Rapid assessment report Berhampur

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Building a better working world

Disclaimer

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Abbreviations	
ABR	Anaerobic Baffled Reactor
ADM	Additional District Magistrate
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
AWW	Anganwadi Workers
BDA	Bhubaneswar Development Authority
BeDA	Berhampur Development Authority
BIS	Bureau of Indian Standards
BOD	Biological Oxygen Demand
BSS	Basic Safety Standards
CBO	Community Based Organization's
CDA	Cuttack Development Authority
CDMO	Chief District Medical Officer
CHO	City Health Officer
CMC	Cuttack Municipal Corporation
CPHEEO	Central Public Health and Environmental Engineering Organization
CSP	City Sanitation Plans
CSR	Corporate Social Responsibility
CSTF	City Sanitation Task Force
CT	Community Toilet
DEWATS	Decentralized Wastewater Treatment
DFO	District Forest Officer
DLRMC	District Level Review and Monitoring Committee
DMA	Directorate of Municipal Administration
DMF	District Mineral Foundation
DPR	Detailed Project Report
DUDA	District Urban Development Agency
DUSC	District Urban Sanitation Committee
FGD	Focus Group Discussion
FS	Faecal Sludge
FSM	Faecal Sludge Management
FSSM	Fecal Sludge and Septage Management
HH	Households
H&UDD	Housing & Urban Development Department
IDI	In-depth interviews
IEC/BCC	Information, Education and Communication/Behavior Change Communication
IHHL	Individual Household Latrines
IMTS	Indian Management and Technical Society
JICA	Japan International Cooperation Agency
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
J-PAL	The Abdul Lateef Jameel Poverty Action Lab
KL	Kilo L
l	L

Abbreviations

M+OG	Municipal area + Outgrowth area
MAS	Mahila Arogya Samiti
MHM	Menstrual Hygiene Management
MLD	Million Liters per day
MoU	Memorandum of Understanding
MoUD	Ministry of Urban Development
MSW	Municipal Solid Waste
m	Metre
NBC	National Building Code
NGO	Non-Government Organization
NULM	National Urban Livelihood Mission
NUSP	National Urban Sanitation Policy
O&M	Operations & Maintenance
OD	Open Defecation
ODF	Open Defecation Free
OISP	Odisha Integrated Sanitation Improvement Project
OSPCB	Orissa State Pollution Control Board
OUIDF	Odisha Urban Infrastructures Development Fund
OUSS	Odisha Urban Sanitation Strategy
OWSSB	Odisha Water Supply and Sewerage Board
PHEO	Public Health Engineering organization
PIU	Project Implementing Unit
PKDA	Puri Konark Development Authority
PMU	Project Management Unit
PPE	Personal Protective Equipment
PPP	Private Public Partnership
PS	Principal Secretary
PT	Public Toilets
RWA	Residential Welfare Associations
SAAP	State Annual Action Plans
SAI	Social Awareness Institution
SBM (U)	Swachh Bharat Mission – Urban
SDA	Sambalpur Development Authority
SeTP	Septage Treatment Plant
SFD	Shit Flow Diagram
SHG	Self Help Group
SLIP	Service Level Improvement Plan
STP	Sewage Treatment Plant
TC	Total Coliform
TSU	Technical Support Unit
UIDSSMT	Urban Infrastructure Development Scheme for Small and Medium Towns
ULB	Urban Local Bodies
WATCO	Water Cooperation
WKS	Ward Kalyan Samiti

Abbreviations	
WSC	Ward Sanitation Committee
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

Executive summary

With urban population of 7 million (Census 2011), the urban local bodies in Odisha are currently facing challenges of safe sanitation and effective Fecal Sludge and Septage Management (FSSM) in the form of significant public health and environmental risks. However, there is limited data and information on FSSM at state and city level which constraints programmatic interventions. In order to implement FSSM Programme in the towns/cities, it is crucial to understand the existing practices, structure, regulatory framework, capacities, awareness level, and gaps in the FSSM value chain. A rapid assessment study was conducted to examine the current FSSM scenario and generate critical information to develop a roadmap for implementation of FSSM in Berhampur town. In our primary survey convergent parallel mixed method approach comprising of both quantitative and qualitative methods was used to collect data.

Berhampur is the oldest city of Ganjam District in the State of Odisha. It is also known as “The Silk City” as it is famous for its silk saris. The City is governed by the Berhampur Municipal Corporation (BeMC). The ULB was a municipality from 1867 until 29 December 2008, after which it was declared as a municipal corporation. The City has population of 3.46 lakh without agglomeration (without including the extended portion of the city), and is the fourth most populous urban city in Odisha The total corporation area has been divided into 40 wards spread over 37.09 square km. The city has 73,335 households and out of which 19,134 households resides in 163 slums.

Sl. No	Indicators	Data
1	Total Population	3,46,015
2	Slum Population	91,813
3	No. of households	73,335
4	No. of slum households	19,134
5	No. of non-slum households	54,201
6	Average no. of person per household	5
8	Gender ratio	1000/920 (M/F)
9	No. of PT	Existing-7/Under Construction – 2/Defunct – 1
10	No. of CT	Existing-21/Under Construction – 1/Defunct – 2
11	HH with toilets connected to septic tank	48,034
12	HH with toilets connected to pit latrines	1,687
13	HH with toilets connected to sewer	7,994
13	No of cesspool vehicle	3 Trucks of 3000 L and 2 Trucks of 4500L

Ground water is the only source of water supply in Berhampur. Water demand of the town is 50 MLD.

There are about 40 ponds/tanks which serves as the main sources for domestic use. Around 45% of the population has water service connection while rest depend on other sources such as pumping wells, open wells, hand pump, tube well and municipal/private tanker. There is no sewerage system in the city area but recently Odisha Water and Sewerage Board (OWSSB) has started working on developing the sewerage network and sewage treatment plant for the city, for which detailed project report is under preparation. Most of the households have onsite sanitation with septic tank and soak-away pits. Collection of solid waste for 40 wards in the city is done door-to-door. There is no existing solid waste treatment plant in the city. The waste from the city is transported using compactor trucks and tipper trucks to the Chandania hill areas which is located almost 10 km away from the city boundary. The city has 392 km of road network and the roads are maintained by the Municipal Corporation.

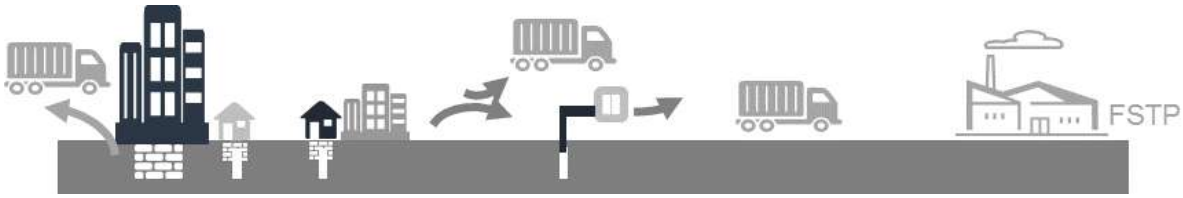
The Odisha Urban Sanitation Strategy 2017 mandates the formation of a Ward Sanitation Committee in each ward of the ULB consisting of 11 to 15 members. Presently there is no ward sanitation committee but. City has community based institutions under National Urban Health Mission (NUHM) such as Ward Kalyan Samiti (WKS) in all wards under ULB and also 170 Mahila Arogya Samiti (MAS) groups. Over 1300 Self Help Groups (SHGs) are functioning in various wards under National Urban Livelihood Mission (NULM). There are around 9 prominent NGOs actively working for the urban slum population and sanitation.

The income budget and expense budget estimate for FY 2015-16 was INR 55.35 crore and 42.73 crore respectively. The total expenses of ULB in FY 2015-16 were INR 33.75 crore as compared to the income, which was approximately 52.37 crore in the same period. The major part of the ULB inflows is through grants, which are 42% of the total receipts. The budget estimate for grants for the year 2015-16 was INR 6.5 crore while the actuals were INR 21.9 crore. This implies that the ULB is able to meet the costs with support of grants, contribution and subsidies, which constitutes 42% of their total income. While on the other hand the major part of the expenditure was due to establishment expenses which is 65% of the total expenditure. While the budget estimate for establishment expenditure was INR 30.22 crore, the municipal corporation only spend INR 21.39 crore.

The key policies regulations and guidelines focused on FSSM are indicated below.

The state level stakeholders bring in new policies, reforms and innovation with regard to funding mechanisms, creating an enabling environment and providing opportunities for the ULBs to implement reforms in sanitation or urban development projects in the city levels. While state level stakeholders build strategies, ULBs are critical stakeholders to implement those strategies, policies and plans. The district level stakeholders play supervising roles and monitor the progress besides facilitating the implementing processes in a limited way. Current institutional arrangement for FSSM starts with AMRUT funds being made available to OWSSB which tenders construction (on Engineering Procurement and Construction mode) and five year O&M to private players . Cesspool trucks are procured from state and transferred to ULB for O&M which in turn is tendering out to private players for seven year who are expected to meet operational expenses through service usage charges from households. BCC and capacity activities is planned to be conducted through SBM funds. Remaining funds are to be allocated through convergence with other schemes and departments such as National Urban Health Mission, National Urban Livelihood Mission and Labour Commission among others.

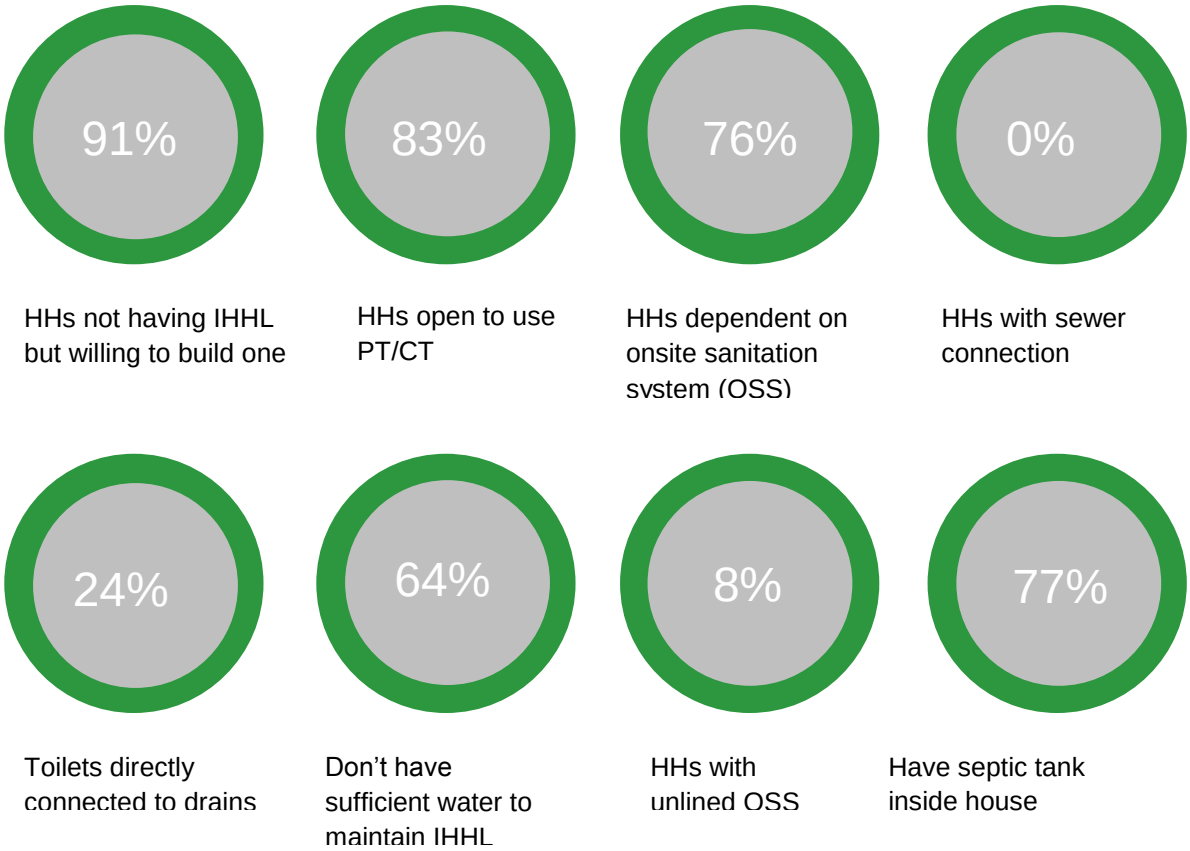
FSSM situation basis rapid assessment study is described hereunder



Toilet access and containment

As per the SBM 1,995 out of 10,878 HHs who do not have access to individual toilets[1] are to be provided IHHL till May 2017. This leaves out 8,883 HHs or 41,551 citizens directly or indirectly dependent on CTs/PTs. Total nine hybrid toilets[2] are allocated and all nine toilet complexes are under progress. Below are the key findings from our primary survey for 324 HH.

Figure 0-1: -Key findings on toilet access and containment



64% of the non-slum households have septic tank and 55% of the slum households use single pit and 24% HHs are directly connected to drains. Hence, there is a high chance of ground water source contamination Health implication is also huge for citizens since majority on them are dependent on ground water. This could be corrected through focused communication with community and capacity building of masons as 84%HH sought advice from them for designing and construction of septic tank/pits.

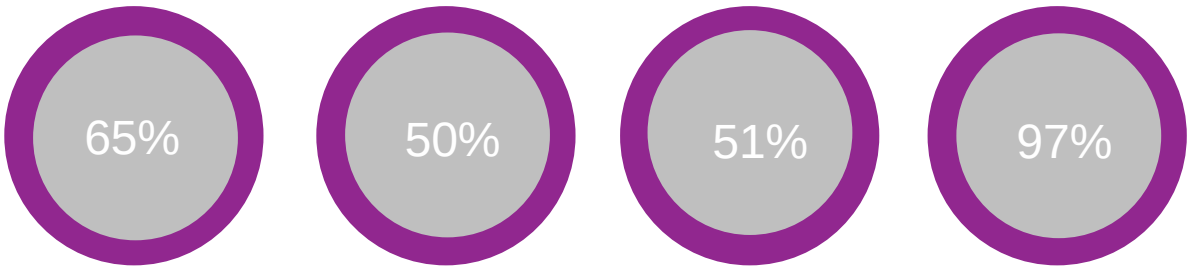
People directly throw solid waste into open drains which results in clogging/choking of drains and waste water over flows on roads due to this and also fecal matter directly through OD or indirectly through drains mix with water sources results in ground water contamination – Health officer-cum SBMIn-charge

[1] Census 2011

[2] Hybrid toilets is a concept being derived from both community and public toilets, where both options of pay-per-daily use and/ or pay-per-month options are available.

Emptying and transport

Currently the city generates 40 cubic meter of sludge per day and emptying capacity is 12 Kilo Liter (KL) which shall increase to 18 KL with introduction of new vehicles from ULB. The O&M contract of cesspool operation has already been awarded to an agency at INR750 per trip. Earlier the ULB was the only service provider. 50% HHs reported availing non-mechanized services. This could be due to vehicle inaccessibility due to narrow roads, which is more than 50%. Existing and new fleet of cesspool vehicles will have limited access due to vehicle width. The ULB and other officials have also highlighted this issue. Interactions with ULB personnel handing cesspool emptying operations revealed that their operations are not governed by any regulation. Following are the key findings from the limited primary survey.



HHs which have never emptied OSS

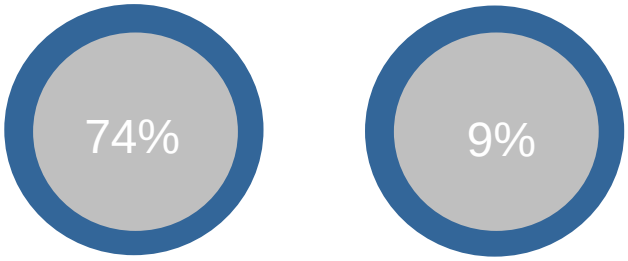
Received services through non-mechanized methods

HHs with road width less than 2 meter

HHs paid more than INR 1,000 for OSS emptying

Treatment, re-use and disposal

Fecal waste is being dumped at solid waste dumping site. This activity is not monitored though. However, a new site for temporary disposal through deep row entrenchment is identified. A 40 KLD (Kilo Liter per Day) Septage Treatment Plant (SeTP) is proposed to treat fecal sludge. The construction has started but the progress is slow due to limited understanding of contractor's knowledge on technology. As a result the Project Engineer is requiring additional review time on drawings leading to delay in construction work. Currently, there is lack of monitoring mechanism to track dumping of fecal waste[3]. Potential for re-use of treated waste water and dried manure generated post treatment is not yet explored. Following are the key findings from the primary survey.



Contacted ULB for emptying service

HHs aware where fecal sludge is dumped

The community and citizens can be made aware about the health consequences due to poor FSSM by educating them about the trends of diseases that are caused due to improper sanitation practice - CDMO

There is a tripartite agreement between the ULBs (only AMRUT towns) in Odisha, H&UDD and the OWSSB. As per this agreement OWSSB shall be the financial and implementation intermediary on behalf of ULBs for urban infrastructures. Yet there is need for an integrated approach. The OWSSB is constructing SeTPs and will take care of O&M until the facility is handed over to the ULB. But during primary interactions, city and district level officials highlighted lack of awareness of activities

[3] Source: State Pollution Control Board (SPCB) during primary interaction

on treatment plant. SeTPs and cesspool trucks are complimentary to each other but fall under the purview of different bodies. ULBs does not have environmental engineering sections to comply with standards in public health and environment. Primary survey found low level of citizen participation due to lack of engagement and recognition in the city governance.

Awareness among citizens
► While 96% of the participants are aware that open defecation causes ill-health to their children, only 24% aware that faecal contamination can cause malnutrition and 35% aware that it is one of the cause of jaundice. ► None of the households reported that Mahila Arogya Samiti (MAS) were creating awareness on sanitation. However, 25% of the respondents said to found Self Help Groups (SHGs) effective in creating awareness on sanitation. Though the promotion and campaign is focused on use of public or community toilets. ► Citizen's apathy and lack of participation and ownership for sanitation and hygiene was reported in FGD and IDI.

Table 7-5

Following are the interventions identified to improve FSSM situation. Interventions are divided into four thematic areas: Infrastructure related (including O&M, business models etc.), capacity building, governance reforms and IEC/BCC.

	**Toilet access and containment**	**Emptying and transport**	**Treatment, re-use and disposal**
Infra-structure (infra and O&M)	► Conversion of insanitary toilets to sanitary toilets by provision of scientific septic tanks can be prioritized ► Greater focus on CT, PT availability ► Explore sustainable O&M models incl. community led, private operators, micro enterprise led etc. ► Innovative models for O&M of these shared toilets (CT/PPT) to be explored while learning from practices adopted in other cities	► Optimize mechanized emptying fleet through mix of various types and sizes and also explore transfer stations ► Operating models to increase penetration of mechanized services and make them affordable and available ► Pilot project using GPS technology tracking could be initiated in select wards to monitor usage of mechanized emptying services and check illegal dumping ► Explore potential for scheduled desludging	► Readiness of SeTP to ensure provision of adequate facilities and efficient operations ► Readiness of SeTP to ensure provision of adequate facilities and efficient operations ► Intermittent solutions like at the drain outlet point, interceptors or de-centralized treatment ► Market for manure and treated water to be explored and included as part of the O&M contract to be defined for SeTP operator
Capacity building	► Capacity building of masons on design of scientific septic ► Building capacity of CBOs such as MAS, SHGs and Ward Sanitation Committees to spread awareness on importance of scientific onsite containment system among households	► Strengthened monitoring at community level by building capacity of MAS, Ward Sanitation Committee, CSTF and SHG to promote period emptying through mechanized emptying ► Capacitate ULB, parastatal and district officials through training in concept and programme design to increase their involvement ► Exposure visits to learn leading practices	

	**Toilet access and containment**	**Emptying and transport**	**Treatment, re-use and disposal**
Govern-ance reforms	► A regulatory set-up can be proposed for ensuring effective implementation of the Odisha septage management guidelines which mandates HHs to make it compulsory for all households to construct septic tanks/Twin pit/ VIP toilets ► Amendments could be made in ULB building bye-law to include provision of scientific septic tank as part of building approval process	► Effective implementation of the Odisha septage management guidelines which mandates HHs to clear out the septic tanks and strictly keep away from engaging manual scavengers. ► Implement provisions through ULB resolution of for emptying and transport activities adopting PPE while emptying and transporting ► Explore potential for training and empanelment of cesspool emptying service providers	► Strong regulatory enforcement to stop open discharge from drains into the river ► Regulation at ULB level to enforce disposal of faecal waste at only designated site
	► Strengthening district administration through participatory planning in city levels for integration with district planning and effectively escalate the issues to state levels through planning structures ► Restructuring the engineering department with added focus on environmental engineering ► Focus should be on zone and ward level interventions – a coordinated programme and overall M&E at broader level ► Formalization of community level institutions such as CSTF, WSC in city system ► Service level scores in each wards including sanitation and its integration with CSPs		
IEC/BCC	► A communication campaign under SBM to motivate people to convert insanitary toilets to sanitary ones using incentive provided under SBM ► Disseminate information to citizens on Onsite sanitation system solutions available in market which are economical and quicker to implement	► Communicate the harmful impact of non-mechanized emptying and indiscriminate dumping to relevant stakeholders - citizens, leaders, community groups, sanitation workers and ULB staff ► Identify ways to increase penetration of information to citizens on mechanized emptying service providers	

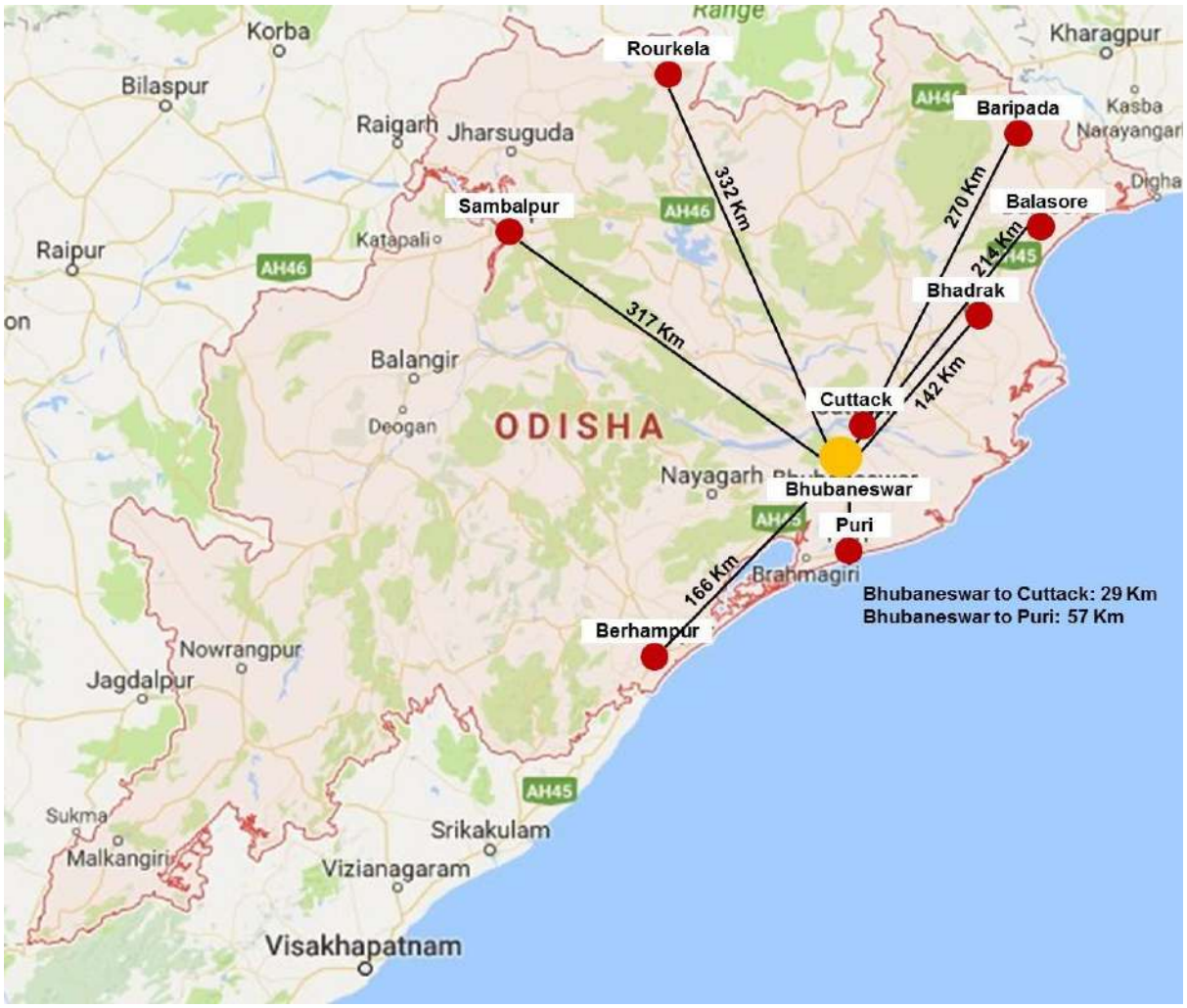
An implementation plan is also supplemented basis the key issues and related interventions as identified above during the rapid assessment. This plan shall focus on key milestones, activities, and identifying integration and dependencies across internal and external stakeholders to help steer FSSM program in the city.

1 Introduction

1.1 Background and rationale of the study

The management of onsite sanitation remains a neglected component of urban sanitation and wastewater management. Only recently have national governments, cities, and wastewater utilities begun to address the management of septage or the sludge that accumulates inside septic tanks and other onsite sanitation systems. With urban population of seven lakh (Census 2011) and statutory towns' population of 60 lakh, the urban local bodies in Odisha are currently facing challenges of safe sanitation and effective Fecal Sludge and Septage Management (FSSM) in the form of significant public health and environmental risks. Ernst & Young LLP (EY), with the support of Bill & Melinda Gates Foundation (BMGF) and at the request of Housing & Urban Development Department (H&UDD), Government of Odisha, are currently working to improve the sanitation situation through effective FSSM in select towns of the state.

In consultation with H&UDD, the towns of Balasore, Baripada, Berhampur, Bhadrak, Bhubaneswar, Cuttack, Puri, Rourkela and Sambalpur were selected as these are covered under Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and the rivers close to these towns were polluted as per reports of Odisha State Pollution Control Board[4]. These towns depend on on-site containment systems along with the prevalence of open defecation.



[4] Odisha State Pollution Control Board report on water pollution, 2015

As per Census 2011, the Open Defecation (OD) rate for these towns have been outlined in the table below:

Table 1-1: -OD rate for 9 AMRUT towns

Town	No of households
Balasore (M+OG)	31,539
Baripada (M+OG)	26,079
Berhampur (MC)	73,335
Bhadrak (M+OG)	23,084
Bhubaneswar (MC+OG)	2,04,056
Cuttack (MC)	1,21,919
Puri (M)	40,369
Rourkela (M+OG)	71,368
Sambalpur (M+OG)	42,623

Source: M+OG – Municipal Corporation/Municipality + Out Growth areas, Census 2011

Across the region, domestic wastewater has become the main contributor to the degradation of rivers, lakes and groundwater. Currently, there is limited data and information on FSSM at state and city level which constraints FSSM programmatic interventions. In order to implement FSSM programme in the towns/cities, it is crucial to understand the existing practices, structure, regulatory framework, capacities, awareness level, and gaps in the FSSM value chain among the key stakeholders. The rapid assessment study will assess the current FSSM scenario and generate critical information that will facilitate in developing a roadmap for implementation of FSSM in the nine AMRUT towns/cities. The rapid assessment reports are expected to generate a snapshot of the status of FSSM in 9 AMRUT towns.

Objectives of the study

- To assess current practices of FSSM value chain
- To identify the current capacity building needs of stakeholders like Urban Local Bodies (ULBs), cesspool operators, masons, Community Based Organization's (CBOs), citizen groups.
- To assess the institutional structure for operationalization of the FSSM
- To assess the current level knowledge, attitude and practices of key stakeholders and community members with regard to FSSM to contribute to the programme design

1.2 Approach and methodology

The rapid assessment study has adopted the following quantitative and qualitative methods to collect information.

1. Household primary survey for households, institutions and commercial establishments on access to onsite sanitation system and practices (Annexure 1 – Questionnaire for Household Survey)
2. In-depth interviews (IDIs) with key stakeholders – Officials and elected representatives of ULBSs, officials from other government institutions like Odisha Water Supply and Sewerage Board (OWSSB), Odisha State Pollution Control Board (OSPCB) & service providers like cesspool operators, masons, using semi structured IDI guide (Annexure 2 – Questionnaire for In-Depth)
3. In-depth interviews and Focus Group Discussion (FGDs) with citizen groups, Non-Government Organization (NGO), ULB-level Sanitation Committees, ward committees & other

CBO. Semi structure approach was used for FGDs. (Annexure 3 – Questionnaire for Focused Group Discussion)

For identifying the representative samples, we adopted multi-stage sampling for all 9 AMRUT towns.

Sample size for Berhampur

For the city of Berhampur, 324 households were surveyed, three FGDs and 14 IDIs were conducted over the period of April to May 2017 (Annexure 20 – In-Depth Interviews and Focused Group Discussion details). The quantitative data was analyzed using descriptive statistics and qualitative data using content analysis methods.

The analysis for sample size calculation for Berhampur considering their Municipal area is given below:

Table 1-2: -Sample size for Berhampur

City/Town Name	No. of Household	Wards	Required No of Wards	HH Required each city universe	%having latrine	Design effect	No of households surveyed
Berhampur (MC)	73,335	40	11	185	86%	1	324

Source: Census 2011

Sample size for wards in Berhampur:

Multistage sampling strategies were followed for the selection of the households. In first stage, 15 out of 40 wards were selected using simple random sampling methods, and then 30 households from each ward were selected using systematic random sampling methods.

Sample size for households in Berhampur:

In this assessment convergent parallel mixed method approach was used. Primary survey was conducted at household level. Total households of the city was the universe of the study and household was the sampling unit. Total number of households in Berhampur is 73335 (Census 2011). Sample size was calculated based on anticipated prevalence i.e. percentage of the household having individual latrine (84%). The power 80%, 95% Confidence Interval (CI 95%) and design effect 2 was applied to the households having individual latrine to arrive at the number of households to be surveyed.

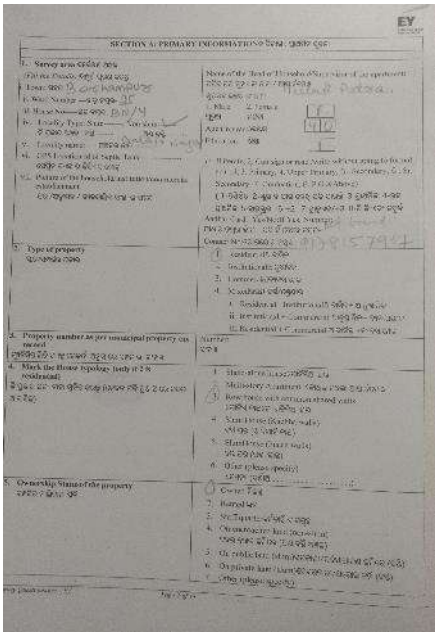
The formula used for calculating the sample size in open EPI info software is:

Sample size (n) = [DEFF*Np (1-p)]/ [(d2/Z21-α/2*(N-1) +p*(1-p)]

For Berhampur, the required number of households calculated using the above mentioned statistical information and formula was 324.

Demographic information, household access to sanitation facilities, septic tanks/pit related information and awareness on environmental and public health impact of sludge disposal and community engagement activities or each household were collected using pre-designed questionnaire. Before the interview written consent was obtained from the head of the household.

Figure 1-1: -Household Questionnaire and Survey



1.3 Limitations of study

The rapid assessment of sanitation situation in the city of Berhampur is performed in a period of 2 months, April to May 2017 with an intent to provide a quick overview of aspects relevant to sanitation and fecal sludge situation in a city and hence, can be limited in coverage.

Sample survey has its own limitations in terms of representative opinion which may not be apply for general population. The sampling technique explains the limitations in detail.

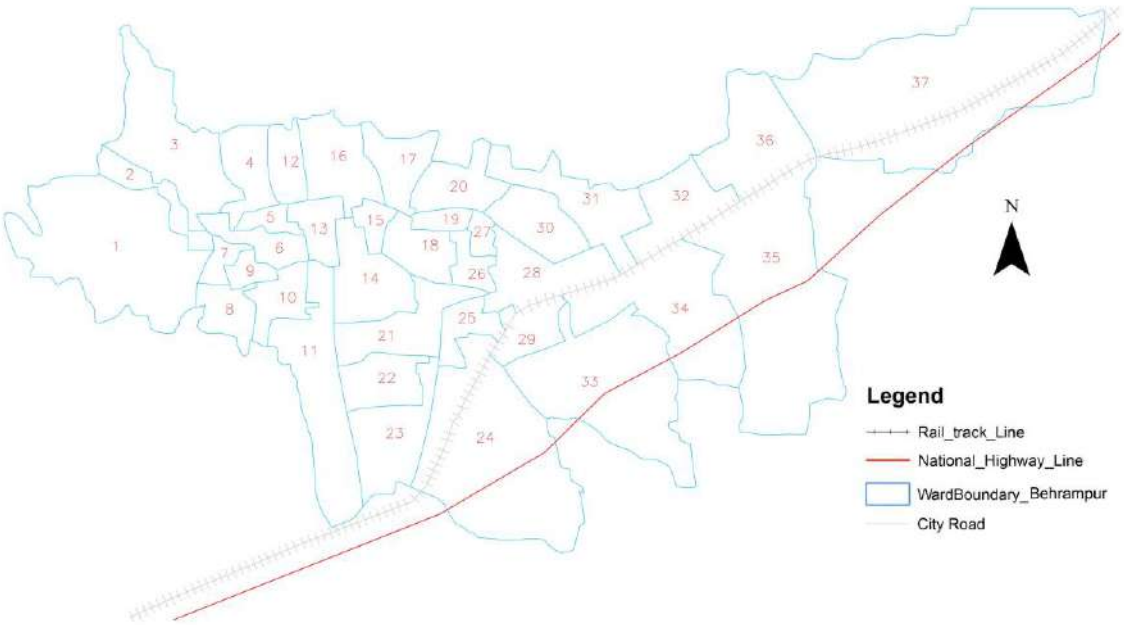
Storm water drainage is not being considered as part of the city since it is beyond the scope of FSSM. Study on FSSM is limited to pits and septic tanks while storm water drainage falls under liquid waste management.

2 City profiles

2.1 Location and regional settings

Berhampur is the oldest city of Ganjam District in the State of Odisha. It is also known as “The Silk City” as it is famous for its silk saris. The ULB was a municipality from 1867 until 29 December 2008, after which it was declared as a Municipal Corporation. . The city is situated at 19° 20’ N Latitude 84° 50’ E Longitude. Its average elevation above mean sea level is 24 m. The city is spread across an area of 37.09 km^2.

Figure 2-1: -Ward map of Berhampur



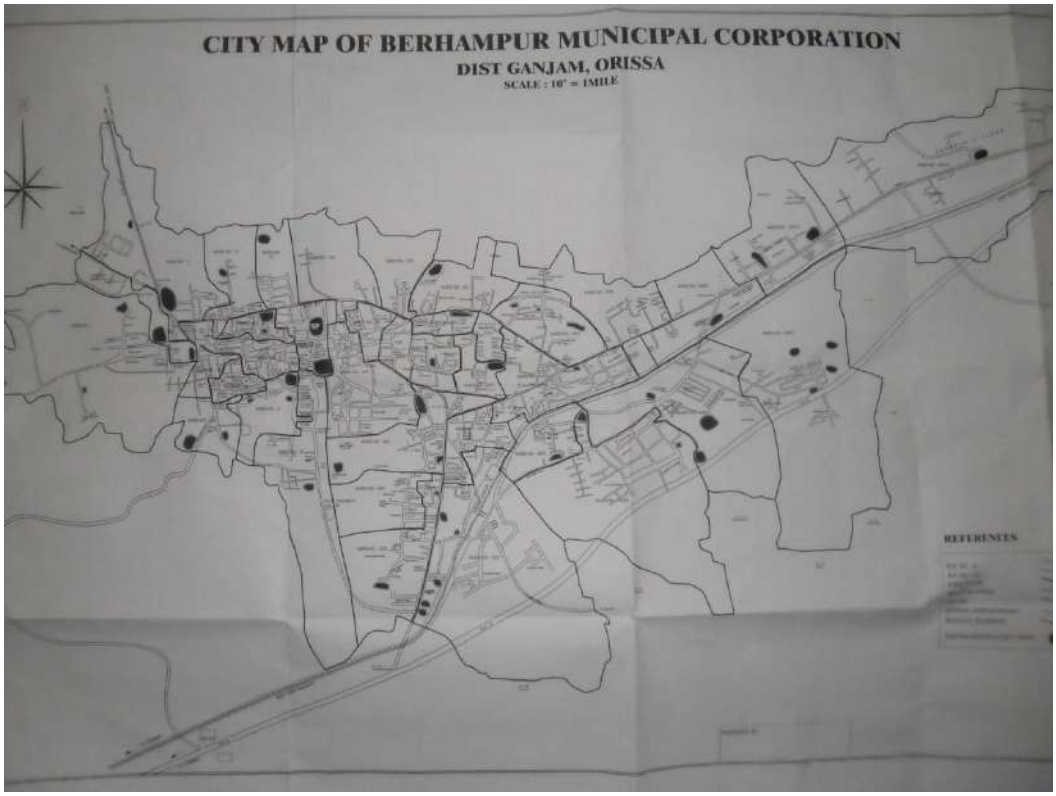
Source: Berhampur Municipal Corporation

The topography, geo-physical features and climate of the city are conducive for indefinite expansion and development. The area, as per seismic records available, is less prone to natural hazards like earthquake, volcano eruption and tsunami. But, it is very vulnerable to cyclones which generally occur during June to October. One super-cyclone which occurred during October, 1999 adversely affected the infrastructure set-up and socio-economic equilibrium in the area.

2.2 Demography

The population of the city is 346,015 as per the Census of India (2011) without agglomeration (without including the extended portion of the city), making it the fourth most populous urban city in Odisha.). It is an important commercial, business, educational and cultural center of southern Odisha. The total Corporation area has been divided into 40 wards. The identified slums in the city are shown below:

Figure 2-2: -Slum wards in Berhampur



Source: BeMC

Table 2-1: -Key demographic indicators

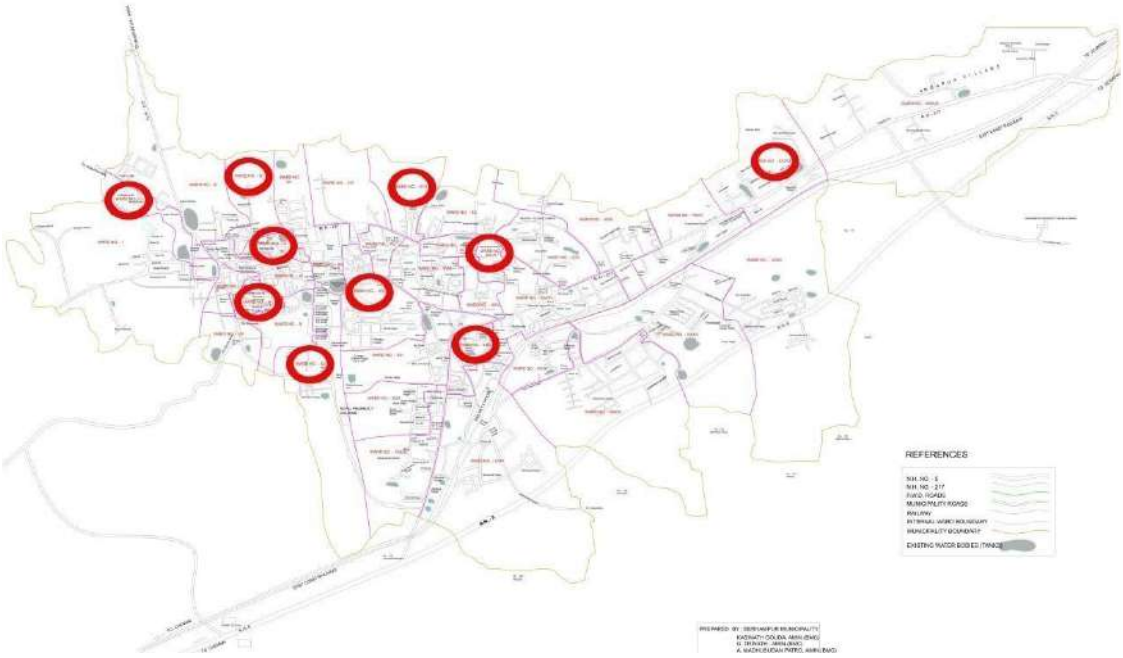
S.no	Indicators	Data
1	Total Population	3,46,015
2	Slum Population	91,813
3	No of households	73,335
4	No of slum households	19,134
5	No of non-slum households	54,201
6	Average no of person per household	5
7	Total wards	40
8	Slum wards	38
9	Vulnerable wards	10
10	Gender ratio	1000/920 (M/F)

Source: Census 2011

The city has about 10 wards which are vulnerable due to the following reasons:

- Wards are prone to water-logging due to low-lying areas.
- Wards are prone to epidemic diseases like malaria, jaundice and other water borne diseases etc.

Figure 2-3: -Vulnerable wards in Berhampur



Source: Berhampur Municipal Corporation

2.3 Overview of sanitation situation in Berhampur

Insanitary toilets, open defecation, choked drains, solid wastes dump yards are especially prevalent in the slums leading to serious threat of water and water borne diseases. The city has a lot of street side vendors who dump of solid wastes directly into open drains.

During the consultations, the PD of DUDA, Berhampur highlighted the need to address open defecation on a priority. He also mentioned that IEC & BCC activities are essential to eradicate OD. The Commissioner of BeMC has planned for night shifts for sweeping and 100% door-to-door solid waste collection. It has been planned that RCC slabs will be provided to cover most of the open drains in near future. With respect to septage management he mentioned that the biggest bottleneck is behavioral change of the citizens to adopt toilet use.

Berhampur's poor sanitary condition and lack of sewerage network as well as sewage treatment facilities create the inevitable dependency on on-site sanitation. While the city has 85.8% of households with access to individual household latrines; out of the existing 18 community toilets and eight public toilets, most discharge the waste directly into open drains. This practice is common in the city because of dense population and narrow roads which makes it difficult for nearly 50-60% households to access the cesspool services.

Objective:	To understand key sanitation issues
Participants:	PD(DUDA), Sanitary Inspectors, Health Officer, Regional Officer(OSPCB), CDMO and Community Organizers
Key observations:	• Open defecation is high due to the following reasons: ► Open defecation is being practiced by male members of the households having individual toilets due to shortage of water, cultural reason and big family sizes. ► Most of the houses share same wall and are attached with each other. Hence, there is very less scope for accessibility for cesspool vehicles to connect with the septic tanks/pit latrines. ► Due to unavailability of adequate water at some places, people resort to open defecation. ► Poor maintenance of community toilets and public toilets • Many cases of kidney diseases are identified due to contamination of ground water along with malaria and jaundice.

	• `The wastewater pipelines are connected to open drains in most of the cases. This leads to a poor sanitation situation. • Solid wastes generated from street side vendors as well as households are directly thrown in drains which results in clogging of drains. • Lack of awareness on the value chain of FSSM, open defecation and solid waste management and their impact on environment and health • Citizen's apathy and lack of participation and ownership for issues on sanitation and hygiene • Inadequate number of trucks and tippers for collection of solid waste • Citizen's apathy and lack of participation and ownership for issues on sanitation and hygiene • Due to huge length of *Kutchha* drains, cleaning of such is difficult.

Figure 2-4: -Insanitary toilet directly connected to open drains

2.4 Infrastructure facilities

2.4.1 Water supply

River Rushikulya is called the "Ganga" of Ganjam. It flows at a distance of about 30 km from the city and discharges into the Bay of Bengal near Gopalpur port. The domestic water demand of the City is 50 MLD. There are about 40 ponds/tanks which serves as the main sources for domestic uses. As per the Executive Engineer of Public Health Engineering Department (PHED), 7 out of 40 wards are full covered with 24x7 water supply whereas remaining 33 wards are partially covered with one hour per day of water supply. Slum areas are provided water supply by groundwater sources though wells, bore wells, tube wells and water tankers at the places where there is unavailability of groundwater.

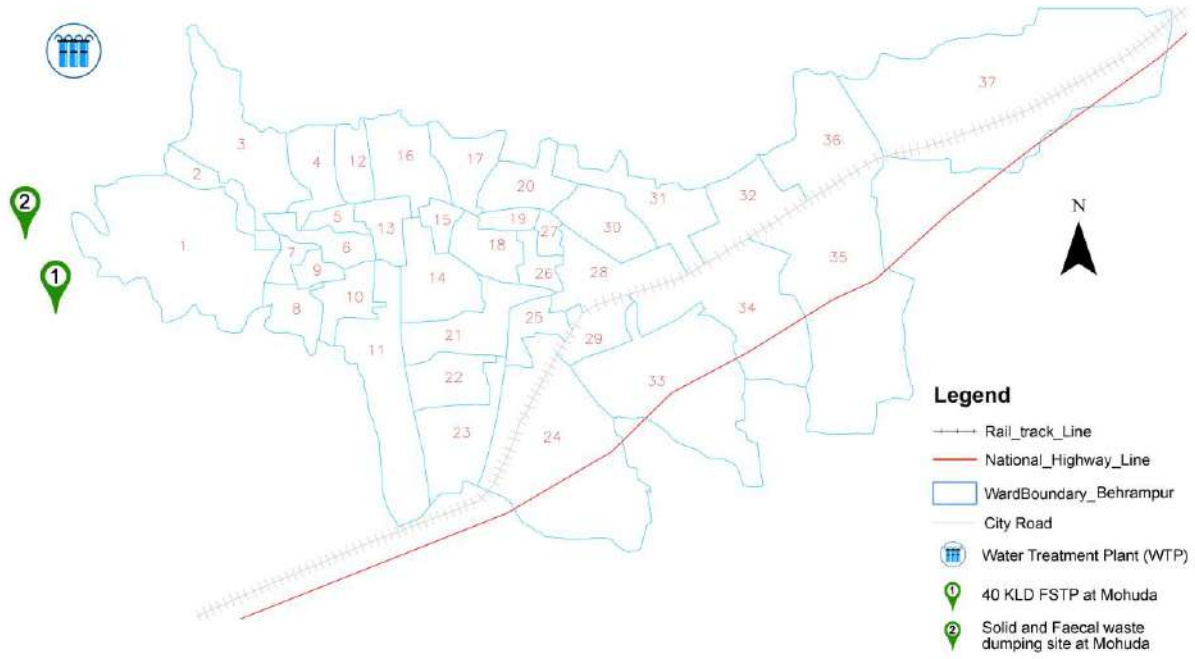
The City consists of one 31.25 MLD Water Treatment Plant (WTP) at Dakhinpur and one Membrane Bio-Reactor (MBR) for treatment of wastewater. The existing water supply is from surface source from Dakhinpur with 31.25 MLD WTP capacity, ground water source from Bada Madhapur collection wells with 20 MLD and 4 MLD from production wells in different locations in Berhampur. The City is covered by about 1,300 tube wells. The "Rushikulya Joint Water Supply System" with radial Collector Wells at Badamadhapur was commissioned in the year 1983. This system presently supplies 16 MLD water to Berhampur. The total existing water supply distribution pipe line in the city is 142.77 Km and another 154.2 Km pipe laying is in progress.

Figure 2-5: Eutrophication of Ramalingam Tank

2.4.2 Sewerage systems

As per the SLIP report for Berhampur there are no sewerage treatment facilities or sewage network in Berhampur[5]. The septage disposal is irregular and mostly to open drains. Hence the gap in these service level with regard to benchmarks prescribed by MoUD is 100%. Recently, the Odisha Water and Sewerage Board (OWSSB) has started working on detailed project report for developing the sewerage network and plant for the city, which is in a very initial stage. There are three Sewage Treatment Plants (STP) projects planned as per AMRUT guidelines for three specific zones in the city. The sewage is being collected by cesspool vehicles and dumped at a temporary designated site at Chandania Hill. However, construction of one 40 KLD Septage Treatment Plant (SeTP) is under progress, which is 5-6 km away from city boundary area. While the execution of construction work of SeTP is done by the OWSSB, Engineers India Limited (EIL) is the project management unit. The plant will adopt Anaerobic Baffled Reactor (ABR) technology for treatment. The boundary wall is completed up to plinth level (1st lift) and the foundation work for remaining structures has started. The completion of the plant is expected by end of 2017

Figure 2-5: -Location of water and sewage treatment plants and dumping site



[5] SLIP report for Berhampur, 2015

Source: Berhampur Municipal Corporation

2.4.3 Solid waste management

Berhampur generates around 143 MT of municipal solid waste per day out of which 135 MT gets collected. The waste is collected from secondary and community bins set up by BeMC.

Collection and transportation of mixed solid waste collected by both ULB and private party is done using auto tippers, tractors, dumper placers, trucks, compactors and is transported to Chandania Hill for landfill which is located 10 km away from the city boundary spread across 20 acres of land.

2.4.4 Road network

The roads in the internal parts of the city are very narrow and are mostly inaccessible for large cesspool vehicles. The total estimated length of road is about 391.94 km. The length of cemented road is about 249.8 km. The longest distance from wards to disposal site- 22 km (approx.). Mostly the slum areas are out of reach for cesspool services due to lack of access roads.

2.5 Community based institutions and structures

2.5.1 Ward Sanitation Committee (WSC)

The OUSS 2017 mandates the formation of a Ward Sanitation Committee in each ward of the ULB consisting of 11 to 15 members. Ward Councilor/Corporator, Sanitary Inspector or a designated officer by ULB for each ward, frontline workers, representatives of local Committee/Bazar Committee/Sahi Committee, representatives of Residential Welfare Associations (RWAs) of the ward, representatives from slum sanitation committee, representatives of CBO (SHGs, youth club etc.), senior citizens and eminent persons of the area shall be nominated to the said Committee by the Mayor in consultation with the local Corporator. The WSCs shall oversee the sanitation activity in the ward. The Member-Convener of each ward would be notified by the Commissioner. Presently, there are no Ward Sanitation Committees at Berhampur.

2.5.2 Community based institutions under the National Urban Health Mission (NUHM)

a) Ward Kalyan Samiti (WKS): WKS is formed at ward level under the urban local bodies (ULBs). It consists of 12 members including the corporator, frontline health workers, SI, community organizers etc. One of the main responsibilities of the WKS is to identify various health, water, sanitation and nutrition related issues/ problems and health resources of the ward particularly the slum areas. In Berhampur, WKS has been formed in all 40 wards.

b) Mahila Arogya Samiti (MAS): MAS is a local women's collective with an elected President, Secretary and a Treasurer. Each MAS covers approximately 50-100 households in slum and slum like settlements in a ward. One MAS be consists of 11-15 women members depending on the slum. It addresses local issues related to health, nutrition, water, sanitation and social determinants of health at slum level. In Berhampur, there are 170 MAS formed and they have been active in generating awareness on health and sanitation among the targeted households. The President and Secretary of MAS attend WKS meetings. The NUHM provides INR 5,000 as annual untied fund to each MAS for undertaking different activities in their slum or coverage area. The united fund can be used for conducting fortnightly/monthly meetings of MAS, sanitation and hygiene, meeting emergency health needs etc. The MAS meet at least once in a month.

2.5.3 SHGs formed in urban slums under the National Urban Livelihood Mission (NULM)

The main objective of the NULM programme is to reduce poverty and vulnerability of the urban poor HHs by enabling them to access gainful self-employment and skilled wage employment opportunities, resulting in an appreciable improvement in their livelihoods on a sustainable basis, through building strong grassroots level institutions of the poor. It aims at providing shelters equipped with essential services to the urban homeless in a phased manner.

Women SHG groups from same section of society/likeminded come together mobilization of urban poor and for enhancing their livelihood opportunities. It also has a social agenda as it focusses on

generating awareness on critical social issues. Till now over 1,300 SHGs are functioning in various wards under National Urban Livelihood Mission (NULM). The women SHG leaders are acceptable community leaders who can sensitize the other group members on sanitation and its impact on health. They can also motivate women to build Individual HH Latrines (IHHL) and adopt desirable sanitation practices

2.5.4 Others

The prominent NGOs actively working for the urban slum population and sanitation in Berhampur are as follows:

Table 2-2: -NGO's working for urban slum population

S. No.	NGO	Ward
1	HRDS, Bapuji Nagar, Berhampur	1,2,3,7 &8
2	JATTNA, Bijipur, Berhampur	24,25,26,27 & 35
3	SURAVI, State Bank Road, Berhampur	17,19,21 & 22
4	R.N.P, Engineering School Road, Berhampur	20,23,36,37 & 40
5	PALLI VIKAS, Gouda Sahi, Berhampur	13,14,15,16 & 18
6	SMILE, Prem Nagar, Berhampur	9,10,11 & 12
7	NEW INDIA, Panigrahipentho, Berhampur	4,5 & 6
8	M.S.Y.S, Dengausta, Ganjam	28,29,30,31& 32
9	GUIDE, Khodasing, Berhampur	33,34,38 & 39

Source: Berhampur Municipality Corporation

Figure 2-6: -FGD with CBO

Table 2-3: IDI and FGD response for roles of CBO in Berhampur

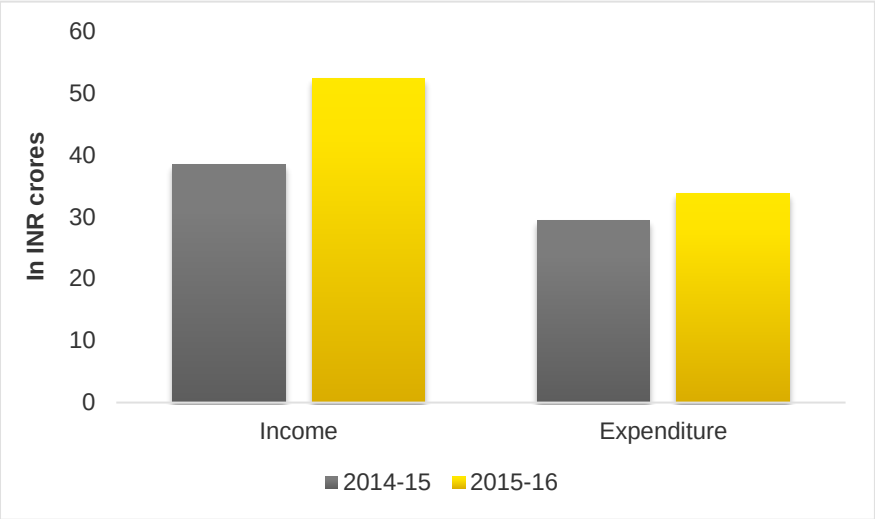
Objective:	To understand the roles taken by CBOs
Participants:	Sanitary Inspectors and CBOs(MAS & WKS)
Key observations:	• Community mobilization measures are being taken by the community based organization like MAS, SHG groups, community leaders, Anganwadi Workers (AWW). • They initiate sanitation drives to keep our slum clean and healthy. • They are trained on several important health issues like: care of the mother and new born, prevention, control and treatment of diarrhea, early identification of

	pneumonia and its treatment, nutrition and breast feeding, immunization, water and sanitation. • They sensitize mothers to adopt proper attitude in dispensing with household wastes so that the cleanliness both within and outside is well maintained.

2.6 Municipal Finance

An attempt is made to analyze the income and expenditure patterns in the Municipality during FY 2014-15 and FY 2015-16. It is observed that the income and expenditure estimated during the FY 2014-15 is higher than those in FY2015-16. While the income has increased by 26.6%, expenditure has grown by 12.7% from FY2014-15 to FY2015-16. The income budget and expense budget estimate for FY 2015-16 was INR 55.35 crore and 42.73 crore respectively.

Figure 2-7: -Income and expenditure pattern in Berhampur

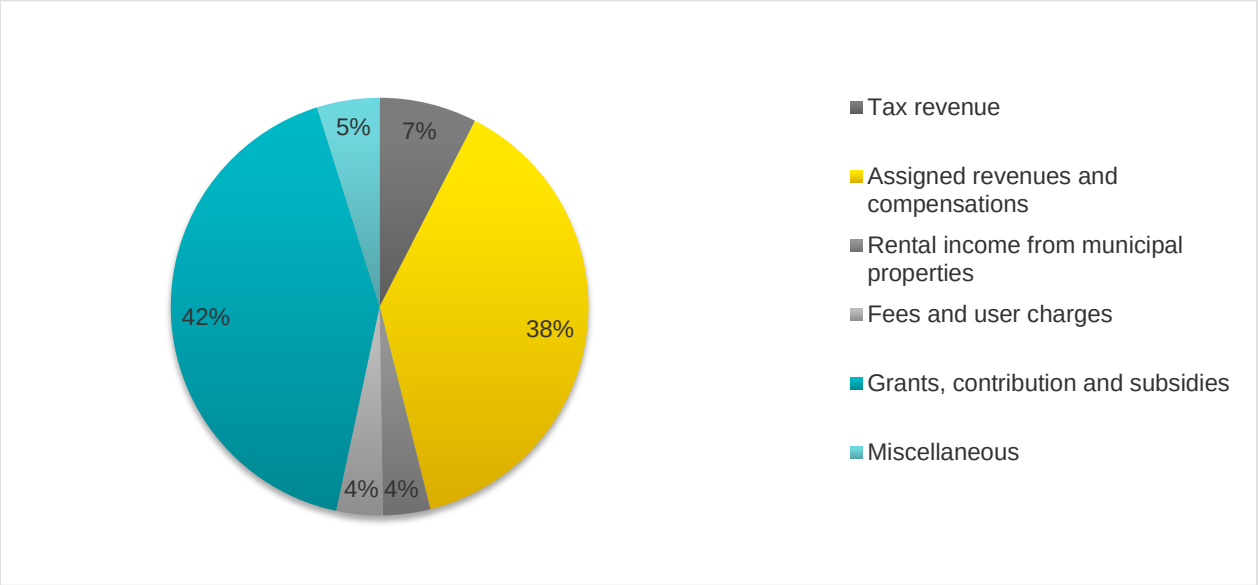


Income

A detailed analysis of municipal revenues and expenditures for the year 2015-16 shows that assigned revenues and compensations as well as the govt. grants are the major sources contributing to 42% and 38% of the total revenues respectively. The budget estimate for grants for the year 2015-16 was INR 6.5 crore while the actuals were INR 21.9 crore. The next major contribution is from tax revenue, which contribute to 7% of the total revenue. Tax revenue includes holding tax, latrine tax, electricity tax, water tax and drainage tax. It is mentioned in the financial sheet

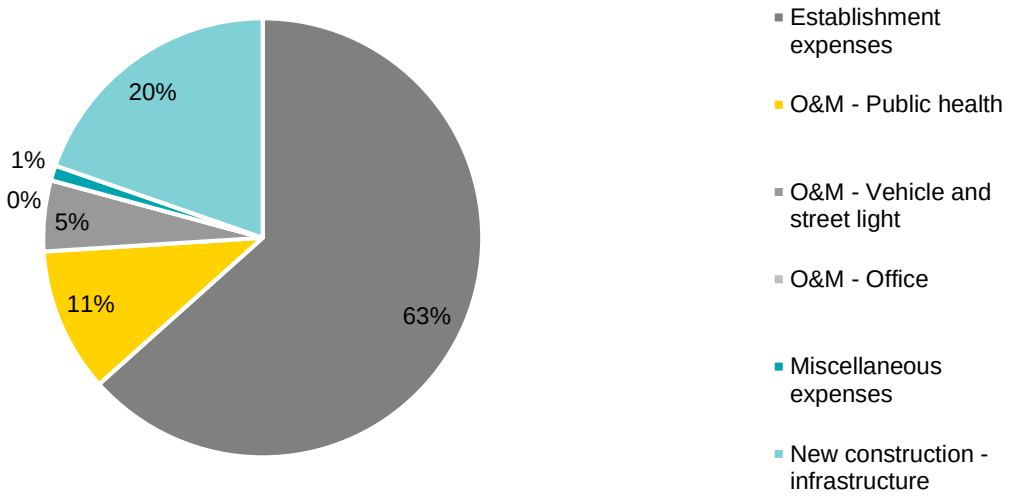
Other sources of income includes rental income from municipal properties and fees and user charges which contribute to 5% and 4% of total revenues respectively.

Figure 2-8: -Income of BeMC in FY2015-16



Expenditure

Figure 2-9: -Expenditure of BeMC in FY2015-16



The total expenses of ULB in FY 2015-16 was INR 33.7 crores as compared to the total income of INR 52.3 crores. This implies that the ULB is able to meet the costs which it accumulates through the grants, contribution and subsidies constitutes about 42% of their total income.

Establishment expenses constitutes 63% of the total cost for BeMC. This includes the salary paid to staff. While the budget estimate for establishment expenditure was INR 30.22 crore, the municipal corporation only spend INR 21.39 crore. It can be observed that operations and maintenance in terms of public health, vehicle and street lights and administrative expenses contributes to 16% of total expenditures. The BeMC also received funds under 14th Finance commission. In the last two financial years, INR 4.9 crores and INR 21.9 crores were received under this grant.

3 Policy, regulatory and institutional framework

3.1 Overview of national policies and framework

The public policies of urban sanitation in India is moving in-line with political and development contexts, trends and patterns of urbanization and the magnitudes of challenges that urban sanitation sector is posing before the nation. Urban sanitation is primarily a state subject. However, urban sanitation is dealt at center, state and city level by Government of India, Government of Orissa and Municipalities, respectively. In the field of urban sanitation policies in India and in Odisha, there is a 'paradigm shift' in approaches and frameworks in the current policies and programmes in compare to the previous ones. At present, urban sanitation interventions are target oriented[6] and partnership based[7] to bring universality, efficiency and sustainability in sanitation services. The key focus areas of these policies have been tabulated below. Across the Country including Odisha, urban sanitation activities are being governed by the Swachh Bharat Mission (SBM-U) programme. .

Swachh Bharat Mission (Urban)

A recent study conducted by Ministry of Urban Development (MoUD), 2016 found progress of Odisha in the SBM targets need accelerations[8] to meet the mission targets. Out of 511 cities[9], declared as ODF till March 2017, not a single city form Odisha has been able to find a place in this list. The Swachh Survekshan 2017 conducted by MoUD in all major cities in Odisha shows in decline in ranks indicating real challenges before the state to achieve sanitation goals. In the FSSM context, SBM guideline specifies that "in addition to the construction of the toilet superstructure, an onsite treatment system (such as twin pits, septic tanks, bio-digesters, or bio-tanks) should also be constructed for the collection, treatment, and/or disposal of sewage at or near the point of generation[10]. The guidelines specifically mentioned that ULB officials or private contractors should "ensure safe disposal of septage at a treatment plant," however, it doesn't specify any monitoring framework or suggestive action steps that states can adopt if the quality standards of construction of septic tanks or emptying and safe disposal by private contractors are not met.

1. National Urban Sanitation Policy (NUSP), 2008 [11]

The key perception of NUSP 2008 is that changing mind-sets is often harder than changing technology and the policy attempts to address many institutional issues, the plight of the urban poor, especially the manual scavengers, the lack of awareness on sanitation, integrated planning, and the lack of technical knowhow and capacity due to which most of our infrastructure facilities to not operate efficiently. NUSP, 2008, brought about a paradigm shift in India's approach from a 'conventional centralized sewerage network' approach of urban sanitation to a more 'holistic framework'. With regard to FSSM, NUSP has very clearly outlined the following:

i. Promoting proper disposal and treatment of sludge from on-site installations (septic tanks, pit latrines, etc.)
ii. Ensuring that all human wastes are collected safely, confined, and disposed of after treatment so as not to cause any hazard to public health or the environment;
iii. Promoting proper functioning of network based sewerage systems and ensuring connections of households to them;
iv. Encouraging recycle and reuse of treated waste water for non-potable applications, wherever possible.

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[6] SBM targets to make India ODF by 2nd October 2019

[7] One of the guiding principles of SBM is encourage PPP and involve civil society groups, academic institutions, corporate bodies, users associations, NGOs, corporations and ensure citizens participation etc.

[8] MoUD 2017

[9] MoUD 2017

[10] SBM(U) guidelines 2016

[11] A revised version of NUSP is currently in draft and has not been released yet.

v. Initiating a framework for cities to prepare City Sanitation Plans (CSPs) under the scheme of State Sanitation Strategy.

A key highlight of the Policy and the award plan is that the focus is not on infrastructure development alone but outcomes and behavior change. Under the policy, all states are required to develop state sanitation strategies according to the national guidelines. Odisha was the first state in the country to develop Odisha Urban Sanitation Strategy (OUSS) in 2011 in response to the NUSP 2008. The state has also redeveloped the OUSS in 2016 by fixing a target to achieve NUSP goals and objectives by 2026. In In order to realize the goals of NUSP, MoUD has recently released a primer on FSSM as well as Rapid Assessment Tool to estimate the budget for FSSM. The aim is to implement citywide FSSM. This tool gives an estimate of the financial requirement of the city to put in place the necessary infrastructure for FSSM. The MoUD has also directed the states to assign responsibility of FSSM to the respective 'Water and Sanitation Board' and rename these boards as 'Water, Sanitation, and Septage Board.[12]

2. Atal Mission for Urban Transformation (AMRUT) guidelines 2017

AMRUT is a step forward to implement NUSP 2008 in urban areas. The AMRUT guidelines 2015 stipulated the need of septage management especially, 'mechanical and biological cleaning of septic tanks' and central funding support in partnership of state government has been suggested. However, it does not emphasize on dedicated septage treatment facilities or disposal/reuse of the sludge. Enhanced convergence between AMRUT and SBM (Urban) would streamline activities for making ODF communities. In Odisha, only nine Class I cities with population above one lakh are covered under the AMRUT scheme and are constructing the SeTPs. Small towns are not covered in AMRUT and the guidelines focus more on coverage rather than treatment and reuse. The AMRUT cities covers almost 50 % of Odisha's urban population and all nine cities have a clear cut SLIP covering all sanitation components on priority and have adopted an 'integrated service approaches' - water supply, access to toilets by all, storm water management, waste water management and solid waste management. The state has also prepared a State Annual Action Plan (SAAP) for project period (2015-2020).

3. National FSSM policy 2017

The key objective of the urban FSSM Policy is to set the context, priorities, and direction for, and to facilitate, nationwide implementation of FSSM services in all ULBs such that safe and sustainable sanitation becomes a reality for all. It seeks to address the efficiency of systems in place for onsite sanitation whereof the fecal sludge output needs to be managed in an environmentally safe manner including the proper engineering design, construction and maintenance of septic tank systems, pit latrines and such other systems generating fecal sludge. It defines the roles of each levels- center, state and ULBs with technology options and clarification of roles and responsibilities of institutions. Only on-site sanitation facilities and areas served by such facilities would fall under the purview of this FSSM Policy. It does not seek to cover network or conventional sewerage system (including treatment plants) of wastewater/sewage management[13]. However it will address synergies between FSSM and sewerage systems or municipal solid waste (MSW) management, e.g., co-treatment of fecal sludge and septage at sewage treatment plants or co-treatment and management of fecal sludge and septage, and MSW.

The policy lay stress on the setting up of fecal sewage treatment plants in cities and urban local bodies, as well as address the restructuring of sewerage systems in urban India. It also addresses gaps in urban sanitation and lays a clear vision and objectives to deal with fecal sludge and septage management. It has been duly recognized by the MoUD that the objectives of the SBM cannot be fulfilled without a dedicated FSSM Policy. Management of fecal sludge in urban areas should go hand-in-hand with the installation of toilets before the gap between production of sludge and its treatment becomes too wide to exist. The policy provides proper outcomes with well-defined

[12] AMRUT reforms

[13] National FSSM 2017

directions.

3.2 State level policy and regulatory framework

1. Odisha Urban Sanitation Policy (OUSP-2017)

Odisha Urban Sanitation Policy (OUSP) 2017 is the most recent policy document that has evolved on the lines of overall sanitation goals and objectives set in the national and international policies and programmes on sanitation. The aim of this Policy is to support the implementation of India's National Urban Sanitation Policy, 2008 in Odisha. It also has brief sections on institutional mechanisms, planning and financing, incentives for urban local bodies (ULBs), and implementation, reaching the un-served population and urban poor, provision for migrants and the floating population, and behavior change communication, proper operation & maintenance of all sanitary installations.

Key outcomes envisaged through OUSP 2017 are

- Urban areas will be Open-defecation (ODF) and open discharge free (ODF +/++)
- Sewage, septage and liquid waste will be safely managed
- MSW will be safely managed
- Women and girls will have access to safe MHM
- Safety standards and guidelines would be followed in the entire service chain
- Cities/towns would not pollute rivers/ basins
- A sustainable and comprehensive business model over septage management

2. Odisha Urban Sanitation Strategy (OUSS-2017)

OUSS (2011) had a target to achieve ODF by 2017. However, this target has now shifted to 2026. SBM target is to achieve ODF by 2019. Odisha urban sanitation strategy (2017) was formulated to achieve the goals set in OUSP 2017. Key strategies are -

- Solid Waste –Practice of 3 R's at source, door to door collection, transport dumping and treatment
- Cost recovery, end to end service, reuse
- Sanitation is beyond toilets (ODF+ and ODF ++)[14]
- Liquid Waste – waste water management , FSSM services in sanitation chains
- Multiple Approaches for ODF – IHHL, Public Toilets, Community Toilets, Hybrid Toilets, Mobile Toilets etc.
- Sanitation still remains supply driven. It needs to be demand driven
- Equity and safety for access and use for the vulnerable and unserved
- Awareness
- Institutional roles and responsibilities as well as capacity building
- Emphasis on O&M , PPP and private participation
- Environmental concerns in service delivery
- Robust city and district level institutional structures – District Urban Development Agency (DUDA), District Urban Sanitation Committee (DUSC), City Sanitation Task Force (CSTF), Ward Sanitation Committee (WSC) and users association for engagement

3. Odisha Septage Management Guidelines (2016)

The Housing & Urban Development Department, Government of Odisha, intends to put in place a set of operative guidelines for ULBs that will formalize and provide a framework for safe handling of septage in the entire sanitation delivery chain (containment, emptying, transport, treatment, and disposal/reuse) and aims to achieve the goals of OUSS,(2016-2026). These guidelines conform to the advisory note on septage management developed by the MoUD and the guidelines on design and

[14] ODF+ (No undesignated discharge of septage, sewage and black water)
ODF++ (No open discharge of human fecal and liquid waste, and safe containment, transport, treatment, and disposal of all human fecal waste, and waste water (black and grey)

construction of septic tanks issued by the Bureau of Indian Standards (BIS) and the Central Public Health and Environmental Engineering Organization (CPHEEO). Further, these guidelines are intended to strengthen the existing framework focused on implementing the provisions of the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013, in the state of Odisha.

The operational procedures outlined in these guidelines are applicable to all ULBs of Odisha and covers the following areas:

- Framework on septic tanks, including standard design and construction;
- Adoption of desludging procedure for the septage generated;
- Safe transportation of septage from collection point to receiving facility;
- Technological intervention for proper treatment of septage, disposal, and re-use;
- Public awareness

The guidelines framed by the H&UDD of Odisha have made it compulsory for all households to construct septic tanks and stop the sludge from out flowing into municipal drains. The rules direct house owners to contact only civic body officials or other registered sanitary agencies to clear out the septic tanks and strictly keep away from engaging manual scavengers.

3.3 Existing regulatory framework

The regulatory and institutional framework for FSSM is defined in the earlier sections. In Odisha, FSSM rules and programmes falls under multiple agencies. The OWSSB creates assets and infrastructures and sewerage network projects in five cities[15] at present. The O&M of sewerage facilities is done by the OWSSB for the CDA area in Cuttack and in Puri and the Rourkela Municipal Corporation (RMC) for Koel Nagar area in Rourkela.

State level

ULB is the constitutional body accountable and responsible for the sewerage system / septage system as part of urban sanitation as per 74th Constitutional amendment but lacks capacity to handle the service. The state government has arrangements for tripartite agreement between the H&UDD, parastatals and ULBs for the service provisions.

The Directorate of Municipal administration (DMA) is the key department to monitor the ULBs for adherence of rules and regulations and promote capacity in HR and Finance. The Urban Sanitation Mission is headed by the Chief Minister of Odisha and the State Steering Committee is headed by the Chief Secretary and the State Management Committee is headed by the Principal Secretary of H&UDD. Public health and environment standards are as per the CEPHEO guidelines and the Orissa State Pollution Control Board (OSPCB) serves notices to violators including the ULBs. It is strictly mandated under the laws to adhere to BIS, Basic Safety Standards (BSS) and National Building Code (NBC) for the construction of septic tanks. The two mission directorates - AMRUT and SBM - are handling FSSM services. However, the above mentioned standards and guidelines are required to be implemented by development authorities (BDA, PKDA, CDA SDA, Beda etc.[16]) under the overall guidance of State Directorate of town Planning

Moreover, other departments are also linked. The Planning & Coordination Department which handles the District Mineral Foundation (DMF) funds can play big role in FSSM under the present strategy of the government. The Health & Family welfare Department will be heavily involved in community mobilization. For skill promotion among the masons and scavengers, the Skill Development Authority and finance agencies like SC ST Finance Corporations can be leveraged. Engagement of private agencies has become more common as many corporate houses and private

[15] Puri was commissioned in 2014. Bhubaneswar and Cuttack is under process and expected to be commissioned by 2018 (JICA). In Sambalpur and Rourkela –contract has already been awarded. Berhampur is in DPR stage.

[16] Bhubaneswar Development authority, Cuttack Development authority, Sambalpur Development authority, Berhampur Development authority

parties have started playing a role in FSSM.

District level:

District collector is given ample power in urban sanitation to steer the processes both as a regulator and as a promoter. As urban sanitation carries multiple processes district administrations such as District Forest Officer (DFO), Additional District Magistrate (ADM), Tehsildar and others are part of FSSM processes. Project Director, District Urban Development Agency (PD-DUDA) is vested with powers to supervise and monitor the ULBs in all affairs including the District Urban Sanitation Committees (DUSC). DUSC is expected to take ownership of urban sanitation planning and execution, get funds and approvals from state and center and also integrate the same with district Planning. Institutions like OSPCB, OWSSB, PHEO, Water Resource Department (basin engineers) based in the regional set ups are also part of FSSM institutions. However, district structures and agencies need to be more proactive in urban sanitation.

City level

City level institutions are basically ULB councils who take all decisions over the ULB affairs. It consists of legislative wing, controlled by the Mayor and Chairpersons and executive wing headed by Executive officers and commissioners. The CSTFs and WSCs are also have roles to pay as per OUSS 2017.

Regulatory and institutional developments

From the point of view of urban sanitation in general and FSSM in particular, most encouraging developments in Odisha are formations and operations of District Mineral Development Foundation (DMF)[17] in all 30 districts, formation of CSR state Council under the chairmanship of Chief secretary of Odisha and the proposal for enactments of Urban Waste Water Management Act.

In case of DMF, until June 2017, around INR 2,800 crores have been collected as royalty from mines and minerals areas but remain unspent. This could be leveraged out for the urban sanitation infrastructures including SeTPs, constructions of CT, PT and HTs including even purchase of cesspool trucks as these infrastructures involves bulk money to be budgeted. Though all 30 districts are DMF districts, yet some 13 major mineral rich districts have huge opportunities to be leveraged out. Keonjhar district has taken the lead and SeTPs have been sanctioned from DMF funds in five ULBs.

Like DMF, as per Companies Act 2013 every corporate entity with net profit of INR 5 crore is required to spend 2% of their profit on mandatory CSR activates. Odisha is one of the leading industrial state with quite a good amount of CSR funds which could be spent for development of the state. Recently the state government has formed the State Council of CSR under the Chief Secretary of Odisha to prioritize the CSR funds allocations and spending where urban sanitation is on high priority of the state government. This gives an opportunity to be leveraged out with proper planning where the scope is for all the ULBs in the entire state. Funds to the tune of ~INR 11 lakh crore is currently in being invested in the state.

Another important development is proposal for the Urban Waste Water Management Bill 2016 (which is under the legal scrutiny) by the H&UD department and mostly likely be enacted as a law in this year can push regulated sanitation in urban areas by making FSSM services processes legally, institutionally, technology wise and managerial point of view implementable in the state.

[17] DMF provides support to person and areas in districts affected by mining related operations. Fund is collection through royalty from mine lease holders, a part of which (typically 33% of royalty collected) is contributed towards DMF.

CASE IN POINT: FSSM policy is backed by investment plan

Besides the above policies, the Government of Odisha also has a plan for FSSM services in the State. The State acknowledges high urban OD rate of 33.2[18]%, 49.41 % households with septic tanks, only 2% of liquid waste is being treated. The State Government concurs that although underground sewerage is desirable, it requires high investment, longer implementation period as well as a high O&M cost. The government cannot wait longer as the number of toilets are increasing under the SBM and there is a high probability of aggravation of river pollution, surface and ground water contamination and spread of epidemics such as cholera and jaundice etc. in the cities. In this situation, FSSM emerges as an alternative to underground sewerage system which is efficient, effective and has low capital and O&M cost. The government has put in place a financial, technical, institutional and regulatory framework and a septage management model where "sludge may be treated in an anaerobic digester and liquid may be treated in anaerobic baffled reactor and planted gravel filter. The treated sludge and effluent can be reused in horticulture and other similar purpose[19]. **As a matter of policy[20], the government has provisioned 0.5 acres of land for population of 25,000 and 1 acre of land for septage treatment facilities for cities with population above 25,000.**

The government has designated the OWSSB to be the institution for creation of required infrastructure on behalf of ULBs and private operators be engaged on Performance Based Service Contract (PBSC) for O&M of septage treatment facility and cesspool trucks. The user fee from the households may be used to fully/ partly repay the cost of O&M and ULBs / state to subside.

The government is also considering an on-line regulatory framework to be operational where guidelines for septic tanks and its specifications(linked to building plan approval), regulation of septage transportation operations, user fees for septage transport, treatment and disposal, SOP for all levels of septage management and levy of penalty for open defection, discharge of raw sewage, septage to drain and discharge of septage at places other than the treatment facility or designated place – will be developed.

For Capex, from 2016-17 to 2019-20, **a total investment of INR 213.75 crore is planned for FSSM in all 112 statutory towns of the State.** A proposal for a separate division of septage management in the State is under government's active consideration. **Under AMRUT, out of total investment of INR 1,598.96 crore in nine class-I cities in the State, INR 17.86 crore[21] have been approved for setting up of nine SeTPs. The government has also provided 209 cesspool trucks of different capacities to all 112 cities for sludge emptying in two phases (123+83).**

Government is also proactively considering to get funds from FSSM services from DMF (District Mineral Foundation), Corporate Social Responsibility (CSR) funds of Corporate houses and donor agencies. The nine focus cities have been rated on credit worthiness to pull funds from the market for infrastructure projects including water supply, sanitation and waste water management.

[18] Census 2011

[19] MOM of 31.3.2016, the H&UD. detailed presentation of "improving urban sanitation through Septage management"

[20] Odisha septage management guidelines

[21] OWSSB (CAPEX for 8 plants. Bhadrak is not included)

Urbanization of rural areas

Conceptually urbanization has proved a key source of employment and GDP rise for any area, clusters and country. This brings transformations through innovations and improves quality of life indexes through basic services. Odisha being a least urbanized state, the government's strategy is to put the state on high urban trajectories. This was also showcased before the investors in the recently concluded Make in Odisha conclave. One of the trends that the state witnessed during year 2001 to 2011 is the increase of census towns from mere 23 to 116. In contrast there was very slow growth of statutory towns. It just increased from 107 to 112 during this period which indicates most of Odisha's census towns are under the village administration.

Urbanization in statutory towns also observe multiple challenges due to rural characters of urban areas as most of the areas are converted rural areas and have no urban services at all. Odisha has two areas of urban in and around a town i.e. the municipal areas and planned areas. In case of municipal areas, there are ULB councils and municipality to govern the areas. However in case of planned development area, the development authorities are engaged to do the master plans, Comprehensive Development Plan among others but area is under the village administration. Recently in Bhubaneswar some areas are included into city administration. Rourkela, Sambalpur and Berhampur had to convert some villages into urban to qualify as municipal corporation. This is emerging as a major challenge for the corporation to ensure urban services. Also there is a resistance from public to not to be part of the urban system as they have to pay taxes and lose benefits of rural development. Now some 76 cities have master plans. More rural areas are converted to be urban but without service infrastructures such as sewerage, water supply, FSSM among others.

CDPs, master plans are also not commensurate with the infrastructures and social economic developments. There is governance and infrastructures deficit and low or zero citizen participation and ownerships. Rural to urban migration as critical factors of urbanization is felt only in few clusters not universally in all the cities and due to natural growth of population in some clusters, census towns are increasing by definitions but not by services.

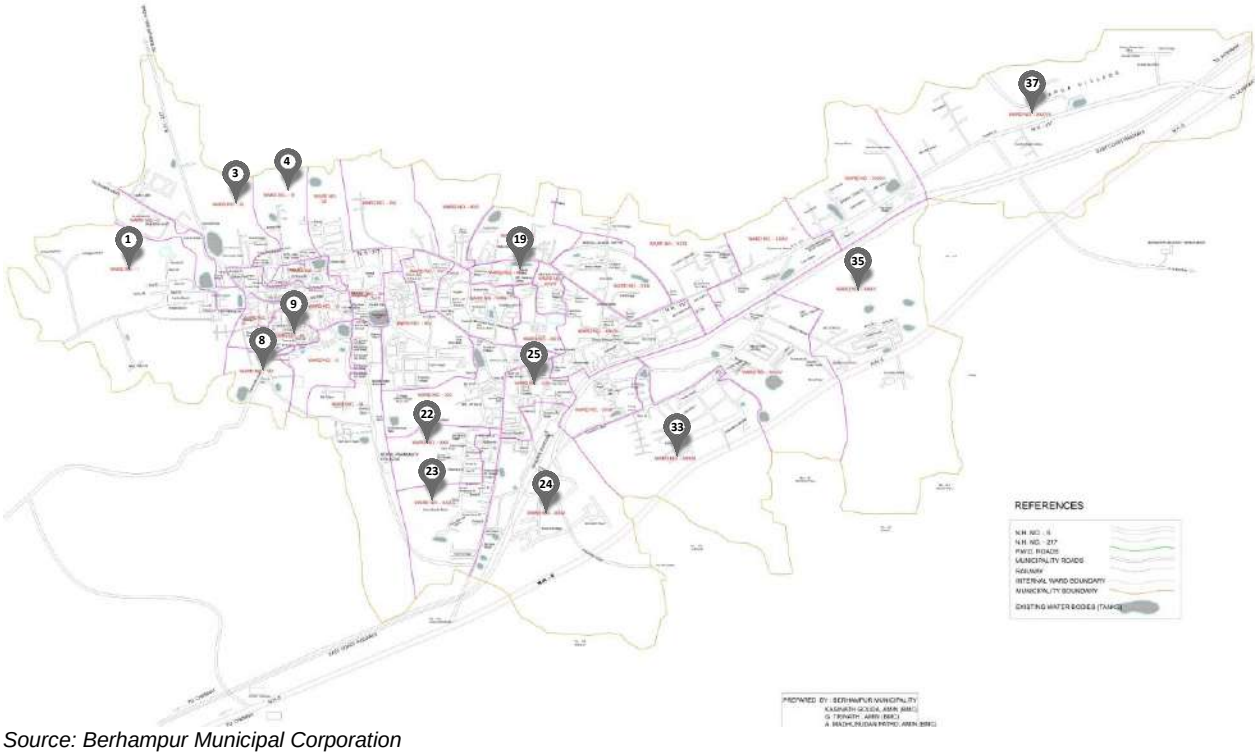
Ensuring FSSM in cities requires a strong integration of municipal administration and village administration to cater to both city limits and outgrowth areas in infrastructure and operation and maintenance of conveyance and treatment facilities.

4 FSSM situation assessment

4.1 Toilet containment typologies

As per Census 2011, Berhampur has 73,335households. 85.8% of the households have individual toilets. Open defecation due to lack of toilet access stands at 11.7%, which is lower that national urban average of 12.6%. However, there are 13[22] wards having higher instances of open defecation than national average. More than 30% citizens of ward no.24 and 37 resorts to open defecation. Around 2.6% of households are dependent on public or community toilet. The figure below shows the wards with high OD.

Figure 4-1: -Ward map indicating high open defecation areas



Source: Berhampur Municipal Corporation

It was noted that open defecation is being practiced by male members of the households having individual toilets because of cultural reason, family size and shortage of water supply in low income households. The primary survey found that 73% of people have piped water connection but 64% of them say they don't get sufficient water for maintenance of toilet. Therefore, for optimum use of water, generally female members use toilets while male members/children tend to open defecation or rely on CT/PT. It is also found that few household practice OD in spite of having individual latrines, to avoid frequency of cleaning of tanks/pits and prefer to defecate outside.

There is significant difference between OD practices among slum and non-slum households (P=0.000); above 67% of the slum houses practicing OD compared to 18% in non-slum. Latrine accessibility also significantly varied among those households owned the house and those households reside in government land (P=0.018). Owned households have better latrine accessibility (68%) than households reside in government land (32%).

The primary survey shows that 91% HH not having toilet access and resorting to OD are willing to construct one. Majority among those unwilling to construct cite lack of funds as constraint. 83% HHs are also open to use CT/PT.

[22] The ward numbers are 1,3,4,8,9,19,22,23,24,25,33,35,37

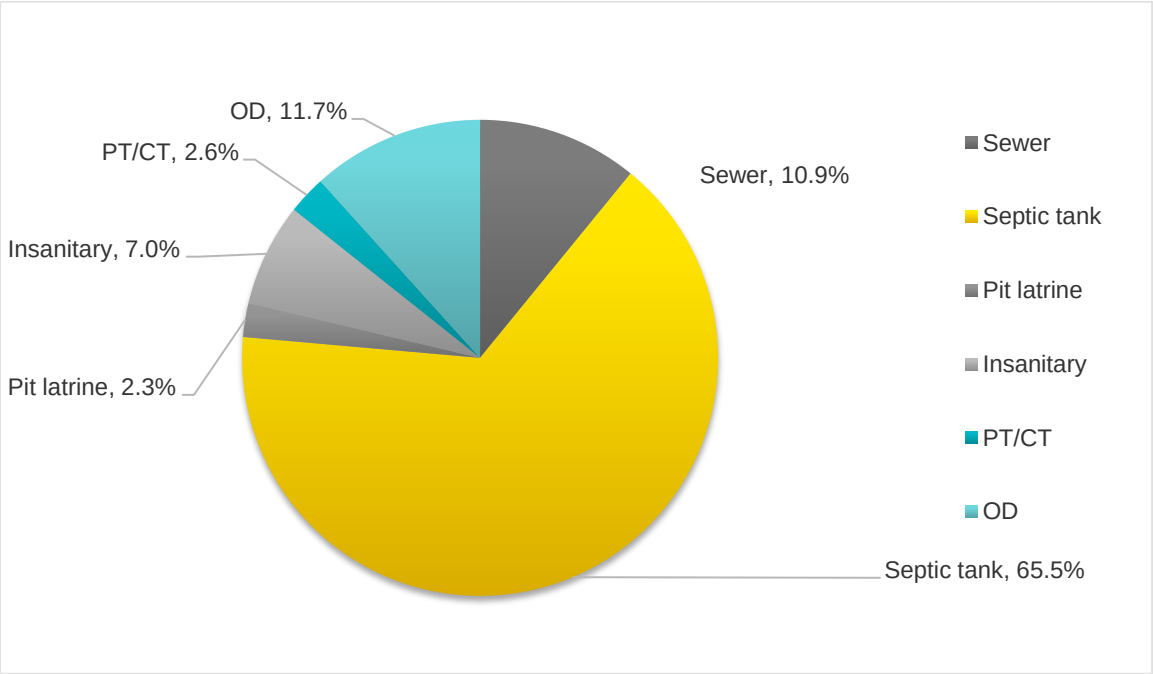
Under the SBM, requests for 3,904 IHHLs have been received and summary is presented hereunder:

Table 4-1: -SBM Progress (as on 25 May 2017)

Received	Verified	Approved	Rejected	Constructed	Commenced
3,904	3,499	1,995	43	30	8

Source: SBM-PMU Odisha

Figure 4-2: -Sanitation system at household level and access to toilets



Source: Census 2011

Toilets which directly dispose into drains and/or require night soil to be removed by human or animal are considered as Insanitary

the primary survey indicates that majority of the households (76%) are dependent on onsite sanitation system (OSS) such as septic tank and pit latrine. 64% of the non-slum households have septic tank and compared to 39% in slum. Single pit reported by ~55% of the slum households compared to 36% of non-slum HHs. *Around 24% of household latrines are directly connected to drains to avoid cost of making septic tank, 65% HHs have never cleaned their septic tank or pit latrine*.

Most of the household toilets from slum area are connected to open drains – Sanitation Inspector

"Most of the houses have their latrines directly connected to drains. A proper channel is required to address this problem." – PD DUDA

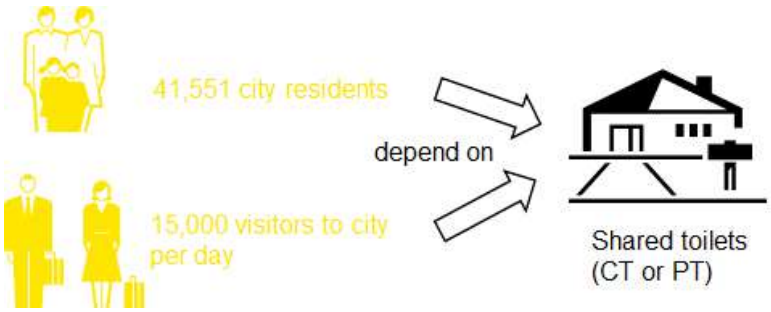
Together, this could be a potential source of ground water pollution and illness considering 40% of HHs reported dependence on bore-well, open-well and hand pump for water supply. This was further confirmed from survey response which found that 35% reported that family members have suffered from jaundice in the last 3 months. Our primary interaction with officials also confirmed the presence of diseases due to poor sanitation.

"Jaundice and diarrhea are recurring diseases and cases of kidney infection has been reported in Berhampur due to ground water contamination caused by poor sanitation and major reason for OD in city is inadequate water supply." - CHO

Figure: 4-3 – Households directly connected to open drains

The primary survey shows that none of the HHs sought advice from ULB officials and more than 80% relied on masons for septic tank design and construction. However, most of the masons don't know and do not practice right standards. In few cases, households direct masons to construct septic tank of bigger size. This could be the reason why 65% of HHs mentioned that they needed to avail cesspool emptying services.

4.2 Status of CT and PT



Source: SBM-PMU and SAAP- AMRUT Odisha

As per Census 2011, 10,878 HHs do not have access to individual toilets. Of these, 1,995 are to be provided IHHL under SBM based on status till May 2017. This leaves out 8,883 HHs or 41,551 citizens dependent on CTs/PTs. In addition to these, city received floating population of 15,000[23] every day.

The H&UDD started a novel initiative to build hybrid toilets to address the growing need of CT/PT. The concept being derived from both community and public toilets, where both options of pay-per-daily use and/ or pay-per-month options are available. Presently, under the scheme, the department has signed a memorandum of understanding (MoU) with Sulabh International to build 6,000 toilets in the nine AMRUT towns. Implementation is done under SBM. Nine hybrid toilet complexes are under construction and will be set up in the city in 2017-18.

Table 4-2: -Status of Community Toilets (CT) and Public Toilets (PT)

Type of toilet	Existing complexes (available for usage)	Existing complexes (defunct)	New (under construction)	New (yet to start construction)
Public toilet	7	1	2	-

[23] Service Level Improvement Plan (SLIP) for Berhampur - 2015

Community toilet	21	2	1	-
Hybrid toilet	Not applicable	Not applicable	9	-
TOTAL	**28**	**3**	**12**	**-**

Source: BeMC

A quick calculation of need for toilet seats in CT reveals that 132 seats for men and 170 seats for women is required as per SBM norms for CT. This is considering only those who do not have IHHL and are not covered under SBM yet.

Figure 4-4: -Existing public toilet at Haridakhandi

Figure 4-7: Existing community toilet at Dhanamera Ward

Based on our observations, it is found that most of the existing CT/PTs lack amenities like toilet paper, soaps, dustbins, mirrors, tissues etc. The wash areas in many of these toilets are dirty and stained due to poor maintenance. Wastewater management system is not functional in these toilets. However, the toilet seats are intact and unclogged, adequate ventilation for air circulation is there, the urinals are intact and the lightings are in place and functioning.

Table 4-3: -Management of PT & CT

Toilet typology	Construction	O&M	O&M revenue source
Hybrid	Sulabh international	Tendering stage	User fee
CT (Existing)	BeMC & Sulabh international	9 – Sulabh International 12 - BeMC	User fee
CT (Under construction)	BeMC	BeMC	User fee
PT (Existing)	BeMC	4-Sulabh international 2- BeMC 1-BeDA	User Fee

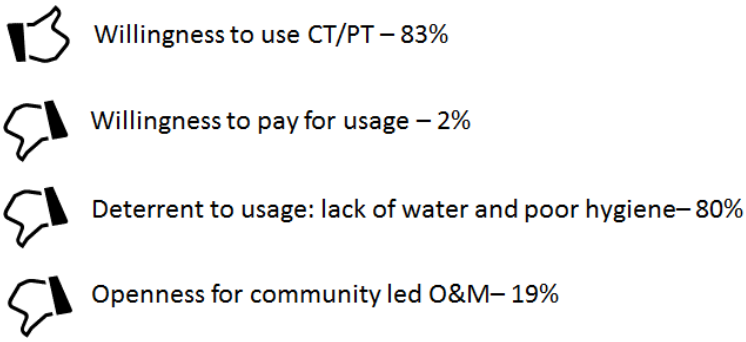
Toilet typology	Construction	O&M	O&M revenue source
PT(Under construction)	BeMC	BeMC	User Fee

Case in Point: Non-maintenance of community/public toilets

Krushna Behera, a 36-year-old man who resides near a slum area located at Kampa Sahi in Ward No-16.He and his family are frequent users of a 10-seat community toilet which is operated and maintained by Sulabh International. He complains that the latrines at the toilet is always full of stains. It is not being cleaned regularly. The toilet also lacks basic amenities like soap, dustbin etc. Some of the taps also do not work. The auto/manual flush in few latrines do not work. Doors of the toilets are broken. The wash area is littered and without any doors. Hence, this makes the place very unhygienic. Even though he pays the standard charges of INR 2-5 per usage for each of his family members, the unhygienic condition is a key concern for him as well as his family along with most of the people for the community who use or depend on community toilets.

The primary survey indicates that citizens are willing to use CT/PT but would not like to pay for usage. They highlighted concern due to lack of water and hygiene. There is low willingness to explore community led models for O&M of the facilities. Summary of the responses is given below.

Figure 4-5: -Key responses from citizens through primary survey



4.3 Emptying and transportation

In Berhampur, mechanized emptying and transportation service is provided by the ULB and a private operator. The primary survey shows that 48% HH prefer the ULB for cesspool operation. Preference for private operator was shown by only 2% HH. 50% preferred non-mechanized emptying or self-cleaning.

The below table provides an overall snap-shot of services available in the city. Current emptying capacity is 12 kilo L (KL) which shall increase to 18 KL with introduction of new vehicles from ULB. A request for proposal was floated in December 2016 inviting tenders from private operators towards

the operation and maintenance of the newly acquired trucks. Currently, the tender has been closed and award of contract is in process.

Table 4-4: -Mechanized cesspool emptying and transport available in the city

S. N.	Service provider	Capacity	Service rates (INR/trip/truck)	Service hours	Operating model
1	ULB (existing)	1trucks X 3,000 L 1 truck X 4500 L	INR 500	8am to 6 pm	Owned and operated by ULB
2	ULB (new)[24]	2 trucks X 3,000 L	INR 750	6am to 6pm	Owned by ULB. Operated by private player.
3	Private operator (1 nos.)	1 truck X 4500 L	INR 1200	Round the clock	Owned and operated by private player
TOTAL		~18,000L			

Source: ULB data and primary interaction with private operator

Figure 4-6: -New cesspool emptying trucks of BeMC

Majority of the trucks in the existing fleet are of 3,000 L capacity as seen in Figure 4-6. Such vehicles typically have width of 2.2m. This creates difficulty in providing services in city like Berhampur where majority of the roads are of lesser width. This was confirmed during the primary survey which found that 51% of roads have less than 2m width and 48% are between 2.1 to 5 meters. In such situation, it is possible that households may resort to other means such as non-mechanical emptying and open defecation to prevent filling of onsite sanitation system. Primary survey confirmed this when 32% among those who have hired emptying services mentioned that they have hired non-mechanized services.

"Accessibility of big cesspool vehicles is limited due to narrow streets in more than 60% areas of the city" —Sanitary Inspectors

Road accessibility for the newly purchased vehicle is going to be a big problem. Need to be addressed on a forum - Health officer cum-SBM in-charge

[24] New cesspool vehicle was sent to BeMC in June 2016

Case in Point: Non-maintenance of community/public toilets

Sandeep Kumar Jena is a 32 year-old man who works as an IT support staff at a commercial establishment at Berhampur. He and his family of 4 reside at Hillpatna area near the Station Road. As per Sandeep, he avails cesspool services once a year whenever he finds out that the septic tank is almost full. He goes to BeMC office and fills up the register with his residential address and his contact details. Then he pays a token amount at municipality office.

He receives a confirmation call from cesspool operator within 3-4 days. After that, the cesspool vehicle arrives at his residence. However whenever the cesspool vehicle enters the narrow lanes leading to his place, the road gets blocked and causes trouble for the people at his neighborhood as well as for the street commuters. Sometimes, spillage of septage occurs near the septic tank due to which foul odour spreads in the vicinity. Sandeep has to pay a labourer to get the spillage cleaned. This spillage is again dumped in the open drain. The price to complete the entire procedure varies between INR1000-2500 depending upon the number of trips. He wonders if there is any way to reduce the foul smell as well as to get hassle free service for the entire operation.

Existing regulations around cesspool emptying are weak or absent. Operators reported that they are currently not following the SOP around safe practices. As found out from consultation with cesspool operators, they do not use any protective gear except for gloves and boots though they are aware of safety gear such as face mask, hard hat and plastic/rubber overcoat.

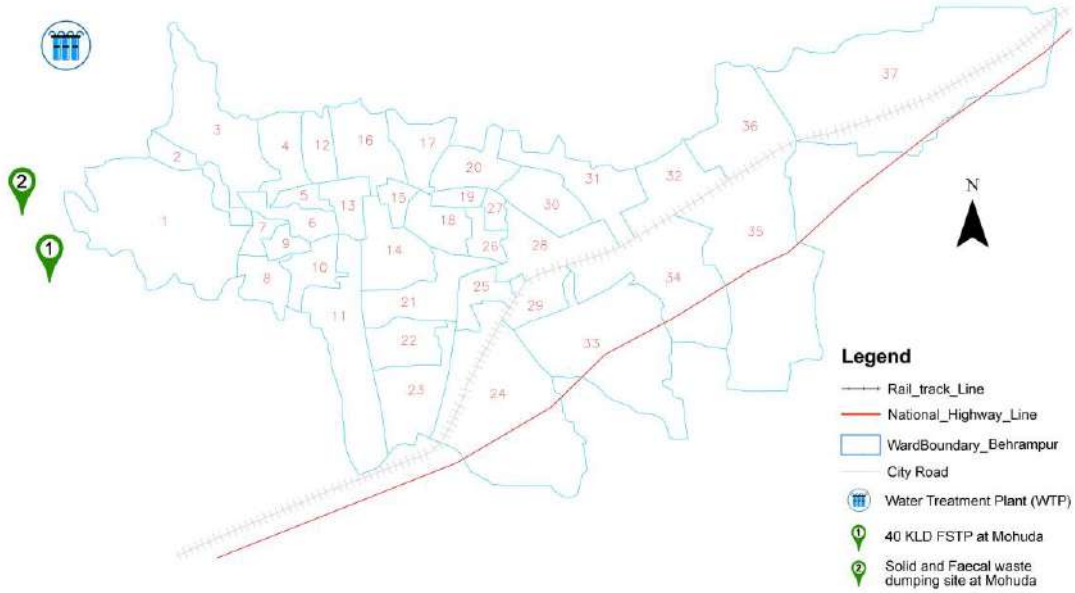
ULB operators sometimes spread information about mechanized emptying services through local television channel and also through the contact number displayed in the vehicle. The primary survey also revealed that 74% household received information on cesspool services from the ULB.

4.4 Treatment and disposal/re-use

Currently the city generates 40 cubic meter of sludge per day. However, it doesn't have facility to safely treat and dispose fecal waste. The BeMC has designated a location at Chandania Hills for solid waste dumping which has also been identified as fecal waste disposal site. However, it is more than 8 km away from the city. The primary interactions with the Health Officer revealed that the fecal sludge is dumped at the previously mentioned designated site and the treatment process adapted is conventional which is done with chlorination and other chemicals.

Figure 4-7 : Dumping site at Chandania Hills

Figure 4-8: -Location of proposed SeTP and temporary disposal site in Berhampur



There are no rivers close to Berhampur city. The nearest river is located about 30 km away from the city. Hence, there is no river pollution data.

The state government has taken steps to implement septage treatment plant in order to treat and thereafter safely dispose or reuse the fecal waste. This is being covered under AMRUT. The treatment plant is designed such that it has capacity to handle fecal waste generated for next 7 years[25]. Incremental capacity required beyond this would is being planned to be covered through sewerage system. The proposed plant shall work on DEWATS technology approach with supernatant going to pond system for treatment while separated sludge shall be sent to unplanted drying bed to remove pathogens.

Capacity	Area	Cost	Lifecycle period	Distance from city	Technology	Expected date of completion
40 KLD (kiloliter per day)	1.5 acre	2.48 crore	20 years	8 km from BeMC	Anaerobic Baffle Reactor (ABR)	Jan 2018

Figure 4-9: -On-going work at Berhampur SeTP

In addition, during the construction phase of the SeTP at Mahuda, safe disposal is required for the fecal waste being generated by Berhampur. As such, an interim solution of deep row entrenchment

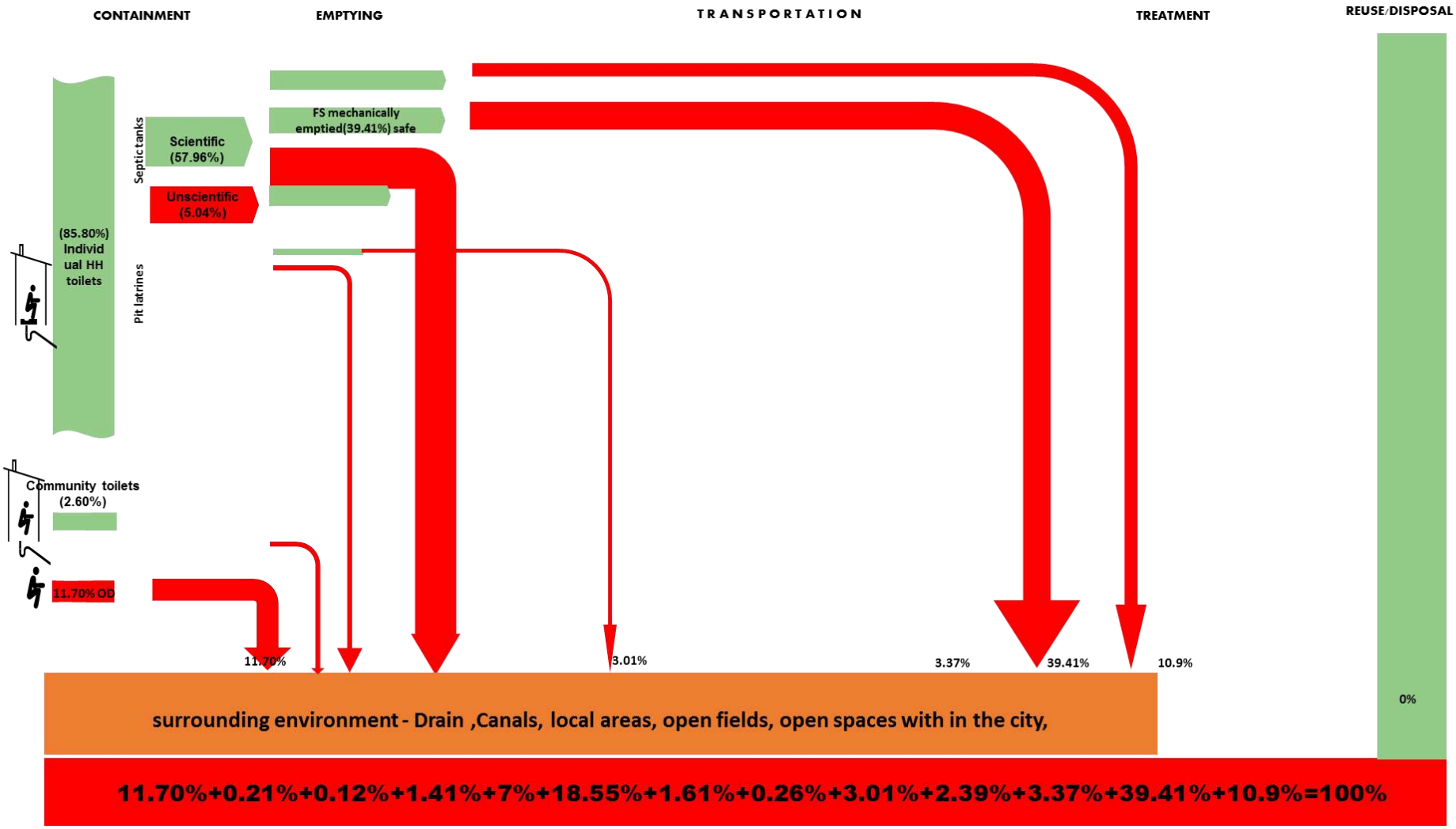
[25] Sanitation situation assessment 2017, NIUA

has been identified and notified by the government. BeMC is to identify a total of 1.18 acres of land for deep row entrenchment considering the present situation of onsite sanitation in Berhampur and construction period of SeTP. Chandania could be the location for disposal of fecal waste with no concerns over local disputes over disposal.

Figure 4-10: -Typical deep row entrenchment site

Source: FSSM book, 2014

4.5 Shit flow diagram (SFD) of Berhampur



4.6 Assumptions made for SFD

- Census 2011 data used for access related information
- Scientific and unscientific septic tanks and pit latrines are divided in the ratio 92:8 respectively based on finding of our primary survey covering lined and unlined containment system.
- 'Other systems' identified in census is included as pit latrine
- Toilet which have night soil removed by animal and human as part of insanitary toilet.
- FS emptying and transport is divided as safe and unsafe in the ration of 68:32.
- CT/PTs have scientific septic tanks.

5 Stakeholder mapping and analysis

Basis the assessment of regulatory framework prevalent at the center, state and at the municipal level conducted in the previous chapter, the stakeholders of the sanitation value chain have been identified. Their roles and responsibilities across the value chain have been assessed and their influence and interest is presented in the subsequent sections of this section.

5.1 Stakeholder identification

The state level stakeholders bring in new policies, reforms and innovation with regard to funding mechanisms, creating an enabling environment and providing opportunities for the ULBs to implement reforms in sanitation or urban development projects in the city levels. While state level stakeholders build strategies, ULBs are critical stakeholders to implement those strategies, policies and plans. The district level stakeholders play supervising roles and monitor the progress besides facilitating the implementing processes in a limited way. District level stakeholders are required to integrate the plans and programmes in the cities of the respective districts into the district planning processes, thereby escalating these local plans into the state level planning processes through the districts level planning committees. Despite the abovementioned provisions, urban development programmes are not reflected in the district planning processes in Odisha. In addition, private stakeholders also play a critical role in investment for capex and O&M of FSSM services.

Table 5-1 Stakeholders at state level and district level

State level	District level
► State Urban Sanitation Mission headed by the Chief Minister of Odisha which is the highest policy making body for urban sanitation ► State High Power Committee headed by the Chief secretary of Odisha and convened by the PS H&UD ► State SBM Directorate, headed by the State SBM Director reporting to PS H&UD. It has a Project Management Unit (PMU). Technical Support Unit (TSU) on FSSM under the H&UDD. ► Directorate of Town Planning – to integrate FSSM rules and standards into town planning laws ► Department of Water Resource ► Directorate of AMRUT headed by Special Secretary for infrastructure creation, funding and reforms ► Directorate of Municipal Administration (DMA) to monitor regulatory services oversight of sanitation ► Odisha Urban Infrastructures Development Fund (OUIDF) for PPP and investment ► PHEO for water supply ► The OWSSB – nodal agency ► PDMC – EIL ► Consulting Firms and funding agencies – BMGF, DFID, Practical Action, J PAL South Asia, EY, IPG, Deloitte, Tata Trust and others	► District Level Review and Monitoring Committee (DLRMC) - for monitoring ► Development trusts/ authorities – for enforcements and regulations ► District Mineral Foundation (DMF) funding & finance for FSSM ► Corporate Houses -Corporates Social Responsibility (CSR) ► Regional Centers of Pollution Control Board – pollution checks air, water and soil etc. ► Regional OWSSB offices – to execute sewerage and SeTP projects/ waste water management ► Regional PHEOs for water supply ► SBM PIU ► **City level** ► ULB - Mayors, Dy Mayors, EO/Commissioners, Engineers ► City Sanitation task force (CSTF) ► Ward Sanitation Committee (WSC) ► PIUs of various schemes - SBM, PMAY, NULM, AMRUT & others ► Frontal units of line departments such as MAS, WKS, SHGs & others ► Influential & key educational institutions, industrial units, trade union associations ► RWAs/ Slum federations ► NGOs, CBOs, youth clubs, Puja/ peace committee, citizen groups etc. ► Outsourced agencies as service providers

Berhampur is an important commercial center in the state of Odisha. Trading in retail items such as food processing, silk, saree, silver etc. is common. Because of the nature of these commercial activities, residential and commercial establishments coexist and the roads are mostly narrow and congested so majority of the wards are not accessible to vehicles which is a major challenge for FSSM. In this context, shop owners association and trading units become critical stakeholders for FSSM services to be implemented. Berhampur also witnesses growth in its peripheral zones where most important educational and technical institutions are coming up. (IISER, Khalikote University and Berhampur University). This has major impact on the city growth and city planning services. Gopalpur Port Authority, which is 17 km from Berhampur Municipal Corporation and Tata Steel and salt production centers in this zone also influences city growth.

It is also close to ecological sensitive zone (breeding ground of Olive Ridley turtles).Therefore, urbanization in this cluster has tremendous impact on its ecology and biodiversity. Coastal Zone Regulatory Authority and agencies like NGT monitors the environmental impact, making them key stakeholders.

Seven key roles have been identified across the sanitation value chain encompassing funding, planning & designing, implementation, operation & maintenance, policy support, regulatory function and monitoring mechanism. The table below presents the outcomes of the mapping of stakeholders for overall sanitation management.

Table 5-2: Stakeholders and their functions in sanitation value chain

Key areas	Funding	Planning & designing	Implementation	Operation & Maintenance	Policy support	Regulatory function	Monitoring mechanism
Toilets (HH level) with containment	SBM, Households	SBM, Masons, Household	ULBs, Households, Private contractor	Households	State Sanitation Mission	With ULBs	State SBM Directorate & ULBs
Toilets (CT and PT) with containment	State govt. ULB CSR/ NGOs PPP SBM	Engineering dept., Sanitation dept., Town planning dept., ULB	• Private operators / ULBs • Engineering dept. in ULB	Private Operators / Sulabh/ ULBs	State Urban Sanitation Mission	ULBs	State SBM directorate & ULBs
Emptying and transport (septage)	Households ULB (PT/CT)	ULB	ULB	Private Operators & ULB	H&UD	ULBs/ OSPCB/ OWSSB	ULB
Treatment, safe disposal and re-use	AMRUT	OWSSB	OWSSB	OWSSB/ private operators	OWSSB/ H&UDD	OSPCB/ OWSSB	OWSSB /H&UDD
IEC Campaign (Information, Education and Communication)	SBM Directorate	SBM directorate	ULB, Community Based Organisation		SBM directorate/ ULB	ULB	ULB/ SBM directorate

Capacity Building	SBM Directorate	SBM Directorate	ULB, Community Based Organisation		SBM directorate	ULB	ULB/ SBM directorate/ H&UDD

5.2 Interrelationship between stakeholders

Promoting sanitation sector across a value chain often requires identifying the key stakeholders involved in various other sectors and engaging them in planning and implementing activities. For example, the Road Transport Organization (RTO) and Transport Department's support may be needed in improving the emptying and transportation practices in these towns. Similarly, the agencies preparing land-use plans, master plans, building bye-laws etc., need to make provisions for earmarking land for septage treatment and enforcing appropriate sanitation systems. Irrigation department has an understanding of waste water flows and pollution of water bodies and their inputs may also be crucial in promoting waste water treatment. Many of the ULB departments may need to have convergence of activities with these stakeholders. Hence, an exercise for identifying the key stakeholders across various sectors and convergent role of ULB departments is undertaken and presented in the following table-

Table 5-3: -Interrelationship of stakeholders across various sectors in Berhampur

	Stakeholders		
Sector	**Planning, Regulation Monitoring**	**Implementation**	**Operation and Maintenance**
Land Use/ Master Plan/ Building Byelaws	Directorate of Town planning Development authorities and improvement trusts	Directorate of Town planning Development authorities and improvement trusts	Regional improvement trusts and development authorities/ ULB (Amendments)
Water Supply	PHEO	PHEO	PHEO
Sewerage and waste water treatment	OWSSB	OWSSB	PHEO
Drainage	Major drains-Water Resource Department Minor drains- ULB	Major drains-Water Resource Department Minor drains- ULB	Major drains-Water Resource Department Minor drains- ULB
Traffic and Transportation	RTO	Commissionerate of police	RTO
Storm Water Drainage	Water Resource Department	Water Resource Department	Water Resource Department
Access to toilets	Mission directorate	ULB (Sanitation department)	ULB(Sanitation department)
Solid Waste Management	ULB (Sanitation and engineering)	ULB (Sanitation and engineering)	ULB (Sanitation and engineering)
Slum Development/ Urban Poverty Programme	ULB (Slum Improvement department)	ULB (Slum Improvement department)	ULB (Slum Improvement department)
Housing or EWS	H&UDD	ULB	ULB
Environment/ Forestry	Forest department , ULB	ULB	ULB

	Stakeholders		
Sector	**Planning, Regulation Monitoring**	**Implementation**	**Operation and Maintenance**
Industrial Development	Industry Department	Industry Department	Industry Department

One of the observation from the above table is that urban infrastructure including sanitation and FSSM remains outside the purview of the ULBs. But in case of SWM, the ULBs manage, collect, transport and treat (landfills) through private participation quite successfully. Improvement is quite satisfactory in case of adopting bylaws and standards. In case of liquid waste or waste water treatments , the ULB should be given the power and capacity to handle these functions directly instead of fully transferring the responsibilities to OWSSB and then remain out of its ambit during construction and O&M for certain period of times. Therefore, government may consider giving opportunities and chance to the ULBs to undertake urban infrastructural projects so that they can gain knowledge, skill and experiences to usher a new beginning and have the required power as well as accountability.

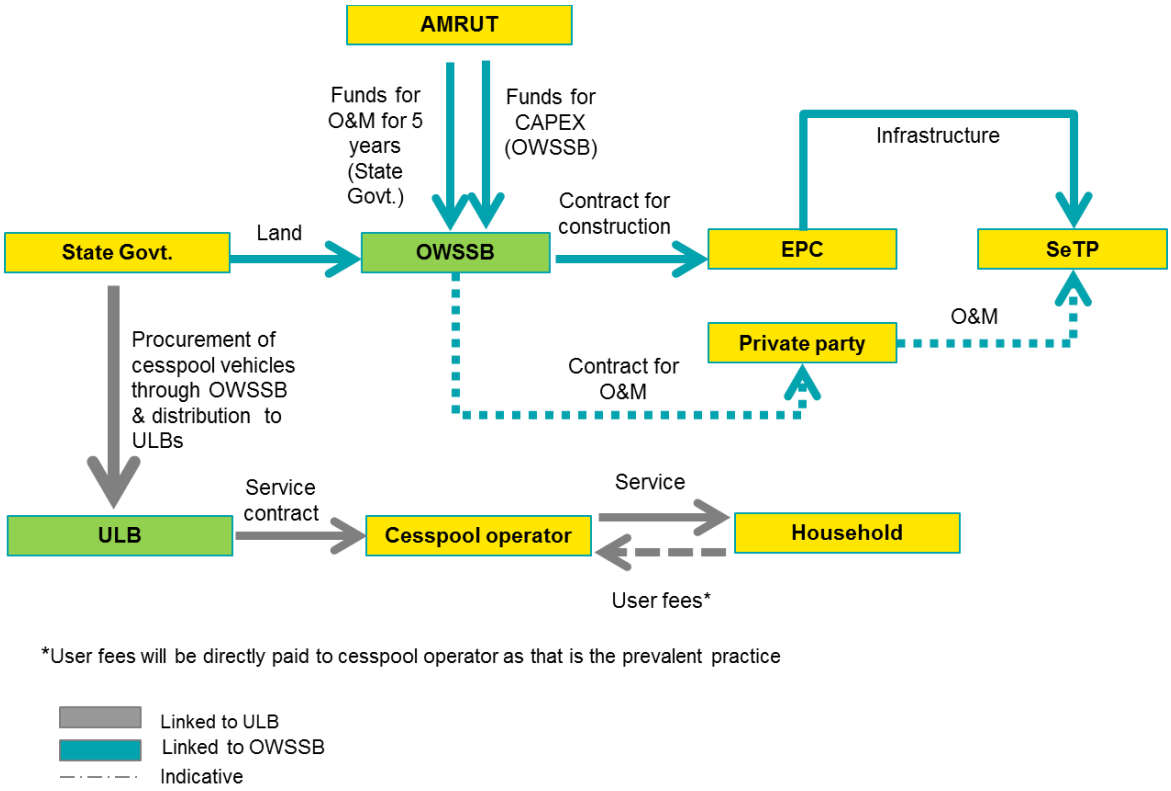
It has been observed from the past experience of implementing projects that often the beneficiaries who are most affected by the project outcomes do not have adequate influence on the project. On the other hand those stakeholders who have high influence often do not have adequate interest in project activities. Hence, a carefully designed strategy of engaging the stakeholders based on an analysis of their interest and influence is quite useful. Influence refers to the power and authority to make decisions and allocate funds. Interest indicates the highest beneficiaries of the successful outcomes of the project. Basis interactions with officials at various levels, certain key issues have been identified.

Key issues in stakeholder interrelationship

Cesspool emptying of sludge and corresponding treatment in FSTP are important aspects of the FSSM value chain. Earlier, ULB and private operators used to run cesspool vehicles separately.

Under the new Private Public Partnership (PPP) model, ULB will incur the capital expenditure for purchase of cesspool vehicles and the private party will bear the operating expenses. ULB can monitor where the cesspool operator is dumping the sludge. Under the new scenario, it is important to understand the relationship between OWSSB and ULB specific to FSSM service. The institutional framework has been depicted in the figure below.

Table 5-4: -Institutional framework for FSSM service



Source: National workshop by OWSSB, 2016

1. In case of FSSM two key city level infrastructures – SeTPs and cesspool trucks are complimentary to each other but fall under the purview of different bodies. The OWSSB constructs SeTPs and the responsibility of the O&M of the treatment plant is by the private parties. The cesspool trucks are placed with the ULBs by the OWSSB[26] after central procurement at the state level (June 2016). ULBs are responsible for engagement with private operators for emptying and transportation. Thus different parts of the value chain are mapped to different stakeholders which can result in coordination challenges.
2. Further clarity is required on-
   - Revenue generation from SeTPs
   - Cost recovery from reuse of treated resources
   - Tariff policy
3. Under the present scenario, cesspool trucks are not considered as revenue generation assets for most of the ULBs. However, certain human resource as well as operational costs are involved in management of the fleet of cesspool vehicles. Currently the operations are proposed to be managed by private operators. The critical aspect to consider is who will bear the expenses for O&M of SeTP after five years and what will be operating model at that stage.
4. Scaling up the FSSM solution in non-AMRUT cities under this framework will be challenging because OWSSB is not an institutional structure. It is a project based organization of the PHEO and has presence in almost 103 cities in the State. Therefore, roles of different levels should be clarified and a functional relationship should be established between the ULB, district administration, parastatals – OWSSB and OSPCB etc. for FSSM services.

[26] On behalf of H&UDD

5. There is a lack of integrated approach to FSSM within various bodies and department. OSPCB is responsible for monitoring to ensure that dumping of waste into drains or rivers. While they have the authority to penalize, they can only notify the private and ULB run vehicles in case of indiscriminate dumping. They have the regulatory power but no executive authority to implement it. It is important that monitoring is done in coordination and not in insolation by multiple departments.

6. City systems have weak structure as they have no formal power. Under the AMRUT programme, ULBs are the prime stakeholder for reforms implementation. However, in practice, ULBs have formally transferred the service procurements and implementation of infrastructural projects under AMRUT to the parastatals through ULB's council resolutions and through tripartite agreements between H&UDD parastatals and ULB. But district level institutions have shown interest in taking responsibilities provided they are given clarity of their roles over ULB affairs by the government. This is a positive trend observed during interactions with the stakeholders.

6 Capacity Building

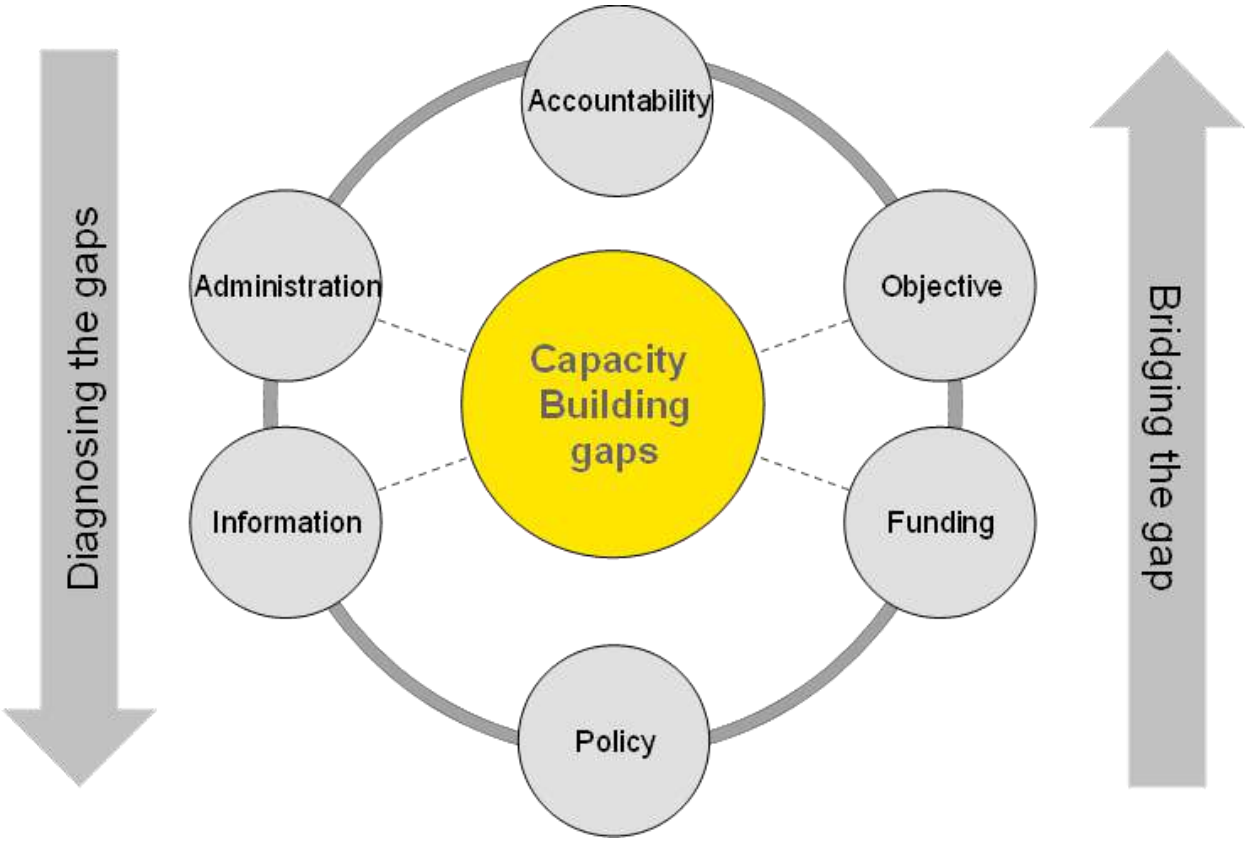


Table 6-1: -Key gap assessments and strategies for capacity building in Berhampur

Key capacity areas	Gaps Identified / observations	Strategies suggested	Key target groups
Institutional arrangement within city	► Existing institutions are indifferent and lack consistent approach to sanitation issues ► Lack of structured engagement and integration with existing institutions ► CSP has not been formalized and implemented as a binding document ► Rules and regulation and enforcement are not clear. It falls under the purview of multiple departments and not on ULB exclusively.	► Integration of community level informal groups with city sanitation programmes ► Formalization of community level institutions such as CSTF, WSC in city system ► Strengthening front-line departmental groups for FSSM services in cities ► Focus should be on zone and ward level interventions – a coordinated programme and overall M&E at broader level at ward level	► CSTF, WSC ► Puja committees, Sahi committees, slum federations, youth clubs, sports clubs, cultural groups etc. ► Mahila Arogya Samiti, Ward Kalyan Samiti , SHGs ► Ward Councilors ► Zone level officials of city ► IISER
Community engagement and ownerships	► Low level of engagement at present. No active citizen participation due to lack of engagement and recognition in the city governance ► Lack of volunteering and mentoring from local communities ► Informal community structures (ex. Puja basti committee) have no functional relations with line departments (ex. MAS/ Ward Kalyan Samiti) and front-line personnel. They are not aligned to city system operationally. ► No to limited data availability to prepare ward plans ► Potential Institutions/ establishments are not mapped and consulted for sanitation campaign in the city ► Communication and messaging are stereotyped and typically ineffective.	► Promotion of volunteering and mentorship on sanitation at ward level including community engagement and recognition systems and processes ► Integration with ULB council, staffs and committees through interactions ► Converging all community level influencers, line departmental frontal units and city councilors at zones and ward levels to discuss, decide and agree over key sanitation issues ► Base line sharing with ward councilors ► Service level scores in each wards including sanitation and its integration with CSPs ► Messaging needs to target community engagement and more inclusive and contextual ► Assign each ward level sanitation promotion to the key institutions in the city such as Khallikote University, MKCG Medical college, Bar associations etc.	► SHGs and SHG federations ► Ward councilors and standing committee members ► City officials ► Community organizers, sanitary inspectors - MAS, WKS, Youth Clubs, Traders associations ► Slum committees directly interacting with PCB, OWSSB, PHEO, BeMC, RWAs and colony societies ► Engagement with the corporates, lawyers' association, bus owners associations, workers unions, doctors association and SCB medical colleges students, schools and colleges ► Bar council
City leadership in undertaking reforms/ enforcement/regulation	► Lack of data and knowledge on FSSM and overall sanitation sectors ► Low skill to comprehend issues of sanitation in local contexts and finding solutions	► Exposure visits to learn leading practices ► Better data management for improved decision making process in councils. Data should be regularly shared from wards to city level	► Mayor, Deputy mayor ► Standing Committee ► Councilors ► Commissioner

Key capacity areas	Gaps Identified / observations	Strategies suggested	Key target groups
	► Accountability and power lies with different stakeholders leading to gaps in planning and implementation ► Incoherent relationship between council, standing committee and executive wings (commissioner) and district administration ► The capacities of engineering department are already maxed and may not have capacities to manage the expected workflow of waste-water and SeTPs	including city council, mayor, Standing Committee chairman, and ward councilors ► Capacitate target audience through training in concept and programme design to increase their involvement ► Create pilots to show workability of concepts and plan roll-out ► Model SOPs should be prepared and shared with the city officials ► CSP should be adopted as a binding document ► City level resolutions on critical sanitation decisions should include enforcement and regulatory mechanism as well as involvement of community structures in its implementation	► Deputy Commissioners ► Additional commissioners ► Engineers ► Finance section ► City health offices ► Sanitation department ► PIUS- AMRUT, SBM, PMAY, NULM and others ► Departmental front line organizations
Administrative/ governance areas	► Multiple agencies are involved in services and no coordination and accountability ► Lack of skilled manpower ► Low planning and spending capacity of available funding ► Low capacity in mobilization of own sources of revenue and alternative financing sources (DMF, CSR, PPP and others) ► Awareness of FSSM is limited, whether it is a complimentary, supplementary or alternative solution among other technical aspects. Similarly, the planning needs to be integrated going forward, for example in Berhampur 100% areas of households and institutions are targeted to be covered in the sewerage services by 2018 ► Community level structures (informal and formal) are not in tandem but active in their own spheres ► New community institutions and user associations are strategic but remain out of formal system ► Key components of sanitations infrastructures- toilets, water supply, waste water management,	► Strengthening district administration through participatory planning in city levels for integration with district planning and effectively escalate the issues to state levels through planning structures ► Prepare operating model options for sanitation and FSSM ► Plan interactions with community level organizations for local specific solutions	► District Collector ► ADM, Tehsildar ► PD DUDA ► DFO ► Regional PCB ► Regional OWSSB ► Regional PHEO ► City Commissioner ► Deputy Commissioners ► City Engineer ► City sanitation officer ► Officials of Beda ► Members DUSC ► Members of CSTF ► Members of DPC ► Members of Standing Committees ► Councilors of BeMC ► Key institutions in the city including other line departments – health, education

Key capacity areas	Gaps Identified / observations	Strategies suggested	Key target groups
	SWM and drainage have missing interlinks operationally but aim to have common outcomes on sanitation		MLAs, MPs, Department of social justice ► Water resource department ► Private agencies
Creation of environmental engineering cell in engineering section	► CMC does not have environmental engineering sections to comply with standards in Public health and environment.	► Restructuring the engineering department with added focus on environmental engineering	► Mayor, Deputy Mayor of BeMC ► Commissioner ► Standing Committee on sanitation and health ► City engineer
Private participation in the urban infrastructures (Capital and operating expenditure)	► People are not aware of reasons of privatization of sanitation services leading to dissatisfaction among the workers ► SWM is accepted and adopted as an essential element of sanitation vis-à-vis FSSM having limited understanding and acceptance ► Recurring and frequent outbreaks of water borne diseases has increased demand for FSSM services ► Low participation of private operators in bid process of cesspool vehicles ► Public is not aware of end-to-end service provisions of FSSM value chain which restricts demands for FSSM ► Pricing and sanitation use fees / tax is a political / legal issues ► High expectation of public from ongoing sewerage projects and people are expecting it to address to address all sanitation issues	► Interfacing of BeMC officials with potential private operators, and business communities ► Empanelment of masons with adequate trainings ► Masons associated with developers associations should be trained ► Increased involvement of house owners associations and RWA in undertaking innovative models ► Key engineering and management institutions to be involved for mentoring and creation of entrepreneurship models for sanitation services including banks and financial institutions, SC/ ST financial corporations, micro-finance institutions, Livelihood and Skill development authority	► Private operators ► Masons ► Banks and financial institutions ► Skill development authorities ► NULM ► NBFCs and MFIs ► Tata Steel ► Trade owners and shopkeepers associations

7 Primary survey - household level

7.1 Rationale of the primary survey

As described in Section 1.3, a limited primary survey was conducted in the selected areas of Berhampur to collect data on the FSSM situation, existing practices, structure, capacities and awareness level, and gaps across the value chain. The collected data is expected to generate evidences which would further help in developing a road map towards implementation of FSSM programme.

7.2 Demography of households

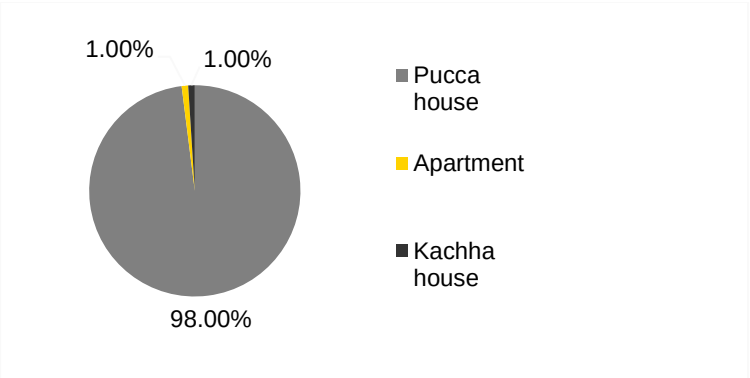
A total of 324 households were surveyed for the demographic assessment, out of which 39 % households are from non-slum areas and 61% households are from slum area. The nature of the property was mostly residential (92%). House typology for 98 % of the surveyed households is *pucca* house.

Details of demographic profile of the surveyed households are given in Table 7-1

Table 7-1: -Demographic profile of households

Demographic profile of the survey household	N	%
Nature of the locality (N= 324)		
Slum	199	61
Non-slum	125	39
Nature of property (N=324)		
Residential	296	92
Institutional	4	1
Commercial	1	1
Any mixed	23	7
Household ownership (N=324)		
Owned	252	77
Rented	51	16
Staff quarter	1	1
Public land	20	6

Figure 7-1: -House typology

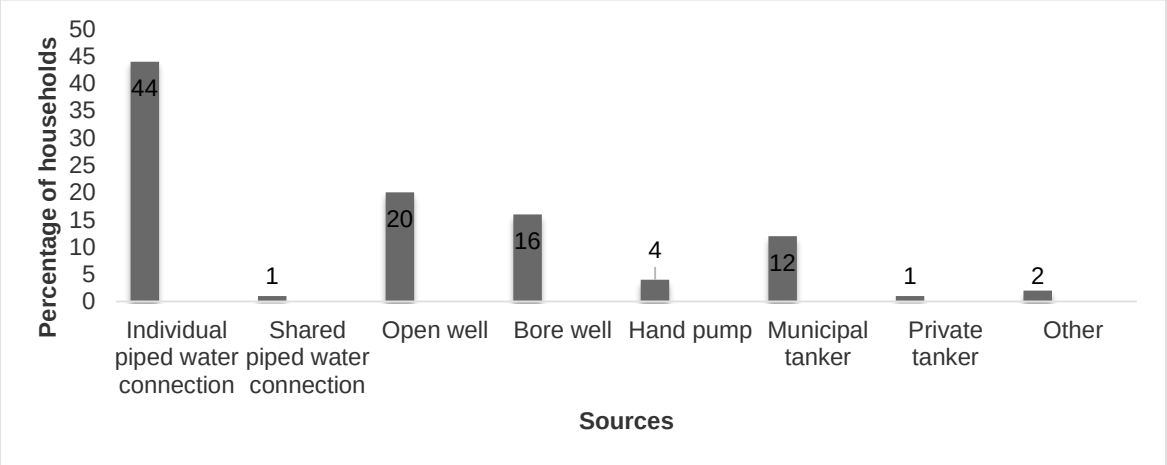


The owner resided in 77% of the surveyed households whereas 16% households are rented and 6% of the households are in public land.

7.3 Source of water for domestic use

Prime source of domestic water for 45% of households is municipality water supply. Only 4% HHs with piped water connection received water for more than eight hours per day, 16% reported supply for four to eight hours per day and 57% for two to four hours. 23% receive water supply less than two hours. About 40% depended on hand pump, bore-well and open well. 64% respondents reported that availability of domestic water is not sufficient for maintenance of toilet.

Figure 7-2: -Primary source of domestic water



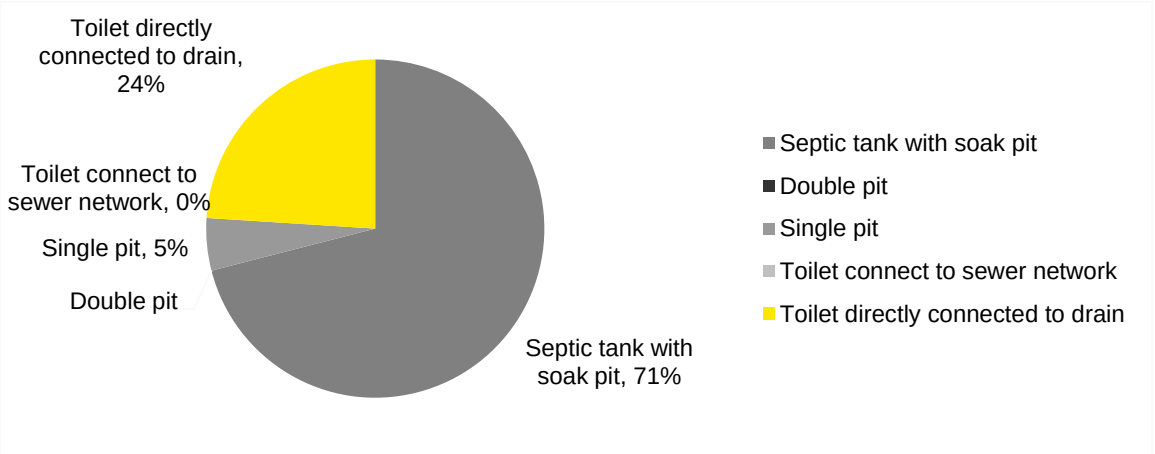
Key findings

- Availability of water is an important component to increase the demand on latrine use. 64% respondents reported insufficient availability of domestic water for maintenance of toilet.
- 40% of HHs depend on ground water sources such as bore-well, open well and hand pump. This makes proper designing of onsite sanitation system such as septic tank and pit latrine critical as poor design can lead to seepage of contaminated water to these water sources leading to diseases.

7.4 Household sanitation accessibility/facility scenario

Among households using toilet, 71% have septic tank and 5% have pit latrines and 24% toilets reported direct connection to drain. Figure 7-3 has the information on disposal from latrine connection.

Figure 7-3: -Defecation practice by households



7.4.1 Household views towards community/public toilet

Out of 324 households only 1% HH used community toilets. The possible reasons for not using PT/CT among 98% is lack of willing to pay for using it. In Berhampur people pay INR 5 for using toilet in CT/PT. So, if a HH of 5 people use CT/PT, it will have to pay INR 25 for one time use per day and hence for a month spend INR 750.

7.4.2 Open defecation scenario

Out of 103 households which reported practicing open defecation, 55% did not have individual household latrine and 43% did out of habit/cultural preferences. Among the household practicing OD, when asked about problems associated with OD, 61% said that there is lack of safety for girls and women, 54 % said inconvenience in terms of time (before dawn and after dusk) and 80% viewed maintaining dignity as a major challenge associated with OD.

About 2% HHs practice OD in spite of having latrine facility mostly because of water non-availability (60%) and also to avoid frequency of cleaning of tank/pit (20%) and remaining preferred to defecate outside (20%) due to habit or cultural preference.

Table 7-2: -Open defecation scenario

Open defecation scenario	N	%
Reason for practicing (N= 103)		
Lack of household larine	57	55
Lack of access to PT/CT	1	1
Habit	44	43
Perceived problem associated with OD		
Lack privacy **(N=103)**	0	0
Lack of safety for girl and women **(N=103)**	63	61
Lack of dignity **(N=103)**	76	80
Inconvenience in terms of time **(N=103)**	76	80
Inconvenience in terms of distance **(N=103)**	3	3
Infections and diseases **(N=103)**	3	3
Willing for construction of individual household latrine (N=103)	94	91
Reasons for not willing to construction of individual household latrine (n=9)		
Lack of fund	6	67
Lack of space	3	33
Willing for individual superstructure with pit/septic tank (N=103)	2	3
Will be interested for use of community/public toilet (N=103)		
Yes	85	83
No	18	17
Perceived reasons for not willing to use community/public toilet (N=18)		
Not hygienic **(N=18)**	16	80
No water facility **(N=18)**	1	5
Unsafe/insecure **(N=18)**	2	10
Inconvenience **(N=18)**	1	5
Not willing to share with others **(N=18)**	0	0
Willing to pay for using community/public toilet (N=103)	2	2
Willing to community level management of community/public toilet (N=103)	20	19
Number of household practice OD in spite of having latrine facility (N=221)	5	2

Reason for practice OD in spite of having latrine facility (N=5)		
Lack of water facility	3	60
Small septic tank or pit	0	0
In order to avoid frequency of cleaning	1	20
Cultural preference	1	20

Key findings

- 91% among the households that reported OD are willing for construction of individual household latrine.
- The remaining (9%) are not willing to construct individual latrine because of lack of funds (67%) and 33% due to lack of space.
- There is significant difference between OD practices among slum and non-slum households (P=0.000); above 67% of the slum houses practicing OD, however only 18% of non-slum households practice OD.
- The latrine accessibility is also significantly varied among those households which owned the house and those households which reside in government land (P=0.018). Owned households have better latrine accessibility (68%) than households residing in government land (32%).
- Around 64% of the non-slum households have septic tank and only 39% of slum households have septic tank (P=0.000). Around 55% of the slum households were using single pit, however in case of the non-slum households, the use of single pit is 36%.
- Willingness to use CT/PT is also very high at 83% but respondents cite lack of hygiene (80%) as a major deterrent to usage. 98% of them do not want to pay for CT/PT usage.

7.4.3 Septic tank/pit status of the households

Total 166 households have septic tank/pit. About 77% of the septic tanks/pits are located inside the house. Out of 38 septic tanks/pits located outside of the house, 23% are in the front and 77% are located in the back of the house. About 73% of the septic tanks/pits are rectangular in shape. Around 84% of the households sought advice from mason/contractor for designing and construction of septic tank/pits, none of the HH having septic tank sought advice from municipality officials. Only 1% household checked ground water level during construction of septic tank/pits. About 92% of the septic tanks are lined.

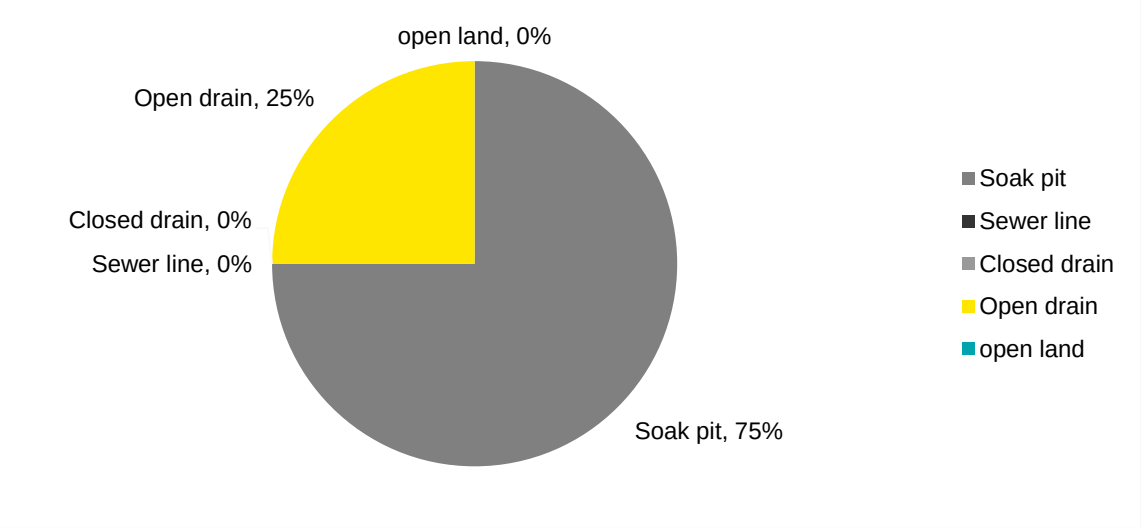
Table 7-3: -Description of septic tanks/pits

Description of septic tank/pit	N	%
Location (N=166)		
Inside the house	128	77
Outside the house (n=38)	38	23
Front side of the house	9	23
Back side of the house	29	77
Shape (N=166)		
Rectangular	121	73
Circular	45	27
Seek advice for designing and construction (N=84)		
Mason/ Contractor	71	84
Municipality officials	0	0

Description of septic tank/pit	N	%
NGO/Neighbor/Relative/Friend	13	16
Ground water level checked before construction (N=166)	1	1
Type of the lining (N=166)		
Lined	153	92
Non-lined	13	8
Gray water connection to septic tank/pit (N=166)		
Kitchen water/washing/bating water	2	2
Surface/roof water	0	0
Size (N=166)		
Breadth in ft, Average (range)	5 (2.5 – 10)	
Length in ft, Average (range)	6 (4 – 10	
Depth in ft, Average (range)	6 (4 – 10)	

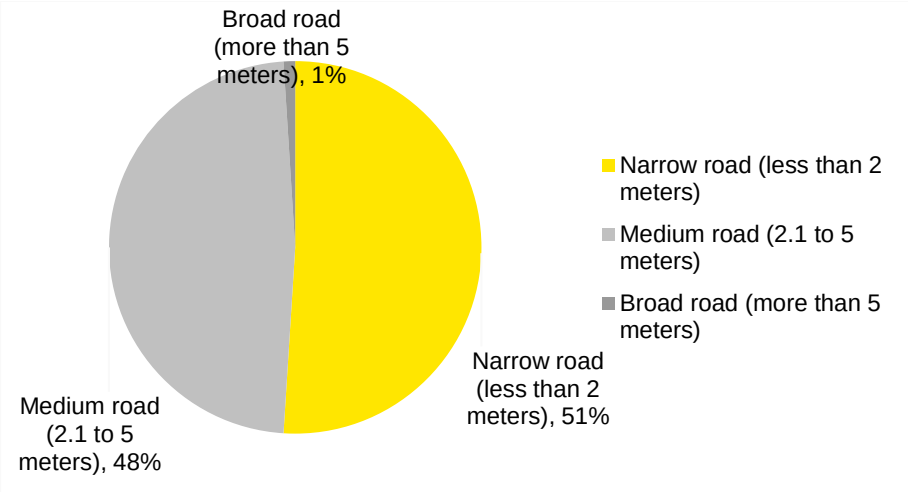
Out of 220 septic tank/pits 71% are connected to soak pit, 5% to single pit, 0% sewer system and remaining 24% to drain. Figure 7-4 details the outfall connection.

Figure 7-4: -Outfall connection of septic tanks/pits



From road accessibility point of view, 51% households have narrow road (less than 2 meters) and 48% households connected with medium road (2.1 to 5 meters) and only 1% households have broad road (more than 5 meters) as described in Figure 7-5

Figure 7-5: - Road accessibility to households having septic tanks/pits



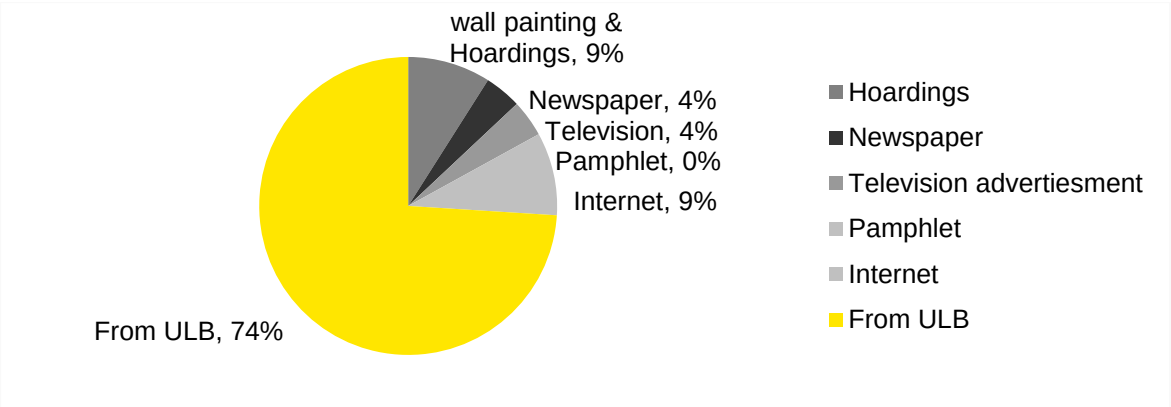
Key findings

- 77% of HHs have septic tank inside their house
- 84% HHs sought advice from masons for designing and construction of septic tank or pit indicating that they could be influence makers in ensuring proper design of septic tanks and pits
- 92% HHs have lined onsite sanitation system (OSS)
- 51% of HHs have road width less than 2m.

7.4.4 Septic Tank emptying practice

The key source of information regarding cesspool operation is ULBs (74%), wall painting and hoardings (9%), and television advisement (4%), 4% from newspaper and 9% from internet.

Figure 7-6: -Source of information regarding cesspool operations



Out of 166 households having septic tanks or pits, 48% preferred municipality as the service provider, 2% preferred private providers, 10% preferred local laborers and 40% resorted to self-cleaning,. About 30% contacted government cesspool for emptying*, however, 6% communicated with manual laborers.* Out of 164 households, only 35% (n=58) received the services.

About 25% household cleaning frequency was more than 24 months. Around 94% (n=158) households did not face any barriers during cleaning. Only 3% households faced barriers related to breaking of floor tiles/manholes and difficulty to locate the septic tanks.

Above 70% households are satisfied in emptying, transportation and disposal. Table7-4 presents the detail of septic tank emptying practices. Out of 58 households 67% (n=39) received the services from Govt. cesspool providers, 1% (n=1) from private cesspool providers and remaining 32% did the cleaning manually. Figure6-10 presents the description of the operators for septic tank cleaning.

Around 3% households paid less than INR 1000 INR, 49% spent INR 1,000 to 1,500, and 47% spent more than INR 1,500 INR for emptying the septic tank.

Figure 7-7: -Septic tank emptying services received

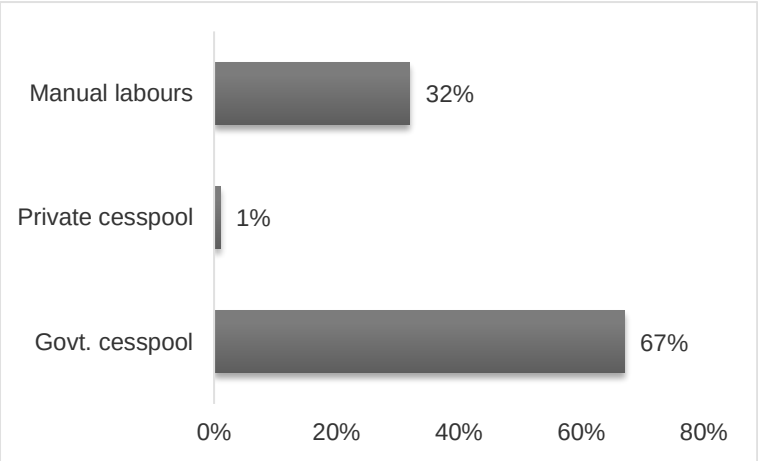


Table 7-4: -Septic tank emptying practice

Septic tank empty practice (N=166)	n	%
Preferred service provider (N=166)		
Municipality	79	48
Private	3	2
Local labor	17	10
Self	67	40
Not yet decided	0	0
Contacting for emptying (N=)		
Govt. cesspool	49	30
Private cesspool	0	0
Manual labors	10	6
Not yet communicated	107	64
Cleaning frequency of septic tank (N=164)		
Not yet clean	106	65
Cleaned (N=58)	58	35
6 months	0	0
6 to 12 months	6	3
12 to 24 months	10	7
24 to 36 months	0	0
More than 36 months	42	25
Amount spent for emptying process (N=58)		
No cost	0	0

Septic tank empty practice (N=166)	n	%
500 to 1000 INR	2	3
1001 to 1500 INR	29	49
1501 to 2000 INR	19	34
2001 to 3000 INR	6	10
More than 3000 INR	2	3
Barriers in emptying (N=58)		
Access of cesspool truck to house	0	0
Breaking floor tiles/manholes/ Made a mess	3	6
Difficult to locate	0	0
No barriers	0	0
No problem found	55	94
Satisfied in emptying, transportation and disposal (N=58)	43	74

Key findings

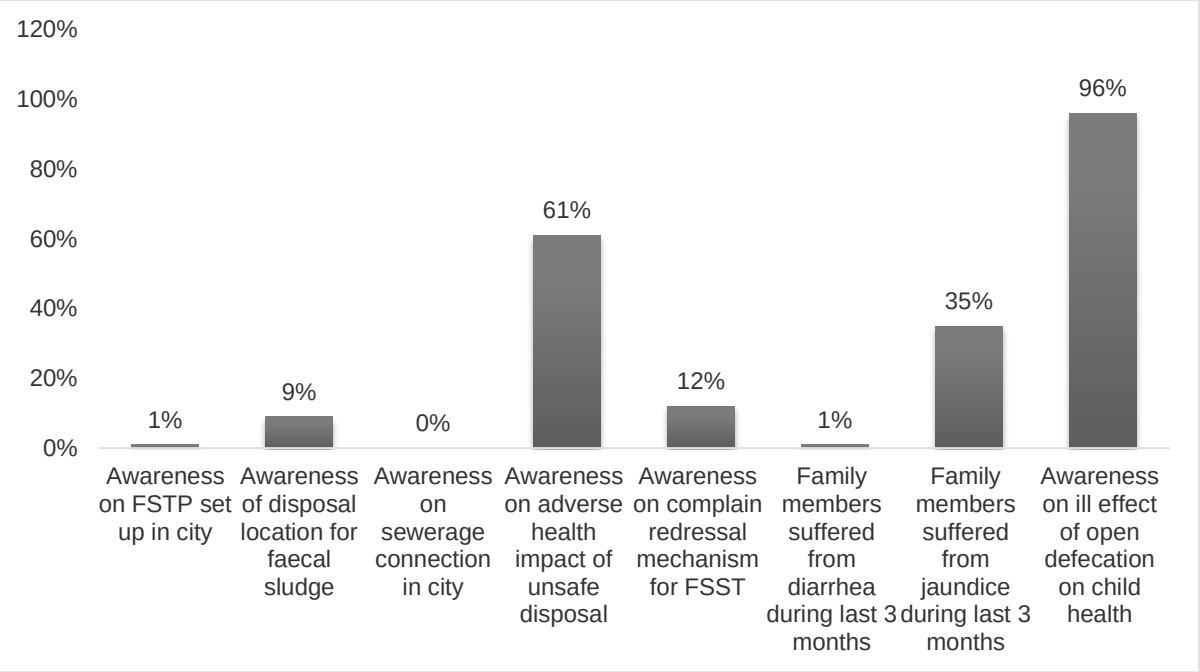
- 65% HHs have never cleaned their septic tank or pit latrine. Also outfalls from 25% of septic tank or pit latrines is connected to open drain. There is significant difference (P=0.001) between slums (35%) and non-slum (14%) with regard to such connections open drain.
- 74% HHs have contacted ULB for emptying service and have indicated preference for their services
- 50% HHs showed preference for non-mechanized service or self-cleaning. 32% among those who have hired emptying services, roped in non-mechanical services.

7.4.5 Awareness on environmental and health impact of sludge disposal

Out of 324 households, only 9% (n=28) households are aware on environmental and health impact of sludge disposal. Out of 28 households who are aware on disposal of collected sludge, 5% perceived that the disposal happens at agricultural land. 1% reported that it was directly thrown in to the river and 1% reported that it was disposed next to house.

Only 1% (n=3) households family members suffered from diarrhea and 35% HHs reported that family members suffered jaundice during last three months from the survey. 61% (n=199) are aware on adverse health impact of unsafe disposal, 96% (n=324) on ill effect of open defecation on child health, 58% on fecal contamination leading to diarrhea, 21% on fecal contamination causes worm infection. Only 1% are aware about FSTP set up in the city.

Figure 7-8: -Awareness on environmental and health impact of sludge disposal



Key findings

- 91% HHs unaware where fecal sludge is dumped after emptying.
- 35% reported that family members have suffered from jaundice in last 3 months.
- While 96% are aware that open defecation causes ill-health to their children, only 1% found to be aware that fecal contamination is one of the cause of jaundice and 21% aware that fecal contamination can cause malnutrition

7.5 Status of community engagement in sanitation activities

None of the households reported that Mahila Arogya Samiti were creating awareness on sanitation. However, 25% of the respondents said to found Self Help Groups effective in creating awareness on sanitation. Table 7-5 details of community engagement is provided.

Table 7-5: -Community engagement

Community engagement in sanitation	N	%
Community group create awareness on sanitation (N=324)		
Mahila Arogya Samiti	0	0
Self Help Group	81	25
Ward Kalyana Samiti	0	0
Youth club	0	0
Pooja committee	81	25
Sanitation related issues discussed during community engagement (N=324)		
Children and women health	282	87
Fecal sludge and septage management	0	0
Promoting use of public and community toilets	0	0
Other sanitation related issue	42	13

8 Key issues and action plan

The rapid assessment carried out household surveys, in-depth interviews with key ULB and non-ULB departments and focus group discussions with relevant stakeholders on sanitation and FSSM at the city level. This helped in the identification of key issues, concerns and gaps on infrastructure, operations, capacity building and behavior change and communication. This chapter summarizes the key issues and identified next steps. Subsequent to identification of these aspects, an implementation plan shall be prepared to ensure effective delivery of interventions for each of the cities.

Inputs from the following stakeholder has been taken and their views has been outlined in the section below:

- Mayor
- Deputy Mayor
- Municipal Commissioner
- District Collector
- Financial Officer
- Deputy Commissioner & SBM nodal officer
- Sanitary Inspector
- Corporator
- Households
- Project Director, District Urban Development Authority (DUDA)
- Executive Engineer, Public Health Engineer Organization (PHEO)
- Regional Officer, Pollution Control Board
- City Health Officer
- Chief District Medical Officer
- Project Engineer, Odisha Water Supply and Sewerage Board (OWSSB)
- City Engineer
- District Social Welfare Organization
- Community based organizations
- Masons and
- Cesspool operator

In the following table, we are describing a summary of key findings, issues, references and required interventions.

S.No.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
1	Insanitary toilets	► The Census 2011 shows that about 7% of the households have their toilet outlets to open drains[27]. ► Basis the household survey, we found out that out of 324 HHs, and 24% of HH have outfall directly into open drains. ► During the consultations (FGDs, IDIs) with the ULB and non-ULB officials and sanitary inspectors, insanitary toilet mainly in slum area was highlighted as the key issue for sanitation in Berhampur.	► A communication campaign under SBM could be initiated to motivate people to convert insanitary toilets to sanitary ones using incentive provided under SBM either through building septic tanks/ pits or connecting to proposed sewer lines ► Ward councilors/ corporators need to be sensitized on this to convey to households in their respective wards ► CBOs such as MAS, SHGs and Ward Sanitation Committees should be oriented to spread awareness among households in their respective wards ► Information on onsite sanitation system (OSS) solutions available in market which are economical and quicker to implement to be disseminated to citizens	**IEC/BCC**
			► A regulatory set-up can be proposed for ensuring effective implementation of the issue. Amendments could be made in ULB building bye-law to include provision of scientific septic tank as part of building approval process.	**Governance reforms**
			► ULB should find out the space for constructing more CT/PT and its accessibility to HH in slum area.	**Infrastructure(infra and O&M)**
2	Unscientific septic tanks	► As per the HH survey, out of 166 HH with septic tanks, 8% are non-lined which can lead to seepage of sewage into groundwater. There are about 40 ponds/tanks which serves as the main sources for domestic uses. ► About 71% HHs have septic tanks connected to soak pit ► 65% HHs have never emptied their OSS	► Further capacity building of masons on design of scientific septic is desired ► Knowledge on piping from bathrooms to septic tanks. Construction methodology for larger size septic tanks for building with high occupancy ► Building capacity of CBOs such as MAS, SHGs and Ward Sanitation Committees to spread awareness on importance of scientific onsite containment system among households in their respective wards.	**Capacity building**

[27] *Toilets which directly dispose into drains and/or require night soil to be removed by human or animal are considered as Insanitary*

S.No.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
		► 84% of HHs indicated during primary survey that they rely on mason for designing and construction of septic tank/pit. However, as per discussions with masons in FGD, HHs take a final decision on this aspect due to cost implication issues of construction of tanks and periodic cleaning and ► As per discussions with ULB officials and CBO, the households are not aware of adverse effects of unsafe containment.	Amendments could be made in ULB building bye-law to include provision of scientific septic tank as part of building approval process.	**Governance reforms**
			► Dos and Don'ts of building septic tanks ► Importance of schedule desludging and how to do it ► How treatment of septage and sludge before disposal has positive impact on health and environment ► OSS solutions available in market which are economical and quicker to implement and can be retrofitted to be disseminated to citizens	**IEC/BCC**
3	Practice of open defecation	As per primary survey, 56% of 103 HHs surveyed who defecate in open do not have IHHL and lack access to other toilets facilities.	► Construction of IHHL, CT/PT and hand pump/tube wells/ bore wells ► Facilitating the process of building IHHL along with the components for applicants so that they are not demotivated. The process need to be implemented at an accelerated pace.	**Infra-structure (infra and O&M)**
		► HH survey highlighted that the households having toilets practice open defecation because of following reasons: 1. Lack of water facilities (60%) 2. Minimize frequency of cleaning 20%) 3. Habit/ Culture (20%) HH survey also highlighted that 44% of householders have habit and culture of defecating in open.	► Engaging with CBOs to motivate people to build and use IHHL and through CT/PT especially through sustained inter personal counselling for a targeted households who do not have access to toilets. ► Also motivating people to use CT/PT, who have habit of defecating in open. through signboards and by educating them about negative impact on health	**IEC/BCC**
4	Low usage of CT/PT	► The household survey highlighted two primary reasons for not using CT/PT - Unhygienic toilet (89%) and lack of water in facility (5%)	► Engaging community in taking ownership CT/ PT while involving a private firm for management. ► Innovative models for O&M of these shared toilets to be explored while learning from practices adopted in other cities. ► Plan for refurbishment of the defunct shared toilets through SBM and other avenues ► Develop sustainable ways to ensure 24X7 availability of water and electricity	**Infra (infra and O&M)**

S.No.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
5	Lack of space for IHHL	► As per the household survey, 33% households feel that there is lack of space for constructing IHHL ► As per discussions with ULB officers, there are unplanned houses with poor orientation, due to which most of the houses share same wall. and city has space constraints resulting in difficulty in construction of IHHL	► Greater focus on CT, PT availability and better O&M of the available and upcoming facilities ► Explore sustainable O&M models including community led, private operators etc. ► Under the Prime Minister Awas Yojna (PMAY), the government has adopted AWASS Yojana in the Odisha where urban poor and slums dwellers have been given opportunities to avail decent housing units for their stay in cities. Under the affordable housing schemes and slum rehabilitation through PPP models, a large number of housing units are being constructed where toilets are also constructed along with the containment units which need to be constructed as per FSSM requirements. Particularly, the beneficiary led housing schemes where supports from the PMAY is extended could be considered on how the toilets can be built and retrofitted if needed as it gives scope for the same. New housing schemes also give chance to regulate sanitations as per the laws and also ensure roads and other complexes for cesspool vehicles etc. Directorate of Town Planning along with the ULBs need to coordinate the programmes	**Infra (infra and O&M)**
6	Challenges in emptying septic tanks due to narrow lanes and low usage of mechanized service	► As per household survey, more than 50% of households have road width less than 2m. This leaves them inaccessible to majority of existing fleet of city with ULB and private More than 60% HH having septic tank never cleaned their tanks till today. ► Lack of access to mechanized emptying vehicles indirectly creates scope for non-mechanized manual work (10%) ► Most of the houses share same wall and are attached with each other and have septic tank inside the house	► Size of cesspool vehicles should be planned keeping in mind the narrow roads of Berhampur and explore alternative technologies for emptying during procurement. Solutions of mechanized emptying such as Vacutug to be explored along with manually operated mechanized in slums with extremely narrow lanes. ► Need for transfer stations[28] which can help use of vehicles of different sizes to be explored to optimize the cost of transport which could help reduce price of service delivery. ► Operating models that can help makes payment for cesspool emptying affordable for urban poor to be devised	**Infra (infra and O&M)**

[28] Transfer stations are intermediate points established to facilitate transfer of fecal sludge from smaller sized vehicles to larger ones to help efficient management of waste. This approach is also used for Solid Waste Management.

S.No.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
		► (77%).	► Strengthened monitoring at community level by building capacity of MAS, Ward Sanitation Committee, CSTF and SHG to promote usage of mechanized emptying	**Capacity building**
			► Communicate the harmful impact of non-mechanized emptying to relevant stakeholders - citizens, leaders, community groups, sanitation workers and ULB staff ► Identify ways to increase penetration of information to citizens on mechanized emptying service providers	**IEC/BCC**
7	Disposal of fecal sludge	► BeMC has designated a fecal waste disposal site. During discussion with health officer it is revealed that process adapted to treat fecal sludge is conventional which is done with chlorination and other chemicals but not proper and sufficient ► There is no monitoring mechanism in place to track dumping of fecal waste. ► Cesspool emptying truck operators are not governed by any regulation for their operation	► A pilot project using GPS technology tracking could be initiated in select wards. ULB vehicles can be mounted with GPS devices which track the movement of vehicles. Considering that site for temporary disposal is being identified, GPS tracking would help map the trips made to this site. ► Deep row entrenchment method will be carried out for safe disposal of septage temporarily	**Infra-structure (infra and O&M)**
			► Strengthened monitoring at community level by building capacity of MAS, Ward Sanitation committee, CSTF and SHG to promote disposal of waste at designated sites	**Capacity building**
			► Communicate the harmful impact of indiscriminate dumping non-mechanized emptying to relevant stakeholders - citizens, leaders, community groups, sanitation workers and ULB staff	**IEC/BCC**
			► Regulation at ULB level to enforce disposal of fecal waste at only designated site	**Governance reform**

S.No.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
8	Re-use of treated waste	► Potential for re-use of treated waste water and dried manure generated post treatment is not yet explored	► Implementation strategy and plan to be devised based on learnings from Project Nirmal and interventions in other places. ► Market for manure and treated water to be explored and included as part of the O&M contract to be defined for SeTP operator	**Infra-structure (infra and O&M)**
9	Recurring incidence of water borne diseases	► HH survey highlighted that the households having toilets practice open defecation because of following reasons: 1. Lack of water facilities (60%) 2. Minimize frequency of cleaning 20%) 3. Habit/ Culture (20%) ► HH survey also highlighted that 44% of householders have habit and culture of defecating in open.	► Engaging with CBOs to motivate people to build and use IHHL and through CT/PT especially through sustained inter personal counselling for a targeted households who do not have access to toilets. Also motivating people to use CT/PT, who have habit of defecating in open. through signboards and by educating them about negative impact on health	**IEC/BCC**
			► Strengthening staff for conducting water sample checking during summers especially for areas prone to water borne diseases	**Government reforms**
10	Attitude of people towards sanitation and hygiene	► Citizen's apathy and lack of participation and ownership for sanitation and hygiene was reported in FGD and IDI. People openly admit practicing open defecation without any apparent embarrassment or shame. ► Lot of people throw solid wastes directly into open drains which results in clogging/choking of drain and waste water overflows on roads due to this. ► As per FGD's with community organizers, their main focus during community meetings is limited to livelihood and sanitation (particularly solid waste	► Building capacity of CBOs such as MAS, SHGs and Ward Sanitation Committees to spread awareness on importance of sanitation, hygiene and FSSM among households in their respective wards.	**Capacity building**
			► For ULB officials (especially Community Organizers, Sanitary Inspectors), CBOs on FSSM and on the key messages to be conveyed to community	**IEC/BCC**

S.No.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
		management, hygiene and construction of toilets). Even household survey led to the same observation. 0% of the households reported that MAS, 25% of the households reported that SHGs and 25% HH reported that Pooja committee were creating awareness on sanitation.	► Government has to find out space for putting up more numbers of bins for collecting solid waste and properly covering the drains with slabs.	**Infrastructure**
11	ULB and private cesspool operations work in silos	► As per discussions with cesspool operators in Berhampur, the following issues were highlighted 1. ULB cesspool operators have basic knowledge for adherence to safety and hygiene standards for emptying but do not practice it. They also do not keep the essential personal protective equipment (PPE). 2. There is lack of awareness on right operating practices for desludging ► Operations from private operator is not regulated or monitoring by ULB formally	► Empanelment of private operators with ULB to ensure adherence to safety and social aspects including usage of personal protective equipment ► Regulation required at ULB level to enforce adherence to Odisha State FSSM Operational guidelines from operators ► RTO and transport department's support may be needed in improving the emptying and transportation practices.	**Governance reform**
			► Comprehensive ULB dissemination plan should be drafted to help understand the role they play in cesspool operation	**IEC/BCC**
12	Gaps in stakeholder engagement, coordination and institutional framework	► OWSSB constructing SeTPs and will take care of O&M until the facility is handed over to the ULB. Further clarity needs be brought in for - a. Revenue generation from SeTPs b. Cost recovery from reuse of treated resources c. Tariff policy d. Transition plan and management after 5 years ► There is a need of integrated approach to FSSM. Multiple department work are currently working in silos.	► Operating model to be formulated for sustainable operation of SeTP through various models including cost recovery through sale of dried and treated sludge and treated waste water. ► Inputs from this model to be incorporated as part of O&M contract for private agency ► Potential integrated FSSM contract i.e. cesspool operation and SeTP operation to be checked.	**Infra (infra and O&M)**

S.No.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
		► BeMC does not have environmental engineering sections to comply with standards in public health and environment. ► Low level of citizen participation due to lack of engagement and recognition in the city governance	► Capacitate target audience through training in concept and programme design to increase their involvement ► Exposure visits to learn leading practices ► Strengthen city level groups by building capacity of MAS, WSC, CSTF and SHG to promote and drive citizen engagement ► Assign each ward level sanitation promotion to the key institutions in the city such as IISER, Khalikote University, MKCG Medical College and Berhampur University.	**Capacity building**
			► Strengthening district administration through participatory planning in city levels for integration with district planning and effectively escalate the issues to state levels through planning structures ► Restructuring the engineering department with added focus on environmental engineering ► Focus should be on zone and ward level interventions – a coordinated programme and overall M&E at broader level ► Formalization of community level institutions such as CSTF, WSC in city system ► Service level scores in each wards including sanitation and its integration with CSPs	**Governance reforms**
13.	Lack of funds & spending capacity at the ULB	► One of the key issues which emerged during the IDIs and FGDs with ULB officials and council members is "the lack of funds and human resources" at the ULB level as a major bottleneck to undertake need based innovative sanitation and infrastructure programme.	► Specialised urban cadre staff for mobilizing funds as mobilization capacity for funds is certainly constrained by the lack of qualified and skilled human resource	**Capacity Building**

S.No.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
	level	However, it is also observed that spending capacity of the ULB is also a key area of concern. Even though the own source revenue base has been decreased or taken away by the state and central governments (first Octroi and now GST), alternative sources of funds have been created. Particularly, after the 14 Central Finance Commission (CFC) and Fourth State Finance Commission (SFC), the ULBs of Odisha have good amount of devolution funds available to be spent on the developmental activities but remain unspent as found in recent cluster level reviews conducted by the H&UDD. ► In the devolution front, the ULBs are expected to get INR 5379 crore under the 4th SFC and INR 1772 crore under the 14 CFC during (2015-2020). Secondly, the government through various channels has been raising funds form the markets borrowing for the ULBs for basic services and infrastructures. The government has also adopted PPP models of different types to undertake projects to improve infrastructure for basic services. ► Most cities are found not very successful in property assessments and the properties assessed have not come under the tax nets. Thus, the city loses funds.	► The ULB should tap funding from the DMF and CSR funds.	**Governance Reforms**

Rapid state assessment has mapped the situation on ground and identified key gaps and action points across the following thrust areas.

- Infrastructure (infra and O&M)
- Capacity building
- IEC/BCC activities
- Governance and reforms

The key to sustaining urban sanitation and FSSM activities is to implement, operationalize and make effective the action points drafted in the strategy. A detailed city-wise implementation roll-out plan would follow this situational assessment report. This would also include prioritization of the interventions, estimated timeline, and resource requirements for implementation of key interventions identified.

9 Annexures

9.1 Annexure 1 – Questionnaire for Household Survey

Study on on-site sanitation system & practices with focus on fecal sludge &septage management
Survey questionnaire

ସହରାଞ୍ଚଳ ରେ ପରିମଳ ବ୍ୟବସ୍ଥା ଏବଂ ସ୍ପଷ୍ଟ/ନିର୍ଦ୍ଦିଷ୍ଟ ଭାବେ ନର୍ଦମା ମଳ ର ଅଭ୍ୟାସ ଏବଂ ଏହାର ସଫା ପରିଚାଳନା ବିଷୟରେ ସର୍ଭେ

ସର୍ଭେ ପ୍ରଶ୍ନାବଳୀ

Form ID:
ସୂଚନାପତ୍ର

<u>ଅନୁସନ୍ଧାନର ଅଭିପ୍ରାୟ:</u> ମୁଁ ହାଉସିଂ ଆଣ୍ଡ ଅର୍ବାନ ଡେଭେଲପମେନ୍ଟ ଡିପାର୍ଟମେନ୍ଟ ରୁ ଆପଣଙ୍କ ଅଞ୍ଚଳକୁ ଏକ ଅନୁସନ୍ଧାନ କରିବା ପାଇଁ ଆସିଅଛି । ଏହି ଅନୁସନ୍ଧାନର ଉଦ୍ଦେଶ୍ୟ ହେଉଛି, "ସହରାଞ୍ଚଳ ର ପରିମଳ ବ୍ୟବସ୍ଥା ଓ ପାଇଖାନା ସଫା ପରିଚାଳନା ବିଷୟରେ ସମୀକ୍ଷା କରିବା" । ଏହି ଅନୁସନ୍ଧାନରେ ହେବାକୁ ଥିବା ମୁଖ୍ୟ ଆଲୋଚନା ଓ କଥୋପକଥନରେ ଆପଣଙ୍କୁ ଭାଗ ନେବା ପାଇଁ ଅନୁରୋଧ। ଆପଣଙ୍କ ସହଯୋଗ, ଆପଣଙ୍କ ସହରକୁ ନିର୍ମଳ ରଖିବାରେ ସହାୟକ ହେବ। ଏହି ଅନୁସନ୍ଧାନରେ, ଆପଣଙ୍କ ଅଂଶଗ୍ରହଣ ସମ୍ପୂର୍ଣ୍ଣ ସ୍ୱେଚ୍ଛାକୃତ ଅଟେ। ପୂର୍ବରୁ ଇଚ୍ଛୁକ ଥିବା ସତ୍ତ୍ୱେ ଯେ କୌଣସି ସମୟରେ ଯଦି ଆପଣ ଚାହିଁବେ, ତାହା ହେଲେ ଆପଣଙ୍କ ମତ ପରିବର୍ତ୍ତନ କରି ଆଲୋଚନାରୁ ଓହରିଯାଇପାରିବେ। ଏହି ଆଲୋଚନା ଆପଣଙ୍କ ବୃତ୍ତି ବା ଧନ୍ଦାରେ କୌଣସି ପ୍ରଭାବ ପକାଇବ ନାହିଁ। ଯଦି ଆଲୋଚନାରେ କିଛି ବ୍ୟକ୍ତିଗତ କିମ୍ବା ସଂବେଦନଶୀଳ ପ୍ରଶ୍ନ ଥିବାର ଆପଣ ଅନୁଭବ କରନ୍ତି କିମ୍ବା କୌଣସି ପ୍ରଶ୍ନ ଆପଣଙ୍କୁ ଅଡୁଆ ଲାଗେ ତେବେ,ଆପଣ ତାହାର ଉତ୍ତର ନ ଦେଇପାରନ୍ତି ବା ସେଥିପାଇଁ ଆପଣ ଆଲୋଚନରୁ ଯେ କୌଣସି ସମୟରେ ଓହରିଯାଇପାରନ୍ତି ଏବଂ ଆପଣଙ୍କ ଏହି ନିଷ୍ପତ୍ତିକୁ ସମ୍ମାନ ଜଣାଇ ଆପଣଙ୍କୁ କୌଣସି କାରଣ ପଚରାଯିବ ନାହିଁ। ଏହି ଆଲୋଚନା ରେ ଭାଗ ନେଲେ ଆପଣଙ୍କୁ କୌଣସି ପ୍ରକାର ସିଧାସଳଖ ଲାଭ ମିଳିବ ନାହିଁ। ଏହି ଅନୁସନ୍ଧାନର କଥୋପକଥନକୁ ଡିଜିଟାଲ ରେକର୍ଡିଂ ପାଇଁ ଅନୁମତି ମାଗୁଛୁ। ଏହି ଅନୁସନ୍ଧାନରେ ଆପଣଙ୍କ ନାମ ଏବଂ ଆପଣ ଦେଇଥିବା ସମସ୍ତ ତଥ୍ୟ ଗୋପନୀୟ ରଖାଯିବ। ଅନୁସନ୍ଧାନରେ ଜଡିତ ଥିବା କର୍ମଚାରୀଙ୍କ ବ୍ୟତୀତ ଏହି ତଥ୍ୟ ଆଉ କାହାରିକୁ ଜଣାଯିବ ନାହିଁ। ଯଦି ଆପଣଙ୍କର ଏହି ଅନୁସନ୍ଧାନ ସମ୍ବନ୍ଧୀୟ କିଛି ଜିଜ୍ଞାସା/ସନ୍ଦେହ ଅଛି,ତାହେଲେ ଆପଣ ଡିସଟ୍ରିକ୍ଟ କୋଡିନେଟୋର ଙ୍କ ସହ ଯୋଗାଯୋଗ କରନ୍ତୁ।

<u>ସମ୍ମତି / ଅନୁମତି ପ୍ରମାଣପତ୍ର</u>

ଅଂଶଗ୍ରହଣକାରୀ/ ଅଭିଭାବକଙ୍କର ମନ୍ତବ୍ୟ

ମୋତେ ଏହି ଅନୁସନ୍ଧାନର ଆଲୋଚନାରେ ଭାଗ ନେବା ପାଇଁ ଅନୁରୋଧ କରାଯାଇଛି। ପୂର୍ବରୁ ସୂଚନା ପତ୍ରରେ ଥିବା ତଥ୍ୟକୁ ମୁଁ ପଢିଛି ଅବା ମୋତେ ପଢି ଶୁଣାଇ ଦିଆଯାଇଛି। ସୂଚନା ପତ୍ରରେ ଥିବା ବିଷୟ ବସ୍ତୁ ଏବଂ ସେହି ସମ୍ବନ୍ଧୀୟ ପ୍ରଶ୍ନ ପଚାରିବାର ସୁଯୋଗ ମୋତେ ଦିଆଯାଇଛି ଓ ଏହାର ସନ୍ତୋଷ ଜନକ ଉତ୍ତର ମୋତେ ମିଳିଛି । ମୁଁ ସ୍ୱେଚ୍ଛାକୃତ ଭାବରେ, ଏହି ଅନୁସନ୍ଧାନରେ ଭାଗ ନେବା ପାଇଁ ନିଜର ସମ୍ମତି ଜଣାଉଛି।
ଅଂଶଗ୍ରହଣକାରୀ ନାମ :_____

ଅଂଶଗ୍ରହଣକାରିଙ୍କ ଦସ୍ତଖତ_____

ଯଦି ଅଶିକ୍ଷିତ: ମୁଁ ଏଠାରେ ସାକ୍ଷ୍ୟ ଦେଉଅଛି ଯେ, ଅଂଶଗ୍ରହଣକାରୀ ଜଣକ ସୂଚନା ପତ୍ରକୁ ସଠିକ ଭାବେ ପଢି ବୁଝିଛନ୍ତି ଓ ତାଙ୍କୁ ପ୍ରଶ୍ନ ପଚାରିବାର ସୁଯୋଗ ମିଳିଛି ତଥା ସେଥିପାଇଁ ସେ ଆଲୋଚନା ରେ ଭାଗ ନେବା ପାଇଁ ସ୍ୱାଧୀନ ଭାବେ ସମ୍ମତି ଜଣାଇଛନ୍ତି ।
ସାକ୍ଷ୍ୟକାରୀଙ୍କ ନାମ _____

ଅଂଶଗ୍ରହଣକାରିଙ୍କ/ ଅଭିଭାବକଙ୍କର ଟିପ ଚିହ୍ନ

ସାକ୍ଷ୍ୟକାରୀଙ୍କ ଦସ୍ତଖତ _____

ତାରିଖ (ଦିନ / ମାସ /ବର୍ଷ) _____

<u>ଅନୁସନ୍ଧାନ / ସମ୍ମତି ନେଉଥିବା ବ୍ୟକ୍ତିଙ୍କ ଘୋଷଣା:</u> ମୁଁ ସଠିକ ଭାବରେ ସମ୍ଭାବ୍ୟ ଅଂଶଗ୍ରହଣକାରିଙ୍କୁ ସୂଚନା ପତ୍ରଟି ପଢିବାର ସୁଯୋଗ ଦେଇଛି/ପଢି ଶୁଣେଇଛି ଓ ମୋର ଶ୍ରେଷ୍ଠ ଦକ୍ଷତା ଅନୁସାରେ ବିଶ୍ୱାସ ରଖିଛି ଯେ, ଅଂଶଗ୍ରହଣକାରୀ ଏହି ଅନୁସନ୍ଧାନର ଉଦ୍ଦେଶ୍ୟ ସମ୍ପୂର୍ଣ୍ଣ ବୁଝିପାରିଛନ୍ତି।ତାଙ୍କୁ ପ୍ରଶ୍ନ ପଚାରିବାକୁ ସୁଯୋଗ ଦିଆଯାଇଥିଲା ଓ ସେହି ସମସ୍ତ ପ୍ରଶ୍ନର ସଠିକ ଉତ୍ତର ଦିଆଯାଇଛି । ଅଂଶଗ୍ରହଣକାରୀ ଜଣଙ୍କୁ ଆଲୋଚନାରେ ଭାଗ ନେବା ପାଇଁ କୌଣସି ବାଧ କରାଯାଇ ନାହିଁ; ସେ ନିଜ ଇଚ୍ଛା ଅନୁସାରେ ଅଂଶଗ୍ରହଣ ପାଇଁ ନିଜର ସମ୍ମତି ପ୍ରଦାନ କରିଛନ୍ତି ।

ଅନୁସନ୍ଧାନକାରିଙ୍କ ଦସ୍ତଖତ_____

ତାରିଖ (ଦିନ / ମାସ /ବର୍ଷ)_____

SECTION A: PRIMARY INFORMATIONକ ବିଭାଗ : ପ୍ରାଥମିକ ସୂଚନା	
Survey area ସର୍ବେକ୍ଷଣ ଅଞ୍ଚଳ *(Fill the Details)(*ସମ୍ପୂର୍ଣ ପୂରଣ କରନ୍ତୁ i. Town: ସହର ii. Ward Number ---ୱାଡ଼ ନମ୍ବର- iii. House No-----ଘର ନମ୍ବର _____ Locality Type: Slum-------, Non slum------- କି ପ୍ରକାର ଅଞ୍ଚଳ : ବସ୍ତି ------ ଅଣ ବସ୍ତି-------- Locality name: ଅଞ୍ଚଳର ନାମ -------- GPS Location Id of Septic Tank---------- ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ର ଜିପିଏସ କୋଡ଼ Picture of the household/institution/commercial establishment ଘର /ଅନୁଷ୍ଠାନ / ବ୍ୟବସାୟିକ ସଂସ୍ଥା ର ଫଟୋ	Name of the Head of Household/Supervisor of the apartment: ପରିବାରର ମୁଖ୍ୟ ଙ୍କ ନାମ / ଆପାର୍ଟମେଣ୍ଟ ସୁପରଭାଇଜର ଙ୍କ ନାମ 1. Male 2. Female ପୁରୁଷ ମହିଳା Age:(in years)ବୟସ Education: ଶିକ୍ଷା Illiterate, 2. Can sign or read /write without going to formal school, 3. Primary, 4. Upper Primary, 5 . Secondary, 6 . Sr. Secondary, 7. Graduation, 8. P.G &Above) (1-ଅଶିକ୍ଷିତ, 2-ସ୍କୁଲ ନ ଯାଇ ଲେଖି ପଢି ପାରନ୍ତି, 3-ପ୍ରାଥମିକ, 4-ଉଚ ପ୍ରାଥମିକ ,5-ହାଇସ୍କୁଲ , 6-+2 , 7-ଗ୍ରାଜୁଏଟ/+3 ,8-ପି ଜି ଏବଂ ତଦୁର୍ଦ୍ଧ୍ୱ Aadhar Card: Yes/No:If Yes, Number: ଆଧାର ନମ୍ବର-ହଁ ନା : ଯଦି ହଁ ତେବେ ନମ୍ବର- Contact No:ଯୋଗଯୋଗ ନମ୍ବର :
Type of property ପ୍ଲଟ/ସମ୍ପତ୍ତିର ପ୍ରକାର	Residentialଆବାସିକ Institutionalଆନୁଷ୍ଠାନିକ Commercialବ୍ୟବସାୟୀକ Mixedଉଭୟ ବର୍ଗ/ଶ୍ରେଣୀର Residential +Institutionalଆବାସିକ+ ଆନୁଷ୍ଠାନିକ Institutional + Commercial ଆନୁଷ୍ଠାନିକ+ ବ୍ୟବସାୟୀକ Residential + Commercial ଆବାସିକ +ବ୍ୟବସାୟୀକ
Property number as per municipal property tax record ମ୍ୟୁନିସିପାଲିଟି ଟ୍ୟାକ୍ସ ରେକର୍ଡ ଅନୁସାରେ ସମ୍ପତି ର ସଂଖ୍ୟା	Number: ସଂଖ୍ୟା
Mark the House typology (only if 2 is residential) କି ପ୍ରକାର ଘର ତାହା ସୂଚିତ କରନ୍ତୁ (କେବଳ ଯଦି ପ୍ରଶ୍ନ 2 ରେ ଉତ୍ତର ଆବାସିକ)	Stand-alone houseଗୋଟିକିଆ ଘର Multi-story Apartment ଏକାଧିକ ମହଲା ଆପାର୍ଟମେଣ୍ଟ Row house with common shared walls ଗୋଟିଏ କାନ୍ଥରେ ଧାଡିକିଆ ଘର Slum House (Kachha walls) ବସ୍ତି ଘର (ଝାଟିମାଟି କାନ୍ଥ) SlumHouse (Pucca walls)

	ବସ୍ତି ଘର (ପକ୍କା କାନ୍ଥ) Other (please specify) ଅନ୍ୟାନ୍ୟ (ଦର୍ଶାଅ.....)
Ownership Statusof the property ସମ୍ପତ୍ତିର ମାଲିକାନା ସ୍ଥିତି	Owned ନିଜସ୍ୱ Rented ଭଡା Staff quarterକର୍ମଚାରି ବାସଗୃହ On encroached land (non-slum) ଜବର ଦଖଲ ଜମିରେ (ଅଣ ବସ୍ତି ଅଞ୍ଚଳ) On public land (slum)ସରକାରୀ/ସର୍ବସାଧାରଣ ଜମିରେ (ବସ୍ତି) On private land (slum)ବେସରକାରୀ/ଘରୋଇ ଜମି (ବସ୍ତି) Other (please specify) ଅନ୍ୟାନ୍ୟ (ଦୟାକରି ଦର୍ଶାଅ)
In case of apartment, name of the apartment building ଯଦି ଆପାର୍ଟମେଣ୍ଟ ,ତେବେ ଆପାର୍ଟମେଣ୍ଟର ନାମ ଲେଖନ୍ତୁ	Nameନାମ _____
No of blocksବ୍ଲକ ସଂଖ୍ୟା	Numberସଂଖ୍ୟା _____
How many flats are there in this propertyଏହି ଜାଗାରେ କେତୋଟି ଫ୍ଲାଟ ଅଛି	Numberସଂଖ୍ୟା _____
Number of flats that are occupied କେତୋଟି ଫ୍ଲାଟ ଅଧିକୃତ/ଦଖଲରେ ଅଛି	Numberସଂଖ୍ୟା _____
How many households are there on this property?ଏହି ପ୍ଲଟରେ କେତେଜଣ ପରିବାର ଅଛନ୍ତି	Numberସଂଖ୍ୟା _____
How long has your family been staying in this house?*(Not applicable in case of unauthorized slum)* ଏହି ଘରେ ଆପଣଙ୍କ ପରିବାର କେତେଦିନ ହେଲା ରହି ଆସୁଛନ୍ତି ? (ଅଣ ସୀକୃତିପ୍ରାପ୍ତବସ୍ତି ପାଇଁ ଏହା ପ୍ରଯୁଜ୍ୟ ନୁହେଁ)	Numberସଂଖ୍ୟା _____
Select the type of Institution (only if 2 is institutional) ଅନୁଷ୍ଠାନଟି କି ପ୍ରକାର ବାଛନ୍ତୁ (କେବଳ ଯଦି ପ୍ରଶ୍ନ 2 ରେ ଉତ୍ତର ଅନୁଷ୍ଠାନ ଥାଏ)	Hospital/Nursing Homeଡାକ୍ତରଖାନା/ନର୍ସିଙ୍ଗହୋମ School/Collegeସ୍କୁଲ/କଲେଜ Religious Institutionଧାର୍ମିକ ଅନୁଷ୍ଠାନ Government Officeସରକାରୀ ଅଫିସ Other (Please Specify)ଅନ୍ୟାନ୍ୟ (ଦର୍ଶାଅ)
Select the type of commercial (only if 2 is commercial)	Industryଶିଳ୍ପ Shop/private officeଦୋକାନ/ବେସରକାରୀ ଅଫିସ

ବ୍ୟବସାୟୀକ ସଂସ୍ଥାଟି କି ପ୍ରକାର ବାଛନ୍ତୁ (କେବଳ ଯଦି ପ୍ରଶ୍ନ 2 ରେ ଉତ୍ତର ବ୍ୟବସାୟୀକ ଥାଏ)	Hotel/Lodgeହୋଟେଲ/ଲଜ Other (please specify)ଅନ୍ୟାନ୍ୟ (ଦର୍ଶାଅ)

SECTION B: WATERବିଭାଗ-ଖ : ପାଣି

14	Sources of Water for domestic use*(Can mark more than one)* ଘରୋଇ ବ୍ୟବହାର ପାଇଁ ପାଣିର ସ୍ରୋତ (ଏକାଧିକ ସ୍ରୋତ ମାର୍କ କରିପାରିବ)								
	Piped water supply ପାଇପ ଦ୍ୱାରା ପାଣି ଯୋଗାଣ		Public (Free) ସର୍ବସାଧାରଣ (ମାଗଣା)						
	a. Individual HH Connection ଘରେ ନିଜ ର କନେକ୍ସନ	b. Shared HH Connection ଗୋଟିଏ ଘରୋଇ ପାଣି ପାଇପ କନେକସନ କୁ ଏକାଧିକ ପରିବାର ବ୍ୟବହାର	c. Stand Post ଷ୍ଟାଣ୍ଡ ପୋଷ୍ଟ	d. Open well ଖୋଲା କୂଅ	e. Bore well ବୋରିଂ କୂଅ	f. Hand pump ନଳ କୂଅ	g. Municipal Tanker ମୁନିସିପାଲିଟି ଟ୍ୟାଙ୍କର	h. Private tanker ବେସରକାରୀ ଟ୍ୟାଙ୍କର	i. Others (specify) ଅନ୍ୟାନ୍ୟ (ଦର୍ଶାନ୍ତୁ)
15	Please indicate duration of water supply. *If the option of Que no 14 is a/b/c* ଦିନକୁ କେତେ ସମୟ ପାଣି ଆସେ। (ଯଦି ପ୍ରଶ୍ନ 14 ରେ ଉତ ର *a/b/c* ଥାଏ)	Less than 2 hours in a day ଦିନକୁ 2ଘଣ୍ଟାରୁ କମ Between 2 to 4 hours in a day ଦିନକୁ 2ଘଣ୍ଟା ରୁ 4 ଘଣ୍ଟା ମଧ୍ୟରେ Between 4 to 8 hours in a day ଦିନକୁ 4 ରୁ 8 ଘଣ୍ଟା ମଧ୍ୟରେ More than 8 hours in a day ଦିନକୁ 8 ଘଣ୍ଟାରୁ ଅଧିକ							
16	Is the quantity of water available sufficient to use and maintain the toilet in your house?ଆପଣଙ୍କୁ ଯେତିକି ପରିମାଣ ର ପାଣି ମିଳୁଛି ତାହା ଘରେ ଥିବା ପାଇଖାନାର ବ୍ୟବହାର ପାଇଁ ଯଥେଷ୍ଟ କି ?	Yesହଁ Noନାହିଁ							

SECTION C1: Sanitation – Toilet in the house/institution/commercial establishment

ବିଭାଗ ଗ1 : ପରିମଳ – ଯଦି ଘରେ/ଅନୁଷ୍ଠାନ/ବ୍ୟବସାୟୀକ ସଂସ୍ଥାରେ ପାଇଖାନା ଥାଏ			
17	How is your toilet connected to, for disposal? Pls. take a picture of the facility, if possible. ଆପଣଙ୍କ ପାଇଖାନା କାହା ସହିତ କନେକ୍ସନ ହୋଇଛି ? ଯଦି ସମ୍ଭବ ଦୟାକରି ଏହାର ଫଟୋ ନିଅନ୍ତୁ *(To be physically verified by surveyor)* (ସାକ୍ଷାତକର୍ତ୍ତା ନିଜେ ଯାଞ୍ଚ କରନ୍ତୁ) (Picture would be put against each of the option)(ପ୍ରଶ୍ନ ପଚାରିଲା ସମୟରେ ଫଟୋ ଦେଖାଇ ଉତ୍ତର ଲେଖନ୍ତୁ)	Sewer networkଭୂତଳ ନର୍ଦମା / ଡ୍ରେନ ବ୍ୟବସ୍ଥା Septic tank with soak pit ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ଶୋକପିଟ ସହିତ Septic tank connected to open/closed drain ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ଟି ଖୋଲା/ବନ୍ଦ ଥିବା ନର୍ଦମା ସହିତ କନେକ୍ସନ Single pitଗୋଟିଏ ପିଟ Double pitଦୁଇଟି ପିଟ Directly to open/closed drain ଖୋଲା/ବନ୍ଦ ଥିବା ନର୍ଦମା ସହିତ ସିଧାସଳଖ କନେକ୍ସନ Others, specifyଅନ୍ୟାନ୍ୟ , ଦର୍ଶାଅ	
18	Picture of the toilet taken ପାଇଖାନାର ଫଟୋ ନିଆଗଲା ?	Yesହଁ Noନାହିଁ	
19	Provide a brief description of the septic tank/ Pit ସେପ୍ଟିକ ଟ ୍ୟାଙ୍କ/ପିଟର ସମ୍ପୂର୍ଣ୍ଣ ବିବରଣୀ ଦିଅନ୍ତୁ Locationଅବସ୍ଥିତି Shapeଆକୃତି Sizeଆୟତନ Access road to the septic tank	Inside the houseଘର ଭିତରେ Outside the houseଘର ବାହାରେ In case of option 2, ଯଦି ଉତ୍ତର 2 ହୁଏ , 2i. Front Side of the propertyଘର ଆଗରେ 2ii. Back Side of the propertyଘର ପଛରେ Rectangularଆୟତାକାର Circularଗୋଲାକାର Don’t Knowଜାଣିନାହିଁ Breadth/Diameter_____ft. ଓସାର/ବ୍ୟାସ ...ଫୁଟରେ Length_____ft.ଲମ୍ବ.....ଫୁଟରେ	

	ସେପ୍ଟିକ ଟ୍ୟାଙ୍କକୁ ପହଞ୍ଚିବା ରାସ୍ତା Type of the bottom ତଳ ଭାଗ ଟି କି ପ୍ରକାର ର	Depth_____ft.ଗଭୀର.....ଫୁଟରେ No of rings used in septic tank (in case the shape is Circular): Don't knowଜାଣିନାହିଁ Narrow road (less than 2 mts.) ଅଣ ଓସାରିଆ ରାସ୍ତା (2ମିଟରରୁ କମ) Medium (less than 5 mts.) ମାଧ୍ୟମ ଧରଣ(5 ମିଟରରୁ କମ) Broad road (more than 5 mts.) ଓସାରିଆ ରାସ୍ତା (5ମିଟରରୁ ଅଧିକ) Linedସିମେଣ୍ଟ ପ୍ରସ୍ତର Non-linedମାଟି ପ୍ରସ୍ତର	(Picture would be put against each of the two option) (ପ୍ରଶ୍ନ ପଚାରିଲା ସମୟରେ ଫଟୋ ଦେଖାଇ ଉତ୍ତରର ଲେଖଁୁ)
20	How old is your toilet ଆପଣଙ୍କ ପାଇଖାନାଟି କେତେବର୍ଷ ର ପୁରୁଣା	_____ (in years)(ବର୍ଷରେ)	
21	How many persons are there in this household? (for Commercial, approx.. numbers of toilet users)ଏହି ପରିବାରରେ ମୋଟ କେତେଜଣ ଲୋକ ରହୁଛନ୍ତି ? (ଯଦି ବ୍ୟବସାୟୀକ ସଂସ୍ଥା ହୋଇଥାଏ ତେବେ ଆନୁମାନିକ କେତେଜଣ ପାଇଖାନା ବ୍ୟବହାର କରନ୍ତି)	Children (less than 18 year):___, Other Male: ___ Other female: ___ ଛୋଟ ପିଲା (୧୮ ବର୍ଷରୁ କମ)....., ଅନ୍ୟାନ୍ୟ ପୁରୁଷ :…….. ଅନ୍ୟାନ୍ୟ ମହିଳା	
22	Do you share your toilet with any other Family	Yesହଁ Noନାହିଁ	
23	If yes who are the members from other	Male Female	

	family use it		
24	Did anyone help you in designing and construction of toilet ପାଇଖାନା ନିର୍ମାଣ ଏବଂ ଏହାର ଡିଜାଇନ/ପରିକଳ୍ପନା ପାଇଁ କେହି ସାହାଯ୍ୟ କରିଥିଲେ କି ? Who helped you in designing and construction of toilet ନିର୍ମାଣ ଏବଂ ଏହାର ଡିଜାଇନ/ପରିକଳ୍ପନା ପାଇଁ କିଏ ସାହାଯ୍ୟ କରିଥିଲେ	Yesହଁ Noନାହିଁ If yes, then, who provided guidance ଯଦି ହଁ , ତେବେ କିଏ ନିର୍ଦ୍ଦେଶ ଦେଇଥିଲେ Masonରାଜମିସ୍ତ୍ରୀ Contractorଠିକାଦାର Municipality officialsମୁନିସପାଲ କର୍ମଚାରି Neighborsପଡୋଶୀ Relatives and friends ବନ୍ଧୁବାନ୍ଧବ/ ସାଙ୍ଗସାଥୀ NGOଏନଜିଓ Any otherଅନ୍ୟାନ୍ୟ	
25	Do some member(s) of your family do not use the toilet in the house and practice open defecation? ଆପଣଙ୍କ ପରିବାରରେ କୌଣସି ସଦସ୍ୟ ଘରେ ଥିବା ପାଇଖାନା ବ୍ୟବହାର କରନ୍ତି ନାହିଁ ଏବଂ ଖୋଲା ଜାଗା /ବାହାରକୁ ଝାଡା ଯାଆନ୍ତି କି ?	Yesହଁ Noନାହିଁ	
	If yes, who does it ଯଦି ହଁ , କେଉଁମାନେ ଯାଆନ୍ତି	Male Members ପୁରୁଷ ସଦସ୍ୟ Female Membersମହିଳା ସଦସ୍ୟ Children (below 18 Yrs)18 ବର୍ଷରୁ କମ ପିଲାମାନେ Others (specify):ଅନ୍ୟାନ୍ୟ (ଦର୍ଶାଅ)	
	If, yes please explain the reasons for doing so ଯଦି ହଁ, ଏହିପରି କରିବାର କାରଣ କୁହନ୍ତୁ	Lack of water ପାଣିର ଅଭାବ Matter of habit/ cultural preference ଏହା ଏକ ଅଭ୍ୟାସ/ପରମ୍ପରାଗତ ପସନ୍ଦ Joint/ group activity ସାଙ୍ଗହୋଇ ଝାଡା ଯିବା ର ଅଭ୍ୟାସ Small septic tank/pitଛୋଟ ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ/ପିଟ	

		Avoid frequent cleaning ବାରମ୍ବାର ସଫାକରିବାକୁ ପଡିବନି Any other (specify)ଅନ୍ୟକିଛି (ଦର୍ଶାଅ.....)	
Toilet Typologies, Emptying, Transportation and Disposal ପାଇଖାନାର ପ୍ରକାର , ମଳ ବାହର କରି ବାହାରେ ପକାଇବା			
26	Which of the following are connected to the septic tank/Pit latrine ନିମ୍ନ ଲିଖିତ ମଧ୍ୟରୁ କେଉଁ ଗୁଡିକ ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ/ପିଟ ପାଇଖାନାକୁ ସଂଯୋଗ କରାଯାଇଛି Wash Basins ହାତ ଧୁଆ ବେଶିନ Kitchen waste water ରୋଷେଇ ଘର ର ଆବର୍ଜନା ପାଣି Washing area ଲୁଗାସଫା ଜାଗା Bathing area ଗାଧୋଇବା ଜାଗା Surface water (e.g. area above the septic tank ସେପ୍ଟିକ ଟ୍ୟାଙ୍କର ଉପରି ଭାଗର ପାଣି Roof water ଛାତ ର ପାଣି Other (please specify) ଅନ୍ୟାନ୍ୟ (ଦର୍ଶାନ୍ତୁ)	Please tick all that apply ଦୟାକରି ସମସ୍ତ ଉତ୍ତର ଗୁଡିକୁ ଟିକ ଚିହ୍ନ ଦିଅନ୍ତୁ ।	Total Number (where applicable)ସମୁଦାୟ ସଂଖ୍ୟା (ଦରକାର ସ୍ଥାନରେ)
27	Outflow of septic tank/pit latrine is connected to ସେପଟିକ ଟ୍ୟାଙ୍କ/ ପିଟ ପାଇଖାନାରୁ ବାହାରୁଥିବା ମଇଳା କାହା ସହିତ କନେକ୍ସନ ହୋଇଛି	Open drainଖୋଲା ନର୍ଦ୍ଦମା / ଡ୍ରେନ Closed drain ସ୍ଲାବ / ଘୋଡଣିଥିବା ନର୍ଦ୍ଦମା / ଡ୍ରେନ Sewer system ଭୂତଳ ନର୍ଦ୍ଦମା / ମାଟି ତଳେ ଯାଇଥିବା ଡ୍ରେନ ର ବ୍ୟବସ୍ଥା Soak pitପାଣି ଶୁଖିବା ଖାତ	
28	Where does the discharge of grey water and effluent from septic tank or latrines take place? ପାଇଖାନା କିମ୍ବା ସେପଟିକ ଟ୍ୟାଙ୍କ	Drainନର୍ଦ୍ଦମା / ଡ୍ରେନ Sewer system ଭୂତଳ ନର୍ଦ୍ଦମା / ମାଟି ତଳେ ଯାଇଥିବା ଡ୍ରେନ Soak pitପାଣି ଶୁଖିବା ଖାତ Any other, please specifyଅନ୍ୟାନ୍ୟ ଦର୍ଶାନ୍ତୁ	

	ରୁ ବାହାରୁଥିବା ମଇଳା ପାଣି ଏବଂ ଆବର୍ଜ୍ଜନା କେଉଁଠିକି ଯାଏ ?		
29	Where is the liquid waste from your house discharged? ଘରୁ ବାହାରୁଥିବା ମଇଳା ଆବର୍ଜ୍ଜନା ପାଣି କେଉଁଠିକି ଯାଏ ?	Drainନର୍ଦ୍ଦମା / ଡ୍ରେନ Soak pitପାଣି ଶୁଖିବା ଖାତ Open areaଖୋଲା ଜାଗା Any other, please specifyଅନ୍ୟାନ୍ୟ ଦର୍ଶାନ୍ତୁ	
30	Is there a well or hand pump in your house/plot? ଆପଣଙ୍କ ଘରେ /ପ୍ଲଟ ରେ ଖୋଲା କୂଅ କିମ୍ବା ନଳକୂଅ(କେବଳ ପୁରୀ ପାଇଁ) ଅଛି କି?	Yesହଁ Noନାହିଁ	
31	If yes, pls. record the distance between the well and septic tank/pit ଯଦି ହଁ ତେବେ କୂଅ ଏବଂ ସେପଟିକ ଟ୍ୟାଙ୍କ/ପିଟ ମଧ୍ୟରେ ଦୂରତା କେତେ ?ରେକର୍ଡ କରନ୍ତୁ	Distance in meters_____ ଦୂରତା ମିଟର ରେ -------	
32	Was the ground water level Checked before deciding depth of pit/ septic tank? ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ/ପିଟର ଗଭୀରତା କେତେ ରହିବତାର ନିଷ୍ପତି କରିବା ପୂର୍ବରୁ ପାଣିର ସ୍ତର କେତେ ଅଛି ଯାଞ୍ଚ କରିଥିଲେ କି ?	YesହଁNoନାହିଁ	
33	What are the purposes for which water from the well is used *(Can encircle more than one)* କେଉଁକେଉଁ ଉଦ୍ଦେଶ୍ୟ ରେ କୂଅ ର ପାଣି ବ୍ୟବହାର କରାଯାଏ (ଏକାଧିକ ଉତ୍ତର ପାଇଁ ଗୋଲ ବୁଲାନ୍ତୁ)	Drinking and cooking without treatment ବିଶୋଧନ ନ କରି ପିଇବା ଏବଂ ରୋଷେଇ କରିବା Drinking and cooking after treatment ବିଶୋଧନ କରି ପିଇବା ଏବଂ ରୋଷେଇ କରିବା Non-drinking purposes such as bathing, washing etc. ପିଇବା ବ୍ୟତୀତ ଅନ୍ୟାନ୍ୟ ଉଦ୍ଦେଶ୍ୟରେ (ଗାଧୋଇବା,ଲୁଗା ସଫା କରିବା ଇତ୍ୟାଦି) Any other (specify) ଅନ୍ୟାନ୍ୟ (ଦର୍ଶାନ୍ତୁ)	
34	Do you think the water from the well can get contaminated due to	YesହଁNoନାହିଁ	

	proximity to toilet? ପାଖରେ ପାଇଖାନା ରହିଲେ କୂଅ ର ପାଣି ଦୂଷିତ/ସଂକ୍ରମିତ ହେବ ବୋଲି ଆପଣ ଭାବୁଛନ୍ତି କି?		
35	Whom you contact for emptying of septic tank	1.ULBs 2.Govt Cesspool operators 3.Private cesspool operators 4.Manual labours	
36	What was the source of information related to emptying septic tank	1.Hoardings 2.Newspaper 3.T.V. Ads 4.Pump lets 5.Internet Others if any…specify	
37	Did any member of your family suffer from diarrhea/dysentery in the last 3 months? ଗତ 3 ମାସ ଭିତରେ ଆପଣଙ୍କ ପରିବାରର କୌଣସି ସଦସ୍ୟ ଙ୍କୁ ଡାଇରିଆ / ଝାଡା ବାନ୍ତି / ପତଳା ଝାଡା ହୋଇଛି କି ?	Yes- 01 ହଁ No-02 ନାଁ If Yes, who : ଯଦି ହଁ ତେବେ କିଏ ? 1. Children ପିଲାମାନେ 2. Adult ବୟସ୍କ 3. Both ଉଭୟ	
38	Did any member of your family suffer from jaundice in the last 3 months? ଗତ 3 ମାସ ଭିତରେ ଆପଣଙ୍କ ପରିବାରର କୌଣସି ସଦସ୍ୟ ଙ୍କୁ ଜଣ୍ଡିସ ହୋଇଛି କି ?	Yes- 01 ହଁ No-02 ନାଁ If Yes, who : ଯଦି ହଁ ତେବେ କିଏ ? 1. Children ପିଲାମାନେ 2. Adult ବୟସ୍କ 3. Both ଉଭୟ	
39	How frequently is the septic tank/pit latrine emptied? କେତେ ବ୍ୟବଧାନରେ ସେପ୍ଟିକଟ୍ୟାଙ୍କ /ପିଟ ପାଇଖାନା ସଫା କରାଯାଏ	6 months 6 ମାସ 6 – 12 months 6-12 ମାସ 12 – 24 months 12-24 ମାସ 24 – 36 months24-36 ମାସ More than 36 months 36 ମାସରୁ ଅଧିକ Not yet emptied since construction ତିଆରି ହେବା ଦିନଠାରୁ ସଫା ହୋଇନାହିଁ Mention the last date of emptying of the	

		septic tank/pit latrine-------- ଶେଷ ଥର କୌ ତାରିଖ ରେ ସେପ୍ଟିକଟ୍ୟାଙ୍କ /ପିଟ ପାଇଖାନାସଫା ହୋଇଥିଲା ଲେଖନ୍ତୁ ……	
40	Why was the septic tank emptied ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ କାହିଁକି ସଫା କଲେ ?	Schedule emptying is required ଉପଯୁକ୍ତ ସମୟରେ ସଫା କରିବା ଦରକାର ଥିଲା Blocked toilet ପାଇଖାନା ଭର୍ତି ହୋଇ ବନ୍ଦ ହୋଇଯାଇଥିଲା Overflow from access hole/manhole ମଇଳା ଗୁଡିକ ସେପ୍ଟିକ ଟ୍ୟାଙ୍କର ଦୁଆରମୁହଁ ଦେଇ ବାହାରକୁ ବାହାରି ଆସିଥିଲା Foul Smellଦୁର୍ଗନ୍ଧ ବାହାରିଲା Other, Specifyଅନ୍ୟାନ୍ୟ ଦର୍ଶାନ୍ତୁ Don’t know/Rememberଜାଣି ନାହିଁ /ମନେ ନାହିଁ	
41	How is the septic tank emptied? *(Encircle appropriate no.)* ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ କିପରି ସଫା କରାଗଲା (ଉପଯୁକ୍ତ ଉତ୍ତର ଗୁଡିକ ଗୋଲ ବୁଲାନ୍ତୁ)	Manually using local labour ସ୍ଥାନୀୟ ଶ୍ରମିକ / ମଜୁରିଆ ହାତରେ ବାହାର କଲେ Using suction machine (pvt.) ବେସରକାରୀ ସକ୍ସନ ମେସିନ ବ୍ୟବହାର କରି Using suction machine(govt) ସରକାରୀ ସକ୍ସନ ମେସିନ ବ୍ୟବହାର କରି Self ନିଜେ	
42	Were there any problems during emptying of septic tanks? (multiple answer) ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ସଫା କରିବା ସମୟ ରେ କୌଣସି ପ୍ରକାର ଅସୁବିଧା ହୋଇଥିଲା କି? (ଏକାଧିକ ଉତ୍ତର ସମ୍ଭବ)	Access or distance for suction truck to house ଘର ଠାରୁ ସକ୍ସନ ଟ୍ରକ ଦୂରରେ ଥିଲା କିମ୍ବା ସୁବିଧା ନଥିଲା Break floor tiles to access septic tank ସେପ୍ଟିକ ଟ୍ୟାଙ୍କର ଚଟାଣ ର ଟାଇଲି ଭାଙ୍ଗିଯାଇଥିଲା Break concrete manhole to access septic tank ସେପ୍ଟିକ ଟ୍ୟାଙ୍କର ଉପର ସିମେଣ୍ଟ କଂକ୍ରିଟ ଘୋଡଣି ଟି ଭାଙ୍ଗିଯାଇଥିଲା Difficult to locate the septic tank ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ଖୋଜି ପାଇବାରେ ଅସୁବିଧା ହୋଇଥିଲା Made a messଅପରିଷ୍କାର ହୋଇଯାଇଥିଲା No problem foundକୌଣସି ଅସୁବିଧା ହୋଇନଥିଲା Others, specifyଅନ୍ୟାନ୍ୟ ଦର୍ଶାନ୍ତୁ Don’t knowଜାଣିନାହିଁ	

43	Who is your preferred service provider for emptying septic tank? ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ସଫା କରିବା ପାଇଁ ଏମାନଙ୍କ ମଧ୍ୟରୁ ଆପଣ କାହାକୁ ପସନ୍ଦ କରନ୍ତି ।	Municipalityମୁନସିପାଲିଟ Private operatorବେସରକାରୀ ସଂସ୍ଥା/ଅପରେଟର Local Labourସ୍ଥାନୀୟ ଶ୍ରମିକ Self ନିଜେ Any otherଅନ୍ୟକେହି	
44	How much do you pay for the emptying services? *(Encircle appropriate no.)* ସେପ୍ଟିକଟ୍ୟାଙ୍କ ସଫା କରିବା ପାଇଁ କେତେ ଟଙ୍କା ଦେବାକୁ ପଡିଥିଲା ? (ସଠିକ ଉତ୍ତରରେ ଟିକ୍ କରନ୍ତୁ)	Rs 500 – 1000 ୫୦୦ ରୁ ୧୦୦୦ Rs 1000-1500 ୧୦୦୦ ରୁ ୧୫୦୦ Rs 1500 -2000 ୧୫୦୦ ରୁ ୨୦୦୦ Rs 2000-3000 ୨୦୦୦ ରୁ ୩୦୦୦ More than 3000 3000 ରୁ ଅଧିକା No cost- କୌଣସି ଖର୍ଚ କରିନାହାନ୍ତି	
45	Are you satisfied with the services related to proper emptying, transportation and disposal?(multiple answer) ସେପ୍ଟିକଟ୍ୟାଙ୍କ ଠିକ ଭାବରେ ସଫା କରିବା ,ବାହାରିଥିବା ମଳ କୁ ନେଇ ଠିକ ଭାବରେ ପକାଇବା ବିଷୟରେ ଆପଣ ସନ୍ତୁଷ୍ଟ କି ?(ଏକାଧିକ ଉତ୍ତର ସମ୍ଭବ)	Yesହଁ Noନାହିଁ Give reasons in case option is Yes ଯଦି ଉତ୍ତର ହଁ ହୁଏ ତେବେ ଏହାର କାରଣ କଣ ? Lower costକମ ଖର୍ଚ Timely availability/ quick response ଠିକ ସମୟରେ ମିଳିବା/ ଶୀଘ୍ର ଆସନ୍ତି Ease of contactଯୋଗାଯୋଗ ଅତି ସହଜ Better expertiseଭଲ ଦକ୍ଷତା Better equipmentଉନ୍ନତ ଉପକରଣ Any Otherଅନ୍ୟକିଛି Give reasons incase option is No ଯଦି ଉତ୍ତର ନାହିଁ ହୁଏ ଏହାର କାରଣ କଣ ? High cost ଅଧିକ ଖର୍ଚ Delay in responseଆସିବାରେ ଡେରି କରନ୍ତି Difficult to contact ଯୋଗାଯୋଗ କରିବାରେ ଅସୁବିଧା Poor expertise କମ ଦକ୍ଷତା Poor equipment ନିମ୍ନମାନର ଜନ୍ତ୍ରପାତି / ଉପକରଣ Any otherଅନ୍ୟକିଛି	

46	Where is the sludge collected from septic tanks disposed? *(for authentication, user may be asked whether they have actually seen it)* ସେପ୍ଟିକ ଟ୍ୟାଙ୍କରୁ ବାହାରୁଥିବା ମଇଳାଗୁଡିକ କେଉଁ ସ୍ଥାନରେ ପକାଯାଏ ? (ଉତ୍ତରଦାତା ଙ୍କୁ ପଚାରନ୍ତୁ ସେ ନିଜେ ଏହା ଦେଖିଛନ୍ତି କି ?)	Next to the houseଘର ପାଖରେ Drain/Canalଡ୍ରେନ/କେନାଲ Agricultural landଚାଷ ଜମିରେ Any Other (Specify)ଅନ୍ୟାନ୍ୟ (ଦର୍ଶାଅ) Riverନଦୀ Not awareଜଣାନାହିଁ	
47	Are you aware that a SeTP is being set up in your city to treat FSS for safe disposal?	1.Yesହଁ 2.Noନାହିଁ	
48	Do you know that fecal sludge can be treated as a resource and reused?	1.Yesହଁ 2.Noନାହିଁ	
49	Are you concerned about where the sludge is disposed? ଯେଉଁ ଜାଗାରେ ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ର ମଳ ପକାଯାଉଛି ସେଥିପାଇଁ ଆପଣ ଚିନ୍ତିତ କି ?	Yesହଁ Noନାହିଁ	
50	Are you aware of the adverse impact on health and environment due to unsafe disposal of fecal sludge? ଝାଡା/ ଆବର୍ଜନା ଗୁଡିକ ଅସୁରକ୍ଷିତ ଭାବରେ ପକା ଯାଉଥିବା ଯୋଗୁଁ ସ୍ୱାସ୍ଥ୍ୟ ଏବଂ ପରିବେଶ ଉପରେ ପ୍ରତିକୂଳ ପ୍ରଭାବ ପକାଉଛି ବୋଲି ଆପଣ ଜାଣିଛନ୍ତି କି ?	Yesହଁ Noନାହିଁ If yes describe them ---------- ଯଦି ହଁ , କେଉଁ କେଉଁ ପ୍ରତିକୂଳ ପ୍ରଭାବ ପକାଉଛି କୁହନ୍ତୁ	
51	Are you aware whether any sewerage connection being laid down in your area ଆପଣଙ୍କ ଅଞ୍ଚଳ ଦେଇ ଭୂତଳ ନର୍ଦ୍ଦମା/ ଡ୍ରେନ ଯାଇଛି ବୋଲି ଆପଣ ଜାଣିଛନ୍ତି କି ?	Yesହଁ Noନାହିଁ NA ପ୍ରଯୁଜ୍ୟ ନୁହେଁ	

52	Did the municipal authority/OWSSB inform you to connect your septic tank/pit latrine with the sewerage line ଆପଣଙ୍କ ଭୂତଳ ନର୍ଦ୍ଦମା/ପିଟ ପାଇଖାନା ସହିତ କନେକ୍ସନ ପାଇଁ ମୁନିସପାଲ ଅଧିକାରୀ/ ଓଡିଶା ଜଳ ଯୋଗାଣ ଏବଂ ସ୍ୱେରେଜ ବୋର୍ଡବିଭାଗ ତରଫରୁ ଆପଣଙ୍କୁ ସୂଚନା ଦିଆଯାଇଥିଲା କି ?	Yesହଁ Noନାହିଁ NA ପ୍ରଯୁଜ୍ୟ ନୁହେଁ	
53	If 52 is Yes, are you informed that the external connection cost from property boundary to nearest sewerage manhole will be done by OWSSBଯଦି ପ୍ରଶ୍ନ 52 ରେ ଉତ୍ତର ହଁ ହୁଏ – ଆପଣଙ୍କ ପ୍ଲଟ ପାଚେରି ରୁ ପାଖରେ ଥିବା ଭୂତଳ ନର୍ଦମା/ ଡ୍ରେନ ସହିତ ସଂଯୋଗ ପାଇଁ ହେଉଥିବା ଖର୍ଚ ଓଡିଶା ଜଳ ଯୋଗାଣ ,ସ୍ୱେରେଜ ବୋର୍ଡ ବିଭାଗ ବହନ କରିବ ବୋଲି ଆପଣ ଙ୍କୁ କୁହା ଯାଇଛି କି ?	Yesହଁ Noନାହିଁ NA ପ୍ରଯୁଜ୍ୟ ନୁହେଁ	
54	If 52 is Yes, what are the impediments in taking a sewerage connection ଯଦି ପ୍ରଶ୍ନ 52 ରେ ଉତ୍ତର ହଁ ହୁଏ – ଭୂତଳ ନର୍ଦମା / ଡ୍ରେନ ସହିତ କନେକ୍ସନ କଲେ କି ପ୍ରକାର ବାଧାବିଘ୍ନ / ଅସୁବିଧା ହେବ ?	Difficulties in obtaining road cutting permission from municipality ରାସ୍ତା କାଟିବା ପାଇଁ ମୁନିସିପାଲିଟି ର ଅନୁମତି ପାଇବାକୁ ଅସୁବିଧା Inconvenience due to Digging / Cutting the Road ରାସ୍ତା ଖୋଳିବା / କାଟିବା ଯୋଗୁ ଅସୁବିଧା Financial Problem(ଆର୍ଥିକ ଅସୁବିଧା) Any other, please specify ଅନ୍ୟାନ୍ୟ ଦର୍ଶାନ୍ତୁ NA ପ୍ରଯୁଜ୍ୟ ନୁହେଁ	
55	Are you able to afford internal plumbing cost କନେକ୍ସନ ପାଇଁ ଦରକାର ହେଉଥିବା ପାଇପ କାମ ର ଖର୍ଚ	Yesହଁ Noନା NA ପ୍ରଯୁଜ୍ୟ ନୁହେଁ	

	କରିବା ପାଇଁ ଆପଣ ସକ୍ଷମ କି ?		
56	Are you aware of any complaint redressal system which you can approach in case of any complaint related to emptying, collection & transportation	Yesହଁ Noନା	
57	Have you ever complained? Was your complaint addressed satisfactorily?	Yesହଁ Noନା	
SECTION C 2: Sanitation – No Toilet in the House Households Using Public or Community Toilet ଭାଗ ଗ -2 : ପରିମଳ – ଯଦି ଘରେ ପାଇଖାନା ନାହିଁ ଯେଉଁ ପରିବାର ରେ ପାଇଖାନା ନାହିଁ କିମ୍ବା ଯେଉଁ ମାନେ ସର୍ବସାଧାରଣ ପାଇଖାନା କିମ୍ବା ଗୋଷ ୍ଠୀ ପାଇଖାନା ବ୍ୟବହାର କରୁଛନ୍ତି ସେମାନଙ୍କୁ ପଚାରନ୍ତୁ			
58	Since you do not have a toilet in your house, where do most members of your family go to meet their toilet needs? ଯେହେତୁ ଆପଣଙ୍କ ଘରେ ପାଇଖାନା ନାହିଁ , ଘରର ଅଧିକାଂଶ ସଦସ୍ୟ ମଳତ୍ୟାଗ(ଝାଡା) କରିବା ପାଇଁ କେଉଁଠିକି ଯାଆନ୍ତି	Public toilet ସର୍ବସାଧାରଣ ପାଇଖାନା Community toiletଗୋଷ୍ଠୀ ପାଇଖାନା Neighbor's toilet ପଡିସା ଘର ପାଇଖାନା	
59	Is there separate toilet for men and womenପୁରୁଷ ଏବଂ ମହିଳା ଙ୍କ ପାଇଁ ଅଲଗା ପାଇଖାନା ଅଛି କି	Yesହଁ Noନାଁ	
60	Is there closed dustbin for disposal of used sanitary napkinବ୍ୟବହୃତ ସାନିଟାରି କପଡା ପକାଇବା ପାଇଁ ଘୋଡଣି ଥିବା ଡଷ୍ଟବିନ /ଅଳିଆ ବାକ୍ସ ଅଛି କି	Yesହଁ Noନାଁ	
61	What is the status of cleanliness/maintenance of the public toilet? If the option ofQue 54 is1ସର୍ବସାଧାରଣ ପାଇଖାନା ଟି ର	Very Goodବହୁତ ଭଲ Goodଭଲ Averageମଧ୍ୟମ ଧରଣର / ଚଳିବ	

	ସଫା ସୁତୁରା /ଦେଖାରଖା କିପରି ହୁଏ – ଯଦି ପ୍ରଶ୍ନ 54 ରେ ଉତ୍ତର 1 ହୁଏ	Poorଖରାପ Very Poorଅତି ଖରାପ	
62	For the public toilet that you use, do you pay any usage charges? If the option of Que 54 is 1 ସର୍ବସାଧାରଣ ପାଇଖାନା ବ୍ୟବହାର କରିବା ପାଇଁ ଆପଣଙ୍କୁ ଟଙ୍କା ଦେବାକୁ ପଡେ କି (ଯଦି ପ୍ରଶ୍ନ 54 ରେ ଉତ୍ତର 1 ହୁଏ)	Yesହଁ Noନାଁ If yes, how much ଯଦି ହଁ ତେବେ କେତେ ଟଙ୍କା	
63	What is the status of cleanliness/maintenance of the community toilet? ଗୋଷ୍ଠୀ ପାଇଖାନା ଟି ର ସଫା ସୁତୁରା / ଦେଖାରଖା କିପରି ହୁଏ If the option of Que 54 is 2ଯଦି ପ୍ରଶ୍ନ 54 ରେ ଉତ୍ତର 2 ହୁଏ	Very Goodଅତି ଭଲ Goodଭଲ Averageମଧ୍ୟମ ଧରଣର / ଚଳିବ Poorଖରାପ Very Poorଅତି ଖରାପ	
64	Who maintains the community toilet? ଗୋଷ୍ଠୀ ପାଇଖାନା ଟି ର ଦେଖାରଖା କିଏ କରେ If the option of Que 54 is 2ଯଦି ପ୍ରଶ୍ନ 54 ରେ ଉତ୍ତର 2 ହୁଏ	Municipalityମୁନିସିପାଲିଟି NGOଏନ ଜି ଓ Communityଅଞ୍ଚଳର ଲୋକମାନେ No maintenance. କୌଣସି ପ୍ରକାର ଦେଖାରଖା ହୁଏ ନାହିଁ	
65	For the community toilet that you use, do you pay any usage charges? ଗୋଷ୍ଠୀ ପାଇଖାନା ବ୍ୟବହାର କରିବା ପାଇଁ ଆପଣଙ୍କୁ ଟଙ୍କା ଦେବାକୁ ପଡେ କି If the option of Que54 is 2 (ଯଦି ପ୍ରଶ୍ନ 54 ରେ ଉତ୍ତର 2 ହୁଏ)	Yesହଁ Noନାଁ If yes, how much ଯଦି ହଁ ତେବେ କେତେ Less than Rs 50 per month per family. ପରିବାର ପ୍ରତି ମାସକୁ 50 ଟଙ୍କା ରୁ କମ Between Rs 50 to Rs 100 per month per family. ପରିବାର ପ୍ରତି ମାସକୁ 50 ରୁ 100 ଟଙ୍କା ଭିତରେ More than Rs 100 per family per month. ପରିବାର ପ୍ରତି ମାସକୁ 10 0 ଟଙ୍କା ରୁ ଅଧିକ।	

66	How satisfied are you with community toilet? ଗୋଷ୍ଠୀ ପାଇଖାନା ବ୍ୟବହାର ରେ ଆପଣ କେତେ ସନ୍ତୁଷ୍ଟ If the option of Que 54 is 2ଯଦି ପ୍ରଶ୍ନ 54 ରେ ଉତ୍ତର 2 ହୁଏ	Highly Satisfied ଅତି / ବହୁତ ସନ୍ତୁଷ୍ଟ Satisfiedସନ୍ତୁଷ୍ଟ Neither satisfied or dissatisfied ସନ୍ତୁଷ୍ଟ ନୁହଁ କି ଅସନ୍ତୁଷ୍ଟ ନୁହଁ Dissatisfiedଅସନ୍ତୁଷ୍ଟ Highly dissatisfiedଅତି /ବହୁତ ଅସନ୍ତୁଷ୍ଟ	
67	According to you, in which area/s need improvement in the public/ community toilet ଆପଣଙ୍କ ଅନୁସାରେ ସର୍ବସାଧାରଣ / ଗୋଷ୍ଠୀ ପାଇଖାନା ରେ କି ପ୍ରକାର ଉନ୍ନତି କରିବା ଦରକାର ଏକାଧିକ ଉତ୍ତର ସମ୍ଭବ)	Facilitiesସୁବିଧା Maintenanceଦେଖାରଖା Securityସୁରକ୍ଷା Any other, please specifyଅନ୍ୟାନ୍ୟ ଦର୍ଶାନ୍ତୁ	
68	Do you practice hand washing with soap/detergent/liquidsoap in the toilet? ଆପଣ ଶୌଚଳୟ ରେ ହାତ ଧୋଇବା ପାଇଁ ସାବୁନ /ସାବୁନ ପାଉଡର /ଲିକୁଇଡ ସାବୁନ ବ୍ୟବହାର କରନ୍ତି କି *(This question is to be asked to all households)*ଏହି ପ୍ରଶ୍ନ ଟି ସମସ୍ତ ପରିବାର କୁ ପଚରାଯିବ	Yesହଁ Noନାଁ	
69	If No, why ଯଦି ନାଁ କାହିଁକି	No handwashing station ହାତ ଧୋଇବା ପାଇଁ ବେଶିନ ନାହିଁ Soap not available ସାବୁନ / ସାବୁନ ପାଉଡର / ଲିକୁଇଡ ସାବୁନ ଉପଲବ୍ଧ ନାହିଁ No water supplyପାଣିର ସୁବିଧା ନାହିଁ Don't think it is important ଏହା ଦରକାର ବୋଲି ଭାବୁ ନାହିଁ	
SECTION C 3: Sanitation- No Toilet in the House Open Defecation ଭାଗ ଗ 3 : ପରିମଳ –ଯଦି ଘରେ ଶୌଚଳୟ ନାହିଁ ବାହାରକୁ ମଳତ୍ୟାଗ (ଝାଡା)କରିବାକୁ ଯାଆନ୍ତି			
70	Do your family members practice open	Yes, Alwaysହଁ ସବୁବେଳେ Yes, Sometimesହଁ ବେଳେବେଳେ	

	defecation?ଆପଣ କିମ୍ବା ଆପଣଙ୍କ ପରିବାରର ସଦସ୍ୟ ମାନେ ଖୋଲା ରେ/ ବାହାରକୁ ମଳତ୍ୟାଗ କରିବାକୁ ଯାଆନ୍ତି କି ?	Noନାଁ If sometimes, then state when ଯଦି ବେଳେ ବେଳେ ଯାଆନ୍ତି ତେବେ କେତେ ବେଳେ / କେଉଁ ସମୟରେ	
71	If Yes, Who in the family practice open defecation ଯଦି ହଁ ପରିବାରରେ କେଉଁ ମାନେ ଖୋଲା ରେ/ବାହାରକୁ ମଳତ୍ୟାଗ କରିବା ପାଇଁ ଯାଆନ୍ତି ଏକାଧିକ ଉତ୍ତର ସମ୍ଭବ)	Allସମସ୍ତେ Only Male membersକେବଳ ପୁରୁଷ ଲୋକ Only childrenକେବଳ ପିଲା ମାନେ Only Female membersକେବଳ ମହିଳା ମାନେ	
72	If yes or sometimes, what are the reasons for you to practice open defecation? ଯଦି ହଁ କିମ୍ବା ବେଳେ ବେଳେ ,ତେବେ ଖୋଲା ରେ/ବାହାରକୁ ମଳତ୍ୟାଗ କରିବା ପାଇଁ ଯିବା ର କାରଣ କଣ	Lack of access to community/public toilet ସର୍ବସାଧାରଣ / ଗୋଷ୍ଠୀ ପାଇଖାନା କୁ ଯିବା ପାଇଁ ଅସୁବିଧା Matter of habit/ cultural preference ଏହା ଏକ ଅଭ୍ୟାସ / ପରମ୍ପରାଗତ ପସନ୍ଦ Joint/ group activityମିଳିମିଶି କି ଯିବା ଅଭ୍ୟାସ Any other, pleasespecify:ଅନ୍ୟାନ୍ୟ ଦୟାକରି ଦର୍ଶାନ୍ତୁ	
73	What are the problems associated with open defecation faced by you and your family members?(ଖୋଲା ରେ/ବାହାରକୁ ଶୌଚ/ ଝାଡା ଗଲେ ଆପଣ କିମ୍ବା ଆପଣଙ୍କ ପରିବାର ଲୋକଙ୍କୁ କି ପ୍ରକାର ଅସୁବିଧା ହୁଏ – ଏକାଧିକ ଉତ୍ତର ସମ୍ଭବ)	1. lack of Privacyଗୋପନୀୟତା ରହେନି 2. Lack of safety for women and girls ମହିଳା ଏବଂ ଝିଅ ପିଲା ମାନଙ୍କ ପାଇଁ ବିପଦ 3. lack of Dignityସନମାନ / ମର୍ଯ୍ୟାଦା ହାନି 4. Inconvenience – timeଅବେଳରେ ଯିବା ଅସୁବିଧା 5. Inconvenience – distanceଦୂରତା ଜନିତ ଅସୁବିଧା 5. Infections and Diseasesସଂକ୍ରମଣ/ରୋଗ ର ଆଶଙ୍କା 7. Any other, Specify:ଅନ୍ୟାନ୍ୟ , ଦର୍ଶାନ୍ତୁ	
74	Will you be interested in using a community/public toilet if individual toilet is not possible? ଯଦି ନିଜେ ପାଇଖାନା ତିଆରି କରିବା ସମ୍ଭବ ନୁହେଁ ତେବେ ଆପଣ ଗୋଷ୍ଠୀ /ସର୍ବସାଧାରଣ	Yesହଁ Noନାଁ If no, give reasonsଯଦି ନାଁ ତେବେ କାରଣ କୁହନ୍ତୁ Not hygienicସ୍ୱାସ୍ଥ୍ୟକର ନୁହେଁ No water facilityପାଣିର ସୁବିଧା ନାହିଁ	

	ପାଇଖାନା ବ୍ୟବହାର କରିବା ପାଇଁ ଆଗ୍ରହୀ ହେବେ କି ? ଏକାଧିକ ଉତ୍ତର ସମ୍ଭବ)	Unsafe/ insecureଅସୁରକ୍ଷିତ/ବିପଦପୂର୍ଣ Inconvenienceସୁବିଧା ନୁହଁ Not willing to share with others ଅନ୍ୟ ମାନଙ୍କ ସହିତ ମିଶି ବ୍ୟବହାର କରିବା ପାଇଁ ଇଚ୍ଛା ନୁହେଁ High costଅତ୍ୟଧିକ ଖର୍ଚ Any otherଅନ୍ୟାନ୍ୟ	
75	Are you willing to pay for the use of public / community toilet?ପଇସା ଦେଇ ସର୍ବସାଧାରଣ / ଗୋଷ୍ଠୀ ପାଇଖାନା ବ୍ୟବହାର କରିବା ପାଇଁ ଆପଣ ଇଚ୍ଛା କରିବେ କି ?	Yesହଁ Noନାଁ If yes indicate the amount per usage or per month: Public toilet: ……per family /month Community toilet……..per family /month ଯଦି ହଁ ତେବେ ବ୍ୟବହାର କରିବା ପାଇଁ ପ୍ରତି ପରିବାର ପିଛା ମାସକୁ କେତେ ଟଙ୍କା ଦେଇପାରିବେ କୁହନ୍ତୁ ସର୍ବସାଧାରଣ ଶୌଚାଳୟ ..... ଗୋଷ୍ଠୀ ଶୌଚାଳୟ	
76	Are you willing for individual superstructure with common pit/ septic tank?ଗୋଟିଏ ନିଜସ୍ୱ ଶୌଚଳୟ ର ଢାଞ୍ଚା ରେ ଏକାଧିକ ପରିବାର ବ୍ୟବହାର ଯୋଗ୍ୟ ସେପ୍ଟିକଟ୍ୟାଙ୍କ /ପିଟ ତିଆରି କରିବାକୁ ଆପଣ ଇଚ୍ଛା କରିବେ କି ?	Yesହଁ Noନାଁ	
77	Were there any efforts made in your area to construct community toilet? *(Encircle appropriate no's)*ସରକାରଙ୍କ ତରଫରୁ ଆପଣଙ୍କ ଅଞ୍ଚଳରେ ଗୋଷ୍ଠୀ ପାଇଖାନା ତିଆରି କରିବା ପାଇଁ ପଦକ୍ଷେପ ନିଆ ଯାଇଥିଲା କି ?	Yesହଁ Noନାଁ	
78	Do you think your community will take responsibility for O&M of a community	Yesହଁ Noନାଁ	

	toilet?ଆପଣଙ୍କ ଅଞ୍ଚଳର ଲୋକମାନେ ଗୋଷ୍ଠୀ ପାଇଖାନା ର ଦେଖାରଖା ଦାୟିତ୍ୱ ନେବେ ବୋଲି ଆପଣ ଭାବୁଛନ୍ତି କି		
79	Will you be interested in constructing individual toilet in your house? ଆପଣ ଘରେ ଗୋଟେ ନିଜସ୍ୱ ପାଇଖାନା ତିଆରି କରିବା ପାଇଁ ଆଗ୍ରହୀ କି ? ଏକାଧିକ ଉତ୍ତର ସମ୍ଭବ)	Yesହଁ Noନାଁ If no, give reasons:ଯଦି ନାଁ ତେବେ କାରଣ କଣ Lack of fundsଟଙ୍କା ପଇଶା ର ଅଭାବ Lack of spaceଜାଗାର ଅଭାବ Out of habitବାହାରକୁ ଯିବା ର ଅଭ୍ୟାସ Any otherଅନ୍ୟାନ୍ୟ	
80	From where do you get information on sanitation (toilets, sewerage system, septic tank emptying ଆପଣ ପରିମଳ ବିଷୟରେ (ଯଥା ଶୌଚାଳୟ, ସ୍ୱେରେଜ ବ୍ୟବସ୍ଥା / ଭୂତଳ ନର୍ଦମା/ ଡ୍ରେନ , ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ସଫା କରିବା ଇତ୍ୟାଦି) କେଉଁ ଠାରୁ ସୂଚନା ପାଆନ୍ତି ଏକାଧିକ ଉତ୍ତର ସମ୍ଭବ)	Municipal officialsମୁନିସିପାଲିଟି କର୍ମଚାରୀ Media (TV, radio) ଗଣ ମାଧ୍ୟମ (ଟିଭି , ରେଡିଓ , ଖବର କାଗଜ ଇତ୍ୟାଦି) Mikingମାଇକ ଦ୍ୱାରା ପ୍ରଚାର Neighbour/friends/relatives ପଡୋଶୀ/ସାଙ୍ଗ ସାଥି/ ବନ୍ଧୁ ବାନ୍ଧବ NGOsଏନ ଜି ଓ Others (Specify)ଅନ୍ୟାନ୍ୟ	
81	What more information would you like to know about septic tank emptying?ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ସଫା କରିବା ବିଷୟରେ ଆପଣ ଆଉ ଅଧିକ କି ପ୍ରକାର ସୂଚନା ଜାଣିବା ପାଇଁ ଚାହାନ୍ତି ଏକାଧିକ ଉତ୍ତର ସମ୍ଭବ)	When to empty କେବେ ସଫା କରାଯିବ About service providers & their contact details ସଫା କରୁଥିବା ସଂସ୍ଥା / ସେମାନଙ୍କ ସମ୍ପୂର୍ଣ୍ଣ ଯୋଗାଯୋଗ ନମ୍ବର Fees/Chargeଫିସ /ପାଉଣା /ମୂଲ୍ୟ About benefits of doing it ଏହା କଲେ କି କି ଉପକାର /ସୁବିଧା ମିଳିବା ବିଷୟରେ About disposal ପକାଇବା ଜାଗା ବିଷୟରେ 6.Design	
		<u>Community Engagement with HH</u>	
82	Are you aware about any citizen/Community	Yesହଁ	

	groups working on health and sanitation in your area	Noନା	
83	If Yes, Nature of community groups	Mahila Samities Youth groups Common interest groups Pooja Committees Self help groups If others..specify	
84	Does anybody from citizens groups approached you to discuss sanitation issues	Yes/No	
85	If Yes, what are the subject they discussed with you	Issues related to children and women health FSSM Promoting the use of PT/CT Specify, if any other	
87	If PT/CT are maintained by citizen group, do you think the community usage will increase?	Yes No Don't know	
		<u>Health related</u>	
88	Do you know the ill effects of open Defecation on health & growth of children?	Yes/ No	
89	If yes, what are those ill effects	1. Malnutrition 2. Worm infestation 3. Skin disease 4. Diarrhoea 5. Jaundice 6. Typhoid	

N:B - Response for questions from 51 to 55 are to be collected from respondent of Puri, Bhubaneswar, Cuttack, Rourkela & Sambalpur.

Name of the Investigator:ସାକ୍ଷାତକର୍ତ୍ତା ଙ୍କ ଦସ୍ତଖତ Date of investigation:ସାକ୍ଷାତ୍କାର ତାରିଖ

Survey start time:ସର୍ଭେ ଆରମ୍ଭ ର ସମୟ Survey end time:ସର୍ଭେ ଶେଷ ର ସମୟ

Name of the data quality controller: ସୂଚନା ର ମାନ ନିର୍ଧାରକ ଙ୍କ ନାମ Date of back check:ଯାଞ୍ଚ ତାରିଖ

9.2 Annexure 2 – Questionnaire for In-Depth

- **Interview with Mayor**

1. What are the key sanitation issues in your city?
2. What are the main water borne diseases that occurs in the City since the last 5 years? How do you deal with them?
3. Will the City be able to meet the SBM deadline?
4. What are the key challenges in toilet construction and usage in the City?
5. How important is FSSM as part of sanitation?
6. How is fecal sludge/septage managed in the City?
7. Does the City have a sewerage system? If yes, what is the status of coverage?
8. What is the level of coordination with OWSSB, PHEO, PCB, Water Resource Department etc. to deal with SWM and liquid waste?
9. How many cesspool trucks are operating under the ULB? What is your suggestion to make cesspool vehicle operation a profitable business?
10. Are you aware about the ongoing SeTP being constructed in your city?
11. How can citizens and communities be made aware about the benefits of SeTP and be engaged proactively?
12. How is the ULB planning to undertake the O&M of SeTP?
13. Are you aware about the recent changes in urban sanitation policies and Programmes for sustainable sanitation by the Central & State Government?
14. Under the OUSS and OUSP-2017, there is a need to form CSTFs and WSCs in the city. Please share your views on how best that could be formed and made functional under your leadership.
15. How can communities from your ward be mobilized to participate in FSSM?
16. What kind of capacity building is needed among the ULB and non-ULB stakeholders for effective FSSM?
17. How can Ward Committee members be effectively engaged for improved sanitation in the wards and help the communities raise demand for sanitation services?
18. Do you think the people from the City will agree to pay more for improved sanitation facilities?

- **Interview with Collector**

1. What are the sanitation priorities of the city for coming years?
2. Does the city have a City Sanitation Plan (CSP)?
3. How are you planning to meet the SBM deadline of 2nd October 2019 to make the city ODF? What are key bottlenecks in implementing the Programme?
4. Is there any strategy adopted to meet local level challenges in sanitation?
5. Has there been any plan to implement the recently notified policies/strategies such as OUSS, OUSP, along with SBM and AMRUT and other schemes?
6. Is there any district level coordination between different agencies such as OWSSB, PCB, DUDA, PHEO and ULB in sanitation infrastructures creation and management?
7. Are there any plans to utilize the potentialities of CSR, DMF and other sources of funding for sanitation Programme
8. s?
9. What are the key challenges with regard to FSSM in the City?
10. How do you see private participation in O&M of cesspool vehicles and SeTPs?
11. Awareness level is very low among the people on FSSM as toilet construction is still ongoing. How do you propose to undertake IEC, BCC and capacity building activities on FSSM in the city?
12. What kind of capacities need to be built to deal with FSSM at the city & district level?
13. What do you suggest could be the best way for effective FSSM in the city?
14. What do you think about the opportunities for reuse of treated septage (fertilizer)?

- **Interview with Financial Officer**

1. What are the various revenue sources of ULB?
2. What is the status of revenue generated from cesspool vehicles in Baripada?
3. Do you think two cesspool truck is sufficient to meet the service demand?
4. So, the places where big cesspool vehicles are unable to reach, how are septic tanks emptied? Is there any instances of manual emptying of septic tanks?
5. How is the revenue generated from cesspool services get managed?
6. The revenue generated from cesspool is being used only for cesspool operation or any other domain under ULB functionality?
7. Do you think if these revenues are dedicated particularly for cesspool operation then it will be effective?
8. Are you aware of SeTP budget and its O&M?
9. Do you think engagement of private operator will be helpful, what is your take on PPP model?
10. Is there any specific funds allocated for Capacity building for various stakeholder under sanitation domain?
11. As per your knowledge, who will be expected target group for potential capacity building strategy in Baripada?
12. Looking at the current finance budget how much funds can be mobilized for Capacity building strategy in within ULB budget?
13. Is there any other funds received from any Company / DMF / Govt. Programme / or any financial institution. Or is there any unutilized funds
14. Do you think you need more funding to increase the functionality of FSSM, or do you think Baripada ULB funding is sufficient?

- **Interview with Deputy Commissioner & SBM nodal officer**

1. To what extent is FSSM services integrated with SBM?
2. What are the current level of FSSM addressed under SBM at the ULB level in the city?
3. Are current capacities adequate to deal with FSSM at the city level?
4. What kind of capacities need to be built to deal with it?
5. Which are the key institutions which needs to be involved at district and city levels?

- **Interview with Sanitary Inspector**

1. What are the key sanitation issues in your city? Please state the top three
2. Is FSSM a part of the sanitation services in the city?
3. What are the key issues related to FSSM value chain in the city?
4. How can FSSM activities be monitored by ULBs at the city level?
5. How can communities be made aware about the FSSM services and participate in the same?
6. Are current capacities adequate to deal with FSSM at the city level?
7. What kind of capacities need to be built to deal with it?
8. Has Ward Sanitation Committees been formed for each ward in the City?
9. What role can Ward Sanitation Committees play in improving sanitation and enhancing community participation?
10. What kind of capacity building do the committees require to perform better?

- **Interview with Corporator**

1. What are the major sanitation issues in your ward?
2. Whether Ward Sanitation Committees have been formed?
3. If yes, what is the size of the Committee and how does it function?
4. What role do ward councilors/corporators and ward committees play in making their respective wards ODF?
5. How is fecal sludge/septage managed in your Ward?

6. How can communities from your ward be mobilized to participate in FSSM?
7. What kind of capacity building do you require to work on FSSM?
8. How can Ward Committee members be effectively engaged for improved sanitation in the wards and help the communities raise demand for sanitation services?
9. Do you think the people from your ward will agree to pay more for improved sanitation in your respective wards?

- **Interview with Project Director, District Urban Development Authority (DUDA)**

1. What are the key issues related to urban sanitation in urban areas?
2. What are the key roles and responsibilities of DUDA in implementation of sanitation Programs?
3. What are the key challenges in making the towns and cities ODF in the district?
4. What is the district specific plan to address challenges in sanitation?
5. What kind of coordination presently exists between DUDA and the ULB?
6. What is the linkage between DUDA and other urban development Programmes like AMRUT, SBM, OULM etc.?
7. How important is FSSM in sanitation in urban areas of the district?
8. What role can the DUDA play in effective FSSM?
9. What kind of capacities need to be built to deal with FSSM at the city & district level?
10. Government has strategically planned to empower and capacitate DUDA as planning and monitoring agency for all urban services in the district. What are your key suggestions on this?

- **Interview with Regional Officer, Pollution Control Board**

1. What is the status of river and ground water pollution from municipal sewages in the district?
2. Number of water bodies and sources contaminated in the district?
3. Do you have ULB wise details on the grades of water?
4. What is the amount of contamination of ground water in your area?
5. Have you observed human contact usage of contaminated water in activities like bathing, drinking etc.?
6. From which locations do you collect your samples for water quality testing?
7. What kind of monitoring is done by the PCB to prevent water contamination at the City level?
8. How frequently is the water quality monitored as per water quality protocols and what is the sample size adopted?
9. Is there any coordination with OWSSB, PHEO, ULB and the district administration?
10. Does the PCB monitor the indiscriminate dumping of septage which is one of the major causes of water contamination?
11. How much awareness do people have on water quality issues and its impact on health and environment?
12. Have you undertaken taken any public awareness activities on water pollution and its prevention?
13. Does the PCB have any coordination with river basin engineers in the region? If not, why, as they are responsible for water conservation and prevention from pollution.
14. Are you aware about OUSS, OUSP 2017 of the GoO?
15. Are you aware about the status of FSSM in the City? (desludging, cesspool operators, SePT?
16. Are there any norms prescribed by MoEF which should govern the characteristics of effluent of a SeTP.
17. What are the standards for site allocation and approval for the construction of a SeTP?

- **Interview with City Health Officer**

1. What are the key health issues related to sanitation in your city? Please state the top three?
2. What is the ULB's approach to deal with sanitation problems?

3. What are major reasons for OD in the city?
4. What is the role of CHO in city sanitation improvement?
5. What are the public health and environmental consequences of poor sanitation in your city?
6. Are you aware about FSSM services as an integrated component of sanitation?
7. How important is FSSM as a key health issue?
8. What is the trend of water related disease, particularly water borne diseases?
9. Has your city faced jaundice, cholera, diarrhea and typhoid during the last two years? What are the other most frequent diseases?
10. Do you think FSSM should be prioritized in CSPs
11. How can the community and citizens be made aware about the health consequences of poor FSSM?

- **Interview with Chief District Medical Officer**

1. What are the key health issues related to sanitation in your city? Please state the top three?
2. What is the Health Department's approach to deal with sanitation problems?
3. What are major reasons for OD in the city?
4. What is the role of H&FW Dept. in city sanitation improvement?
5. What are the public health and environmental consequences of poor sanitation in your city?
6. Are you aware about FSSM services as an integrated component of sanitation?
7. How important is FSSM as a key health issue?
8. What is the trend of water related disease, particularly water borne diseases?
9. Has your city faced jaundice, cholera, diarrhea and typhoid during the last two years? What are the other most frequent diseases?
10. Do you think FSSM should be prioritized in the CSP?
11. How can the community and citizens be made aware about the health consequences of poor FSSM?

- **Interview with Executive Engineer, Public Health Engineer Organization (PHEO)**

1. PHEO is the nodal agency for O&M of the infrastructures developed by the OWSSB. How does the PHEO coordinate? Are there any challenges?
2. Does the PHEO have any role in the O&M of SeTP being constructed?
3. Revenue collection for sewerage is one of the key activity of the PHEO. What is the current price structures of connection fees (capex) and what is the price for OPEX (monthly) collected by PHEO?
4. What is the rate of the demand for sewerage services from the public at present?
5. What is the level of utilization of sewerage facilities?
6. How many samples pass the norms prescribed by the MoEF for drinking water supply?
7. How many water sources are used for water supply?
8. Is water distributed in the city through PHEO water tankers?

- **Interview with Project Engineer, Odisha Water Supply and Sewerage Board (OWSSB)**

1. What is the role of OWSSB in creating urban sanitation infrastructure at the City level?
2. Have you received any communication from the OWSSB on FSSM services in the cities?
3. What is the level of coordination with ULB on construction of SETP in the city?
4. Is the ULB aware that it is responsible for O&M of SeTP after its completion?
5. What kind of capacity building is required for the O&M of SePT at the ULB level?
6. Are there any challenges which you faced during the SeTP construction? If yes, please state them.
7. What is the plan for integrating the SeTP with the other services of the FSSM value chain?
8. What plans are in place for making the SeTP socially acceptable, like landscaping etc.?

9. What portion of the city's population has been considered to calculate the capacity of the SeTP?
10. What plans are in present for the remaining population?

► **Interview with City Engineer**

1. What is the status of sanitation infrastructure in the City? (Length of sewer lines, status of desludging, cesspool operation, and disposal sites if any for septage, solid waste etc.)
2. What is status of the sewerage system in Baripada?
3. Is there any target when the City will be Open Defecation free? How many HHL, CT/PT, hybrid toilets are been sanctioned, completed and in use?
4. What is the status of disposal site?
5. How important is the issue of FSSM in city sanitation?
6. Do you think when fecal sludge gets discharged in open drain or dumped in open it will contaminate water bodies?
7. Who monitors the cesspool vehicle?
8. How does the ULB coordinate with other departments, is there any joint planning, coordination or joint review of programme related to SBM, FSSM?
9. Have you gone through the DPRs for SeTP construction?
10. Any suggestions to improve FSSM in the city?

► **Interview with District Social Welfare Organization**

1. What are the key sanitation issues in the urban areas?
2. How can the communities be engaged to raise demand for sanitation services?
3. What is the role of DSWO in implementing and monitoring sanitation Programs?
4. Are you aware about FSSM services as an integrated component of sanitation?
5. Your Department is the nodal department to implement the Manual Scavenging Act 2013. How are you implementing with ULB?
6. What are the ways in which sanitary workers can be prevented from being engaged in manual scavenging?

9.3 Annexure 3 – Questionnaire for Focused Group Discussion

► Community based organizations

1. What are the key health issues related to sanitation in your city? Please state the top three?
2. On what sanitation issue do you work in the city?
3. In which areas of the city do you work and with whom do you work with?
4. What kind of community mobilization activities do you do?
5. Do you use any kind of communication activities to inform and mobilize communities?
6. Are there any urban slum committees that you work with? If yes, in which wards?
7. Have you worked on MHM in any of the areas in the town?
8. Are you aware about FSSM value chain in sanitation?
9. How can communities be made more aware about their role and participation in FSSM?
10. What kind of capacity building and support do you require to work on FSSM?

► Masons

1. Are you aware of NBCC / IS standards for septic tanks and pits?
2. Do you practice these standards while constructing the septic tanks?
3. Based on your experience, what percentage of septic tanks and pits conform to these standards?
4. Do you think the current design of the septic tank is good? If No, can you suggest the best kind of technology for FSSM that you provide?
5. Have you ever been trained or imparted knowledge on septic tank construction by any government /private agency?
6. Who are the builders of septic tanks and pits in the city and do you think they have adequate knowledge about design of septic tanks and pits as well as emptying and transportation?
7. Do you think households in the city have knowledge of any specification or standards for construction of septic tanks and pits?
8. Which type of septic tanks and pits are easier for emptying?
9. Who contacts you for construction of septic tanks and pit latrines? Builders or House owners?
10. What kind of capacity building do you require to build standard septic tanks and pit latrines?

► Cesspool operator

Name of the Operator:

Education of Operator

Registered name of the company and address (if any):

Start date (year) of business operations:

Area of Service:

General Description:

- Age of the operator
- Caste of the operator
- No. of Vehicles operating
- Who is owner of the cesspool truck – self – private - ULB
- No of people employed in business
- No of people deploy for each vehicle
- Number and type of vehicles owned at the start of business

Year Procured	Average trips in a day	Make/ Technology of vehicle	Capacity

1. How did you come to know about the emptying and transportation business? (trigger for starting this business
2. Do you see any increase in demand of your service after you have started operations?
3. Average number of trips per day in the current year of operations
4. User charges per trip in the current year
5. Did you apply for permissions to the government for starting the business
    a. Yes
    b. No

    If yes please list the departments and nature of permission

Department	Nature of permission	Requirements for giving permission	Time taken for approval	Charges paid
Industries department				
PCB				
MA&UD				
RTO				
Any Other				

6. Was there any directive or GO from the ULB to initiate FSSM services to the private operators?
    a. Yes
    b. No

    If yes please provide us the reference document
7. Do you have any contractual arrangement with the ULB?
    a. Yes
    b. No

    If YES please provide us a sample copy of contract documents (EoI, RFP, etc.)
8. How do you receive requests from households for emptying and transportation
    a. Phone
    b. In person
    c. From ULB
    d. Any other
9. What is the nature of information you seek from the household when a request for emptying and transportation is made?

Q1	
Q2	
Q3	
..	

..	
..	

10. Do you have any process of maintaining records in the form of a register or book for the requests received from households?
    a. Yes
    b. No

    If yes please provide a copy of such record (register/book)
11. How do you plan your operations after a request is recorded and accepted?
12. Do you have any guideline or manual that needs to be followed for emptying and transportation?
    a. Yes
    b. No

If yes please provide a copy and indicate the name of the author of guideline/manual

13. How do you advertise your operations and create awareness about your business among the households?
    - Posters
    - Pamphlets
    - Wall Paintings in public areas
    - News papers
    - Mobile Street loud speaker
    - Display board at ULB
    - Through Internet/ website
14. What are the tools provided to workers and vehicles for emptying and transportation?
15. What are the factors considered for planning the transportation routes? Please chose from the below and also add relevant ones?

Any traffic or peak hour protocols	
Most direct route	
Expected volumes of septage of pumps	
Proximity of disposal pumps	
Others	

16. What are the key steps in locating the septic tank and initiating the dislodging?
17. What are the problems faced in initiating dislodging? (while locating the septic tank and parking the truck for operations)
18. Do you break open the floor or cover of the septic tank. If doing so who is responsible for repairing it and who bears masonry charges and do you take any permission for the same
19. Do you provide any masonry support for your costumers, if so what kind of engagement you have with the mason
20. What are the safety and security precautions taken by workers for initiating and completing dislodging?
21. Do you know the different types of safety gears that are used for operations
    a. Yes
    b. No

    If Yes List them

Norm Source	Safety Equipment	Tick if responds

CPHEEO	Gloves	
CPHEEO	Boots	
CPHEEO	Hard Hat	
CPHEEO	Face Mask	
Robins, 2007	Hand wash supplies	
Robins, 2007	Light	
Self - Domain knowledge	Plastic/ Rubber over coat	

22. Do you have guidelines or rules to be followed either from ULB or other organizations during dislodging?
23. What are your terms of agreement with your costumer (descriptive – What work is the operator providing to his costumer i.e. like sanitizing the site after cleaning etc.) Describe
24. Is it mandatory for workers to wear safety gear and how do you ensure compliance?
25. Do workers experience any health problems after dislodging? Have they developed any prolonged illnesses which can be attributed to continuous exposure to the dislodging? (discuss with sub ordinates)
26. What are the key steps after completing the dislodging including sanitizing the location, washing hands etc.?
27. What is the procedure for collection of user charges?
28. Do you maintain any billing book to account your payments?
    a. Yes
    b. No

    If yes please provide a copy
29. Did you follow any criteria for pricing your services? or How did you price your services
    a. Yes
    b. No

    If YES, please describe the criteria
    a- Value of vehicle purchased
    b- Salary of operator & Helper
    c- Fuel expenses
    d- Operation and maintenance expenses
    e- Others if any
30. Did any customer ever raise a complaint on damage of his property? Neighbors or anyone in the community complain of the dislodging process? Explain
31. Are there any instances that you have either rejected or could not provide the service related to de-sludging? Explain
32. Did you or any of your staff members undergo training or awareness orientation with regard to septic tanks, collection, emptying, and transportation and disposal activities?
33. What is proportion of septic tanks and leach pits are emptied by you in a month (separately)?
34. Is there any kind of septic tank that you cannot desludge? If yes give the reasons
    a- Not able to locate tank/Pit
    b- Septic tank is sealed/ Covered with tiles
    c- Not accessible for existing cesspool vehicle
    d- Due to no emptying for long period, desludging is not lucrative as time taken is inefficient
    e- Others if any
35. Are you aware about practice of manual desludging & emptying in the city?
36. If yes, are you aware how many septic tanks and pits are manually emptied in a month?
37. Do you provide support for costumers for manual desludgers?

38. Do you face any problems from the traffic authorities, neighbors, colonies or vehicles on road while transporting the sludge?
39. Did your truck breakdown anytime while carrying fecal load in the vehicle? What do you do if it happens??
40. Did your vehicle ever leaked from the container when it is loaded? What will be your first step if such thing happens?
41. What is the most commonly used location for disposal of fecal sludge? Provide locations.

S.No	Location	Land use

42. Do you have a dedicated fecal waste disposal place as prescribed by ULB? List of the locations.
43. Do you face any problem or rejection from community or any other authority for disposing waste?
44. Did any authority levy fine or file a complaint for disposing waste in a particular location? Give the details and also share a copy of the same.
45. Did your vehicle retain fecal waste for few days, without disposing it for non-availability of site or any other reason? If so, how many days and reasons?
46. Do you dispose waste during day or in the night (preference and why)
47. Do you sell fecal sludge to any person or any industry for example farmers, or fertilizer industries?
48. What is your annual business turn over?
49. Did you take any lone for the vehicle, if so can you please provide some details
50. What are your profits from last year?
51. Will you be willing to supply sludge if a treatment plant is established?
52. Will you be willing to construct or operate a septage treatment plant?
53. Will you support the entry of other operators into emptying and transportation and treatment?
54. If citizens expect a lower tariff for emptying, would you be open to the idea?

9.4 Annexure 4 – In-Depth Interviews and Focused Group Discussion details

S.no	Name	Organization	Position held	Date of interaction
1	Mr. Nikhil Pawan Kalyan	Berhampur Municipal corporation	Municipal Commissioner	25th May 2017
2	Mr. Sibashankar Patro		Finance Officer	25th April 2017
3	Mr. E.Ranjit K.Patra		AHO cum SBM nodal officer	25th April 2017
4	Mr. PratapKisorePadhi Mr. Sarat Kumar Mallick		Sanitary Inspectors	25th April 2017
5	Ms. Geetanjali Samantray		Community Organizers	25th April 2017
6	Mr. Kedar Chandra Khatua		City Engineer	25th April 2017
7	Mr. Mukesh Choudhury	Private cesspool operator	Owner	25th April 2017
8	Mr. Kulange Vijay Amruta	District Administration	PD, DUDA	23rd May 2017
9		District Administration	DSWO	23rd May 2017
10	Mr. Manoj Kumar Behera	District Administration	CDMO	16th May 2017
11	Mr. Prasant K. Mahapatra	PHEO	EE, PHEO	16th May 2017
12	Mr. MitrasenMajhi	PCB	RO, PCB	16th May 2017
13	Mr. Vinod Prasad Sethi	OWSSB	OWSSB PE	15th May 2017
14 15	FGD with CBOs	Mason NGOs, MAS, SHG	Mason	5th June 2017

9.5 Annexure 5 - Resolution passed by the Municipal Council for the by-law on Solid Waste Management and formation of WSC

CHAPTER-IX

MONITORING BY WARD COMMITTEE

11. **Constitution of Ward Sanitation Committee:** A Ward Sanitation Committee shall be constituted in each ward of this Municipal Corporation. The Ward Sanitation Committee shall have 11 to 15 members. The members of the Ward Sanitation Committee would comprise Ward Corporator, Tax Collector, Sanitary Inspector or a designated officer by Municipal Corporation for each ward. Representatives of local Puja Committee/Bazar Committee/Sahi Committee, representatives of Residential Welfare Associations (RWAs) of the ward, representatives from slum sanitation committee, representatives of Community Based Organisations (SHGs, youth club etc.), senior citizens and eminent persons of the area shall be nominated to the said Committee by the Mayor with due regard to suggestions of local Corporator. The Ward Sanitation Committee shall oversee the sanitation activity in the ward. The Member-Convener of each ward would be notified by the Commissioner.

12. A City Sanitation Task Force shall be constituted to monitor the sanitation work in the entire City in accordance with City Sanitation Committee formed by the Govt. in H & U.D Department. The Committee would comprise:

1. Mayor - Chairperson
2. Commissioner – Member-Convenor
3. City Health Officer – Member

9.6 Annexure 6 - Assumptions taken for SFD

- Scientific and unscientific septic tanks and pit latrines are divided in the ratio 79:21 respectively based on finding of our primary survey covering lined and unlined containment system.
- Other systems identified in census, which is 1.2%, is included as pit latrine
- Toilet which have night soil removed by animal and human as part of insanitary toilet.
- FS emptying and transport is divided as safe and unsafe in the ration of 57:43. This is based on our finding of our primary survey which reported 57% using cesspool emptying services.
- CT/PTs have scientific septic tanks and are safely emptied

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