintaining agency • When was it last repaired/upgraded
Source:	Chief Engineering (Works), Public Health Department
Type of the document	Hard Copy
Year of the data	2016
Existing data collection mechanism:	List maintained by the Chief Engineer and by the Public Health Department (PHD).
Frequency of updation:	The list is updated with the Chief Engineer with construction and operationalization of new toilets.
Remarks:	Sanitary Inspectors identify need for new public or community toilets. In most cases it is ad hoc, in the sense that a need is observed at a particular location, or even by political will. Reportedly, there is rational assessment as to number of seats and other details. Most of the public conveniences do not maintain record/register for maintenance. Routing large maintenance issues through GVMC would consume time in passing paper work through various personnel involved in administering the process.
2. List of proposed public conveniences	
Details covered:	• Zone wise list of proposed public conveniences • Number of toilet blocks • Number of seats per block • Estimated cost • Status of the work
Source:	Assistant Engineer, Works Department
Type of the	Soft copy (MS Excel document)

document	
Year of the data	2016
Existing data collection mechanism:	The list was compiled by the PHD for estimating PT/CTs for people who cannot be provided IHHTs.
Frequency of updation:	NA
Remarks:	-
3. Memorandum of Agreement between GVMC and Lotus Pvt. Ltd.	
Details covered:	
Source:	
Type of the document	Soft copy (MS Word document)
Year of the data	2016
Existing data collection mechanism:	The MoA was prepared by the engineering department for the public and community toilets contracted to Lotus Pvt. Ltd. The Public Health department is otherwise responsible forming contract between private agencies. No official has shared this contract document.
Frequency of updation:	No updation. Terms may be context/toilet specific in some cases.
Remarks:	Contract document between GVMC and the private operators is reportedly not robust. However, the engineering department has changed this with a private operator 'Lotus Pvt. Ltd'. The contract is comprehensive and it is suggested that such a practice may be followed to ensure strict regime of cleanliness and maintenance.

5.2.10. School Sanitation

Data collected	1. List of municipal schools 2. Statement showing status of toilet repairs in municipal schools 3. List of schools in Visakhapatnam (Urban), Anakapalle and Bheemunipatnam Mandals
1. List of municipal schools	
Details covered:	• Zone and Ward number. • School category (Primary/Upper Primary/High school) • Name of locality
Source:	Head of Department, Education Department, GVMC
Type of the document	Soft Copy (MS Excel document)
Year of the data	2015
Existing data collection mechanism:	The education department maintains a list of municipal schools with it. The list is kept both as excel sheet as well in paper format.
Frequency of updation:	Updated as new schools are established.
Remarks:	In order that GVMC collects school declarations for ODF declaration, it should have a list of all the schools. At present, GVMC keeps data

	on municipal schools only. A complete list of all schools is available with the state education department.
2. Statement showing status of toilet repairs in municipal schools	
Details covered:	• Name of the school • School category • Number of students (boys/girls) • Number of toilets (boys/girls) • Running water facility (Yes/No) • New toilet requirement • Doors with bolts and locks (Yes/No) • List of repairs required
Source:	Head of Department, Education Department, GVMC
Type of the document	Soft Copy (MS Excel document)
Year of the data	2015
Existing data collection mechanism:	School supervisors visit all schools, covering one school at least once in a month and assess these schools in a form.
Frequency of updation:	As above
Remarks:	-
3. List of schools in Visakhapatnam (Urban), Anakapalle and Bheemunipatnam Mandals	
Details covered:	• Mandal Code and Mandal Name • School code and school name • School type (Co-Ed/Boys/Girls) • School category • Lower and Highest class/standards offered Management
Source:	School Report Card (SRC) website ¹³ , National University of Educational Planning and Administration (NUEPA)
Type of the document	Soft copy (MS Excel document)
Year of the data	2015
Existing data collection mechanism:	Information is available for all schools in the country in this directory.
Frequency of updation:	Data is available on the website on yearly basis; which means that the data is updated every year.
Remarks:	-

5.2.11. Open Defecation (OD) spots

¹³ website link: <http://schoolreportcards.in/SRC-New/AdvanceSearch/AdvanceSearch.aspx>

Data collected	1. List of open defecation spots 2. Procedure for identification of OD spots using Whatsapp for Swachh Andhra Corporation (SAC) 3. Protocol for declaration of a ward as ODF 4. Ward ODF committee format
1. List of open defecation spots	
Details covered:	• Ward Number of • Area • Nearest landmark to identify the spot • Number of male, female and child users
Source:	WSUP
Type of the document	Soft copy (MS Word document)
Year of the data	2015
Existing data collection mechanism:	WSUP initiated the work on enlisting OD spots. Sanitary Inspectors enlisted the OD spots in their respective wards and WSUP compiled it for GVMC.
Frequency of updation:	Updation of OD spots is a continuous process.
Remarks:	The geo-tags that the SI's may generate during the updation process should be used for spatial assessment and planning.
2. Procedure for identification of OD spots using whatsapp for SAC	
Details covered:	Steps to update an OD spot
Source:	Computer Operator, Public Health Department
Type of the document	Soft copy (PDF)
Year of the data	2015
Existing data collection mechanism:	The document is shared by SAC to all the ULBs
Frequency of updation:	NA
Remarks:	-
3. Protocol for declaration of a ward as ODF	
Details covered:	Steps to update an OD spot
Source:	Computer Operator, Public Health Department
Type of the document	Soft copy (PDF)
Year of the data	2015
Existing data collection mechanism:	
Frequency of updation:	NA
Remarks:	-
4. Ward ODF committee format	

Details covered:	- List of proposed members in the ward-level committee - Details of proposed ward level committee members
Source:	SAC website
Type of the document	Soft copy (MS Excel document)
Year of the data	2016
Existing data collection mechanism:	-
Frequency of updation:	NA
Remarks:	-

5.2.12. Health and Hygiene

Data collected	- Details of Municipal dispensaries, Urban Health Centres (UHC) and First Referral Units (FRUs) - Dispensary wise reported cases for some diseases - Ward Wise incidences of major illnesses reported
1. Details of Municipal dispensaries, UHCs and FRUs	
Details covered:	- Name of the hospital/clinic - Ward number and Zone - Area covered by the health centre - Maintained by whom
Source:	Senior Medical Officer of Health (SMOH), GVMC
Type of the document	Hard Copy
Year of the data	2015
Existing data collection mechanism:	Public health department maintains an inventory of its hospitals, clinics and other health facilities.
Frequency of updation:	As and when required
Remarks:	The data was readily available.
2. Dispensary wise reported cases for some diseases	
Details covered:	- Name of dispensary - Number of cases for Diarrhoea, Fever, ARI, Dog Bite, and - Total OPDs.
Source:	Senior Medical Officer of Health (SMOH), GVMC
Type of the document	Hard Copy
Year of the data	2014, 2015
Existing data collection mechanism:	Public health department maintains an inventory of its hospitals, clinics and other health facilities.
Frequency of	As and when required

updatation:	
Remarks:	-
3. Ward Wise incidences of major illnesses reported (2014-Feb 2016)	
Details covered:	• Ward No. • Dengue • Chikungunia • Malaria
Source:	Senior Medical Officer of Health (SMOH), GVMC
Type of the document	Hard Copy
Year of the data	2014, 2015, 2016 (January and February)
Existing data collection mechanism:	A list is prepared at the end of each year
Frequency of updatation:	At the end of each year
Remarks:	-

5.3. Suggestions for improving data collection and maintenance

UMC has assessed data collection system in GVMC with a special focus on the SBM sectors. A detailed assessment has been presented in the 'Data collection system improvement report', however, a brief summary of important sectors with recommendations is presented below.

Image 42 Data collection system improvement report



Table 11 Summary of data gaps and recommendations to data collection and maintenance system

SBM component	Data gap	Recommendation
Individual Household Toilets	Data on sewer connections to SBM toilets not communicated to UGD department	Intimation could be done using an Information slip with relevant details to UGD.
	Type of disposal facility not necessarily according to SBM guideline of giving sewer connection if existing sewer line is within 30 meter distance	Whether a household lies within 30 meters could be assessed on GIS or appropriate platform since already geo-coordinates of households not having IHHT are recorded by AE/WI.
	Third party inspection not done right now	Third party inspection should be carried out to have non-biased review of usability of the SBM toilets
Community/Public toilets	Survey for how many and where Community toilets required is ad hoc in general (based on perception). SAC recommended a format for survey, but not followed.	GVMC should utilize data on number of households not having space for IHHT construction and geo-spatial database created during the survey with GVMC.
	Identification of where Public	Location of public toilets should be

SBM component	Data gap	Recommendation
	toilets should be proposed is also generally ad hoc (based on perception)	drawn from scientific analysis of existing public toilets will have to be made with all public hotspots using
	Maintenance issues at convenience informed to SI who processes information up the hierarchy to get repairs approved	Regular monitoring of toilets with two perspectives: a. Monitoring the contractor's services at the toilets b. Monitoring the services GVMC provides at the toilets
Open Defecation spots	OD spots enlisted one-time. Regular updation using SAC mobile app not yet carried out.	OD spots should be updated (adding new and deleting inactive ones) regularly
	Penalty framework for people found defecating in the open not yet instituted	Need to be formed now
		User-details at each of the existing OD spot captured during UMC's surveys could be used for behavior change activities at those locations
Building permission system and capturing information on on-site sanitation systems¹⁴	PreDCR software does not mention waste water disposal facility in its 13 points that a LTP should verify before submitting the building plan	Should be added to the list
	Site verification done by TPO/TPBOs does not focus on provision of adequate toilets and facility for safe waste water disposal	TPO/TPBOs should be asked to verify and include the same in their reports. Conversely, the Pre-DCR software which is reportedly going to be extended to them in the form of a mobile application, could also include geo-tagging the building site and the type of waste disposal facility.
Facility for disposal of waste water (UGD)		Add the following questions to the property tax reassessment form: a) Is sewerage connection available? b) If yes, 'Assessment Number'? c) If no, kind of sewage disposal facility present (with category options mentioned in the survey form).
School Sanitation	GVMC does not have list of all the schools. List of trust and other private schools with the state government.	It needs to have a list of all schools, including <i>anganwadis</i> and <i>madrasas</i>
	Education department at GVMC	Need to be apprised about it so that

¹⁴ Building permission process has been included in this list since it is felt that in order to ensure that all future developments have safe sanitation system, this permission giving process should be analyzed if it has the necessary checks for the same.

SBM component	Data gap	Recommendation
	is not aware about its role in school sanitation	they can start collecting or supporting receipt of school declarations

The secondary data includes spatial and non-spatial information and we recommend creation of a web-GIS based tool for viewing, editing and generating reports.

6. GIS and Knowledge Management database

As a part of this project, UMC has compiled all the information, both from secondary and primary sources on GIS. Also, this information is compiled and organized in a Knowledge Management (KM) tool¹⁵.

A training session was held on May 6th, 2016 at the H.R. block meeting room in GVMC. It was attended by the TPOs of GVMC apart from the UMC staff. In this meeting, UMC staff explained the participants about the use of GIS in Visakhapatnam's sanitation mapping project and briefly introduced them to the possibilities with using GIS for various activities of SBM implementation.



In the following section, the KM tool and its user manual are explained.

6.1. About the KM tool

Devised for the purpose for the sanitation mapping project in Visakhapatnam, the Knowledge Database Management (KM) Tool, developed by the Urban Management Centre (UMC), is an excel-based tool. The tool is prepared on Microsoft Excel 2013, and is compatible with lower versions of the MS Excel software.

In order to achieve the ODF objectives of SBM, GVMC would have to view, analyse, update and monitor data from various sources and departments. The KM tool will facilitate better data management for the same.

The tool incorporates features such as bringing data from multiple sources and departments as a single repository. Here, the data is compiled by filtering relevant information and is presented for assessment. The tool is dynamic in nature and data can be updated regularly. All data is presented in a print-friendly manner for reporting. The tool is a precursor to the development of a full-scale tool for management of ODF activities in the city.

This tool brings together relevant data from the following departments of GVMC:

15

Departments

1. General Administration
2. City Planning
3. Public Health
4. Education
5. Water Supply
6. Underground Drainage

Types of data

1. Administrative
2. Demography
3. Slums
4. Land Use
5. OD spots
6. Individual household toilets
7. Public and Community toilets
8. Water Supply
9. Waste Water disposal
10. Solid Waste disposal
11. Storm Water disposal
12. Schools
13. Health and morbidity

Apart from these departments, the tool also includes data collected by UMC from other sources.

There are 67 worksheets in the tool; one for the Main page and Data updation page each, nine worksheets as option pages and 56 worksheets as data-sheets. The list of data contained in the tool is given in annexure, and it contains both statistical data as well as maps.

The subsequent sections talk about the features of the tool, and provides a guide for using the tool, and describes possible enhancement of the tool.

6.2. Components of the tool

The KM tool organizes a large set of data from various departments sector-wise. The homepage carries buttons which lead the user into different sheets. This section describes the features and components of the tool.

All the worksheets that are present in the tool can be categorized into four types; so sheets are referred to with either of these four names- Main Page, Options Page, Data Updation page, and Data sheet. These are described below:

a. Main-page

This is the worksheet that the user sees on first opening the tool. It displays all major data-heads. On clicking each of these buttons, the user shall be led to the respective options page that gives him the further list of data available in each data-head.

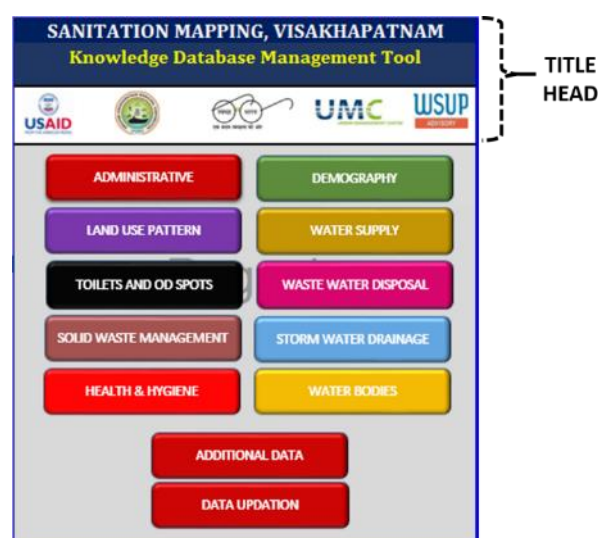


Image 43 Main-page of the KM tool

It also has two other buttons at the bottom- 'Additional Data', and the other, 'Data Updation'. On clicking the 'Additional Data', the viewer is taken to the options-page wherein they can click on the 'Survey of OD spots', 'Survey of Public Conveniences', or 'IHHT construction status' button.

b. Options-page

It opens on clicking any of the data-head button on the Main-page. Each option page displays both the data-head as well as the data sub-heads as buttons (Image 44).

Each of buttons in the data sub-head portion of the page, on being clicked, leads the viewer to the respective data-sheet.

Also, on the options-page itself, there is a button of the page- 'GO BACK' to go back to the Main-page, if desired.

c. Data-sheet

The KM-tool comprises of 42 different data-sheets including both numeric data as well as maps. Each data-sheet has two buttons in the title head- one, 'Back to the options', to go back to the Options-page, and other, 'Back to Main-page', to go back to the Main-page.

Image 44 One of the options page in the KM tool

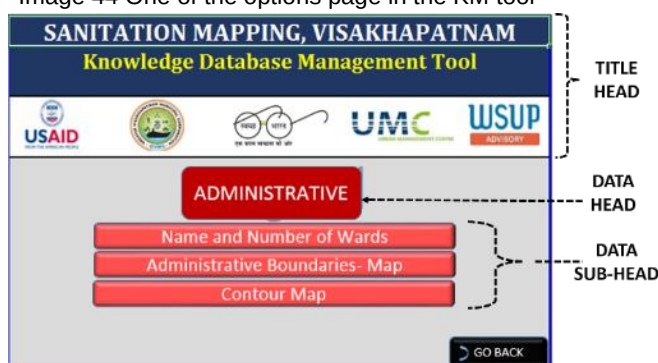


Image 45 Data sheet page







Back to Options

Back to Main Page

GREATER VISAKHAPATNAM MUNICIPAL CORPORATION

Statement showing the details of ward wise localities, area and population of GVMC-72 Wards

Zone	Area in sqkm	Population as per Census 2011
GVMC-72 Wards	533.00	1,704,439
Anakapalle	23.26	86,612
Bheemunipatnam	15.75	52,110
5 Gram Panchayats	13.82	11,388
TOTAL	585.83	1,854,549

GREATER VISAKHAPATNAM MUNICIPAL CORPORATION

Statement showing the details of ward wise localities, area and population of GVMC-72 Wards

Zone	Ward No.	Area	Area in sqkm	Population as per Census 2011
	1	Arilova Sector-III, IV, V, Chinagadili, Santhapalem, Deenadayalapuram, Srikrishana Puram, RamaKrishnapuram, Pineapple Colony, Darapalem, Siddardha, BC Colony, RamaKrishnapuram	25.74	25,017
	2	Arilova Sector-I, Sector-II, Sector-III(F), Peddagadili, Suryatheja Nagar, Thotagaruvu, Salipeta	4.65	21,919

d. Data Updation Page

This sheet opens up on clicking 'Data Updation' from the Main-Page (see Image 46). It gives options to select data-heads that the user can update. Updation of primary survey data- data on OD spots and on Public Conveniences just has a button to the survey data sheet

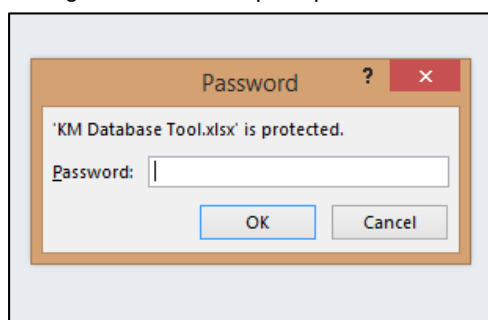
whereas, for updating data on individual household toilets, there is a drop-down for the user to choose from. Selection of any option from the drop-down leads the user to a page which has a table to be filled-in with information regarding the chosen year.

6.3. Using the tool

a. Opening the tool

You can open the KM tool by just double-clicking on file. You will see a dialog box as shown in Image 47. Enter the password.

Image 47 Password prompt in the tool



The tool starts with the Main-Page display (see Image 43) which displays the ten major sectors that all the data collected is organized into¹⁶.

b. Navigating across sheets and viewing data

You can navigate through the tool by following these steps:

1. Click on any of the data button on the Main-page. You will then reach the options page.
2. On the Options page, click any of the data sub-head buttons. You will reach the chosen data-sheet.
3. On the data-sheet, you can view the data as explained in step 4, or print it entirely, as explained in step 5.
4. On the data-sheet; to directly go to the ward-wise information on GVMC (72 wards), Anakapalle or Bheemunipatnam, you can directly click on GVMC, Anakapalle, or Bheemunipatnam in blue text, just below the title frame. (See Image 55)

Image 46 Data updation page

¹⁶ The tool will display the 'Main Page' only if it is the page last viewed just before closing the file. Hence, the user will have to make sure he/she goes to the Main Page view before closing the file.

5. To print the page, press Ctrl+P.
6. To go back to the main-page, click 'GO-BACK', else to go to any data-sheet, click on any of the given data-sheet buttons.
7. On the data-sheet page, to go back to the Options-page, click 'Back to options' button placed on top left of the page; to go back to the Main-page, click 'Back to the Main Page' button placed on the top right of the page.

c. Updating data

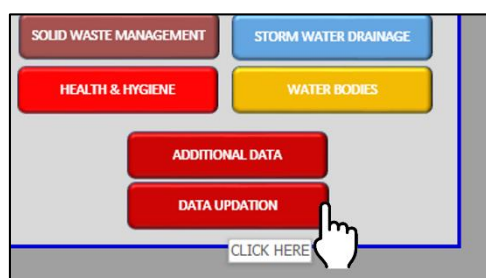
Updating the tool with additional data can be done easily as explained here.

i. Individual household toilets

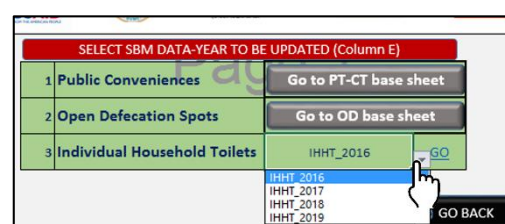
The KM tool has data on individual household toilets from two sources: one from the Census of India, for the year 2011, and other from GVMC's Public Health Department. Only the latter can be updated, since the former is updated by the Census of India every ten years.

Updating the information:

Step 1 Click 'Data Updation' on the Main Page,



Step 2 Click on the cell next to 'Individual Household Toilets' written on the Data Updation page. On clicking the cell beside the IHHT cell, the user is given options to choose from a drop-down which represents year for which the selection has to be made.



Click the desired year and click outside on 'GO'

Step 3 On clicking 'GO' button beside this drop-down, the user will be led to the sheet where he/she will have to manually enter the updated data for GVMC, Anakapalle and Bheemli as shown in image below.

Image 48 Screenshot where data for IHHT will be updated

GVMC			Anakapalle			Bheemunipatnam		
Ward No.	No. of households without toilets*	No. of IHHTs constructed** (in this year)	Ward No.	No. of households without toilets*	No. of IHHTs constructed (in this year)	Ward No.	No. of households without toilets*	No. of IHHTs constructed (in this year)
1			1A			1B		
2			2A			2B		
3			3A			3B		
4			4A			4B		
5			5A			5B		
6			6A			6B		
7			7A			7B		
8			8A			8B		
9			9A			9B		
10			10A			10B		
11			11A			11B		
12			12A			12B		
13			13A			13B		
14			14A			14B		

Step 4 Press Ctrl+S to save the changes you made.

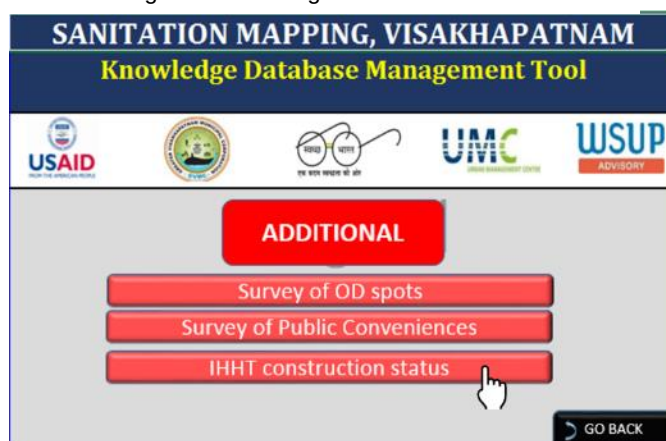
Viewing the information:

Image 49 Screenshot showing IHHT status data page

To view this information from the Main-Page, the user will have to follow these steps:

- Step 2 Click on the Individual Household Toilets from the options page to go to the page where data on IHHT construction status lies in the tool.

Image 50 Selecting IHHT status data



- Step 3 There is a 'CHOOSE' cell in cell Number of A10 of the sheet that opens. Click on the cell beside CHOOSE. This gives the users a drop-down with options to choose the data-year he/she wants to see (Image 49). Click any year and you will see data pertaining to that year.

ii. Survey data- OD spots and Public conveniences

The KM tool maintains cleaned¹⁷ survey data on OD spots and public conveniences. For OD spots, this data lies in the sheet named 'Add_1_OD survey data', and for public conveniences, it is in 'Add_2_Public conveniences'.

Before learning how to update the survey data, it would be important for the user to know the following things:

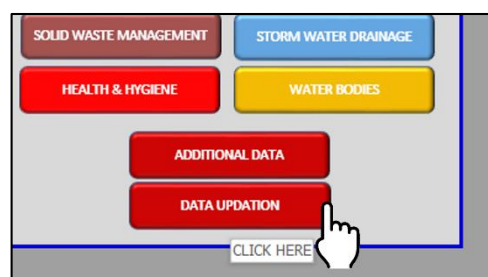
- The survey of additional OD spots and public conveniences will have to be carried out using the same survey-tool as given in the annexure¹⁸.
- Both the base data sheets have certain columns in blue fill (see Image 51). These columns contain formula and are not to be filled manually by the user.

Here, we shall see how to update data for OD spots. The same steps will be undertaken to update data on public conveniences.

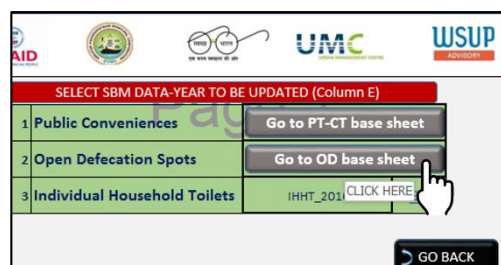
¹⁷ Once the survey is conducted, while making entries in the survey sheet, each cell has to be verified objectively so as to ensure that it is technically and grammatically free of errors. This also ensure that all the formulae in the sheet work properly. This quality-check process done on raw survey data is referred to as 'cleaned data' in this user manual.

¹⁸ For information on how to exactly use the survey-tool, refer the 'Interviewers' training manual for surveys of open defecation spots in Visakhapatnam'.

Step 1 On the Main Page, click on the 'Data updation' button.



Step 2 On the data updation page, click on 'Go to OD base sheet'.



Step 3 You will now be led to the 'Add_1_OD survey data' sheet as shown below

Image 51 View of the OD survey data sheet

SANITATION MAPPING, VISAKHAPATNAM											
Knowledge Database Management Tool											
Source: Primary Survey, Urban Management Centre, 2016											
	Date of survey	New_Unique_ID	Zone	Ward Number	Location	Address	Along Railway Track	Along Streets/Roads	Within the premises of Public Toilet/CT	On Vacant Plot	Along the Beach or Port Area
201	Monday, April 25, 2016	OD82001	8	20B	Along the Beach or Port Area	Beach Road, Bheemunipatnam	0	0	0	0	1
202	Monday, April 25, 2016	OD82201	8	22B	Along the Beach or Port Area	Beach Road, Aguvapeta, Bheemunipatnam	0	0	0	0	1
203	Monday, April 25, 2016	OD82801	8	28B	Along Streets/Roads, On Vacant Plot	Opposite Surya Nursing Home, Balaji Nagar Bypass Road,	0	1	0	1	0
204											
205											

Step 2

Make the required number of additional entries into the 'Add_1_OD survey data' sheet. Right-click on the row-head (numbered '203' – see Image 52) and click on 'insert'. This adds one row above the last entry.

Add as many rows as you require by repeating the insert step explained above.

On trying to make entry, you will be prompted for a password (see Image 53). Click on 'OK'.

Image 52 Inserting rows to add new data

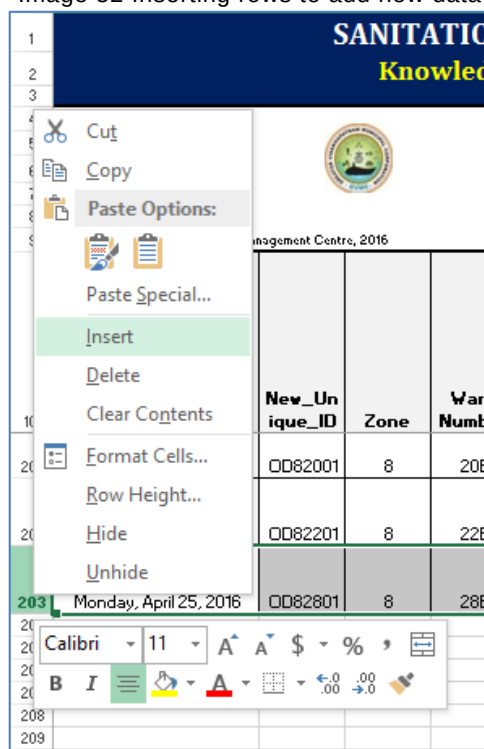
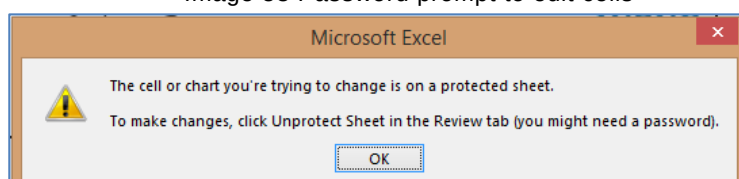
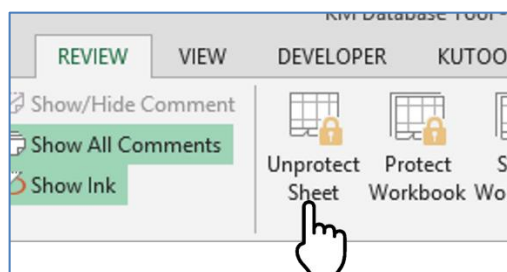


Image 53 Password prompt to edit cells



Click on 'Review' in the menu-bar and click on Unprotect Sheet and enter the password (See image below)



Make sure that all the cells in blue (as described in (ii) above) contain data. If they are empty then, drag down the cell above it which has values, over the empty cells to fill them up.

Step 3 After you have made your necessary entries, Click on 'Review' and Click on 'Protect Sheet'. Enter the same password.

You will be asked to re-enter the password. Enter it.

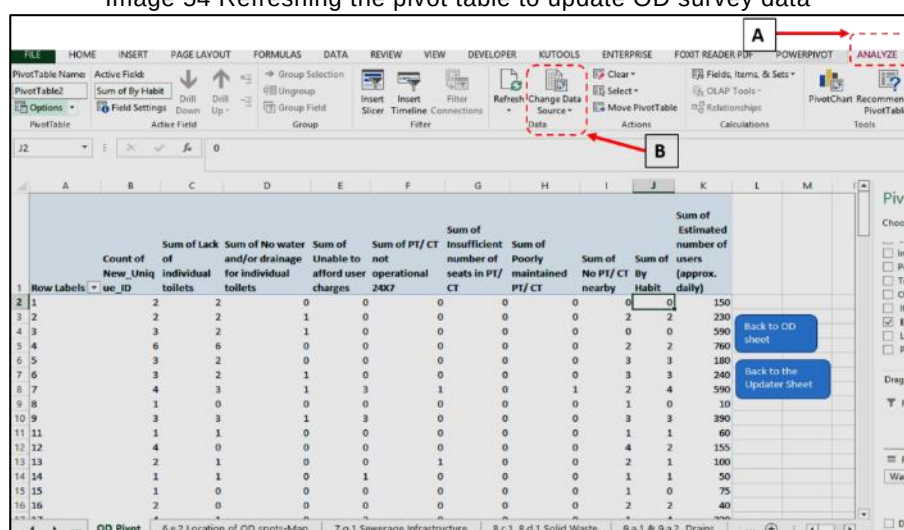
The worksheet is locked again.

Step 4 Now you need to refresh your entire sheet so that the new information you added will be transferred to sheets linked to this survey data sheet. To do this, at the top of your survey data sheet, click on the 'Go to OD pivot' button

Step 5 Once you are on the pivot sheet, click on any cell on the table you see in the 'OD pivot' sheet. On doing this you can see 'Analyse' in the menu bar appear (See 'A' in Image 54 below). Click on it and click on 'Refresh' in the ribbon showing up (see 'B' in Image 54 below).

Once this is done, the user can either choose to go back to the survey data sheet by clicking 'Back to OD sheet' or he/she can go back to the data updation sheet by clicking 'Back to the Updater sheet'.

Image 54 Refreshing the pivot table to update OD survey data



Viewing the information:

The KM-tool has now updated itself with the added information and it can be viewed in the data-sheet containing the information. From the Main-page, go to 'Toilets and OD spots', and the click on the appropriate button.

6.4. Features of the tool

The tool has the following features to make it user-friendly and to allow the user appropriate control over it.

a. Privacy:

Since the tool contains a lot of important information that will have to be stored and also updated, the user rights to the tool are given selectively. The tool is designed to be used for two kinds of users depending upon the user rights:

Advanced user- These users will have passwords to the open the sheet as well as to modify or add data to certain data that will be updated.

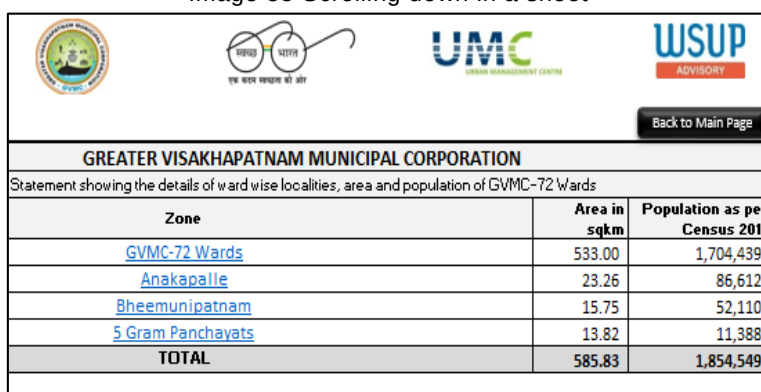
Normal user- These users can only view and print the data. They can also filter the data, if required.

UMC has submitted the tool to WSUP-A along with the passwords.

b. Quick access within sheets:

The data contained in the tool is extensive covering over 56 datasheets. At the same time, most of the data-sheets are long and need quite of a scrolling down. Most of the data-sheets have organized data into both city-wide status (into GVMC, Anakapalle, and Bheemunipatnam) and ward-wise. To make these sheets user-friendly, the tool has quick links to appropriate places within the sheet or across sheets. This will be clear once you the user goes through navigation.

Image 55 Scrolling down in a sheet



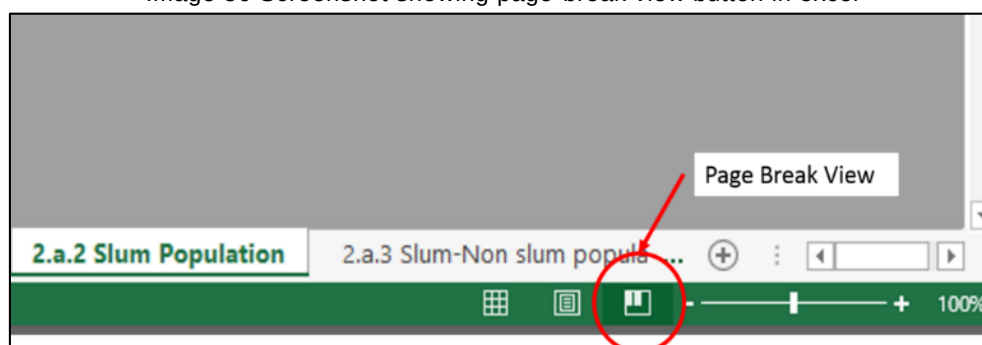
GREATER VISAKHAPATNAM MUNICIPAL CORPORATION		
Statement showing the details of ward wise localities, area and population of GVMC-72 Wards		
Zone	Area in sqkm	Population as per Census 2011
GVMC-72 Wards	533.00	1,704,439
Anakapalle	23.26	86,612
Bheemunipatnam	15.75	52,110
5 Gram Panchayats	13.82	11,388
TOTAL	585.83	1,854,549

Source: Urban Management Centre

c. Easy printing

All the worksheets are kept in the page-break view mode (see Image 56), with pages being set to appropriate page size and orientation. This saves time for the user to set the print area for printing. This also ensures that the print-outs are not broken across pages. It is recommended that users do not change from this view mode to other mode.

Image 56 Screenshot showing page-break view button in excel



Source: Urban Management Centre

6.5. Potential for further enhancement of the tool

In the next phase of development, the tool should be available online, on a web-page and on a mobile app/mobile-compatible interface. This would enable anybody to view data from anywhere. This system should also necessitate user IDs for municipal commissioner and other selected officials to access the tool individually on a computer/mobile, with special editing rights allowing them to manage relevant data for their respective departments. The online tool should allow the user to view the data over Google Maps, Bing, ESRI or other popular easy to use open source maps. The tool should enable running queries and generation of reports.

The following section presents case studies of knowledge database management of four cities. It presents learnings for GVMC from these case studies.

7. Knowledge Management Best Practices

City governments deal in a huge amount of data ranging from housing, water supply, tax collection, drainage, public grievances, transportation, etc. Often, out of absence of a system for coordination, information is not shared between departments, and the general administration of the city is devoid of a cohesive database of information. In managing the urban affairs and more significantly, in making rational planning decisions, this data becomes vital. The data is not only large, but much of it is dynamic, and needs to be managed well. (Our Pune Our Budget, 2016) (Greater London Authority, n.d.) (Boston City government, n.d.) The necessity for a database management is important for cities from two perspectives: (a) Planning for city affairs requires a rational approach as opposed to an ad hoc approach; and rational planning requires reliable, relevant and comprehensive database, (b) As the paradigm of public participation and transparency gains momentum and as more number of cities bring factual information on the city affairs to the public, maintaining the right information becomes essential.

The practice by city governments to have an easily accessible repository of all data, information and knowledge is generally defined as a Knowledge Management (KM) database or, in many cases as, Management Information System (MIS). This section gives a concise view of four cases where city governments manage their data generated within its own departments, or from other sources.

Case Study 1: Our Pune, Our Budget

Our Pune, Our Budget is a separate webpage (www.ourpuneourbudget.in). It was an initiative of the Pune Municipal Corporation (PMC) in partnership with the Centre for Environment Education (CEE). The PMC website has a link to this webpage.

The website gives both static information in the form of printable PDF documents on ward-wise budgeted activities as well as interactive maps showing index/score of the ward based on individual parameters such as daily door to door solid waste collection, drainage connection, amenities (recreational and educational), street-lights and roads, as well as an aggregate scoring based on all of them.

The website also contains information for the citizens on the contact details of the corporator in their ward, data for infrastructure and services, maps of the development (master) plan, satellite views of the city, etc.

Table 12 List of 26 sectors calculated for the prabhag indices

Prabhag Profile 1. Area 2. Population 3. Slum area 4. Slum HH	Solid waste management 5. Door to door garbage collection 6. Gate to gate garbage collection 7. Waste collection 8. Informal sector waste collection points
Sanitation 9. Societies drainage connection 10. Slums drainage connection 11. Chawls drainage collection 12. Community toilets 13. Public toilets	Public amenities 14. Anganwadi 15. Schools 16. Primary Health Centres 17. Nagari Suvidha Kendras 18. Virangula Kendra 19. Gym

	20. Garden 21. Night Shelters
Street lights 22. Street lights 23. Sustainable street lights	Roads 24. Paved roads 25. Usable Footpath 26. Storm water drainage

Image 58 Example of Prabhag 17 Sanitation Data: Pune WISE Index

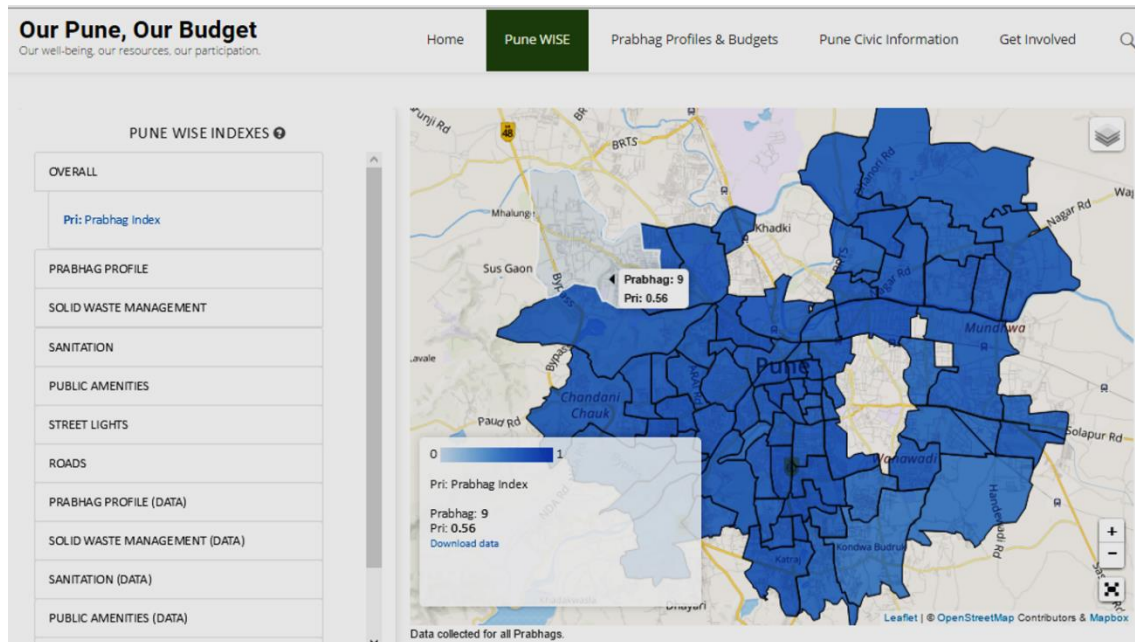
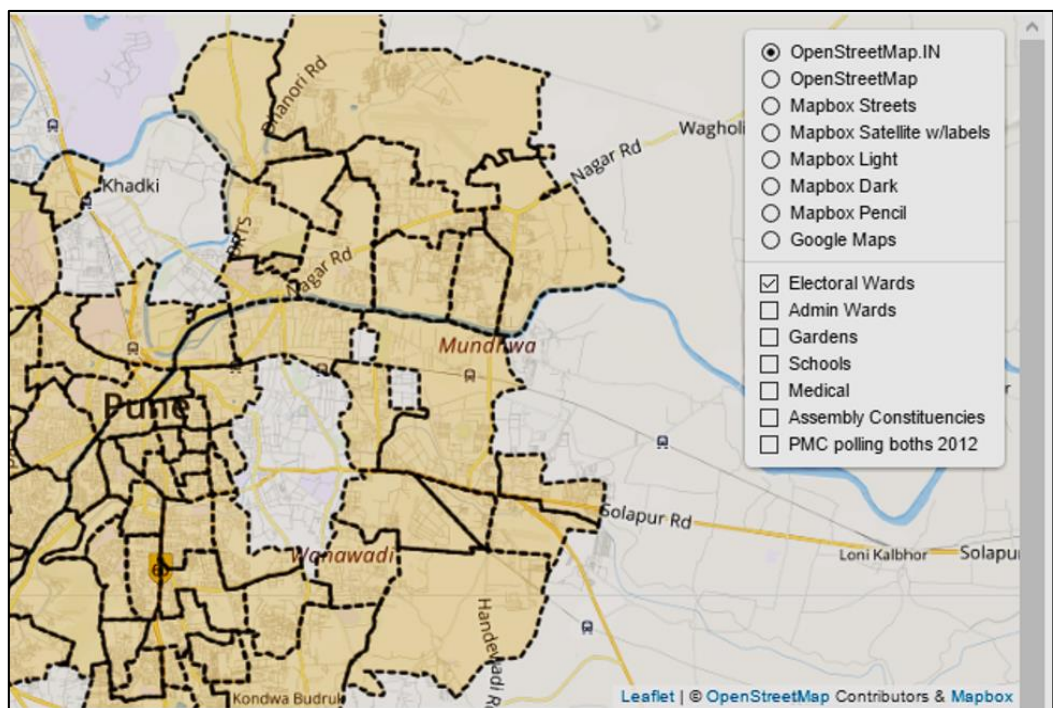


Image 57 Screenshot showing spatial information available to citizens on Our Pune Our Budget website



Summary:

Pune's database portal is mainly about making critical development information public. Through it, citizens can know of the development activities taking place in their wards, the budgetary provisions and the contact details of the corporator under which the development activities would be administered. Pune's case forms a good example for knowledge database management in the Indian context.

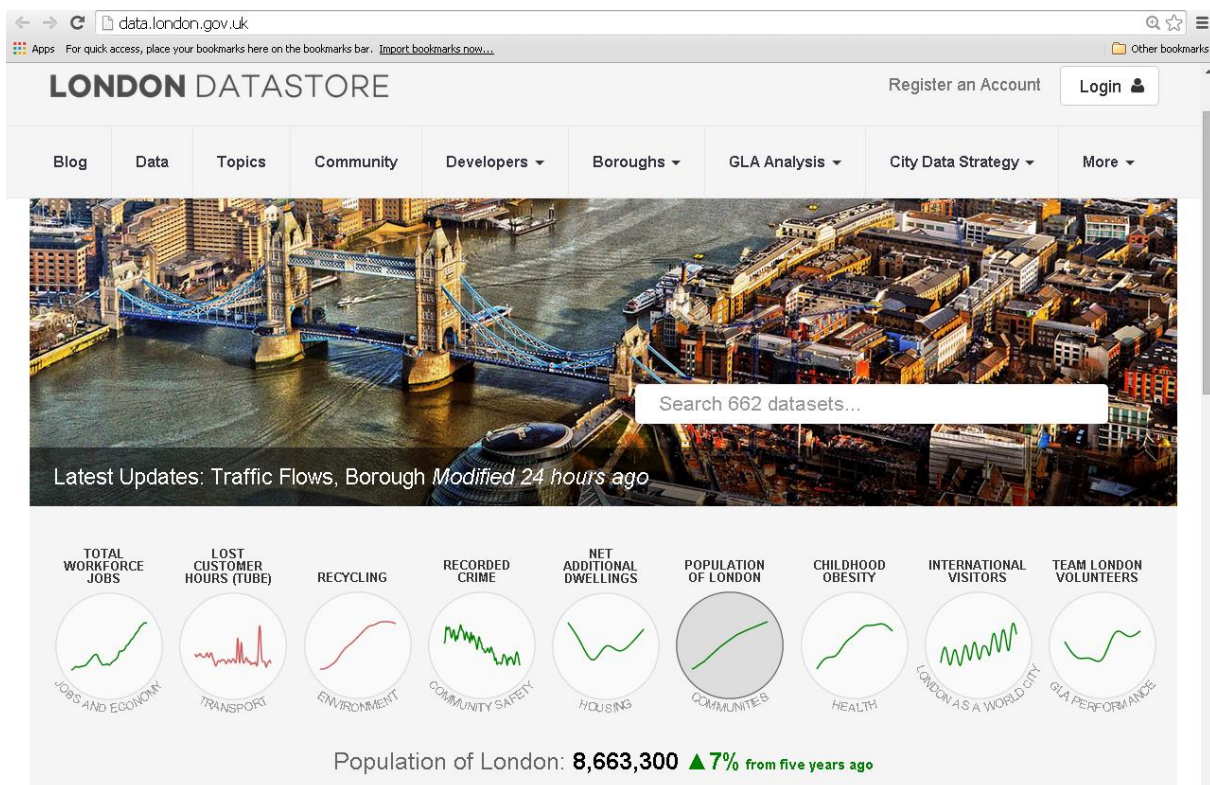
Case Study 2: London DataStore

London DataStore is a separate webportal/webpage where the Greater London Authority (GLA) provides a lot of data, reports and information from various sources. Being a free open data-sharing portal, London DataStore gives its citizens, business owners, researchers and developers the power to access 664 city data sets. The city data has partners like The Open Data Institute, The World Data on City Council, London, Smart London Board, UK's Future City Catapult, The Open Data User Group, to list among the many.

This also includes Greater London Authority analysis reports, like ward-wise well-being scores, demographic and economic analysis, labour market and employment, housing market, et cetera.

Citizens can not only view the data but also add information to certain datasets that involve their inputs- such as voting on well-being condition, commuters' driving tendencies at junctions etc.

Image 59 Screenshot London DataStore Home page



Source: <http://data.london.gov.uk/>

Image 60 Screenshot showing type of data available on London DataStore

Topics ▼	Formats ▼	Publishers ▼	Smallest Geography ▼
Demographics (183)	XLS (52)	Greater London Authority (GLA) (263)	Local Authority (368)
Employment and Skills (93)	CSV (29)	Office for National Statistics (ONS) (125)	Greater London (181)
Transparency (84)	ZIP (11)	Transport for London (TfL) (40)	Region (132)
Environment (82)	HTML (11)	Census Information Scheme (30)	Ward (88)
Housing (81)	PDF (7)	Department for Communities and Local Government (DCLG) (28)	Other (76)
Health (81)	SHP (5)	Department for Education (27)	Lower Super Output Area (33)
Transport (77)	IMG (3)	Show 44 more...	Middle Super Output Area (23)
Business and Economy (61)	TSV (2)		Output Area (13)
Education (58)	DOC (1)		
Planning (47)			
Crime and Community Safety (43)			
Young People (33)			
Sport (21)			
Art and Culture (15)			
Championing London (14)			
London 2012 (5)			

Source: <http://data.london.gov.uk/dataset>

Image 61 Screenshot of London DataStore portal showing activity Stream of each dataset

← → ↻ data.london.gov.uk/dataset/activity/london-heat-map

Apps For quick access, place your bookmarks here on the bookmarks bar. [Import bookmarks now...](#)

MAYOR OF LONDON LONDONASSEMBLY

LONDON DATASTORE Register an Account Login

Blog Data Topics Community Developers - Boroughs - GLA Analysis - City Data Strategy - More - Search Datasets... Q

🏠 / Publishers / Greater London Authority (GLA) / London Heat Map / Activity Stream

View Dataset Activity Stream

Publisher

GREATER LONDON AUTHORITY

London Heat Map

Activity Stream

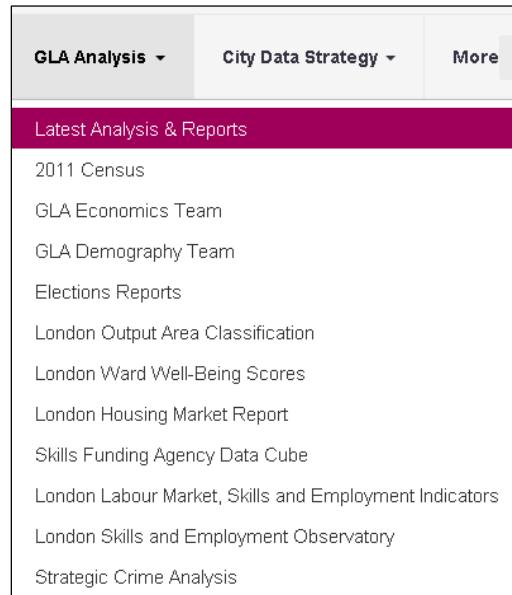
Joseph Colombeau updated the dataset **London Heat Map** 2 weeks ago

Joseph Colombeau updated the dataset **London Heat Map** 2 weeks ago

Load more...

Source: <http://data.london.gov.uk/dataset/activity/london-heat-map>

Image 62 Screenshot showing reports available on London DataStore



Source: <http://data.london.gov.uk/reports/>

Summary: London's DataStore is a portal sharing free data and statistics about London.

London DataStore's database management has the following key features:

- Documents and reports from GLA, as well as other administrations
- Data is available in multiple formats, ranging from MS excel to GIS shapefiles
- Users can update certain existing database- albeit, a user login is required
- All information seems categorized under suitable locational attribute so as to not only facilitate organization of data for the compiler, but also to enable users to refine their search based on the category of data.
- The Datastore also contains a blog, data analysis, and other information about how open data has been used to inform real-world solutions. Registered partner organisations

Case Study 3: BostonMaps

BostonMaps is available on the official webpage of the Boston city government. It provides four major mapping applications for the users. It contains huge amount of data base, from different departments which is represented on ArcGIS platform for the users. The portal was initiated by the city government with technical assistance from the Department of Innovation and Technology (DoIT), and for this, they had established a centralized, citywide GIS Team in 2007. All the city departments collate information on GIS now.

With a huge amount of historic as well as projected data, the City of Boston offers the citizens as well as the government officials to understand and analyse different aspects up to parcel or block level.

Interactive Maps – Parcel or block level data on numerous subjects, from technical to casual. For example, flood hazard plans, demographic maps, historic maps, traffic issues, etc.

Story Maps – Information about marathons, councillors, museums, galleries, festivals, et cetera on web mapping application

Open Data – Spatial and non-spatial data sets of parcel level in spreadsheet, shapefiles, kml and API formats

For example, free WiFi locations, closed roads, boundaries, Live Street Address Management, etc.

Image 63 Screenshot showing the maps portal on the Boston city government webpage

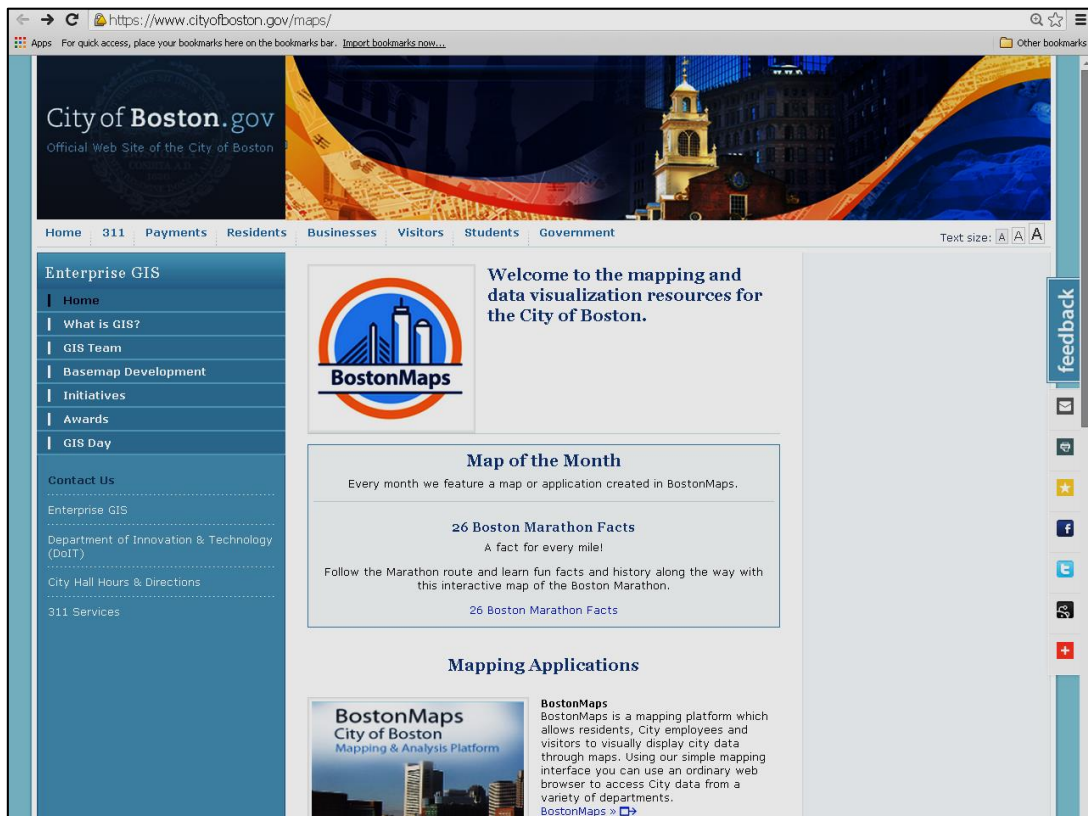
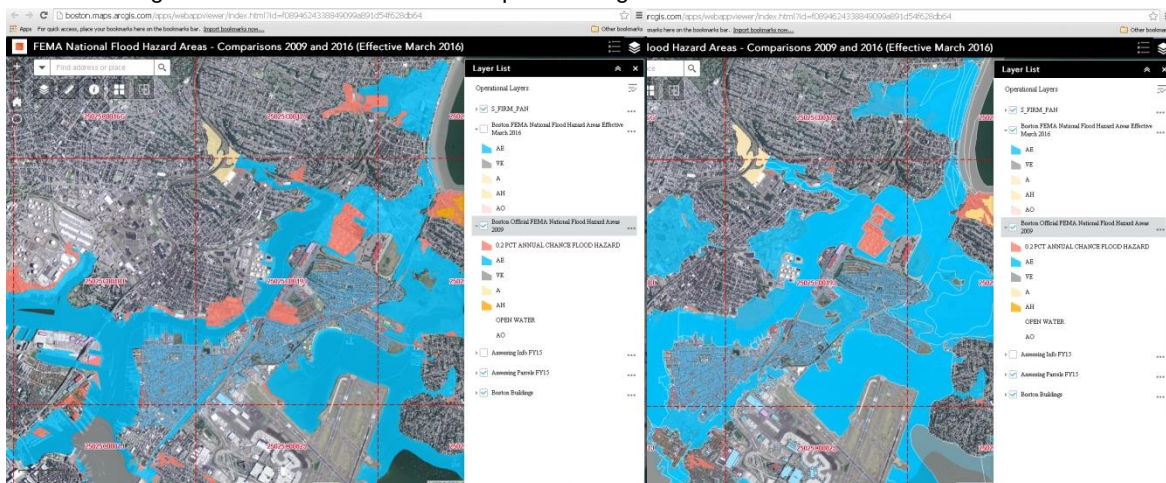


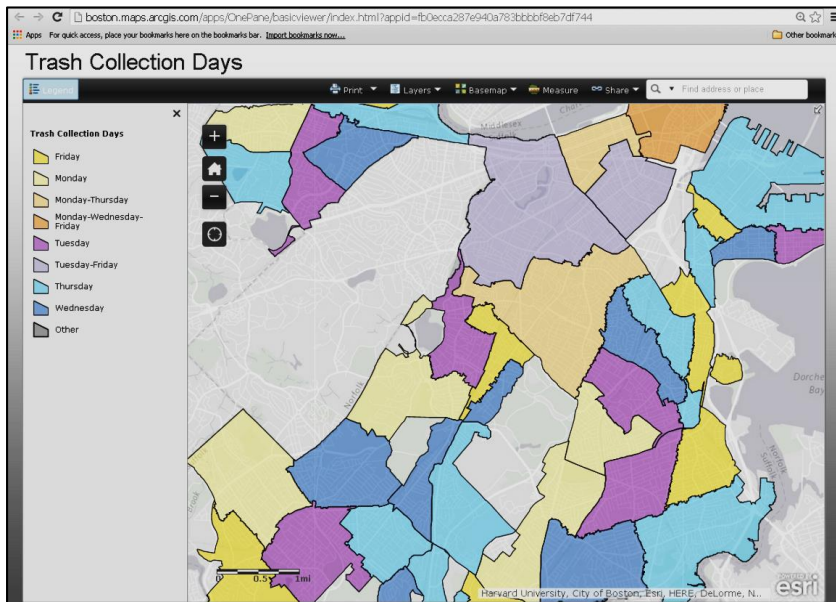
Image 64 Screenshot of BostonMaps showing Flood Hazard Areas in 2009 and 2016



Source:

<http://boston.maps.arcgis.com/apps/webappviewer/index.html?id=f0894624338849099a891d54f628db64>

Image 65 Screenshot showing interactive map for trash collection days in Boston



Summary: Boston city government's webpage provides a portal to a lot of civic information on a spatial interface.

Case Study 4: Melbourne Data

Melbourne Data is the open data platform provided by the city government of Melbourne. It provides 91 datasets including annual budget data, spatial information on a wide range of information such as pedestrian counts, parking spaces, tree counts, facilities and amenities, street furniture locations, building information, restaurants, etc. Spatial data can filter information, visualize statistical analyses, and spatial spread of these data (see Image 68).

Image 66 Screenshot of the data available on Melbourne DATA

Image 68 Screenshot showing spatial information on buildings

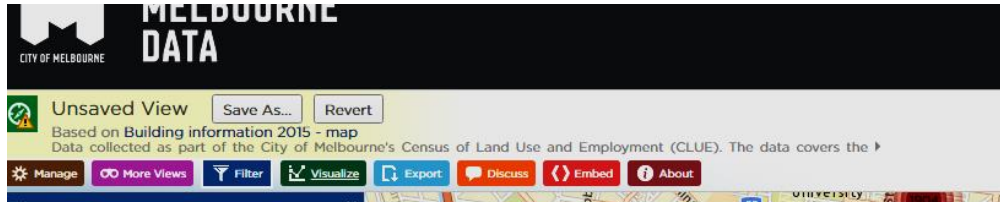


Image 69 Screenshot showing types of information available Melbourne Data

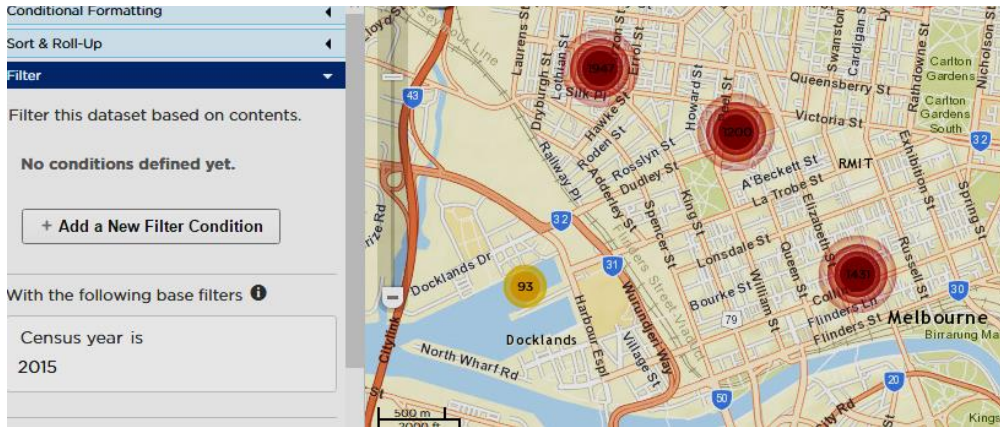


Image 67 Screenshot showing public toilet details on Melbourne Data

https://data.melbourne.vic.gov.au/Assets-Infrastructure/Map-of-Public-Toilets/56mt-tbxt

MELBOURNE DATA

ABOUT & FAQ FEEDBACK LOG IN SIGN UP

Unserved View Save As... Revert

Based on Map of Public Toilets

Public toilets known about or operated by the council. Information about the fields in >

Manage More Views Filter Visualize Export Discuss Embed About

Find in this Dataset

Public Toilet - Town Hall Melbourne (200 Collins Street)

female yes
male yes
wheelchair yes
baby_facil yes
operator City of Melbourne

View details for this row
View in Google Maps

	lat	lon	name	female	male	wheelchair	operator
1	-37.821758603308	144.947383418678	Public Toilet - Toilet 182 - C	yes	yes	yes	City of Melbo
2	-37.8068057673802	144.962648500306	Public Toilet - Toilet 146 - E	yes	no	no	City of Melbo
3	-37.8203552728411	144.973312908874	Public Toilet - Toilet 112 - A	yes	yes	yes	City of Melbo
4	-37.8210047797754	144.97593322374	Public Toilet - Toilet 111 - B	yes	yes	yes	City of Melbo
5	-37.8095460463623	144.969407118711	Public Toilet - Toilet 12 - E	no	yes	no	City of Melbo
6	-37.8212482762399	144.934526510629	Public Toilet - Yarra's Edge	yes	yes	no	City of Melbo

© 2015 City of Melbourne DATA POLICY ACCESSIBILITY PRIVACY POLICY DISCLAIMER

Summary: Melbourne Data has the following features:

- a. All documents such as statistical data on sectors, budget allocations, user charges etc.
- b. Spatial information of civic amenities, facilities, and support services such as parking spaces, hotels, restaurants, etc.
- c. The database is organized so as to allow selection of any particular sector and then the sub-sectors, either through the drop down list or the Data Explorer.

Conclusion: In order to compare and evaluate the above knowledge database management practices, they are graded on the below five key parameters:

Comprehensiveness- the range of data available on the knowledge management portal from planning documents, civic information, information on various kinds of public and private services, amenities, etc.

Level of disaggregation- the level spatial disaggregation that the knowledge management portal gives the users data for. It may be at the city-level, ward-level, building block level, or all of these.

Dynamic/ Static information- cities can have data which, by nature, would be either dynamic or static. Data on development plans, government circulars etc. would be static whereas information on fines collected every day, parking-space availability etc. would be dynamic.

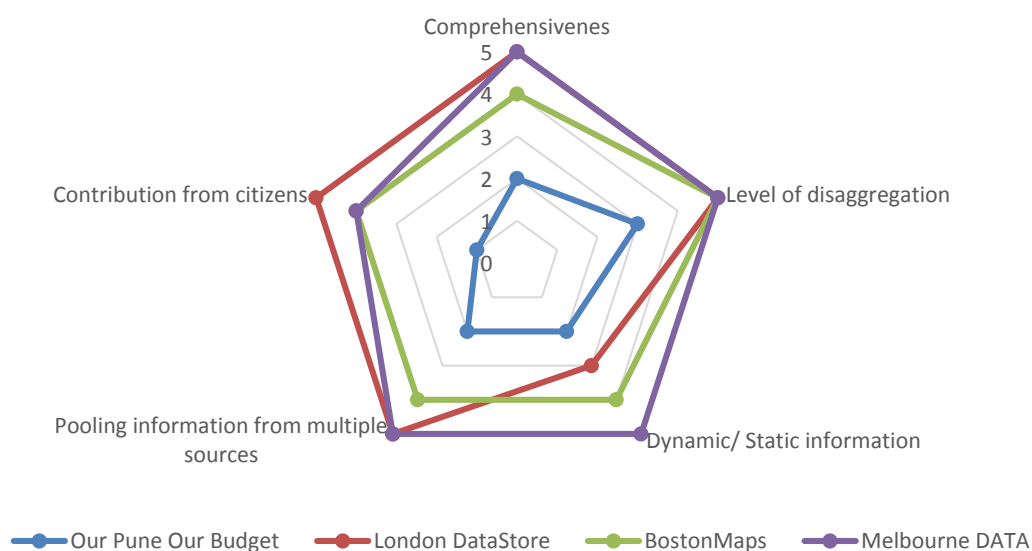
Pooling information from multiple sources- Since, more often than not, there are multiple agencies dealing with the city affairs, a complete information about the city would require pooling of information from various sources.

Contribution from citizens- Some portals make information exchange available both-ways. This involves citizens updating information on some data-sets such as accident-prone scores of various junctions, quality of public toilets, perception of well-being, etc. Involving citizen's participation not only helps capture important data, but also encourages them to get involved into city's statistics.

Based on these parameters, each of the above case studies are scored out of 5; 1 being the lowest and 5 being the highest score¹⁹.

¹⁹ The scores are based on UMC's own judgment made after going through the information available on the respective KM practices in each city.

Figure 47 Assessment of selected Knowledge Management Case Studies



Although Pune's case scores lower than the rest, it may be recalled that the purpose of Our Pune Our Budget specific to bringing budget information and its implementation to its citizens. However, based on study of all of these cases, the following key features for a good database management system can be enlisted:

- Making information on city affairs public to the citizens to create awareness
- Data is organized well so as to enable users reach their desired dataset easily. This is done by organizing all the data under suitable heads and having appropriate number of attributes so that a data-set that belongs to more than one category is shown in each of those categories.
- Data that is represented spatially, is available for download in different formats. This means that during storage of the data into the portal, it has to be ensured that it can be exported in multiple formats
- Some kinds of data can be edited by users. Cities do this by identifying such data and enable live updation possible by users, through logging-in facility to the portal's database.

Although not explicit, it should be understood that sharing information and allowing a wide range of user-friendly facilities on the knowledge management portal must have required a proper organization of the data, its metadata, and other attributes. Also, it rests on a systematic database construction (a continuous collection and compilation).

8. Recommendations

Based on UMC's own understanding of the sector, field surveys and discussions with officials in GVMC during secondary data collection, UMC recommends the following in order to buttress the existing activities in GVMC to achieve its ODF objectives:

1. **Generating demand for IHHTs through local-level IEC:** GVMC has already undergone the process of enlisting households that do not have toilets, and in the process, it has also disseminated information as to how to apply and avail of the benefits under the SBM scheme. However it has been found that, a lot of poor households find it financially burdening to shell out (the temporary) money, even if the money was reimbursed after some time. Some households have expressed lack of interest in the scheme too. Add on this the systemic particularities of toilet provision that do not make achieving toilet coverage easily- even though SBM maintains that toilet provision should be carried out irrespective of land tenure, a lot of applications for IHHTs become fruitless due to land disputes.
 - i. OD ward committee is responsible to carry out behaviour change activities and also to ensure every household has access to toilet. In this regard, the ODF coordination committee is a major player in ensuring everyone has toilets and that they do not defecate in the open. It needs to motivate households in slums that have heard about the SBM scheme and yet have either not applied for toilets for lack of interest, or find it financially burdensome.
 - ii. Some slum dwellers have reported that they find the interim period between their having shelled out some money for the SBM toilet and the final payment upon completion of construction, financially discouraging. GVMC needs to re-assess the system to check if the time-frame for approval of applications and of disbursing the SBM money at any stage can be shortened. The ODF committee, on their part, need to ensure that the slum dwellers understand that construction of the toilets is funded by the government, under this scheme.
2. **Behaviour change campaigns to stop people from defecating in the open:** Behaviour change campaigns are already being conducted in various parts of the city. Despite this, there are people who prefer defecating in the open out of habit. With the help of ODF committee, GVMC needs to identify such people, and ensure that suitable tactics for behaviour change activities are employed.
3. **Capturing them young:** At around 70% of the OD spots in the city, children (below 5 years) defecate in the open. Since, arresting this behaviour can be done best at young age, it is suggested that behaviour change activities target children. Also, schools in the city should ensure safe and healthy sanitary practices are taught to the children.
4. **Enforcing public health by-laws stringently:** Constituting a penalization framework to penalize open defecators has been indicated as pivotal in the ODF guidelines under SBM. GVMC needs to create this at an early basis so that people are discouraged to defecate in open before declaring any of its wards ODF.

5. Ensuring toilets are designed properly: PT/CTs in the city had many flaws such as lack of design features for people with special needs (physically challenged, differently abled, elderly, pregnant women) and for children.

- i. GVMC needs to ensure its PT/CTs have ramps and sufficient width inside its cubicles for wheel-chairs, grab-bars inside the toilets, at least one western toilet seat for men as well as women. Additionally, it needs to ensure that proper design consideration is given to day-light and ventilation.
- ii. KIIs revealed that many people do not know about their nearest PT/CT and as a consequence, defecate/urinate in the open. At present, there are no signage in the city that inform citizens about locations of public conveniences. It is recommended that GVMC installs adequate signage at all public places.

6. Ensuring toilets are built at the right locations: It is very important that provision of public conveniences, both community and public, is made through a rational assessment of demand which would entail micro-planning exercise including parameters such space requirements, availability, distance within which a user without IHHT would be willing to walk to the toilet and existing coverage of IHHTs.

For public toilets UMC recommends that GVMC undertakes an exercise of creating an inventory of public places and conducting a footfall count at these places with the help of sanitary inspectors. This is elaborated in the advisory note presented following this section.

7. Maintaining PT/CTs right: Issues about improper O&M of toilets collectively sum up as the third major reason for open defecation after Lack of access to toilets and Habit. In order to ensure that O&M is done well, UMC recommends the following:

- i. Survey data reveal that toilet conditions in those PT/CTs where private operators run them is better than those where GVMC run them. However, since it has also been observed that private operators lack capacity to manage multiple PT/CTs well, it is recommended that GVMC assesses capacity of the private sector for O&M of PT/CTs. If required, it can also explore possibilities of (a) building capacity of existing local private sector and encourage incubation of new private sector firms, (b) introduce bulk performance-based O&M contracts that attract national facilities management companies that includes provision for a strict and transparent monitoring regime and capturing user feedback.
- ii. To ensure that all PT/CTs are well managed, GVMC should initiate a system whereby each PT/CT is checked for its infrastructural adequacy (if repairs are required), cleanliness and other maintenance issues, and to ensure that they are resolved. This should be done regularly.
- iii. GVMC should undertake a structural assessment of these toilets in order to decide if they need to be demolished or if they could be still retrofitted

- iv. Prepare a plan to cover all the PT/CTs by a municipal water supply and sewer connections.
8. **Optimal utilization of semi-public toilets:** It needs to be realized that it would not be practically possible to cater to every single person's needs cannot through public toilet coverage. This is to say that it would be impossible to make public toilets along all the roads and every public hotspot. The most practical solution to this dilemma hence, would be to bring the semi-public toilets into this realm. This means bringing toilets in shopping complexes, street-shops, petrol-pumps, restaurants into use for commuters. It doesn't mean that at this moment owners of such premises are vehemently opposed to the idea of commuters or passer-by's using toilet facilities inside their premises, but there needs to be awareness about how people can still utilize such facilities instead of choosing to defecate out in the open, even if it were only for the absence of a public toilet where they need.

While toilets at places such as shopping malls are free, owners of these semi-public toilets can choose to charge per use. This will also have to be followed with ensuring that people practice etiquettes while using such semi-public facilities so that there may be no reluctance to opening up of semi-public toilets for the public. This will need behaviour change campaigns across the city and a system for penalizing them.

9. **Prepare a faecal-sludge management plan:** At present, GVMC does not provide Faecal Sludge Management (FSM) services; however, since there are 65% PT/CTs that dispose their waste water into septic-tanks or soak-pits, it should be ensured that these are cleaned at appropriate intervals. In order that GVMC may be able to monitor this, it will have to take the following steps:
- i. To ensure that all new buildings have a safe and adequate waste water disposal facility, it is necessary that the Pre-DCR software makes it mandatory to submit detailed information regarding it during submission of building plans. Site inspection reports submitted by the TPO/TPBOs should also mandatorily should also include verification of the same.
 - ii. Undertake property tax assessment, which has been long over-due since 2014. While that is done, GVMC should also collect information on the type of water and waste disposal facility available with each property. This will bring to it, information on illegal/unregistered connections.
 - iii. Utilize the geo-tag information collected through the PreDCR software of the TPOs/TPBOs during their site verification to collect information on the category of waste disposal facility. GVMC could then monitor these buildings whether they undertake sludge removal activity at regular intervals.
 - iv. Utilize the geo-tag information of IHHTs on GIS platform to be able to make spatial assessments such as those IHHTs with septic tanks/ soak-pits that might come under eventual implementation of UGD master plan.

10. **Prepare a Web-GIS for sanitation using KM tool:** the KM tool prepared by UMC has organized data that would guide future development into a web-GIS based platform. In the next phase of development, the tool should be available online, on a web-page and on a mobile app/mobile compatible interface. This would enable anybody to view data from anywhere. User IDs for municipal officials to access the tool individually on a computer/mobile, allowing them to manage relevant data for their respective departments. The online tool should allow the user to view the data over Google Maps. The tool should also enable running queries and generation of reports.

Advisory note on planning public toilets in commercial areas as per the SBM (Draft)

Sanitation Mapping Visakhapatnam Capacity Building for Swachh Bharat Mission (Urban)

Water and Sanitation for the Urban Poor-Advisory (WSUP-A)
and
Urban Management Centre (UMC)

September 2016

The Swachh Bharat Mission (SBM) states that a public toilet should be available within one kilometre of all commercial areas in the city. The SBM however does not define a commercial area but we assume it includes areas where goods and services are being sold including markets, transit nodes, open spaces, recreational areas and other places of public congregation.

The Greater Visakhapatnam Municipal Corporation (GVMC) faces three key questions in order to conform to the requirements listed by the SBM. These are:

- How to define commercial areas in Visakhapatnam?
- How can GVMC estimate the floating population at each of the commercial area?
- Where to locate public toilets in commercial areas?

WSUP-A and UMC have prepared this advisory note to answer these questions. These are listed below

1. How to define commercial areas?

Conventional definition of commercial areas includes land designated as 'Commercial' in the city master plans prepared under the town and country planning acts of respective states in India. These commercial areas are land parcels designated for construction of buildings to be used for sale and purchase of goods and services.

In reality however, commercial areas also include vending spaces and 'mixed' land use allowing certain percentage of commercial activity on land designated for other uses. Then there are open public and recreational areas such as parks, beaches, squares and open grounds where some commercial activity takes place.

We recognise that commercial area can further be sub-divided into

- (a) Privately owned land designated as commercial or mixed (allowing some commercial activity), referred to as the 'private commercial domain'
- (b) Urban local body (ULB) owned 'public domain' comprising roads, footpath, squares and other similar spaces not marked as plots but which host commercial activity

In (a), the building norms should ideally ensure provision of toilets for permanent and temporary occupants of the buildings. In most of the inner core areas of Indian cities, the land use and the built fabric has undergone substantial changes and many markets/ commercial areas do not conform to the toilet provision norms as per their local building bye-laws. In such cases, the ULB should provide public toilet facilities.

In (b), the ULBs should provide public toilets for all people using this public domain.

The GVMC should identify designated commercial areas on the city map and provide public toilets within one kilometre of any point in the identified commercial areas. Likewise, GVMC should also list vending areas (from a vending plan, if prepared) and provide public toilets.

Example of private commercial and public domains

Connaught Place in New Delhi, has building housing show-rooms, restaurants and offices which have toilets as per their applicable building norms. Outside the buildings, there are corridors, parking spaces, vending areas and parks with commercial activity but are not catered by the toilets inside the buildings. Such spaces in commercial areas require public toilets.

Another example includes the Char Minar and its surrounding markets in Hyderabad. The markets although designated as 'commercial' have evolved over a period of time and many buildings do not have their own toilets. In such cases, the ULBs should provide public toilets for the 'private commercial domain' and to the informal markets in the 'public domain'.

Although not stated explicitly by the SBM, GVMC should provide public toilets at transit nodes, institutional areas and areas of public/ civic amenities.

2. How to estimate number of users of public toilets?

Floating population is defined as persons without any normal residence in the city (Ministry of Statistics and Programme Implementation, 2005). Conventionally, public toilets are planned for their adequacy based on the floating population estimates. We feel that floating population alone cannot form the basis of planning public toilets. Public toilets also cater to the city's resident population that use public spaces such as markets, transit areas, institutional areas and open spaces.

A survey to count the number of visitors (or footfalls) at each location form a more reliable basis for estimating the public toilet seats required at a location. GVMC should conduct a footfall survey of the formal and informal commercial areas where public toilets exist, and then assess their adequacy. GVMC should also conduct a footfall survey at commercial areas where public toilets do not exist, and provide new public toilets.

The BIS states the standards for provision of public toilet seats in fruits and vegetable markets as urinals – not less than 2 for 50 persons, WC – minimum 2 and additional 1 for every 50 persons, ablution taps – minimum 2 and additional 1 for every 50 persons and specifies that separate and adequate provision for WC shall be made for women (Bureau of Indian Standards, 1993, p. 14). Other than fruits and vegetable markets, the BIS or any other source does not specify standards for other types of markets and public areas.

The URDPFI Guidelines, 2014 suggest provision of public toilets at every 1 km on roads and for open areas, including parks, plazas, open air theatre, swimming area, car parks and fuel stations (Ministry of Urban Development, 2015, p. 334). The guidelines suggest equal number of seats for men and women but do not specify the number of visitors per seat. The Bureau of Indian Standards (BIS) provides number users per toilet seats for men and women in office buildings, hostel buildings, transit nodes, hospitals, markets, factories, concert halls/ cinemas/ theatres (BIS Code 1172:1993) and for school buildings (BIS Code 8827:1978),

In the absence of clear norms for provision of public toilet seats for a specified number of visitors, we suggest that the norms for terminal stations and bus terminals from BIS 1172:1993 may be adopted for public areas.

The minimum sanitary convenience to be provided at any railway station, bus station or bus terminal and seaports shall be as given below:

Nature of Station	WC for Males	WC for Females	Urinals for Males Only
Junction stations and intermediate stations and bus station	3 for first 1,000 persons and 1 for every additional 1,000 persons or part thereof	4 for first 1,000 persons and 1 for every additional 1,000 persons	4 for every 1,000 persons and 1 for every additional 1,000 persons
Terminal stations and bus terminals	4 for first 1,000 persons and 1 for every subsequent 1,000 persons or part thereof	5 for first 1,000 persons and 1 for every subsequent 2,000 persons or part thereof	6 for first 1,000 persons and 1 for every subsequent 1,000 persons or part thereof

Source: (Bureau of Indian Standards, 1993, p. 3)

3. Where to locate public toilets in commercial areas?

After defining the eligible areas for provision of public toilets and laying out programmatic requirements of each such facility, the GVMC should undertake a micro-planning exercise to identify the suitable site and design the facility in context of the site and not a template design. GVMC should ensure appropriate signage in the market directing visitors to the nearest public toilet.

The design should conform to the standards laid out by the NBC, SBM, Persons With Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995. and applicable local laws.

The GVMC should undertake consultation with the occupants of the commercial area to detail our specific requirements. The GVMC should also explore possibilities of handing over O&M of the public toilet to the market association, if any.

References

- Boston City government. (n.d.). *BostonMaps*. Retrieved from www.cityofboston.gov
- Bureau of Indian Standards. (1993). *Code of basic requirements for water supply, drainage and sanitation*. New Delhi: Bureau of Indian Standards. Retrieved September 05, 2016, from <https://law.resource.org/pub/in/bis/S03/is.1172.1993.pdf>
- Bureau of Indian Standards. (2007). IS 1172 : 1993 (Reaffirmed 2007). *Code of Basic Requirements for Water Supply, Drainage and Sanitation (Fourth Revision)*.
- Census. (2011).
- Elledge, M., & McClatchey, M. (2013). India, Urban Sanitation, and the Toilet Challenge. *Research Triangle Institute (RTI) International*.
- Greater London Authority. (n.d.). *London DataStore*. Retrieved from www.data.london.gov.uk
- Greater Visakhapatnam Municipal Corporation. (2016, August 1). Retrieved from <https://www.gvmc.gov.in>:
<https://www.gvmc.gov.in/gvmc/index.php/members/introduction>
- India Today. (2016, August 1). Retrieved from <http://indiatoday.intoday.in>:
<http://indiatoday.intoday.in/story/cleanliness-ranking-for-73-cities-is-out-mysuru-cleanest-modis-varanasi-among-dirtiest/1/596317.html>
- Indian Institute for Human Settlements. (2014). *Urban Water Supply & Sanitation in India*.
- Melbourne city government. (n.d.). Retrieved from www.data.melbourne.vic.gov.au
- Ministry of Statistics and Programme Implementation. (2005). *Major Concepts and Definitions: NSS 61st Round, National Data Bank for Socio-Religious Categories*. Retrieved September 05, 2016, from Ministry of Statistics and Programme Implementation: http://mospi.nic.in/mospi_new/upload/nssso/concepts_61R.pdf
- Ministry of Urban Development. (2015). *Urban and Regional Development Plans Formulation and Implementation Guidelines*. Ministry of Urban Development, Government of India. Retrieved September 05, 2016, from http://moud.gov.in/sites/upload_files/moud/files/URDPFI%20Guidelines%20Vol%20I.pdf
- Ministry of Urban Development, Government of India. (2016, August 1). Retrieved from Press Information Bureau, Government of India Web site: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=124639>

Our Pune Our Budget. (2016). *Our Pune Our Budget*. Retrieved from www.ourpuneourbudget.in

PMAY. (2015).

Public Health Department, GVMC. (2015). List of proposed public and community toilets. Visakhapatnam, Andhra Pradesh.

UNICEF. (2016, August 1). *UNICEF*. Retrieved from <http://unicef.in/Whatwedo/11/Eliminate-Open-Defecation>

Water supply department. (2015).

World Health Organization. (2009). Retrieved August 1, 2016, from World Health Organization Website:
http://www.who.int/water_sanitation_health/takingcharge.html

Annexure

Annexure 1 Tool for survey of open defecation spots in GVMC



Survey of Open Defecation (OD) Spots in GVMC

1. Unique ID:

2. Ward Number:

3. Location:

- | | |
|--|---|
| ☐ Along Railway Track | ☐ Along Water Body |
| ☐ Along Streets/ Roads | ☐ Along footpath |
| ☐ Within the premises of Public toilet/CT | ☐ Near Open Drain |
| ☐ On Vacant Plot | ☐ Along a garden or public place |
| ☐ Along the beach or port area | ☐ Others |

4. Address:
.....

5. Respondent's name:
.....

6. Relationship of Respondent with OD spot (multiple choice)

- | | | |
|---|--|---|
| ☐ User | ☐ Hawker/ Vendor | ☐ Nearby resident |
| ☐ Sanitation worker/ cleaner | ☐ Operator of the PT/ CT nearby | ☐ Others (specify) |

7. Is the spot still being used for defecating in the open?

- ☐ Yes ☐ No

8. How long this OD spot has been here?

- ☐ Less than 1 year ☐ 1-2 years ☐ More than 2 years

9. Reasons reported by respondents for open defecation?

- | | |
|---|--|
| ☐ Lack of individual toilets | ☐ No water and/or drainage for individual toilets |
| ☐ Unable to afford user charges | ☐ PT/ CT not operational 24X7 |
| ☐ Insufficient number of seats in PT/ CT | ☐ Poorly maintained PT/ CT |
| ☐ No PT/ CT nearby | ☐ By Habit |

10. Types of users:

- ☐ Slum dweller ☐ Daily Commuter



- | | |
|---|--|
| ☐ Construction worker | ☐ Industrial worker |
| ☐ Truckers | ☐ Port workers |
| ☐ Shops/ market (customers/ owners/ workers) | ☐ Others (specify): |

11. Estimated number of users (approx. daily):

12. List of colonies/ pockets, slums/ lanes from where users come:

13. Predominant gender of users:

- ☐ Male ☐ Female ☐ Equally by both

14. Do child use this OD spot below the 5 years?

- ☐ Yes ☐ No

15. How often is the spot cleaned:

- ☐ Daily ☐ 2-3 times a week ☐ Once in a week ☐ Twice in month
☐ Once in month ☐ Irregular cleaning ☐ Not cleaned at all

16. Methods of cleaning the spot:

- | | |
|---|--|
| ☐ Manually | ☐ Nuisance tanker (Jetting) |
| ☐ Spreading of Bleaching powder or lime powder | ☐ Fogging |
| ☐ No cleaned at all | ☐ Others |

17. Employer of the Cleaner:

- | | |
|--|--|
| ☐ GVMC employee | ☐ Private Contractor |
| ☐ Cleaned by port trust | ☐ Community (Residents/ Shops/ Vendors) |
| ☐ Others: | |

Annexure 2 Tool for survey of public conveniences



General Information

Name of Surveyor			
Date of Survey	dd / mm / yyyy		
Unit ID no:			
Ward Name:			
Landmark:			
Address:			
Type of Facility (tick)	☐ Community Toilet	☐ Public Toilet	☐ Urinal Only
Mode of operation	☐ Free to use	☐ Pay & Use	☐ Allotted to HHs
Name of the caretaker			
Phone number of the caretaker			
Does the facility have separate attendant and cleaner?	Yes	No	
Monthly salary in INR	Attendant	Cleaner	
Location (select multiple if applicable)	☐ Road Side	☐ Open space	☐ Slum
	☐ Market	☐ Institutional areas	☐ Public transit zones
	☐ Beach	☐ Port Area	☐
Is the facility accessible by wheel chairs?	☐ Yes	☐ No	
Does the facility have separate sections for men and women?	☐ Yes	☐ No	
Plan type of the toilet (M/F)	☐ Back to back	☐ Side by side	☐ One followed by the other
	☐ Disjointed		
	☐ Others		

Qualitative Assessment

	Good	Fair	Bad
Overall condition of the building			
Overall Cleanliness of toilet			
Cleanliness of seats, basin, other fixtures			
Ventilation			
Day light			
Functional and Adequate Electrical lighting			
Condition of Doors			
Condition of Windows			



Did the facility have stagnant water on the floor?			☐ Yes	☐ No
Is there bad odour in and around the facility?			☐ Yes	☐ No
Is the main access to the building unit clear of any obstructions			☐ Yes	☐ No
If no, then select the type of obstruction (select multiple if applicable)	☐ Water Logging	☐ Garbage	☐ Stray Animals	
	☐ Encroachment	☐ Kutchha Road	☐	
Are children allowed to use the facility?			☐ Yes	☐ No

Condition of Immediate surroundings

Can open defecation be observed in/ around the facility?	☐ Yes	☐ No
Can stray animals be observed in/ around the facility?	☐ Yes	☐ No
Does the facility have garbage collection point/bin in immediate vicinity?	☐ Yes	☐ No
Is garbage littered?	☐ Yes	☐ No
Can water logging be observed?	☐ Yes	☐ No
Can traces of anti-social activities be observed?	☐ Yes	☐ No
Can other activities like tea/ pan stall, hawking be observed?	☐ Yes	☐ No

Notes on quality of the facility:	
-----------------------------------	--

Infrastructure

Number of provisions	Male	Female	Children	Differently Abled
Urinals				
Toilet Seat				
Bathing Unit				
Washbasin				
Clothes Washing Facility				
Others				
Others				

Do all seats have a functional flush?	☐ Yes	☐ No	
Is there a functional western toilet seat for men?	☐ Yes	☐ No	
Is a grab bar/ rail available in atleast one toilet cubicle for men?	☐ Yes	☐ No	
Is there a functional western toilet seat for women?	☐ Yes	☐ No	
Is a grab bar/ rail available in atleast one toilet cubicle for women?	☐ Yes	☐ No	
Is legible signage for user charges, timings, etc. displayed?	☐ Yes	☐ No	
If yes, language of signage	☐ Telugu	☐ Hindi	☐ English



Source of water supply	☐ Municipal Connection	☐ Borewell	☐ Tanker	☐ No water
------------------------	---	-----------------------------------	---------------------------------	-----------------------------------

Water Facility	☐ Non-functional tap within cubicle	☐ Functional tap within cubicle
	☐ Water to be fetched from storage tank outside cubicles	☐ No water facility

Method of waste water disposal	☐ Municipal Sewer Connection	☐ Septic Tank/ Soak pit	☐ In Storm Water Drains	☐ Open Space/ Water Bodies
--------------------------------	---	--	--	---

Does the facility have a janitor's room/ cupboard/ storage/ shelf?	☐ Yes	☐ No
Does the cubicle door have functional latch?	☐ Yes	☐ No
Does the cubicle have hooks for hanging clothes/ bags?	☐ Yes	☐ No
Does the facility have mirrors?	☐ Yes	☐ No
Is a dustbin available in the facility?	☐ Yes	☐ No
Does the facility have electrical plug points for users?	☐ Yes	☐ No
Does the facility have exhaust fans/ systems?	☐ Yes	☐ No
Does the facility have disposal bin/ incinerator for sanitary napkins?	☐ Yes	☐ No

Notes on infrastructure:	
--------------------------	--

Operation & Maintenance

Is the facility operation 24x7?		☐ Yes	☐ No
If no, then	Opening time: hh:mm	Closing time: hh:mm	
Whose responsibility is it to operate & maintain the facility	☐ GVMC	☐ Private contractor	☐ On PPP
	☐ Local community		
If on private contractor or PPP, name of the agency			
Who is actually cleaning the facility?	☐ GVMC	☐ On PPP	☐ Self-appointed
Who constructed the facility?	☐ Port Trust	☐ Private trusts/ NGOs	☐ Other Govt. bodies
	☐ GVMC	☐ Not known	
If not private trust/ NGO, then name of the organization			

If yes, does the care taker reside in the same building?	☐ Yes	☐ No
--	------------------------------	-----------------------------



What is the gender of the attendant?	☐ M	☐ F
Was the attendant wearing uniform?	☐ Yes	☐ No
Was the attendant carrying an identity card?	☐ Yes	☐ No
Is there a register of cleaning supplies and material?	☐ Yes	☐ No
Is there a schedule for cleaning/maintaining the building?	☐ Yes	☐ No
Number of times the facility is cleaned in a day		
Method of Cleaning the public toilets by GVMC	☐ Nuisance Tanker	☐ Safai (Beat) Kamdar
	☐ No Cleaning	

Pricing/ User charges	Per use	Monthly pass (Individual)	Monthly pass (Household)
Urinal for men			
Urinal for women			
Toilet for men			
Toilet for women			
Bathing for men			
Bathing for women			
Washing clothes for men			
Washing clothes for women			
Use by children			

Is there a method to record number of users?	☐ Yes	☐ No
Number of users per day (estimate in case records are not maintained)		
Total average daily earning from user charges (in INR)		
Are there commercial advertisements on the facility for revenue generation?	☐ Yes	☐ No

Does the facility have hand washing soap/ liquid?	☐ Yes	☐ No
Does the facility have sanitary cleaning liquids, powders, etc.?	☐ Yes	☐ No
Does the facility have appropriate brooms?	☐ Yes	☐ No
Does the facility have appropriate mops?	☐ Yes	☐ No
Notes on O&M:		



Community Feedback

Is community available for feedback ☐ Yes ☐ No

Are children allowed to use the facility?		☐ Yes	☐ No
Do women feel safe using the facility at all times?		☐ Yes	☐ No
If no, then reason:	☐ Exposure to men's urinals/toilets	☐ Fear of attendant's cabin	☐ Men at the main access
	☐ Past cases of harassment of women		
☐ Others (specify):			
Is the facility operational 24x7?		☐ Yes	☐ No
If no, then	Opening time: hh:mm	Closing time: hh:mm	

Pricing/ User charges	Per use	Monthly pass (Individual)	Monthly pass (Household)
Urinal for men			
Urinal for women			
Toilet for men			
Toilet for women			
Bathing for men			
Bathing for women			
Washing clothes for men			
Washing clothes for women			
Use by children			

Percentage of households with individual toilets in slum		
Are you aware of community or pay & use facility in the vicinity?	☐ Yes	☐ No
Do you use the facility?	☐ Yes	☐ No
Are monthly passes provided for pay& use toilets?	☐ Yes	☐ No
If no, why not?		

Indicate the areas in need of urgent attention (please tick, multiple options allowed):

Cleanliness		Light not adequate	
Payment/ User Charges		Safety for women	
Monthly pass not provided		Timing issues	
Water not adequate		Location	

Notes on Community Feedback:	
------------------------------	--

Annexure 3 List of closed public conveniences

Unique ID	Ward	Landmark	Address
CT10202	2	Near Burial Ground Balaji Nagar	Near Burial ground, Beside Community Hall, Balaji Nagar
CT20701	7	Beside School Ground Opposite Ramalayam Vasavanipalem	Beside Government School, Opposite Ramalayam, Vasavanipalem
CT21003	10	AMG Hospital	Opposite AMG Hospital Behind Eenadu Office
CT21402	14	Sivalayam	Sivalayam Road, Rasavanipalem
CT21707	17	Kankama Mahalakshami Temple	Neetaji Veedhi, China Waltair
CT21708	17	Waltair RTC Depot	Beside RTC Depot, Waltair
CT21802	18	Near CBI Down	China Waltair, Old CBI Down, Pandavedhi
PT21805	18	Beside Aqua Sports Complex E Toilets	Beside Aqua Sports Complex, Pandurangapuram
CT31905	19	Dhobhi Ghat	Dhobhi Ghat, Oota Gadda-1
CT31906	19	Dhobi Ghat	Dhobhi Ghat, Oota Gadda-2
CT31907	19	Dhobhi Ghat	Dhobhi Ghat, Oota Gadda-3
CT32001	20	Near Anganwadi (Opposite Ramoji Peta)	Near Aryan Wadi, Opposite Ramoji Peta, Angadi Dibba
CT32301	23	Near Purna Market	Near Purna Market, Rangireeju Veedhi
CT32303	23	Near Majid	Near Majid, Kakara Vedhi
CT32503	25	Old Post Office	Old Post Office, Opposite Matysa Kalyan Mandapam
CT32508	25	Old Post Office	Old Post Office
CT32605	26	Prasad Gardens	Prasad Gardens, Beside Public Health Centre
CT32609	26	Near Ganesh Temple	Ramakrishna Veedi
CT32610	26	Vikram Hotel	Vikram Hotel, Rythu Bazar Jn.
CT32905	29	Lakshmi Devi Peta	Jenda Chettu Area
CT32908	29	Behind Diddi Kalyana Mandapam	Achayammmapeta
CT43201	32	Muslim Urdu School	Beside Muslim Urdu School, Tatichetla Palem
CT43203	32	Near Shadi Kalyanamandapam	Near NH5, Beside Shadi Kalyanamandapam
CT43205	32	Andhra Jyoti Press	Sonia Gandhi Nagar, Andhra Jyothi Press
CT43406	34	Laxminarayanuram-I	Laxminarayanuram-I
CT43505	35	FGL Gym	NH5 Service Road, Dharma Nagar
CT44505	45	Backside Hindustan Shipyard Colony	Behind Hindustan Shipyard Colony, Chintalva Lova
CT44605	46	Mulagada	Mulagada Colony
CT44704	47	-	Ex Servicemen Colony

Unique ID	Ward	Landmark	Address
CT44907	49	Bala Durgamma Temple	Near Baladurgamma Temple, Beside Anganwadi Centre, Kakaralova
CT55011	50	Beside Pump House	Beside Pump House, Gangavaram
CT55012	50	Bapuji Nagar, Burial Ground	Beside Bapuji Nagar, Burial ground
CT55013	50	Fire Station Road	Fire Station Road, Yethapalem Colony
CT55014	50	Near Shivalayam Temple Near Quaters	Near Shivalayam Temple, Near Quaters Girijana Colony
CT55101	51	ZPH School	Inside ZPH School, Nadupuru
CT55202	52	Old Karnavanipalem	Old Karnavanipalem
CT55203	52	Near Malayan Mandapam	Near Kalayan Mandapam, Nadupuru
CT55803	58	Near Green City Gated Community	Yadava Jagaraju Peta, Yadava Jagar
CT55902	59	Near Urdu School	Near Urdu School, Fakeer Takya
CT56101	61	APEPDCL Water Plant	Durga Nagar
CT56102	61	Opposite Court	Opposite Court Street, China Gantyada
CT56402	64	Near Jilla High School	Near Jilla High School, Jogavanipalam
CT56403	64	Near Old Ice Company	Near Old Ice Company, Kalika Nagar
CT56501	65	Opposite Teja Towers	Vikas College, Opp. Road Harijan Jaggayapalem
CT66602	66	Venkata Puram	Venkata Puram, Gopalapatnam
CT66901	69	Palinarayanapuram	PRH Iadapuram
CT81002	10B	Opposite Paints Shops	Satyanarayanapeta, Tagarapuvalasa
PT81001	10B	Opposite NTR Kalyanamandapam	Eseva Road, Tagarapuvalasa1
CT81101	11B	Ramalayam Veedi	Ramalayam Verdi, Adarshnagar, Tagarapuvalasa
CT81501	15B	Yetakumarpalem Road	Burma Colony, Yetakumarpalem Road
CT81502	15B		Reliveedhi, Vizag Road
CT81503	15B	Near BSNL Office	Thotaveedhi, BSNL Office
CT82201	22B	Kotapeta Yeguveta Police Quarters Line	Kotapeta Yeguveta Police Quarters Line
CT82801	28B		Balajinagar, Tagarapuvalasa

Annexure 4 List of demolished public conveniences

Unique ID	Ward	Landmark	Address
CT20702	7	Behind Deccan Chronicle	Fishermen Colony, Behind Deccan Chronicle Office
CT21801	18	-	Relivedhi, China Waltair
CT43405	34	-	Kalishpuram Laxmipuram II
CT82701	27B	Ramalaya Temple	Valandapeta, Archi Valandhapeta, Bheemli

Annexure 5 List of PT/CTs where obstructions to the main access were reported

Unique ID	Ward	Landmark	Address	Type of obstruction
CT20902	9	Beside Durga Nagar Burial Ground	Sulabh Complex, Beside Burial ground, Simhadripalem, Durga Nagar	Garbage, Encroachment
CT21403	14	Ammavari Temple	Opposite Ammavari Temple Kanaka, Ammavari Street Ganesh Nagar, Seethampeta	Water Logging, Garbage, Stray Animals
CT21706	17	Behind 17th Ward Office	Opposite to Brahma towers, Pedda Waltair Junction	Kutcha Road
CT21709	17	Beside Beach, Near Old Ramalayam	Peddajalaripeta, Beside Beach, Near Old Ramalayam	Water Logging
CT21803	18	Near Ramalayam Temple	Tamil Street China Waltair	Kutcha Road
CT21804	18	Behind Happy Feet School	Pandurangapuram, Mythripalem	Others
CT31902	19	Apollo Hospital	Pithanidibba	Garbage
CT32003	20	Beside Sai Baba Temple	Agadi Dibba, Near Dandy Bazar	Garbage, Others
CT32101	21	Opposite Central Street	Opposite Central, Street Visarandha Roa	Garbage
CT32105	21	Kodipandala Veedi Relli Verdi Temple Street	Kodipandala Veedi, Relli Verdi, Temple Street	Water Logging, Garbage
CT32107	21	Opposite Vizag Central	Public toilets, Near Vizag Central, Thadi Veedi	Garbage
CT32108	21	Opposite Ayyapa Yuvajana Sangam, Kothajalaripeta	Opposite Ayyapa Yuvajana Sangam, Kothajalaripeta	Garbage, Stray Animals
CT32205	22	Peddajalaripeta	Peddajalaripeta	Water Logging, Stray Animals
CT32501	25	Ferri Road	Ferri Road	Encroachment. Kutcha Road
CT32504	25	Chilakapeta	Inside Slum, Chilakapeta	Water Logging
CT32607	26	Bowdwara road, Near RK Junction, Gajuala Veedi	Bowdwara Road, Near RK Junction, Gajuala Veedi	Garbage, Encroachment
CT32612	26	Near Fish Market	Near Fish Market, Chilakapeta	Encroachment. Kutcha Road
CT32907	29	Chelava Thota	Narahari Street, Near Kalinga Hotel	Water Logging
CT43403	34	Sinhagiri Colony	Sinhagiri Colony	Encroachment. Kutcha Road
CT43502	35	Near Hanuman Temple	Near Hanuman Temple, Kapparada	Encroachment, Others
CT43701	37	Near Main road	Jagajeevan Nagar	Encroachment
CT44107	41	Near Water Tank	Asvana Palem	Kutcha Road
CT44301	43	ND	Rajeev Colony	Encroachment, Others
CT44503	45	Ramalayam Near	Opposite Ramalayam, Near	Stray Animals,

Unique ID	Ward	Landmark	Address	Type of obstruction
		Police Station	Police Station, AKC Colony	Encroachment
CT44504	45	Community Hall	Opposite Municipal Kalyanamandapam, Beside Community Hall, AKC Colony	Garbage, Encroachment, Kutcha Road
CT44703	47	Fish Market	Beside Fish Market, Gollalapalem	Stray Animals, Encroachment
CT55007	50	Near Aganwadi School Visaka, Kala Vedika	Mavidapana Chenu, Jalari Pallipalem, Gangavaram	Others
CT55008	50	Beside Sai Baba Temple	Jalaripallipalem, Gangavaram	Others
CT70401	4A	Opposite Agriculture Fields	Lakshmidivipeta	Others
CT70402	4A	Opposite Agricultural Fields	Lakshmi Devipeta	Garbage, Stray Animals
CT70601	6A	Opposite Sitarama Kalyana Mandapam	Velupula Veedi	Garbage, Stray Animals, Kutcha Road
CT70602	6A	Opposite Sita Rama Kalyana Mandapam	Velupula Veedi	Garbage, Stray Animals, Encroachment, Kutcha Road
CT71101	11A	Opposite Steel Dealers	Kotniveedi	Garbage, Stray Animals, Others
CT72103	21A	Gavaram Palem	Santhampattu Ganvaram Palem, Anakapalli	Others
CT72301	23A	Venayaka Temple	Santhi Nagar, Devuni Thota	Kutcha Road
CT72302	23A	Vinayaka Temple	Santhi Nagar, Demini Thota	Others
CT72601	26A	Pedda Rama Seamy Kovela	Santhabayalu Junction, Gavara Palem	Others
CT80301	3B	Pump House Road	Pump House Road, Komnda Peta, Chittivalasa	Garbage, Stray Animals, Kutcha Road
CT80401	4B	Near Water Tank	Kothapeta, Near ELSR of CJ Mills, Chittivalasa, Bheemunipatnam	Garbage, Others
CT80402	4B	Chittivalasa colony	Allankavari, Vedhi Chittivalasa, Bheemunipatnam	Garbage
CT80601	6B	Shardha Public School	Perikiveedhi, Chittivalasa	Kutcha Road
CT81902	19B	Lal Bhadur Shastri Municipal Market	Lal Bhadur Shastri Municipal Market	Kutcha Road
CT82301	23B	Dugra Ashram Road	Dugra Ashram Road	Garbage, Kutcha Road
PT32601	26	Opposite SPR Plaza	SVP Market Backside, Poorna Market, Vellampeta	Stray Animals, Encroachment
PT80702	7B	Jute Mills Ground	Near Petrol bunk, Football ground, Chittivalsa	Garbage, Others

Annexure 6 List of PT/CTs in/around which OD was found

Unique ID	Ward	Landmark	Address
CT10301	3	Saibaba Temple	Gandhi Nagar, Near Saibaba Temple,

Unique ID	Ward	Landmark	Address
			Thota Gatuvu
CT80301	3B	Pump House Road	Pump House Road, Komnda Peta, Chittivalasa
CT70402	4A	Opposite Agricultural Fields	Lakshmi Devipeta
CT70401	4A	Opposite Agriculture Fields	Lakshmidvipeta
CT80402	4B	Chittivalasa colony	Allankavari, Vedhi Chittivalasa, Bheemunipatnam
CT70601	6A	Opposite Sitarama Kalyana Mandapam	Velupula Veedi
PT80702	7B	Jute Mills Ground	Near Petrol bunk, Football ground, Chittivalsa
CT71101	11A	Opposite Steel Dealers	Kotniveedi
CT71102	11A	Opposite Steel Dealers	Kotniveedi
CT21201	12	Beside Saroja Hospital	Near Jaggarao Bride, Opposite Fish Market
CT21404	14	Near Reddy Hospital Road	Near Reddy Hospital Road, Opposite Jain Electronics
PT21501	15	Diamond Park	Near Diamond Park
CT21504	15	Near Nehru Bazar	Behind Nehru Bazar
CT21501	15	Palamma Gudi, Near Municipal Office	Palamma Gudi, Near Municipal Office, Ashoknagar Area, Srinagar
CT21709	17	Beside Beach, Near Old Ramalayam	Peddajalaripeta, Beside Beach, Near Old Ramalayam
CT21702	17	Ramalayam Backside	Public toilet, Ramalayam Back Side Jalaripeta, Waltair
CT21701	17	Beside Burial Ground, Near Depot	Public toilet, Beside Burial ground, Pedda Waltair, Peddajalaripeta
CT31902	19	Apollo Hospital	Pithanidibba
CT72104	21A	Satyammathalli Gudi Road	Satyammathalli Gudi Road, Dasari Gadda
CT72105	21A	Near Nookambhika Temple	Near Nookambhika Temple, Pallapu Vedhi
PT32201	22	Opposite Naval Canteen	Near Katha Jalaripeta, Opposite to Naval Canteen Beach Road
CT32203	22	Near Fishing Harbor	Beach Road, Near Fishing Harbor, Near Cifnet Pendori Peta Sulabh Complex
CT82202	22B	Bheemli Beach	Kotapeta Yeguvapeta, Bheemli Bheemunipatnam
CT32302	23	Near Community Hall	Near Community Hall Rangireeji Vedhi
CT72301	23A	Venayaka Temple	Santhi Nagar, Devuni Thota
CT72302	23A	Vinayaka Temple	Santhi Nagar, Demini Thota
CT82301	23B	Dugra Ashram Road	Dugra Ashram Road
CT32403	24	Mukherjee House	Beach Road, Opp. Mukherjee House
CT32402	24	Bukka Verdi	Bukka Verdi, Beach Road
CT32613	26	Laxmi Talkies	Near Water Tank, Padma Nagar
CT72601	26A	Pedda Rama Seamy Kovala	Santhabayalu Junction, Gavara Palem
PT32701	27	Dwaraka Nagar RTC Complex	Dwaraka Nagar RTC Complex
CT32704	27	Beside Night Shelter	Bheemnagar
CT32906	29	Bhupesh Nagar	Bhupesh Nagar Near Main Road

Unique ID	Ward	Landmark	Address
CT43204	32	Centre School	ASR Colony Near Centre School
CT43501	35	Near Joga Rao Nagar	Near Joga Rao Nagar, Near Shivalayam
CT43503	35	Behind the Kalyana Mandapam	Behind the Kalyana Mandapam, Kapparada
CT43601	36	Under Kancharpalem Bridge	RP Peta, Kancharpalem
CT43803	38	Near ASR Nagar	Near ASR Nagar
CT43802	38	Near Nehru Nagar Colony	Near Nehru Nagar Colony
CT43902	39	Near E Seva	Near E Seva VUDA Colony.
CT43901	39	Near Ambedkar Statue	Near Ambhedkar Statue, Ambhedkar Colony
CT44105	41	Near Ganpathi Temple	Near Ganpathi, Temple Subash Nagar2
CT44102	41	Near Ganpathi Temple	Urvashi Down, Near Ganpathi Temple, Subhashnagar 1
CT44104	41		Near Siddhartha Nagar, Sriram Nagar
CT44103	41	Near Burial Ground, ITI Junction	Near Burial ground, ITI Junction
CT44301	43	ND	Rajeev Colony
CT55006	50	Community Welfare Center	Community Welfare Center, Gangavaram
CT55002	50	2nd Transformer	Chaitanya Veedi
CT55010	50	Opposite Hospital Building	Opposite Hospital Building, RH Colony, Gangavaram
CT55201	52	MVR College	Near MVR College, Ramachandra Colony
CT55901	59	Near Burial Ground	Tungalam
CT56404	64	Near Burial Ground	Gudivada Appana Colony
CT56401	64	Near Jila Parishad	Near Zilla Parishad High School, Jogavanipalem
CT66802	68	Burial Ground	Beside Gopalapatnam, Burial ground
CT67201	72	Near Koneru	Cheruvu Gattu Pushkarini

Annexure 7 List of PT/CTs with water facility to the block but no water inside the cubicle

Unique ID	Ward	Landmark	Address	Source of water to the PT/CT facility
PT21501	15	Diamond Park	Near Diamond Park	Tanker
CT21504	15	Near Nehru Bazar	Behind Nehru Bazar	Bore well
CT21804	18	Behind Happy Feet School	Pandurangapuram, Mythripalem	Bore well
CT81501	15B	Yetakumarpalem Road	Burma Colony, Yetakumarpalem Road	Municipal Connection
PT21802	18	Opposite Kalimata Temple	Opposite Kalimata Temple, Beach Road	Tanker
CT31908	19	7 Hills Hospital	Near Ram Temple Ranjipeta, Bhanoji Nagar	Bore well
CT32205	22	Peddajalaripeta	Peddajalaripeta	Multiple Sources
CT32611	26	Near Fish Market	Near Fish Market	Bore well
CT32603	26	Beside Indian Petrol Bunk	Beside Indian Petrol Bunk, Near Vikram Hotel	Tanker
CT43301	33	Mavullamma Gudi	Venkateshwar Colony, Near Railway Colony Area	Bore well
CT43603	36	Vinayaka Temple	Thota Verdi, Kancharpalem	Municipal Connection
CT43601	36	Under Kancharpalem Bridge	RP Peta, Kancharpalem	Bore well
CT81902	19B	Lal Bhadur Shastri Municipal Market	Lal Bhadur Shastri Municipal Market	Multiple Sources
CT82202	22B	Bheemli Beach	Kotapeta Yeguvapeta, Bheemli Bheemunipatnam	Tanker
CT82301	23B	Dugra Ashram Road	Dugra Ashram Road	Multiple Sources
CT80201	2B	Opposite Z.P. High School	Kondapeta, Near ZP High School, Chittivalasa, Bheemunipatnam	Multiple Sources
CT73303	33A	-	Vijaya Ramaraju Peta	Bore well
CT80301	3B	Pump House Road	Pump House Road, Komnda Peta, Chittivalasa	Municipal Connection
CT80402	4B	Chittivalasa colony	Allankavari, Vedhi Chittivalasa, Bheemunipatnam	Multiple Sources
PT80702	7B	Jute Mills Ground	Near Petrol bunk, Football ground, Chittivalsa	Municipal Connection
CT80801	8B	Community Hall	Beside Community Hall, Srinagar Colony, Tagarapuvalasa	Municipal Connection

Annexure 8 List of PT/CTs where waste water is discharged into open (storm water) drains

Unique ID	Ward	Landmark	Address
CT21704	17	Opposite Rajaka Kalyanamandapam	Rajaka Street China Waltair
CT21705	17	Pedda Waltair Junction	Nanda Kumar Road, Pedda Waltair Road
CT21803	18	Near Ramalayam Temple	Tamil Street China Waltair
CT32501	25	Ferri Road	Ferri Road
CT32504	25	Chilakapeta	Inside Slum, Chilakapeta
CT32613	26	Laxmi Talkies	Near Water Tank, Padma Nagar
CT32611	26	Near Fish Market	Near Fish Market
CT32612	26	Near Fish Market	Near Fish Market, Chilakapeta
CT32903	29	Near Raithu Bazar	Bowdara Road Kobbari Thota
CT32902	29	Bowdara Road	Near Mara Theater, Bowdara Road
CT32904	29	Behind Petrol Bunk	Maram Theater back side, Ambedkar Colony
CT32909	29	Manorama Theater	Opposite Petrol Bunk
CT32906	29	Bhupesh Nagar	Bhupesh Nagar Near Main Road
CT32907	29	Chelava Thota	Narahari Street, Near Kalinga Hotel
CT43701	37	Near Main road	Jagajeevan Nagar
CT43703	37	Near Burial Ground	Jaya Bharathi Nagar
CT43702	37	Near Burial Ground	Indra Nagar
CT44106	41	Near Urvasi Signal	Near Urvasi Signal, Kancharapalem
CT44108	41	Asvanipalem	Near Slum Aswanipalem
CT44107	41	Near Water Tank	Asvana Palem
CT44604	46	Kunchamma Colony	Kunchumma Colony
CT44603	46	Gollapalem Main Road	Gollapalem Main Road
CT44601	46	Near Ramalayam	Ramalayam Street, Ramnagar
CT56301	63	Behind Sudha Hotel	Opposite to Temple, Kailash Nagar
CT66601	66	Venkata Puram, Appala Narasayya Colony	Appala Narasayya Colony
CT66801	68	Near Railway Station	Beside Railway Station, Gopalapatnam
CT72801	28A	Jaggannada Theater	Near Jagannada Theater, Gavarapalem
CT72901	29A	Near Bus Depot	Relli Veedhi
CT73301	33A	Ramalayam	Near Ramalayam, Gollaveedhi
CT73303	33A	-	Vijaya Ramaraju Peta

Annexure 9 List of PT/CTs where women reported feeling unsafe

Unique ID	Ward	Landmark	Address	Reasons
CT80201	2B	Opposite Z.P. High School	Kondapeta, Near ZP High School, Chittivalasa, Bheemunipatnam	Not clean, No doors
CT80402	4B	Chittivalasa colony	Allankavari, Vedhi Chittivalasa, Bheemunipatnam	Not clean
PT80702	7B	Jute Mills Ground	Near Petrol bunk, Football ground, Chittivalsa	Men at the main access
CT21201	12	Beside Saroja Hospital	Near Jaggarao Bride, Opposite Fish Market	Men at the main access
PT21501	15	Diamond Park	Near Diamond Park	Dysfunctional doors, Not clean
CT21706	17	Behind 17th Ward Office	Opposite to Brahma towers, Pedda Waltair Junction	Not clean, No water connection
CT21701	17	Beside Burial Ground, Near Depot	Public toilet, Beside Burial ground, Pedda Waltair, Peddajalaripeta	Only for Men
PT21802	18	Opposite Kalimata Temple	Opposite Kalimata Temple, Beach Road	Only for Men
CT31901	19	Apollo Hospital	Near Bhanoji Nagar	Lack of electricity
CT31903	19	Near Water Tank	Santosi Mata Colony, Behind GVMC Pump House	Illegal activities at night
CT71902	19A	Raithu Bazar	Behind Rithu Bazar, Santhosimatha Temple	Only for Men
CT81902	19B	Lal Bhadur Shastri Municipal Market	Lal Bhadur Shastri Municipal Market	Dysfunctional doors
CT32109	21	Bodies Bungalow	On the lane opposite Bodi Bungalows, Manthavari Vedhi	Only for Men
CT32102	21	Opposite Bodies Bungalow	Public toilet, Opposite Bodies Bungalow, Temple Street	Only Men are using
CT72104	21A	Satyammathalli Gudi Road	Satyammathalli Gudi Road, Dasari Gadda	Only for Men
CT72103	21A	Gavaram Palem	Santhampattu Ganvaram Palem, Anakapalle	Only for Men
CT72106	21A	Gavarapalem Road	Santhakampattu Gavarapalem, Anakapalle	Illegal activities at night
CT32201	22	Sai Baba Temple	Kotha Agraharam, Sulabh Complex	Doors are broken
CT32205	22	Peddajalaripeta	Peddajalaripeta	Lack of electricity
CT82202	22B	Bheemli Beach	Kotapeta Yeguvapeta, Bheemli Bheemunipatnam	Dysfunctional doors
CT72301	23A	Venayaka Temple	Santhi Nagar, Devuni Thota	Lack of electricity
CT82301	23B	Dugra Ashram Road	Dugra Ashram Road	Lack of electricity
CT32403	24	Mukherjee House	Beach Road, Opp. Mukherjee House	Men at the main access
CT32402	24	Bukka Verdi	Bukka Verdi, Beach Road	Men at the main access
CT32401	24	Beside Water Tank	Beach Road, Water Tank	Men at the main access
CT32612	26	Near Fish Market	Near Fish Market, Chilakapeta	Only for Men
CT32702	27	Women's College	Behind Women's College, Gollalapalem	Only for Men
CT32704	27	Beside Night Shelter	Bheemnagar	Men at the main access
CT32903	29	Near Raithu Bazar	Bowdara Road Kobbari Thota	Only for Men

Unique ID	Ward	Landmark	Address	Reasons
CT32909	29	Manorama Theatre	Opposite Petrol Bunk	Only for Men
PT72901	29A	Near Indian Overseas Bank	RTC Complex Road, Anakapalle	Exposure to men's urinals/ toilets
CT43301	33	Mavullamma Gudi	Venkateshwar Colony, Near Railway Colony Area	Doors are broken
CT43602	36	Kancharpalem Bridge	Under Kancharpalem Bridge, Rp Peta, Kancharpalem	Only for Men
CT43701	37	Near Main road	Jagajeevan Nagar	Exposure to men's urinals/ toilets
CT44105	41	Near Ganpathi Temple	Near Ganpathi, Temple Subash Nagar2	Only for Men
CT55006	50	Community Welfare Centre	Community Welfare Centre, Gangavaram	Only for Men
CT55004	50	Bala Ganesh Veedi	Bala Ganesh Veedi	Only for Men
CT55003	50	Cahitanya Veedi	Cahitanya Veedi, Gangavaram	Only for Men
CT56401	64	Near Jila Parishad	Near Zilla Parishad High School, Jogavanipalem	Only for Men

Annexure 10 List of PT/CTs where anti-social activities were reported

Unique ID	Ward	Landmark	Address
PT80702	7B	Jute Mills Ground	Near Petrol bunk, Football ground, Chittivalsa
CT21201	12	Beside Saroja Hospital	Near Jaggarao Bride, Opposite Fish Market
CT31908	19	7 Hills Hospital	Near Ram Temple Ranjipeta, Bhanoji Nagar
CT72104	21A	Satyammathalli Gudi Road	Satyammathalli Gudi Road, Dasari Gadda
CT72103	21A	Gavaram Palem	Santhampattu Ganvaram Palem, Anakapalle
CT72106	21A	Gavarapalem Road	Santhakampattu Gavarapalem, Anakapalle
CT32403	24	Mukherjee House	Beach Road, Opp. Mukherjee House
CT32402	24	Bukka Verdi	Bukka Verdi, Beach Road
CT32401	24	Beside Water Tank	Beach Road, Water Tank
CT32603	26	Beside Indian Petrol Bunk	Beside Indian Petrol Bunk, Near Vikram Hotel
CT72601	26A	Pedda Rama Seamy Kovela	Santhabayalu Junction, Gavara Palem
CT32704	27	Beside Night Shelter	Bheemnagar
CT44504	45	Community Hall	Opposite Municipal Kalyanamandapam, Beside Community Hall, AKC Colony
CT67201	72	Near Koneru	Cheruvu Gattu Pushkarini

Annexure 11 List of PT/CTs rated 'Bad' for their overall building condition

Unique ID	Ward	Landmark	Address
CT80402	4B	Chittivalasa colony	Allankavari, Vedhi Chittivalasa, Bheemunipatnam
PT80702	7B	Jute Mills Ground	Near Petrol bunk, Football ground, Chittivalsa
CT71101	11A	Opposite Steel Dealers	Kotniveedi
CT32109	21	Bodies Bungalow	On the lane opposite Bodi Bungalow, Manthavari Vedhi
PT32101	21	KGH Hospital	KGH Hospital, Opposite the mortuary
PT32201	22	Opposite Naval Canteen	Near Katha Jalaripeta, Opposite to Naval Canteen Beach Road
CT32201	22	Sai Baba Temple	Kotha Agraharam, Sulabh Complex
CT32205	22	Peddajalaripeta	Peddajalaripeta
CT32302	23	Near Community Hall	Near Community Hall Rangireeji Vedhi
CT32402	24	Bukka Verdi	Bukka Verdi, Beach Road
CT32501	25	Ferri Road	Ferri Road
CT32601	26	North to the Stadium	Manchala Road, North to the Stadium, Velampeta
CT32906	29	Bhupesh Nagar	Bhupesh Nagar Near Main Road
CT43202	32	Beside Community Hall	Near Old Ward office, Beside Community Hall, Muslim Tatichetlapaem
CT43301	33	Mavullamma Gudi	Venkateshwar Colony, Near Railway Colony Area
CT43502	35	Near Hanuman Temple	Near Hanuman Temple, Kapparada
CT43503	35	Behind the Kalyana Mandapam	Behind the Kalyana Mandapam, Kapparada
CT43601	36	Under Kancharpalem Bridge	RP Peta, Kancharpalem
CT44102	41	Near Ganpathi Temple	Urvasi Down, Near Ganpathi Temple, Subhashnagar 1

Annexure 12 List of PT/CTs without functional latch on doors

Unique ID	Ward	Landmark	Address
CT80201	2B	Opposite Z.P. High School	Kondapeta, Near ZP High School, Chittivalasa, Bheemunipatnam
CT80301	3B	Pump House Road	Pump House Road, Komnda Peta, Chittivalasa
CT80402	4B	Chittivalasa colony	Allankavari, Vedhi Chittivalasa, Bheemunipatnam
PT80702	7B	Jute Mills Ground	Near Petrol bunk, Football ground, Chittivalasa
CT21101	11	Gurudwara Temple	Beside Gurudwara Bus stop
CT21404	14	Near Reddy Hospital Road	Near Reddy Hospital Road, Opposite Jain Electronics
PT21501	15	Diamond Park	Near Diamond Park
CT21504	15	Near Nehru Bazar	Behind Nehru Bazar
CT21706	17	Behind 17th Ward Office	Opposite to Brahma towers, Pedda Waltair Junction
CT21705	17	Pedda Waltair Junction	Nanda Kumar Road, Pedda Waltair Road
CT21805	18	Beside Vinayaka Temple	Bapuji Nagar, Peddajalaripeta
CT31908	19	7 Hills Hospital	Near Ram Temple Ranjipeta, Bhanoji Nagar
CT31903	19	Near Water Tank	Santosi Mata Colony, Behind GVMC Pump House
CT71902	19A	Raithu Bazar	Behind Rithu Bazar, Santhosimatha Temple
CT81902	19B	Lal Bhadur Shastri Municipal Market	Lal Bhadur Shastri Municipal Market
PT32001	20	Opposite Supreme Hotel	Sulabh Complex, Beach Road, Near Supreme Hotel
CT32109	21	Bodies Bungalow	On the lane opposite Bodi Bungalow, Manthavari Vedhi
PT32101	21	KGH Hospital	KGH Hospital, Opposite the mortuary
CT72104	21A	Satyammathalli Gudi Road	Satyammathalli Gudi Road, Dasari Gadda
CT72103	21A	Gavaram Palem	Santhampattu Ganvaram Palem, Anakapalli
CT72106	21A	Gavarapalem Road	Santhakampattu Gavarapalem, Anakapalli
CT32204	22	Beside Community Kalyana Mandapam	Beside Community Kalyana Mandapam, Jabbar Thota
CT32201	22	Sai Baba Temple	Kotha Agraharam, Sulabh Complex
CT32205	22	Peddajalaripeta	Peddajalaripeta
CT82202	22B	Bheemli Beach	Kotapeta Yeguvapeta, Bheemli Bheemunipatnam
CT72302	23A	Vinayaka Temple	Santhi Nagar, Demini Thota
CT82301	23B	Dugra Ashram Road	Dugra Ashram Road
CT32402	24	Bukka Verdi	Bukka Verdi, Beach Road
CT32401	24	Beside Water Tank	Beach Road, Water Tank
CT32501	25	Ferri Road	Ferri Road
CT32504	25	Chilakapeta	Inside Slum, Chilakapeta
CT32612	26	Near Fish Market	Near Fish Market, Chilakapeta
CT32608	26		Kallu Pakalu
CT32607	26	Bowdwara road, Near RK Junction, Gajuala Veedi	Bowdwara Road, Near RK Junction, Gajuala Veedi
CT32601	26	North to the Stadium	Manchala Road, North to the Stadium, Velampeta

Unique ID	Ward	Landmark	Address
PT32701	27	Dwaraka Nagar RTC Complex	Dwaraka Nagar RTC Complex
CT32703	27	Women's' College	Behind Women's College, Gollalapalem
CT32701	27	Saraswathi Park	Kanakala Dibba
CT32801	28	Allipuram Main Road	Near Gov. Elementary School, Bangaramma Meta
CT72801	28A	Jaggannada Theater	Near Jagannada Theater, Gavarapalem
CT32909	29	Manorama Theater	Opposite Petrol Bunk
CT32906	29	Bhupesh Nagar	Bhupesh Nagar Near Main Road
CT43202	32	Beside Community Hall	Near Old Ward office, Beside Community Hall, Muslim Tatichetlapaem
CT43301	33	Mavullamma Gudi	Venkateshwar Colony, Near Railway Colony Area
CT73303	33A		Vijaya Ramaraju Peta
CT43502	35	Near Hanuman Temple	Near Hanuman Temple, Kapparada
CT43604	36	Durga Nagar	Durga Nagar, Kancharpalem
CT43601	36	Under Kancharpalem Bridge	RP Peta, Kancharpalem
CT43602	36	Kancharpalem Bridge	Under Kancharpalem Bridge, Rp Peta, Kancharpalem
CT43701	37	Near Main road	Jagajeevan Nagar
CT43803	38	Near ASR Nagar	Near ASR Nagar
CT44107	41	Near Water Tank	Asvana Palem
CT44504	45	Community Hall	Opposite Municipal Kalyanamandapam, Beside Community Hall, AKC Colony
CT44702	47	Community Hall	Beside Community hall, Near Ramalayam, Nakkavanipalem
CT44703	47	Fish Market	Beside Fish Market, Gollalapalem
CT44701	47	Pump House	Beside Pump House, VUDA Colony, Gollalapalem
CT55002	50	2nd Transformer	Chaitanya Veedi
CT55001	50	Opposite Ushodaya Public School	BC Road Gajuwaka, Gangavaram
CT56201	62	Venkateswara Swami Temple	Ambedkar Nagar
CT56401	64	Near Jila Parishad	Near Zilla Parishad High School, Jogavanipalem
CT66601	66	Venkata Puram, Appala Narasayya Colony	Appala Narasayya Colony
CT66702	67	Opposite St. Anns School	Beside Butchiraji Palem Burial ground
CT66801	68	Near Railway Station	Beside Railway Station, Gopalapatnam
CT66802	68	Burial Ground	Beside Gopalapatnam, Burial ground

Annexure 13 List of PT/CTs where electricity is rated 'Bad' on functionality and adequacy

Unique ID	Ward	Landmark	Address
CT10201	2	Near Balaji Nagar Bridge	Near Balaji Nagar, Bridge Anna Hagar Arilova Balaji Nagar
CT80402	4B	Chittivalasa colony	Allankavari, Vedhi Chittivalasa, Bheemunipatnam
PT70603	6A	Gowri Parameswar Temple	Near Nehru Chowk, Main Road, Anakapalli
PT80702	7B	Jute Mills Ground	Near Petrol bunk, Football ground, Chittivalsa
CT71101	11A	Opposite Steel Dealers	Kotniveedi
CT31901	19	Apollo Hospital	Near Bhanoji Nagar
CT31908	19	7 Hills Hospital	Near Ram Temple Ranjipeta, Bhanoji Nagar
CT31905	19	Dhobhi Ghat	Dhobhi Ghat, Oota Gadda-1
CT32109	21	Bodies Bungalow	On the lane opposite Bodi Bungalow, Manthavari Vedhi
PT32101	21	KGH Hospital	KGH Hospital, Opposite the mortuary
CT82202	22B	Bheemli Beach	Kotapeta Yeguvapeta, Bheemli Bheemunipatnam
PT32601	26	Opposite SPR Plaza	SVP Market Backside, Poorna Market, Vellampeta
CT32601	26	North to the Stadium	Manchala Road, North to the Stadium, Velampeta
CT32703	27	Women's' College	Behind Women's College, Gollalapalem
CT43502	35	Near Hanuman Temple	Near Hanuman Temple, Kapparada

Annexure 14 List of slums where FGDs were conducted

Name of the slum	Ward No	Zone No	Number of households in the slum
Arilova Colony (Shivaji Nagar 2)	1	1	240
B.N.R Nagar Near Thoto Garuvu	3	1	600
Sai Ram Colony	4	1	2500
Jodugulapalem (Along Kailash hill)	6	1	300
Vasavanipalem	7	2	1500
Peddajalaripeta	17	2	80
Penadorapeta	22	3	1000
Janda Chettu	29	3	300
Pydamabha Colony	43	4	96
Gangavaram	50	5	200
Ramchandrapuram	52	5	379
Islampeta	55	5	240
K.M Palem	55	5	250
K.S.N Reddy Nagar	56	5	152
Akkireddy Palem Nagar (Dhobi Ghat)	65	5	800
Mindhi (Ram Nagar)	65	5	45
Gangireddy Colony	69	6	70
Pralahadpuram	69	6	400
Nalla Quarry	71	6	120
Pulagalli Palem	71	6	250
Gandhi Nagar	72	6	300
Kotniveedhi	15	7	500
Sri Ram nagar	33	7	600
Kothapeta (Jute mill quarter)	3	8	450
Arjunpeta	6	8	555
Rellivedhi	15	8	250
Boyeeveedhi	20	8	250
Aguvapeta	22	8	500

Annexure 15 List of places where KIIs were located

Type of respondent for the KIIs	Location	Address	Zone	Ward
Shopkeepers/ Customers	Daba Gardens, Amaravathi Hotel	Surya Bhagh Road, Daba Gardens	3	27
	Ram Krishna Rythu Bazar, Indian Oil Petrol Bunk	Rythu Bazar Junction Kobbari thotha	3	26
	Market around Margadharshi Chit Funds	Beside lane of Maragadarshi Rajendra Nagar	2	13
	Market near Zone-3 Office GVMC Zone-3 Office	Opposite to Zone-3 Office Surya Bhagh	3	27
	Jagadamba Center Jagadamba theater	Hotel Green Park Road, Jagadamba Centre	3	20
Truckers	HP Petrol Bunk	Beside HP Petrol Bunk on the Pendurthi-Anandapuram Road, Pendurthi	6	71
	Near Gopala Krishna Theater	Anakapalle-Pendurthi Road, Anakapalle	7	14
	Truck lay-by	By-pass Road , Anakapalli	8	28
	Bharath Petroleum Bunk	NH-5, Near Akkireddy Palem	5	65
	Nearby the Railway Station close to the flyover near St. Joseph's college	Main entrance, Vizag Port Trust Area	3	29
	Opposite Surya Nursing home	Balaji Nagar, By-pass, Tagarapuvalsa, Bheemunipatanam	8	28
Transit Node	RTC Complex	Dwaraka Nagar	3	27
	Railway Station	Gyanapuram Railway Station	4	44
	Marripalem Railway Station	Marripalem Railway crossing , Marripalem Railway Station	2	10
	Maddilapalem Bus Stop	Near Rasavanipalem, Gedda Auto Stand, NH-5, Maddilapalem,	2	14
	Mukherjee house	Beach Road, Opposite Mukherjee house	3	24
Construction worker	Beside Iyer Construction site	Tycoon Hotel Junction, Asilmata	2	16
	Public works	Opposite the Airport, NH- 5, Akkireddypalem	6	67
	Saptagiri Nagar	China musida wada	6	70
	Street Honda showroom	Happy Homes, Old ITI Junction	4	41
	Hyundai showroom	Lakshmi Nivasam, Muralinagar Junction	4	41

Annexure 16 List of slums/pockets/colonies from where open defecators came to the OD spot

List of slums/ pockets/ colonies	Ward	Zone	Unique ID of the OD spots	Address	Estimated number of open defecators
Abhinanadana Youth Centre	50	5	OD55002	Near Water Plant, Gangavaram	300
Aguvapeta	22 B	8	OD82201	Beach Road, Aguvapeta, Bheemunipatnam	400
Akkireddypalem	65	5	OD56502	Near Burial Ground, Akkireddypalem	50
Appikonda	55	5	OD55519	Near Appikonda Bus Shelter	50
Arilova Durga Bazar	1	1	OD10101	Near Kalayana Mandapam, YSR Statue, Arilova Last Bus Stop	100
Bakkannapalem	4	1	OD10406	Opposite Police Club, Bakkanna Palem	70
Banta Colony	69	6	OD66902	Cement Factory Road, Banta Colony, Naidu Thota	100
Bhanoji Nagar	19	3	OD31902	Near Grean Park Hotel, Secondary Waste Collection Bin, Bhanoji Nagar, Walter Main Road	15
Bhoi Veedhi	20 B	8	OD82001	Beach Road, Bheemunipatnam	100
Bhupesh Nagar	29	3	OD32903	Near Open Drain, Bhupesh Nagar	10
Cheelapalli	70	6	OD67001	Cheemalapali	80
Chepalapalem	55	5	OD55529	Chepalapalem Appikonda	40
Darari Colony	72	6	OD67201	Koneru Simhachalam	60
Dasaripeta	55	5	OD55508	Dasaripeta Appikonda	30
Dhobighat, Akkireddypalem	65	5	OD56503	Dhobighat Road, Akkireddypalem	100
Donkada Akkavanipalrm	56	5	OD55602	Donkada Akkavanipalem	50
Gangiredla Colony	69	6	OD66901	Gangiredla Colony	100
Islam Peta	55	5	OD55513	Islam Peta	50
KN Palem	55	5	OD55512	KN Palem	200
Maddvanipalen	55	5	OD55516	Maddivanipalem	50
Nakka doddi	55	5	OD55527	Nakka Doddi	30
Nammi doddi	55	5	OD55514	Near Nammidoddi Junction	30
Nammi doddi	55	5	OD55515	Nammidoddi	25
Palavalasa	55	5	OD55523	Palavalasa	40
Palavalasa	55	5	OD55524	Palavalasa	25
Pedal Devada	55	5	OD55518	Peda Devada	30
Prahladapuram	69	6	OD66903	Prahladapuram	200
Pydimamba Colony	43	4	OD44301	Beside Railway Track, Pydimamba Colony	150
Ramnagar	55	5	OD55521	Ramnagar	40
Reliveedhi	15 B	8	OD81501	Reliveedhi, Vizag Road	150
Sai Ram Colony	4	1	OD10403	Near Burial Ground, Sai Ram Colony	100
Sai Sowdha Colony	70	6	OD67002	Near Lakshmi Narayana Community Hall, Sai Sowdha Nagar	80

List of slums/ pockets/ colonies	Ward	Zone	Unique ID of the OD spots	Address	Estimated number of open defecators
SC Colony	66	6	OD66601	SC Colony, Yellapuvanipalem	50
Sri Ram Hagar Colony	33 A	7	OD73301	Sri Ram Nagar, Anakapalli	50
Sriramnagar	55	5	OD55522	Sriramnagar Temple	50
STColony	52	5	OD55201	Ramachandra Colony	50
Venkatadri Colony	66	6	OD66602	Venkatadri Gardens, Gopalapatnam	100
Yerukula Colony	69	6	OD66904	Near GVMC Zone Office, Yerukula Colony	100
Yethapalem	50	5	OD55003	Opposite Yethapalem Community Toilet, Yethapalem	200

Annexure 17 Survey tool for FGDs in slums



Sanitation Mapping of Visakhapatnam

Focus Group Discussion (FGD) with Slum Dwellers

Prepared by: Urban Management Centre

With Support from: Water and Sanitation for Urban Poor – Advisory (WSUP – A)

FGDs will be conducted in each slum (whether notified or non-notified) within 500m approximately of an identified open defecation spot or in slums from where residents come to that OD spot. The purpose is to understand the reasons and the intensity of open defecation in various slums. This will help the GVMC and WSUP-A team to devise relevant strategies for achieving ODF wards.

Methodology: Conduct field visits to the sites selected. On reaching the settlement, make a reconnaissance walk-around of the settlement. Discuss with residents about access to toilets and sanitation practices of the population in the settlement. Hold discussions with at least two sets of local informants, from different locations within the settlements, and as at least one set of women respondents. As a part of the above discussions, locate and talk to residents who do not possess their own toilets – ascertain if they use community or Public toilets, or whether they defecate in the open and where these sites are. Based on the above interactions, make an assessment of the reasons of open defecation practiced.

Date of FGD: dd/mm/year

Name of UMC enumerator: _____

Name & designation of facilitator (GVMC staff/ SHG / Slum level federation member): _____

Contact number of facilitator: _____

Section 1 – Observations of the enumerator

1. Name of the slum: _____

2. Number of households in the slum: _____

3. Land title of the slum (Tick any one):

- | | | |
|---|---|--|
| ☐ Own | ☐ Railway | ☐ Municipal Corporation |
| ☐ Private | ☐ Airport | ☐ Port Trust |
| ☐ State Government | ☐ Central Government | ☐ Forest Land |
| ☐ VUDA | ☐ Any other (describe) | |

4. Location of the slum (options may be more than one):

- | | |
|---|---|
| ☐ Along Nallah (major storm water drain) | ☐ Along water bodies (river, pond, lake, etc.) |
| ☐ Along railway line | ☐ Along the beach or port area |

Urban Management Centre; info@umcasia.org; www.umcasia.org

- ☐ Along major transport alignment ☐ On a mound/ hill slopes
- ☐ Any other (describe)

5. How old it is? (Tick any one):

- ☐ Less than 2 years ☐ 2-10 years ☐ 10-20 years ☐ More than 20 years

Section 2: Feedback of respondents in FGD

- 6. Representatives of how many houses are present in the FGD? (show of hands)** _____
- 7. Number of participants**
- ☐ Number of men ☐ Number of women
- 8. How many families have individual water connection? (show of hands)** _____
- 9. How many families have individual toilets? (show of hands)** _____
- 10. How many families have a sewer connection? (show of hands)** _____
- 11. How many families have a septic tank? (show of hands)** _____
- 12. How many families have a pit? (show of hands)** _____
- 13. Who cleans the septic tank/ pit?** _____
- 14. How much do the private contractors charge? (INR in Rupees)** _____
- 15. How frequently is the septic tank/ pit cleaned?** _____
- 16. Where is the sludge disposed?** _____
- 17. In how many families all members use the individual toilet? (show of hands)** _____
- 18. In how many families, children below the age of 5 years use the individual toilet? (show of hands)** _____

19. If not using, why? (options may be more than one)

- | | |
|--|--|
| ☐ Inadequate water | ☐ By habit |
| ☐ No light/ ventilation | ☐ Fear of septic tank/ pit getting full |
| ☐ Too many family members to use individual toilets | ☐ Any other (describe) |

20. How many families do not have an individual toilet? (show of hands) _____

21. Why don't you have individual toilet? (options may be more than one)

- | | |
|--|--|
| ☐ No space to construct | ☐ No money to construct |
| ☐ No willingness to construct | ☐ Socio-cultural reasons |
| ☐ Waiting for subsidy/ scheme | ☐ Application pending/ rejected |
| ☐ Hard rock strata | ☐ High water table |
| ☐ Any other (describe) | |

22. How many families use free community toilets? (show of hands)

23. How many families use pay & use toilets? (show of hands)

24. How many families use toilets shared with neighbours? (show of hands)

25. How many families defecate in the open? (show of hands) _____

26. Why do you defecate in the open? (Write keywords, descriptive responses, etc.)

General responses may include

Lack of individual toilets

PT/ CT not 24X7 operational

No PT/ CT nearby

Inadequate water

Insufficient seats in PT/ CT

By Habit

Unable to afford user charges

Poorly maintained PT/ CT

Improper drainage

27. Where do slum dwellers defecate in the open? (enumerators should visit these, click geotagged pictures of each OD spot)

a.	d.
b.	e.
c.	f.

Urban Management Centre; info@umcasia.org; www.umcasia.org

28. How far is the closest sewer line from the slum? Metres
29. Is there an active self-help group in the slum or a slum level federation? ☐ Yes ☐ No
30. Does the slum have Open Drain channels? ☐ Yes ☐ No
31. What is the predominant method of collection of waste from the slum?
- ☐ Door to Door collection ☐ Dumping on road side
- ☐ Community waste bin ☐ Other (specify)
32. Is there any Anganwadi located in the slum? ☐ Yes ☐ No
33. Is there a functional toilet in the Anganwadi? ☐ Yes ☐ No

Annexure 18 List and details of orientation meetings for FGDs

Date	Day	Zone	Location
12-07-2016	Tuesday	5	Zonal Office, Gajuwaka
14-07-2016	Thursday	1&2	GVMC Main Office, RTC Complex
16-07-2016	Saturday	3	Zonal Office
20-07-2016	Wednesday	8	Zonal Office
22-07-2016	Friday	6	Zonal Office

Annexure 19 Survey tool for KIIs with daily commuters



Sanitation Mapping of Visakhapatnam

Discussion at Transit nodes

Prepared by: Urban Management Centre

With Support from: Water and Sanitation for Urban Poor – Advisory (WSUP – A)

Short interviews with commuters/staff would be conducted at transit nodes (within 500 m approximately of an identified OD spots) to ascertain the reasons behind OD by commuters.

Date of FGD: dd/mm/year

Name & designation of facilitator (GVMC staff/ SI):

Name of UMC enumerator: _____

Contact number of facilitator: _____

Section 1 – Observations of the enumerator

1. Address
2. Landmark
3. Estimated footfall
4. Is there a functional toilet within the transit node/ complex/ stand/ building (Yes/ No)
5. Are there open drains in and around the transit node (Yes/ No)

Section 2: Feedback of respondents in FGD

6. Gender of the respondent	☐ Male	☐ Female
7. Category of respondent	☐ Commuter	☐ Staff/Workers
☐ If others, then specify		
8. Are you aware of a functional toilet within the transit node/ station/ building?	☐ Yes	☐ No
8.1 If yes, have you ever used it?	☐ Yes	☐ No
8.2 If yes, are you satisfied with the facility?	☐ Yes	☐ No
8.3 If no, why?		
☐ No water	☐ Cleanliness and maintenance issues	
☐ Safety issues	☐ Privacy issues	

Urban Management Centre; info@umcasia.org; www.umcasia.org

1

☐ If others, then specify			
9. If you don't use existing toilet where do you go for			
☐ Urinating			
☐ Defecating			
10. Are you aware of a functional PT/ CT nearby?		☐ Yes	☐ No
10.1 If yes, how far is the PT/ CT?		 Meters	
10.2 Do you use the PT/ CT?		☐ Yes	☐ No
10.3 If yes, are you satisfied with the toilet facility?		☐ Yes	☐ No
10.4 If not satisfied, why?			
☐ Cleanliness and maintenance issues	☐ No water	☐ Its crowded	
☐ Safety issues	☐ Privacy issues		
☐ If others, then specify			
11 If not using the PT/ CT, where do you go for			
☐ Urinating			
☐ Defecating			
12 How much would you be willing to pay for a clean and well maintained PT/ CT nearby?			
For using urinals/urination	Rs.	For using a toilet/ WC	Rs.

Annexure 20 Survey tool for KIIs at markets



Sanitation Mapping of Visakhapatnam

Key Informant Interviews with shopkeepers and workers of markets

Prepared by: Urban Management Centre

With Support from: Water and Sanitation for Urban Poor – Advisory (WSUP – A)

Key Informant Interviews will be conducted in market area (within 500m approximately of an identified open defecation spot). The purpose is to understand the reasons and the intensity of open defecation in market. This will help the GVMC and WSUP-A team to devise relevant strategies for achieving ODF city.

Form No.....

Date of FGD: dd/mm/year

Name & designation of facilitator (GVMC staff/ SI):

Name of UMC enumerator: _____

Contact number of facilitator: _____

Section 1 – Observations of the enumerator

1. Name of the market: _____

2. Landmark

3. Address

4. Type of market

☐ Formal retail market

☐ Informal retail market
(including weekly
markets)

☐ Combination of both

5. Estimated number of shops/stalls

6. Are there open drains in and around the market..... (Yes/ No)

Section 2: Feedback of Shopkeepers/vendors

7. Estimated number of people employed at the market

8. Estimated footfall

9. How old is the market? (Tick any one)

☐ Less than 5 years

☐ between 5 to 50 years

☐ More than 50 years

10. Number of participants	Male	Female	Total
----------------------------	------------	--------------	-------------

11. Does the market have its own toilets?	☐ Yes	☐ No
11.1 If yes, number of participants who use market's toilet?	Male	Female
11.2 How many participants are satisfied with the market's toilet?	Male	Female
11.3 Reasons behind not being satisfied with the toilet facility? (Male)		
☐ No water	☐ Cleanliness and maintenance issues	
☐ If others, then specify		
11.4 Reasons for not using the toilet facility? (Male)		
☐ Use Toilet at home	☐ Use Toilet at Shop	☐ Cleanliness and maintenance issues
☐ Use PT/CT nearby	☐ Defecate in open	
☐ If others, then specify		
11.5 Reasons behind not being satisfied with the toilet facility? (Female)		
☐ No water	☐ Cleanliness and maintenance issues	
☐ Safety issues	☐ Privacy issues	
☐ If others, then specify		
11.6 Reasons for not using the toilet facility? (Female)		
☐ Use Toilet at home	☐ Use Toilet at Shop	☐ Cleanliness and maintenance issues
☐ Use PT/CT nearby	☐ Safety issues	☐ Privacy issues
☐ Defecate in open		
☐ If others, then specify		
12. Is there any functional PT/CT nearby?	☐ Yes	☐ No
12.1 If yes, how far is the nearest PT/CT?	Metres	
12.2 Number of participants who use the PT/CT?	M	W
12.3 How many participants are satisfied with the PT/CT?	M	W
12.4 Reasons behind not being satisfied with the toilet facility? (Male)		

☐ No Water	☐ Cleanliness and maintenance issues	
☐ If others, then specify		
12.5 Reasons for not using the toilet facility? (Male)		
☐ Use Toilet at home	☐ Use Toilet at Shop	☐ Cleanliness and maintenance issues
☐ As an outsider not allowed to use it	☐ Cannot afford to pay	☐ Defecate in open
☐ If others, then specify		
12.6 Reasons behind not being satisfied with the toilet facility? (Female)		
☐ No water	☐ Cleanliness and maintenance issues	
☐ Safety issues	☐ Privacy issues	
☐ If others, then specify		
12.7 Reasons for not using the toilet facility? (Female)		
☐ Use Toilet at home	☐ Use Toilet at Shop	☐ Defecate in open
☐ Cleanliness and maintenance issues	☐ As an outsider not allowed to use it	☐ Safety issues
☐ Privacy issues	☐ Cannot afford to pay	
☐ If others, then specify		
13. If there is no toilet facility in market or PT/CT where do you go for		
☐ Urinating (Male)		
☐ Defecating (Male)		
☐ Urinating (Female)		
☐ Defecating (Female)		
14. In your opinion, should market association construct and operate the toilets for workers and visitors? (Male)	☐ Yes	☐ No
15. In your opinion, should market association construct and operate the toilets for workers and visitors? (Female)	☐ Yes	☐ No



16. If the existing PT/CT is cleaned and well maintained would you like to use it? (Male)		☐ Yes	☐ No
17. If no, why?			
18. If the existing PT/CT is cleaned and well maintained would you like to use it? (Female)		☐ Yes	☐ No
19. If no, why?			
20. If GVMC constructs a PT/ CT nearby, would you use it? (Male)		☐ Yes	☐ No
21. If no, why?			
22. If GVMC constructs a PT/ CT nearby, would you use it? (Female)		☐ Yes	☐ No
23. If no, why?			
24. How much would you be willing to pay per use for a clean and well maintained PT/ CT?			
For using urinals (Male)	Rs.	For using a toilet/ WC (Male)	Rs.
For urination (Female)	Rs.	For using a toilet/ WC (Female)	Rs.

Annexure 21 Survey tool for KIIs with Truck drivers



Sanitation Mapping of Visakhapatnam

Key Informant interviews with Truck-drivers and their helpers

Prepared by: Urban Management Centre

With Support from: Water and Sanitation for Urban Poor – Advisory (WSUP – A)

Key Informant Interviews will be conducted in market area (within 500m approximately of an identified open defecation spot). The purpose is to understand the reasons and the intensity of open defecation in market. This will help the GVMC and WSUP-A team to devise relevant strategies for achieving ODF city.

Date of FGD: dd/mm/year

Name & designation of facilitator (GVMC staff/ SI):

Name of UMC enumerator: _____

Contact number of facilitator: _____

Section 1 – Observations of the enumerator

1. Address
2. Landmark
3. Estimated number of trucks parked (or in waiting queue)
4. Are there open drains in and around the truck parking/ waiting area (Yes/ No)

Section 2: Feedback of respondents in FGD

5. Number of participants			
6. Are you aware of any functional PT/ CT nearby?	☐ Yes	☐ No	
7. If yes, how far is it?	 Km/m		
8. How many participants are using the PT/ CT?			
9. How many participants are satisfied with the PT/ CT?			
10. If not using the PT/ CT, why?			
☐ Use facility at port/ terminal	☐ Its poorly maintained	☐ Don't want to pay	
☐ If others, then specify			
11. If not satisfied, why?	☐ Bad condition of PT/ CT	☐ Timing issues	☐ Its crowded

Urban Management Centre; info@umcasia.org; www.umcasia.org

	☐ No water	☐ Others
12. If you have to go for toilet where you go?		
13. How much would you be willing to pay for a clean and well maintained PT/ CT nearby?		
For using urinals	Rs.	For using a toilet/ WC Rs.

Annexure 22 Survey tool for KIIs with construction workers



Sanitation Mapping of Visakhapatnam

Key Informant Interviews with construction workers

Prepared by: Urban Management Centre

With Support from: Water and Sanitation for Urban Poor – Advisory (WSUP – A)

Key Informant Interviews will be conducted in construction sites (within 500m approximately of an identified open defecation spot). The purpose is to understand the reasons and the intensity of open defecation in market. This will help the GVMC and WSUP-A team to devise relevant strategies for achieving ODF city.

Date of FGD: dd/mm/year

Name & designation of facilitator (GVMC staff/ SI):

Name of UMC enumerator: _____ Contact number of facilitator: _____

Section 1 – Observations of the enumerator

1. Address
2. Landmark
3. Are there open drains in and around the transit node (Yes/ No)

Section 2: Feedback of respondents in FGD

4. Number of participants	Male	Female	Total
5. Do you have toilet facility on the site?		☐ Yes	☐ No
If no, Why?			
5.1 If yes, number of participants who use toilet at site?		Male	Female
5.2 How many participants are satisfied with toilet?		Male	Female
5.3 Reasons behind not being satisfied with the toilet facility? (Male)			
☐ No water	☐ Cleanliness and maintenance issues		
☐ If others, then specify			
5.4 Reasons for not using the toilet facility? (Male)			
☐ Cleanliness and maintenance issues	☐ Use PT/CT nearby	☐ Defecate in open	
☐ If others, then specify			

Urban Management Centre; info@umcasia.org; www.umcasia.org



5.5 Reasons behind not being satisfied with the toilet facility? (Female)		
☐ No water	☐ Cleanliness and maintenance issues	
☐ Safety issues	☐ Privacy issues	
☐ If others, then specify		
5.6 Reasons for not using the toilet facility? (Female)		
☐ Cleanliness and maintenance issues	☐ Use PT/CT nearby	☐ Defecate in open
☐ Safety issues	☐ Privacy issues	
☐ If others, then specify		
6. Is there any functional PT/CT nearby?	☐ Yes	☐ No
6.1 If yes, how far is the nearest PT/CT?	Metres	
6.2 Number of participants who use the PT/CT?	Male	Women
6.3 How many participants are satisfied with the PT/CT?	Male	Women
6.4 Reasons behind not being satisfied with the toilet facility? (Male)		
☐ No Water	☐ Cleanliness and maintenance issues	
☐ If others, then specify		
6.5 Reasons for not using the toilet facility? (Male)		
☐ Cleanliness and maintenance issues	☐ As an outsider not allowed to use it	
☐ Cannot afford to pay	☐ Defecate in open	
☐ If others, then specify		
6.6 Reasons behind not being satisfied with the toilet facility? (Female)		
☐ No water	☐ Cleanliness and maintenance issues	
☐ Safety issues	☐ Privacy issues	
☐ If others, then specify		



6.7 Reasons for not using the toilet facility? (Female)		
☐ Cleanliness and maintenance issues	☐ As an outsider not allowed to use it	☐ Defecate in open
☐ Safety issues	☐ Privacy issues	☐ Cannot afford to pay
☐ If others, then specify		
7. If there is no toilet facility in market or PT/CT where do you go for		
☐ Urinating (Male)		
☐ Defecating (Male)		
☐ Urinating (Women)		
☐ Defecating (Women)		
8. If the existing PT/CT is cleaned and well maintained would you like to use it? (Male)	☐ Yes	☐ No
9. If no, why?		
10. If the existing PT/CT is cleaned and well maintained would you like to use it? (Female)	☐ Yes	☐ No
11. If no, why?		
12. If GVMC provides mobile toilet, would you use it? (Male)	☐ Yes	☐ No
13. If no, wh		
14. If GVMC provides mobile toilet, would you use it? (Female)	☐ Yes	☐ No
15. If no, why?		

Annexure 23 List of data contained under each data-heads in the cover page

Data head	Data sub-head
ADMINISTRATIVE	Name and number of wards
	Map depicting administrative boundaries, roads and railways, water bodies, important landmarks etc.
	Contour Map- showing all the natural features, as well as contours
DEMOGRAPHY	Census data - 2001 and 2011
	Slum population- Numbers, households, and estimated population (Census 2011)
	Floating population
	Slum/Non-slum population (Census 2011)
	Floating population
	Decadal Population growth rate (between 2001 and 2011)
	Gender composition of population – Male, Female (Census 2011)
	Map depicting the population density
LAND USE	Map with proposed land use - residential, commercial, Institutional, slums, green cover, open land etc.
	Map depicting government institutional buildings in GVMC
	Slum information-category, Number of households and estimated population (PMAY)
WATER SUPPLY	Sources of City's water supply
	Source of household water supply (GVMC)
	Access to piped water supply connections (Census)
	Coverage of piped water supply (Water Supply and Property tax departments)
	Proposed and Ongoing projects
	Map depicting the existing water source
TOILETS AND OD SPOTS	Individual Household toilets- Type of toilets (single pit, twin pit, dry, pour flush), Disposal arrangements (<i>bahao</i> , sewer, septic tank with soak away)
	Community toilets- functionality, number of households dependent, Number of seats, privacy, waste water disposal arrangements
	Public toilets- functionality, number of users, Number of seats, waste water disposal arrangements
	School sanitation-number of schools, number of boys and girls, and number of toilets for each
	Health and hygiene in low income groups - Awareness level (Reports if any)
	OD Spots- numbers, estimated number of users, reported reasons for OD
	Operation and Maintenance of toilets (user charges)- Number of free-to-use and pay-and-use toilets overall and by types (public and community), user charges at both types of toilets
	Operation and Maintenance of toilets (management responsibility)- Number of toilets, total functional toilets; private, community and municipality managed toilets
	Operation and Maintenance of toilets (Present condition of toilets)- Number of toilets, total functional toilets; overall condition of building and overall cleanliness of toilets according to type (public and community)
	Operation and Maintenance of toilets (Facilities provided) - Number of

Data head	Data sub-head
	toilets, total functional toilets; toilets with municipal water supply, sewer connections and electricity by type (public and community).
	Map depicting the location of public conveniences (public and community)
	Map depicting the location of OD spots
WASTE WATER DISPOSAL	Maps depicting coverage of household disposal mechanism (closed drain, open drain, and no drainage) (Census 2011)
	Map depicting Waste water management system- sewerage zones, location of STPs,
SOLID WASTE MANAGEMENT	Details on Solid Waste Management- Quantity of waste, secondary collection bins, conveyance system and disposal.
	Map depicting waste dumping site
STORM WATER	Details of storm water drains- zones, length of drains and areas covered
	Map depicting storm water drainage system
	Map depicting water-logging/flooding locations
WATER BODIES	Number of water bodies
	Water quality status (according to CPCB standards)
	Map depicting water bodies in the city and location of wastewater and solid waste disposed
KNOWLEDGE MANAGEMENT	Existing Knowledge Management Platforms
	Case studies and Best Practices
HEALTH	Diseases prevailing- 5 years data (at-least) - Ward wise; Previous epidemic details



Contact Details

Urban Management Centre (UMC)
A-202 GCP Business Centre,
Opposite Memnagar Fire-station,
Navrangpura, Ahmedabad – 380009
Phone/Fax: 91-79-26400306
E-mail: info@umcasia.org
www.umcasia.org