Rapid assessment report Rourkela

October 2017

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Building a better working world

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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
BIS	Bureau of Indian Standards
BOD	Biological Oxygen Demand
BPUT	Biju Patnaik University of Technology
BSS	Basic Safety Standards
CBO	Community Based Organization
CDA	Cuttack Development Authority
CDMO	Chief District Medical Officer
CHO	City Health Officer
CPHEEO	Central Public Health and Environmental Engineering Organization
CSP	City Sanitation Plans
CSR	Corporate Social Responsibility
CSTF	City Sanitation Task Force
CT	Community Toilets
DAV	Dayanand Anglo Vedic
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
DRDO	Defence Research and Development Organization
DUDA	District Urban Development Agency
DUSC	District Urban Sanitation Committee
FGD	Focus Group Discussion
FS	Faecal Sludge
FSM	Faecal Sludge Management
FSSM	Faecal Sludge and Septage Management
FSTP	Faecal Sludge Treatment Plant
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

Abbreviations	
KL	Kilo Liter
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	Meter
NHAI	National Highways Authority of India
NBC	National Building Code
NIT	National Institute of Technology
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
PHED	Public Health Engineering Department
PHEO	Public Health Engineering Organization
PIU	Project Implementing Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PPP	Private Public Partnership
PS	Principal Secretary
PT	Public Toilets
RMC	Rourkela Municipal Corporation
RWA	Residential Welfare Associations
SAAP	State Annual Action Plans
SAI	Social Awareness Institution
SAIL	Steel Authority of India Limited
SBM (U)	Swachh Bharat Mission – Urban
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

Abbreviations	
UIDDSMT	Urban Infrastructure Development Scheme for Small and Medium Towns
ULB	Urban Local Bodies
WATCO	Water Corporation
WKS	Ward Kalyan Samiti
WHSC	Ward Health and Sanitation Committee
WSC	Ward Sanitation Committee
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant
YMFI	Youth Movement Federation of India

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 Faecal 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 Rourkela city. In this assessment convergent parallel mixed method approach comprising of both quantitative and qualitative methods was used to collect data.

Rourkela is a Municipal Corporation and located in the north-western tip of the Indian State of Odisha, at the heart of rich mineral belt. It is the third largest city in Odisha, beside Bhubaneswar and Cuttack. The City has a population of 3.10 lakh prior to transforming from a Municipality to a Municipal Corporation, and is governed by the Rourkela Municipal Corporation (RMC). The total area has been divided into 40 wards spread over 53.3 square km. The City has 71,368 households out of which 41,837 are slum households which reside in 105 slums.

Table 0-1: City summary

Sl. No	Indicators	Data
1	Total Population	3,12727
2	Slum Population	1,14,468
3	No. of households	71,368
4	No. of slum households	41,837
5	No. of non-slum households	26,297
6	Average no. of person per household	4.30
7	Gender ratio	54:46 (835 females per 1000 males)
8	No. of PT	03
9	No. of CT	23
10	HH with toilets connected to septic tank	51.2%
11	HH connected to pit latrines	1.5%
12	HH with toilets connected to sewer	16.3%
13	No of cesspool vehicle	7 trucks (4 government and 3 private)

Water Demand of the city is met by 42 MLD of piped water supply. All non-slum population has water service connection while slums depend on other sources such as pumping wells, open wells, hand pump, tube well and municipal/private tanker. There is presence of sewerage system in the city area and recently the Odisha Water and Sewerage Board (OWSSB) has started working on developing the sewerage network and plant for the city, with networking for a 40 MLD plant and DPR phase for 8 MLD plant in progress. Most of the households have onsite sanitation with septic tank and soak 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 BPUT area. As per Rourkela Municipal Corporation, the city has 658.33 km of road network. The Municipal Corporation is responsible for maintenance, construction of road network (city roads) and traffic management.

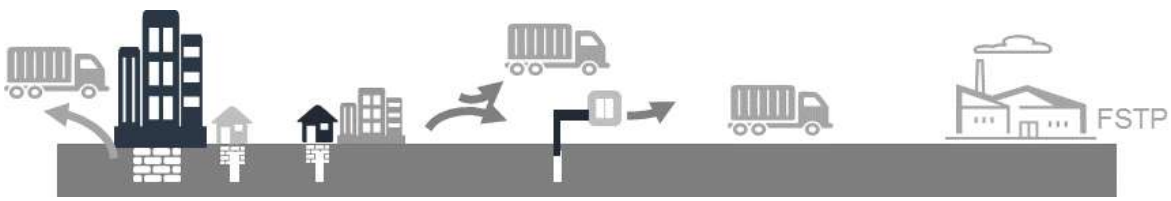
The Odisha Urban Sanitation Strategy 2017 mandates the formation of a Ward Sanitation Committee (WSC) in each ward of the ULB consisting of 11 to 15 members. Presently, Rourkela doesn't have WSC but it is under process. The city has community based institutions under the National Urban Health Mission (NUHM) which includes 477 Mahila Arogya Samiti (MAS) groups. Over 511 Self Help Groups (SHGs) are functioning in various wards under National Urban Livelihood Mission (NULM). There are around 13 prominent NGOs actively working for the urban slum population and sanitation.

The total expenses of ULB in FY 2015-16 were INR 41.32 crore as compared to the income, which was approximately 41.34 crore in the same period. The major part of the income is generated through assigned revenue and compensation which is 42% of the total income. The actuals received through assigned revenue and compensation for the year 2015-16 was INR 17.53 crore. This implies that the ULB is able to meet the costs with support of grants, contribution and subsidies, which constitutes 30% of their total income. While on the other hand the major part of the expenditure was due to establishment expenses which is 52% of the total expenditure, i.e. INR 21.46 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 Commissioner among others.

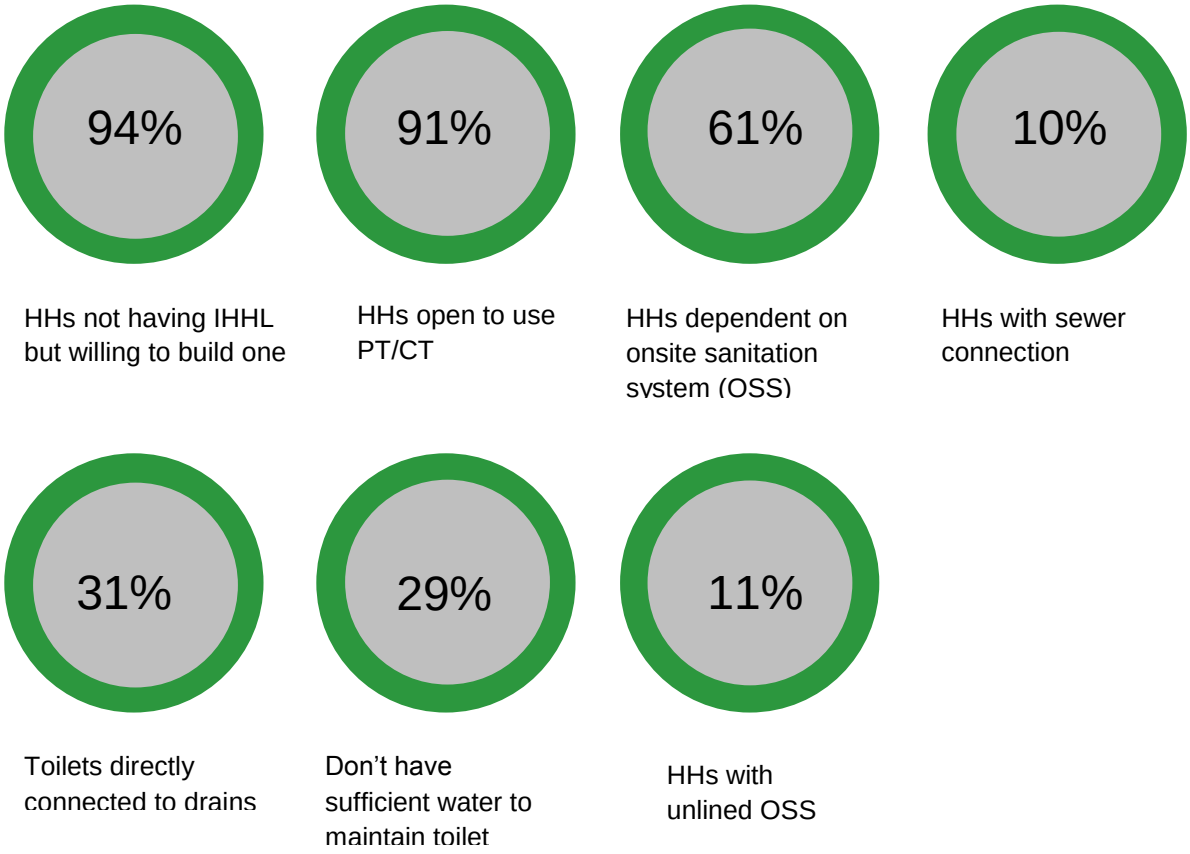
FSSM situation basis rapid assessment study is described hereunder



Toilet access and containment

8,487 out of 21,054 HHs who do not have access to individual toilets[1] are to be provided IHHL under the SBM based on status till May 2017. This leaves out 12,781 HHs or 56,003 citizens directly or indirectly dependent on CTs/PTs. Total 20 hybrid toilets[2] are allocated to Rourkela of which 10 are constructed while 10 toilet complexes are under progress.

Below are the key findings from our primary survey for 309 HH



56% of the non-slum households have septic tanks and 29% of the slum HHs use single pit and 2% HHs are directly connected to drains. Hence, there is a chance of ground water source contamination and 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 94%HH sought advice from them for designing and construction of septic tank/pits.

The Sanitary Inspector and the MAS members opined that penalty or fine has been imposed on people for connecting toilet outlets to a drain or if they litter. This practice of imposing fine should be implemented full fledged so that people will become careful and will practice healthier sanitation behaviours.

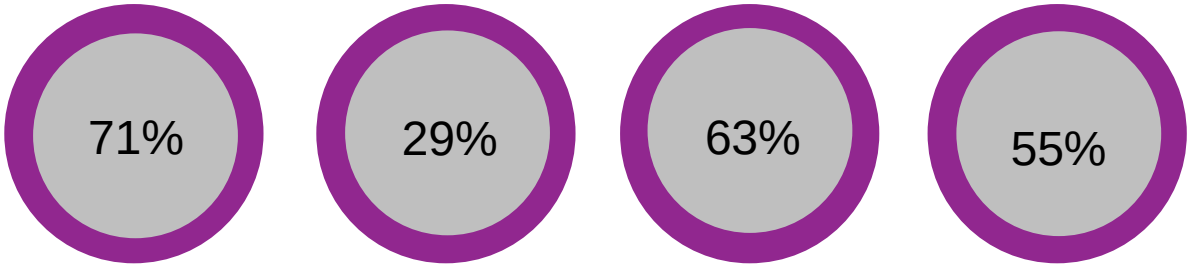
Emptying and transport

Current emptying capacity is 8 Kilo Liter (KL) which shall increase to 14 KL with introduction of new vehicles from the ULB. Re-tendering is in process for new vehicles as private players have shown limited interest. Currently, the ULB is the only service provider. 29% HHs reported availing non-mechanized services. This could be due to vehicle inaccessibility due to narrow roads, which is more than 63% 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

[1] Census 2011

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

cesspool emptying operations revealed that their operations are not governed by any regulation. Below are the key findings from the primary survey.



HHs which have never emptied OSS

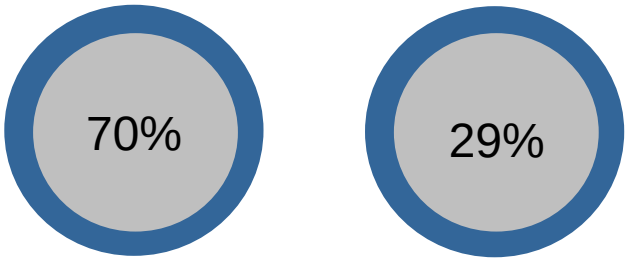
Received services through non-mechanized methods

HHs with road width less than 2 meter

HHs paid more than INR 1,000 for OSS emptying

Treatment, re-use and disposal

Faecal 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 has been identified. A 40 KLD (Kilo Liter per Day) Septage Treatment Plant (SeTP) is being set up to treat faecal sludge. The SeTP construction has started but the progress is slow. Currently, there is lack of monitoring mechanism to track dumping of faecal waste. [3]Potential for re-use of treated waste water and dried manure generated post treatment is not yet explored. Below are the key findings from the primary survey.



Contacted ULB for emptying service

HHs aware where faecal sludge is dumped

"Contaminated water is used by communities staying close to the discharge points and slums which have ponds in close vicinity. The wastewater is also discharged to the ponds by the slums." –OSPCB official

There is a tripartite agreement between the ULBs (only AMRUT towns) in Odisha, H&UDD and the OWSSB. As per this agreement the 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 on treatment plant. SeTPs and cesspool trucks are complimentary to each other but fall under the purview of different bodies. ULBs do not have

Awareness among citizens

- While 91% of the participants are aware that open defecation causes ill-health to their children, only 11% aware that faecal contamination can cause malnutrition and 25% are aware that it is one of the causes of jaundice.
- 78% of the households reported that Mahila Arogya Samiti and 10% reported that Self Help Groups were creating awareness on sanitation..

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

Awareness among citizens
► Citizen's apathy and lack of participation and ownership for sanitation and hygiene due to poor IEC and BCC was reported in FGD and IDI.

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 ► Explore community level onsite sanitation solutions focusing on containment	► 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 ► 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 program design to increase their involvement ► Exposure visits to learn leading practices	
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. ► 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. ► 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

	**Toilet access and containment**	**Emptying and transport**	**Treatment, re-use and disposal**
	► 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 ► Integration of the industrial township administration and Rourkela Municipal Corporation. ► Restructuring the engineering department with added focus on environmental engineering ► Focus should be on zone and ward level interventions – a coordinated program 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	

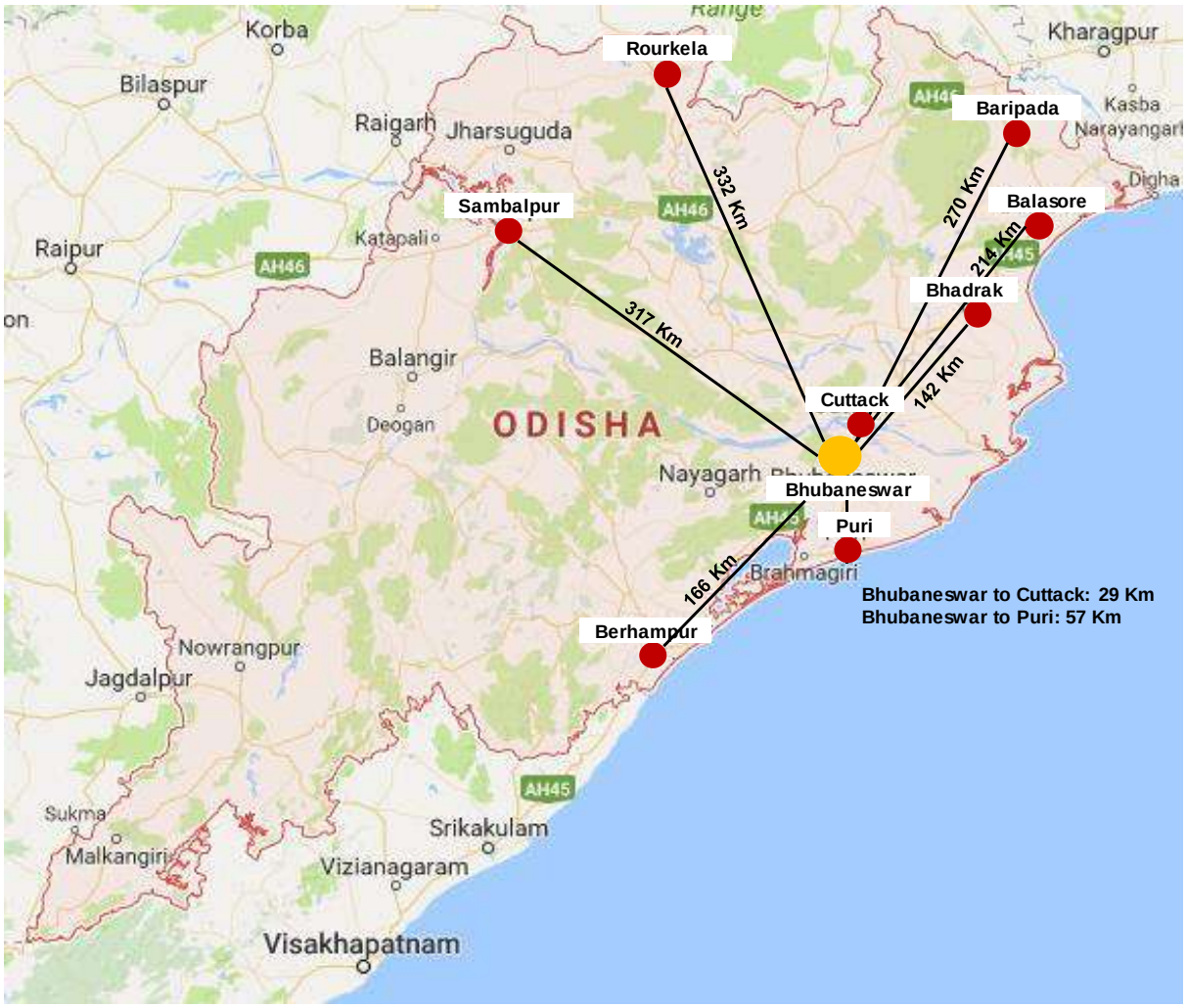
An implementation plan has been prepared basis the key issues and related interventions as identified above during the rapid assessment. This plan focusses on key milestones, activities, time durations and key dependencies (internal – within TSU and external) to help steer FSSM programme.

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



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

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

Town	No of households	Open defecation by households
Balasore (M+OG)	31,539	5,425
Baripada (M+OG)	26,079	6,807
Berhampur (MC)	73,335	8,580
Bhadrak (M+OG)	23,084	8,264
Bhubaneswar (MC+OG)	2,04,056	35,098
Cuttack (MC)	1,21,919	14,021
Puri (M)	40,369	6,096
Rourkela (M+OG)	71,368	19,412
Sambalpur (M+OG)	42,623	12,915

Source: Census 2011; M – Municipality and OG – Out Growth areas

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.

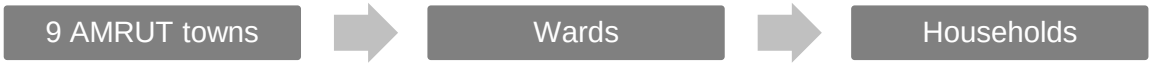
Objectives of the study

- 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 Organizations (CBOs), and 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

1. Primary survey for households 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), Orissa State Pollution Control Board (PCB) & service providers like cesspool operators, masons using semi structured IDI guide (Annexure 2 – Questionnaire for In-Depth Interviews)
3. In-depth Interviews (IDIs) and Focus Group Discussion (FGDs) with citizen groups, Non-Government Organization (NGO), ULB-level Sanitation Committees, ward committees & other CBO. Semi structure guide 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 Rourkela

For the city of Rourkela, 240 households were surveyed, nine IDIs and two FGDs were conducted

over the period of April to May 2017 (Annexure 4 – In-Depth Interviews and Focused Group Discussion details). The analysis for sample size calculation for 9 AMRUT towns considering their Municipal area is given below:

Table 1-2: -Sample size for Rourkela

City/Town Name	No. of Household	Wards	Required No of Wards	HH Required each city universe	%having latrine	No of households surveyed
Rourkela (M + OG)	71,368[5]	40	10	237	70%[6]	309

Sample size for wards in Rourkela:

Multistage sampling strategies were followed for the selection of the households. In first stage, 10 out of 31 wards were selected using simple random sampling methods, and then 24 households from each ward were selected using systematic random sampling methods.

Sample size for households in Rourkela:

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 Rourkela city is 71368 (Census 2011). Sample size was calculated based on anticipated prevalence i.e. percentage of the household having individual latrine (81%).[7] The power 80% and 95% Confidence Interval (CI 95%) 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 Rourkela, the required number of households calculated using the above mentioned statistical information and formula was 237.

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.

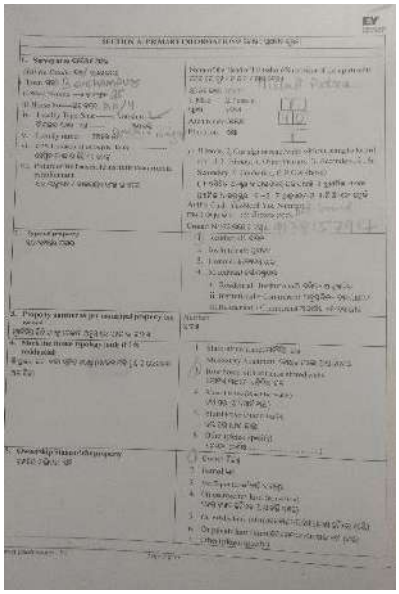
The quantitative data was analyzed using descriptive statistics and qualitative data using content analysis methods.

Figure 1-1: - Household Questionnaire and Survey

[5] Census 2011

[6] Census 2011

[7] Census 2011



1.3 Limitations of study

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

Sample survey has its own limitations in terms of representative opinion which may not be apply for general population. Sampling technics 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.

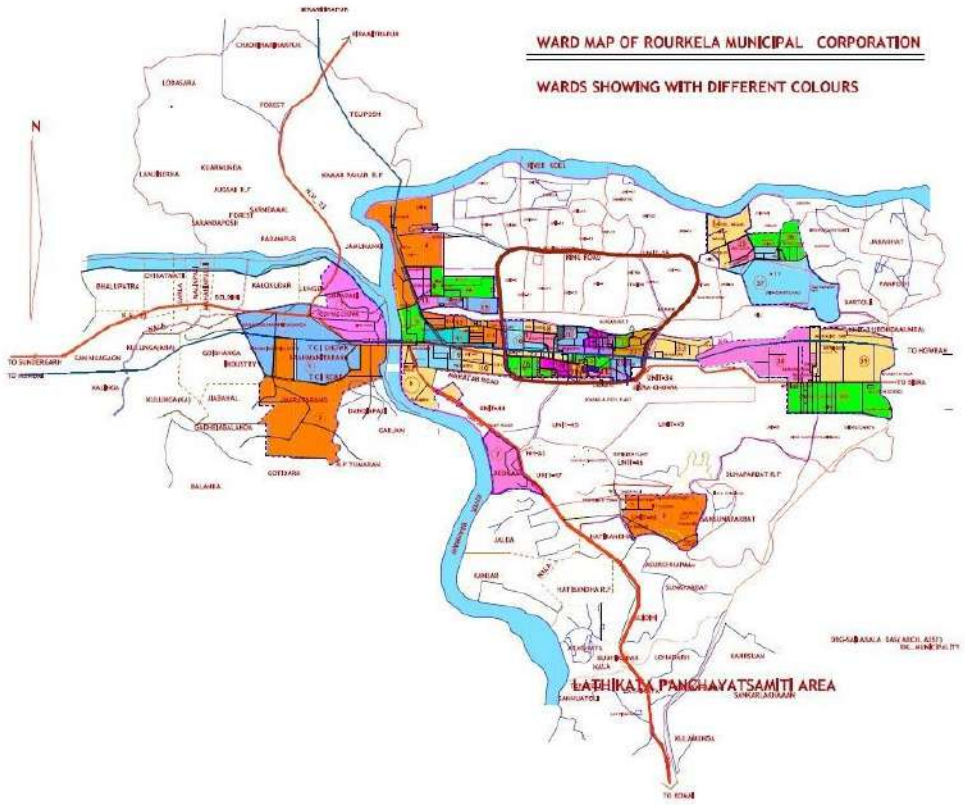
2 City profiles

2.1 Location and regional settings

Rourkela is a Municipal Corporation and located in the north-western tip of the State of Odisha, at the heart of rich mineral belt. It is the third largest city in Odisha, beside Bhubaneswar and Cuttack. It is surrounded by a range of hills and encircled by rivers, namely Koel River on the north, Sankha/Brahamani River on the South West. The river Sankh, Koel and underground Saraswati merge together and form the River Brahmani.

It has an average elevation (altitude) of 219 m. The city lies between latitude $22^0$25'N and longitude $84^0$53'E in the heart of the mineral belt of the state and it is 219 m above mean sea level. The city comprises two townships, namely Steel Authority India Limited (SAIL) Township and Rourkela Municipal Corporation (RMC). The total area of the city is about 200 km^2 of which the municipal corporation is about 53 km^2. The city of Rourkela is chiefly divided into two smaller parts, namely, Rourkela and Rourkela east.

Figure 2-1: City map of Rourkela showing wards



Source: Rourkela Municipal Corporation

2.2 Demography

The total population of Rourkela town is 3,12,727 as per year 2011 Census of which the population in the SAIL Township is 2,12,705. Rourkela was converted from a Municipality to a Corporation in 2014.

Some of the key demographic indicators of the town are given below:

Table 2-1: -Key demographic indicators

S.No	Indicators	Data
1	Total Population	3,12,727
2	Slum Population	1,14,468

S.No	Indicators	Data
3	No. of households	71,368
4	No. of slum households	41,837
5	No. of non-slum households	26,297
6	Average no. of person per household	4.30
7	Gender ratio	54:46 (835 females per 1000 males)

Source: Census 2011

The city has about two wards (Ward no 3 and Ward no 2 according to old ward nos.) which are vulnerable due to the following reasons:

a) Location of wards near the low lying areas

b) Proximity of wards to flood prone area

2.3 Overview of sanitation situation in Rourkela

Rourkela is an industrial city. The city's growth is heavily linked to the steel industry. In the slum areas, insanitary toilets, open defecation, choked drains, solid wastes dump yards lead to a serious threat of water and vector borne diseases.

During the consultations, the Municipal Commissioner asserted that several activities are being undertaken towards construction of sewer network and getting the citizens onboard to connect to sewer lines and SeTP is being constructed. There is focus on construction of septage plants. It was also mentioned that solid waste is an important component of sanitation and awareness on source segregation of solid waste is being carried out at community level. Sanitary Inspectors and Community Organizers were mentioned to play an important role in improving the local sanitation situation.

However, it was also mentioned that slum areas do not have space for construction of toilets at household level or at community level, they connect wastewater to the nearby water sources. In some areas, the toilets are directly connected to drains, the sewage/ septage lines do not have proper treatment at this point of time, thus contaminating the river.

Despite the many hurdles related to sanitation, Rourkela has regularly been featured in the list of cleanliest cities in India and is ranked the second cleanest city in Odisha according to the Swachh Sarvekshan 2017. The specific details related to access to toilets, open defecation scenario and the FSSM value chain is captured in Section 4.

Table 2-2: -IDI and FGD responses for sanitation situation in Rourkela

Objective:	To understand key sanitation issues
Participants:	City Health Officer, Sanitary Inspector, Community Organizers (RMC), Mahila Arogya Samiti (MAS), Self Help Groups (SHG), National Urban Health Mission (NUHM) City Programme Unit.
Key observations:	• Open defecation is high among slum dwellers because of the following reasons: ► Behavioral reasons ► Costs incurred in construction of toilets and their maintenance ► Space constrictions ► Easy access to water near rivers and other water bodies • Households having insanitary toilets are not aware of the health implication • Solid waste is directly thrown in drains and even toilet outlets connected to drains due to which the drains become blocked and unhygienic. • Lack of awareness on the value chain of FSSM, open defecation and solid waste management and their impact on environment and health • Dengue/Malaria, Hepatitis and Dysentery are recurring diseases • User fees for door-to-door collection was increased to achieve a sustainable model

	• Aware through women focused community groups – SHGs, MAS members and penalizing insanitary latrines and monitoring of house building plans are envisaged to improve the sanitation situation • Training programmes are required to capacitate the stakeholders so that the citizens can be made aware on better sanitation and the issues that arise due to poor sanitation (training of trainers)

2.4 Infrastructure facilities

2.4.1 Water supply

The water supply system for the Rourkela town is maintained by Public Health Engineering Department (PHED) Rourkela. Most of the area is covered by a piped water supply network except slums which are covered with public stand posts and some areas are covered by tube wells. The source of water is from river Brahmani and river Koel. There are two intake wells which cater to Rourkela for a population of approximately 2.72 lakh (2009 population data from PHED) people within the ULB area with a total supply of 42 MLD.

The existing water supply is from surface source with 77.8 MLD WTP capacity and 173.0 Km distribution network. Ward wise detail data is available. Consumer and asset database is maintained and updated annually.

47.90 MLD water is being treated daily in six treatment plants for the city.

Table 2-3: -Water treatment capacity

S.No	Location	Capacity	Total Capacity
1.	Panposh	4.5 MLD + 13.5 MLD + 55 MLD	73 MLD
2.	Koelnagar	3.4 MLD + 1.4 MLD	4.8 MLD

Figure 2-2: IDI with EE, PHEO

Total existing water supply distribution pipe line in the city is 173 km and another 185.9 Km pipe laying is in progress.

2.4.2 Sewerage systems

Within Rourkela east, there is a separate sewerage scheme for the National Institute of Technology (NIT) campus which is excluded from the proposed project and an existing sewerage system in Koel Nagar area. The existing sewerage system in Koel Nagar is not functioning well, as it has served its design life and further cannot be integrated to the proposed sewerage system. Hence, a new sewerage system has been proposed in the Koel Nagar area along with other catchments.

There is presence of sewerage network. 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%.

At present, there is no systematic and organized method to collect and treat waste from septic tanks. Only two cesspool emptiers are available which are not sufficient for systematic and organized cleaning. As there is no organized method of collection in many of the cases, the septic tanks overflow either into nearby drains /open fields etc. There is no decentralized waste treatment system in the city. Sewage of around 34 MLD based on 2011 Census population is generated in the city. Since there is no sewer collection and treatment system, no sewage reaches the STP.

New sewerage network is planned to be laid in Rourkela and the STP will be constructed in Ruputola, Balughat which is 7-8 km away from RMC. At Ruputola, at an identified two acre area, 40 MLD Sewage Treatment Plant (STP) is being constructed. The designing and construction is being done by OWSSB with completion dates till March 2020.

Table 2-4: -Details of STPs in Rourkela

S.No	Location	Capacity	Technology	Status
1.	Sewerage Treatment Plant (Ruputola, Balughat)	40 MLD	Sequential Batch Reactor (SBRB	Network work is going on
2.	Septage Treatment Plant (Ruputola, Balughat)	40m^3 per day	Dewats decentralized waste water treatment	Construction is going on, foundation been laid
3.	Sewerage Treatment Plant (Koel Nagar)	8 MLD	Sequential Batch Reactor (SBR)	DPR has been drafted but land issue is there due to which construction has not yet been started.

Source: OWSSB

2.4.3 Solid waste management

Rourkela generates around 109 MT of municipal solid waste per day out of which 102 MT gets collected .Average monthly collection of solid waste is about 3000 MT. Collection of solid waste for 33 wards is done door-to-door by M/s JJR Consultancy Pvt. Ltd. for five wards, M/s Envi Care collects from nine wards and the rest of the 24 wards are serviced by the RMC. In the newly formed wards the solid waste collection will start soon.

Collection and transportation of mixed solid waste is collected by both the ULB and M/s JJR Consultancy Pvt. Ltd. and M/s Envi Care along with RMC. It is done using wheel barrow, tractors, dumper placers, trucks, compactors and is taken to the transfer station located near BPUT were it is disposed for landfilling.

Figure 2-3: Temporary disposal of solid waste near BPUT

Table 2-5: - IDI and FGD response on solid waste scenario in Rourkela

Objective:	To understand the solid waste scenario
Participants:	Commissioner and Community Organizers (RMC), Mahila Arogya Samiti (MAS), City Health Officer
Key observations:	• HHs are motivated to be engaged for door-to-door garbage collection • Absence of safe and sanitary drainage system as most of the drains are open. • Increase awareness on segregation of waste and throwing waste in bins. • Lack of manpower • Training is required for CBOs and MAS to understand their roles and responsibilities better

2.4.4 Road network

Rourkela is well connected by rail and road (NH 215). At present, Rourkela has a total of about 4% (11.76 km^2) of land area under traffic and transportation. The share of transportation is comparatively low than other similar size of town where the share ranges from 15%- 20% of total area. It has been envisaged that the land area under transportation should be increased to 10% by the year 2020 and further increased to 15% by 2040.

Presently, 658.33 km of road length comes under Rourkela Municipal Corporation. Beyond this, 15.81 km^2 from outgrowth wards are to be absorbed as part of RMC, the change has occurred since the transformation of Rourkela Municipality to Rourkela Municipal Corporation. The cemented road are 379.66 km, bitumen roads are 225.97 km.

For cesspool operations, roads are well-connected and are easy to access. There are two cesspool emptiers running under the ULB which have a capacity of 4000 L and there are three private operators who also provide service for cesspool operation and their capacity of tank is also same as the ULB i.e., 4000 L. However, most roads in slums and non-slum areas are not wide to allow a vehicle of 4000 L capacity. Further details on accessibility has been provided in Section 4.

2.5 Community based institutions and structures

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

a) Mahila Arogya Samiti (MAS): MAS is a local women's collective with an elected Chairperson and a Secretary. Each MAS covers approximately 50-100 households in slum and slum like settlements in a ward. One MAS 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. Presently, there are 477 MAS groups. MAS is facilitated by the

Accredited Social and Health Activist (ASHA) who act as the Member Secretary. The total target area is divided and around 10-12 households are allocated to each MAS member for effective tracking and follow up.
The NUHM provides INR 5,000 as annual untied fund to each MAS for undertaking different activities in their slum or coverage area. The untied 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 a month.
In Rourkela, the MAS have been active in generating awareness on health and sanitation among the targeted households and several women have emerged as community leaders. They also impart knowledge to young or teenager girls for menstrual hygiene management (MHM) and safe birth to expecting mothers through meetings and raise issues related to health, sanitation, water and hygiene issues in their respective areas. Though the MAS members have been trained by NGOs on health and nutrition and other urban schemes, sensitizing the MAS members particularly on open defecation, its impact on health and FSSM would be useful in spreading awareness among the households.

2.5.2 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 households by enabling them to access 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 are being formed for mobilization of urban poor and for enhancing their livelihood opportunities. Till now, over 511 SHGs have been formed in 33 wards of Rourkela having slums. Area and city level federations of SHGs have also been formed. The women SHG leaders are accepted as community leaders who can sensitize the other group members on sanitation and its impact on health. They can also motivate women to build Individual Household Latrines (IHHL) and adopt desirable sanitation practices

2.5.3 Others

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

Table 2-6: -NGO's working for urban slum population

S. No.	NGO	Focus area
2	Visstar	Awareness on sanitation and construction of IHHL, income generation activities in slums, promoting the use of public toilets.
3	Youth Movement Federation of India (YMFI)	Safety, health, education and environment for youth, women and child, physically handicap
4	Seva Foundation	Education to poor children, social awareness under SBM
5	Nabajyoti	Health awareness ,women and child development and water and sanitation
6	Ankur	Livehood , Agriculture, Social Audit, Government Projects
7	Annada	Women and Child, Old Age, Consumer Rights, Sanitation
9	Annwesha, Helping Hand	Empowerment, Education, Employment
10	Sneha Abhiyan	Health awareness (maternal, neonatal, childhood, adulation, eligible couple),

		Education competition in schools, Vocational training to SHG groups such as cultivation of mushrooms, tailoring, SBM related work.
11	Monica	Education, Health, Vocational Training, SBM
12	Shraddha Foundation	Focus sector is mainly on disability specially works for mentally challenged children for their education, work for mainstreaming disable children to the society, awareness programmes taken by government, orphanage, women and child, disaster management, right to education, environment

Table 2-7: -IDI and FGD response for roles of CBO in Rourkela

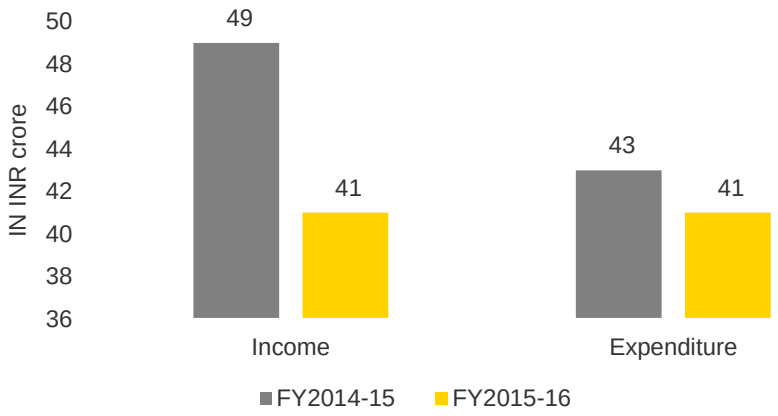
Objective:	To understand the roles taken by CBOs
Participants:	CBOs
Key observations:	• Community mobilization measures are being taken by the community based organization majorly on solid waste management, open defecation, choked drains and insanitary latrines. • The Kishori Valika Group builds capacity of girls reaching puberty, awareness regarding their menstrual cycle, how to take care of themselves during those times as well as motherhood. • Awareness to households on the adverse effects of open defecation, having insanitary toilets, indiscriminate garbage disposal and its effects on health through rallies and community meetings • WSC have been formed in few wards but are not functional and the members are not aware about their roles and responsibilities • There is a need to train the WSCs on subjects like SWM, garbage disposal, FSSM, OD and toilet constructions. • IEC is also conducted by the drawings, charts, leaflets and pamphlets.

Figure 2-4: FGD with CBO

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 2015-16 are substantially lower than those in FY2014-15. While income has decreased by 16%, expenditure has also dropped by 5%.

Figure 2-5: -Income and expenditure pattern in Rourkela

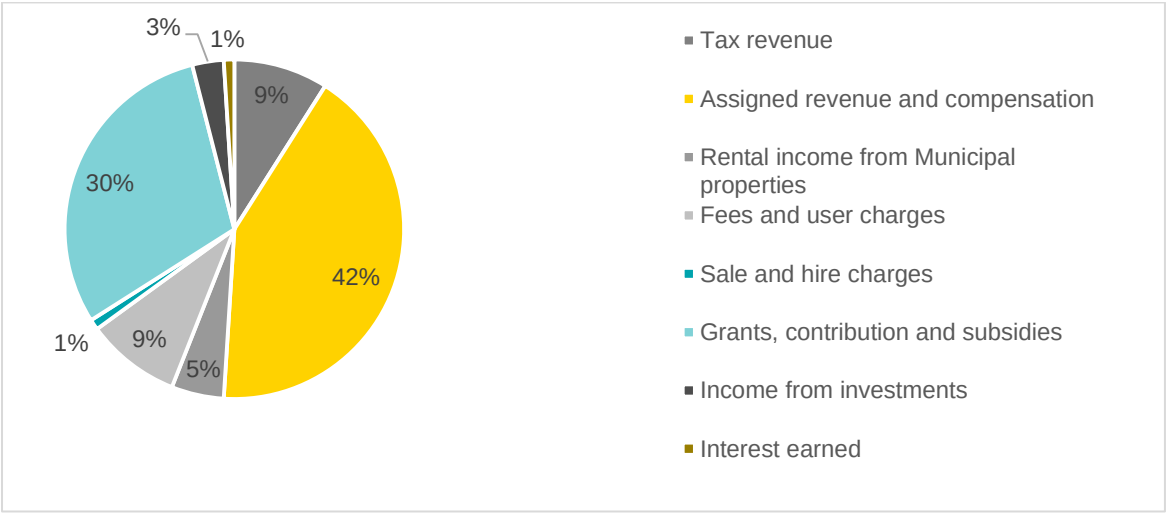


Income

A detailed analysis of municipal revenues and expenditures for the latest year 2015-16 shows that assigned revenues and compensations are the single major source contributing to an overwhelming 42% of the total revenues. The revenue base of municipalities is weak and they are heavily dependent on grants, contributions and subsidies as it contributes 30% to the total income. The next major contribution is from fees and user charges as well as tax revenue, each of which contribute approximately 9% of the total revenue. Tax revenue includes holding tax, latrine tax, electricity tax and sewerage tax.

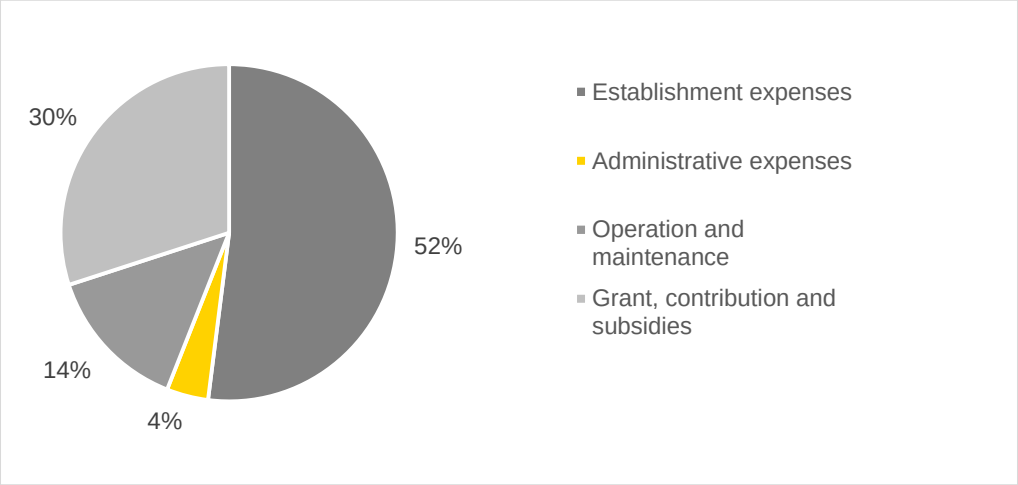
Sources such as income from interest earned, income from investments, sale and hire charges and rent from Municipal properties together contribute less than 10% of total revenues.

Table 2-8: -Income of RMC in FY2015-16



Expenditure

Table 2-9 Expenditure of RMC in FY2015-16



The total expenses of ULB in FY 2015-16 were INR41.32 crores as compared to the income, which was approximately 41.32 crore in the same period. This implies that the ULB is almost breaking even and is able to meet the costs despite the fact that grants, contribution and subsidies constitutes 30% of their total income.

Establishment expenses constitutes 52% of the total cost for RMC. This includes the salary paid to staff. It can be observed that operations and maintenance constitutes another 14% and administrative expenses is 4%. The RMC also received funds under 14th Finance commission. In the last 2 financial years, INR 12.45 crore were received under this grant.

It is important to understand the total budget for sanitation. The total funds spent in this area is less than 1% of the total expenditure of the municipal corporation. As per data from SBM (U), RMC has spent INR 8.04 crore on sanitation in FY 2015-16. A major proportion of this (41%) was on construction of shared toilets, another 21% on individual household toilets, moreover, 38% for capacity building and IEC/BCC activities. The details have been given in the table below.

Table 2-10: -Expenditure on sanitation by RMC in FY2015-16

Line item	In lakhs
Community toilets	332.9
IEC/BCC activities	251.9
Capacity building	50.4
IHHL	169.6
Total	**804.8**

Miking, posters and tallies are the most common activities under IEC/BCC. Sometimes, they involve NGOs and SHGs to lead and participate.

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 Odisha 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[8] and partnership based[9] to bring universality, efficiency and sustainability in sanitation services. Across the Country including Odisha, urban sanitation activities are being governed by the Swachh Bharat Mission (SBM-U) programme. .

1. 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[10] to meet the mission targets. Out of 511 cities[11], 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 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[12]. 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.

2. National Urban Sanitation Policy (NUSP), 2008 [13]

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 FSM, 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;

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

[9] 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.

[10] MoUD 2017

[11] MoUD 2017

[12] SBM(U) guidelines 2016

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

iv. Encouraging recycle and reuse of treated waste water for non-potable applications, wherever possible.
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 FSM. This tool gives an estimate of the financial requirement of the city to put in place the necessary infrastructure for FSM. 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.[14]

3. 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 programme 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/towns 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).

4. 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 faecal 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 faecal 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[15]. However it addresses synergies between FSSM and sewerage systems or municipal solid waste (MSW) management, e.g., co-treatment of faecal sludge and septage at sewage treatment plants or co-treatment and management of faecal sludge and septage, and MSW.

The Policy lay stress on the setting up of faecal 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 objective to deal with faecal 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 faecal sludge in urban areas should go

[14] AMRUT reforms

[15] National FSSM 2017

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 directions.

5. Smart City Project

Out of 98 smart cities in India, two are from Odisha – state capital city Bhubaneswar and industrial city Rourkela. Both the cities have adopted area based and pan city approaches in smart service deliveries to citizens. In Rourkela, total investment has been made for about INR 2500 crore for five years to develop 635 acres of city space as smart in urban planning, improvement in infrastructures for basic urban services with use and application of ICT and citizens participation in urban governance.

Rourkela has its smart city company limited and has set up Special Purpose Vehicle (SPV) for the programme implementation. The scope for water supply and sanitation services, considers covering the entire city and also includes the approach to scale it up as the city expands. Convergence of smart city programmes with all other missions like AMRUT, NULM, SBM, Housing Finance Agency (HFA) and digital India, can give ample of choices to improve standards of services within the city.

Rourkela has received investment to develop underground sewerage systems under Smart City Project. Both solid and liquid wastes technology options are critical factors because both smart cities are ranked much below in sanitation rankings – Bhubaneswar is 94 and Rourkela is 168 in all India levels. Since the infrastructural and governance deficits are huge, stakeholders like smart city companies have to think even they are companies for civic activities and services without being civic authorities. In areas with old infrastructure, both city level and household level the infrastructure on sanitation has to be retrofitted in order to transform the city into smart city.

Smart city stakeholders such as development authorities - RDA, RMC, interdepartmental committees and forums and citizen groups have to be sensitized to undertake technology and governance approaches for improving basic services with respect to both access and quality.

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 ++)[16]
- 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 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[17] 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

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

[17] 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.

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.[18]) 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 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 FSM 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.

CASE IN POINT: FSM 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[19]%, 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

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

[19] Census 2011

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[20]. **As a matter of policy[21], 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[22] 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 FSM 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.

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 nearly 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 infrastructure 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.

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

[21] Odisha septage management guidelines

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

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

The city of Rourkela has 71,368 households (HHs) according to Census 2011. 70.5 % of the households have individual toilets. Open defecation stands at about 27.2%, much higher than the national urban average at 12.6%. There are 29[23] wards which have higher instances of open defecation than the national average. More than 50% of the HHs of wards 3, 10, 11, 13, 38 and 41 resort to open defecation. Around 2 % of HHs are dependent on public or community toilet.

Rourkela is surrounded by rivers, Koel on one side and Brahmani and Sankha on the other sides. During the consultative discussions, the City Health Officer shared that it is common practice to go to the river and defecate openly due to easy access to water.

There is significant difference between OD practices among slum and non-slum households (P=0.000); 99% of the slum HHs reported practicing OD, however only 1% of non-slum reported same. Among the household practicing OD, when asked about problems associated with OD, 88% perceived that during OD there is lack of safety for girl and women, 59% felt that inconvenience in terms of time (before dawn and after dusk), and 88% viewed maintaining privacy was a major challenge associated with OD.

91% of households were found not aware of the ill-effect of OD on their children despite it being well established that good sanitation and child health are closely linked

Under SBM, requests for 9,500 IHHL have been received. Overall summary is presented hereunder:

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

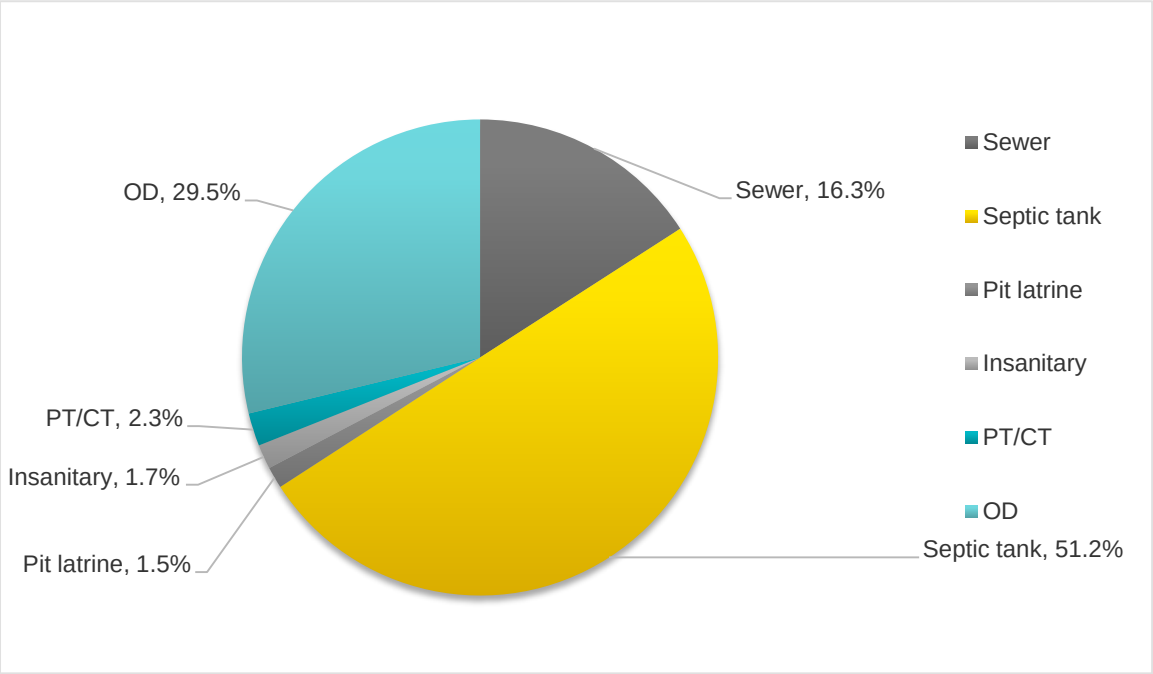
Received	Verified	Approved	Rejected	Constructed	Commenced
9,500	8,542	8,487	601	1,454	2,636

Source: SBM-PMU Odisha

"How can old couple who did not have a toilet or a very poor person build a toilet at home unless and until you pay in advance? The ULB first asks us to construct the toilet after which the fund is given. However, the fund is insufficient in the initial stage for excavation and laying the foundation. Funds are required for labor and buying materials for construction. So how can the toilet be constructed with the given fund?" – Ex-councilor (presently member of MAS)

Figure 4-1: -Sanitation system at household level and access to toilets

[23] The wards numbers are 1, 2, 3, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 22, 23, 24, 25, 26, 30, 31, 35, 36, 37, 38, 39, 40 and 41



Source: Census 2011

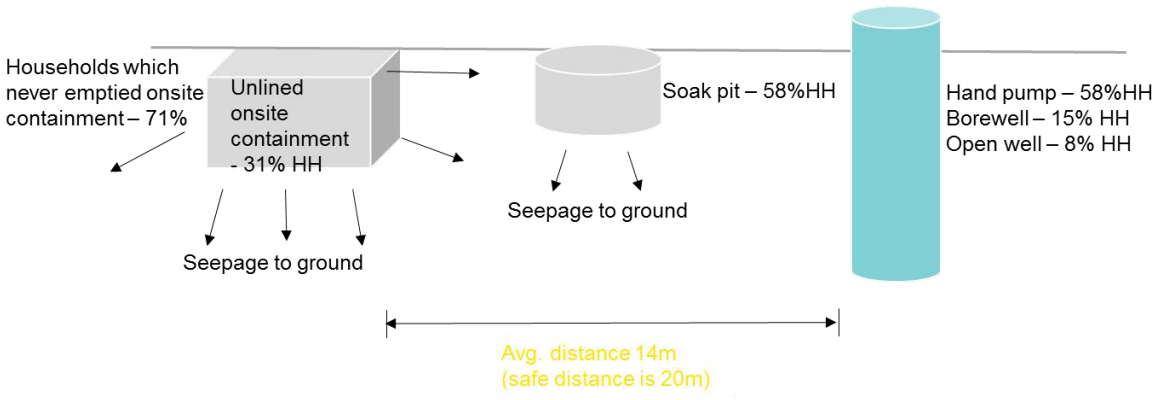
In order to increase the demand on latrine use, availability of water is an important component. 30% respondents in the primary survey reported that availability of domestic water is not sufficient for maintenance of toilet.

The primary survey shows that 94% households not having toilet access and resorting to OD are willing to construct one. Majority of those unwilling, cite lack of funds as constraint. 91% HHs are also open to use CT/PT.

11% HHs reported connectivity to sewer network. 80% reported dependence on onsite containment system (septic tank and pit latrine). Outfall of 30% of OSS is into open drains.

The primary survey indicates that 31% households (HH) have unlined onsite systems. 58% HHs have septic tank connected to soak-pit. While 96% of the citizens sampled said that they did not carry out ground water checks before construction of containment units, 71% reported to have never cleaned their OSS. Together this could be a potential source of ground water pollution due to lack of safe distance from water source. Median distance found between onsite system and open well or hand-pump or bore-well during survey is 14m, which is lower than conventionally considered safe distance of 20m. This becomes significant as more than 60% of HH reported dependence on ground water source near to their house during primary survey.

Figure 4-2: -Situation with onsite containment as per our primary survey for Rourkela



The picture below shows the unhealthy practice of sanitation.

Figure 4-3: -Drain water overflowing near the outlet channel of hand pump in Bondamunda

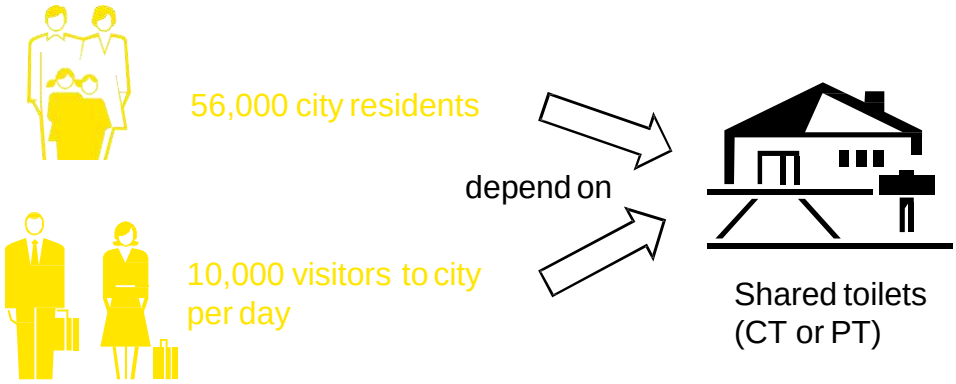
During primary interactions, some of the stakeholders also brought to light the problem of direct connection to drains. Here is the summary of various responses received from stakeholders which indicates that this issue needs attention.

According to an ASHA worker "Despite sensitizing people that they should not connect toilets to drains, the practice still continues. These drains get blocked and clogged and are then cleaned by ASHA workers."

The sanitary inspector and MAS members gave the same opinion that "penalty or fine has been imposed on people here in Rourkela for connecting toilet outlets to a drain or if they litter. This practice of imposing fine should be implemented to its full capacity so that people will become careful and will have healthier practice for sanitation."

4.2 Status of CT and PT

Figure 4-4: -Dependency on shared toilets



Source: SBM-PMU and SAAP- AMRUT Odisha

According to Census 2011, 21,268 HHs do not have access to individual toilets. Of these, 8,487 are to be provided IHHL under the SBM based on status till May 2017. This leaves out 12,781 HHS or 56,003 citizens directly or indirectly dependent on CTs/PTs. Additionally, the city receives a floating population of 10,000 every day.

H&UDD started a novel initiative to build hybrid toilets. 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. 20 hybrid toilets are allocated for Rourkela of which 10 are

already constructed and 10 are under progress. Modular or mobile toilets are also installed in parks and stadiums, out of the 14 modular or mobile toilets, 6 toilets with 4 seats are under progress. Following is the overall status of shared toilets in the city.

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

	Existing complexes (available for usage)	Existing complexes (defunct)	New (under construction)	New (yet to start construction or under progress)
Public toilet	07	03	-	-
Community toilet	04	05	10	09
Hybrid toilet	10	-	-	10
TOTAL	**21**	**08**	**10**	**19**

Source: RMC

A quick calculation of need for toilet seats in CT reveals that 199 seats for men and 233 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 4-5: -Hybrid toilet at Rourkela Steel Plant Site and mobile toilet at BPUT construction site

Under the scheme of hybrid toilets, presently 10 toilet complexes are to be constructed out of 20 toilets and 10 hybrid toilets are already completed. All locations are specifically chosen by Sulabh International considering the Operations & Maintenance (O&M) sustainability.

As on date, ten hybrid toilets have been constructed as detailed in the table below. The hybrid toilet has area for hand washing, urinals and latrine for both male and female usage.

Table 4-3: Location and seats of completed hybrid toilets

Location	Seats
VSS market, Chhend colony	05
Rourkela Steel Plant site, Mahatab Road	05
Timber colony, Hotel Deepti	05
DAV public school, Basanti Colony	05
New court building area, Birjapali	05
Municipality Chowk, Temple Site	05

Location	Seats
Traffic Gate Vegetable Market	05
Birsa Chowk, Tarini Temple	10
New Court inner area	10
Gopabandhupalli	05

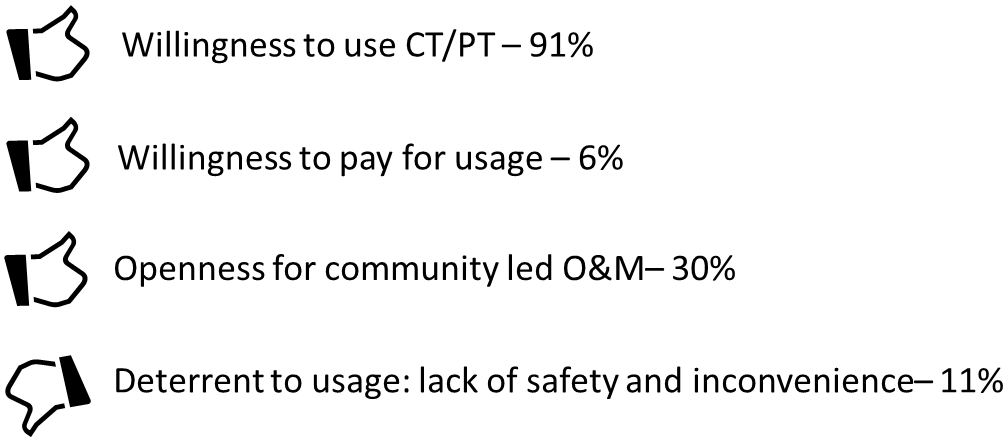
Figure 4-6: Hybrid toilet at plant site

Table 4-4: -Management of PT & CT

	Construction	O&M	O&M revenue source
Hybrid	Private agency (Sulabh)	Private agency (Sulabh) – Eight to ten years contract	User fee
CT (existing)	RMC	RMC	RMC
PT (existing)	RMC	Private agency	User fee

Our primary survey indicates that citizens are willing to use CT/PT but would not pay for usage. They highlighted concern due to lack of water and insecurity and indicated that they are not willing to explore community led models for O&M of the facilities.

Figure 4-7: -Key responses from citizens through primary survey



4.3 Emptying and transportation

Mechanized emptying and transportation services are provided by the ULB as well as private players. Below table provides overall snap-shot of services available in the city. Current emptying capacity is 8 Kilo Litre (KL) which shall increase to 14 KL with introduction of new vehicles from ULB. One of the trucks is nonfunctional for almost a year due to mechanical failure and requires repairs which could cost nearly INR 50,000. 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 is open for retendering.

"People are happy with lower price but minimum cost has to be recovered." – Municipal Commissioner

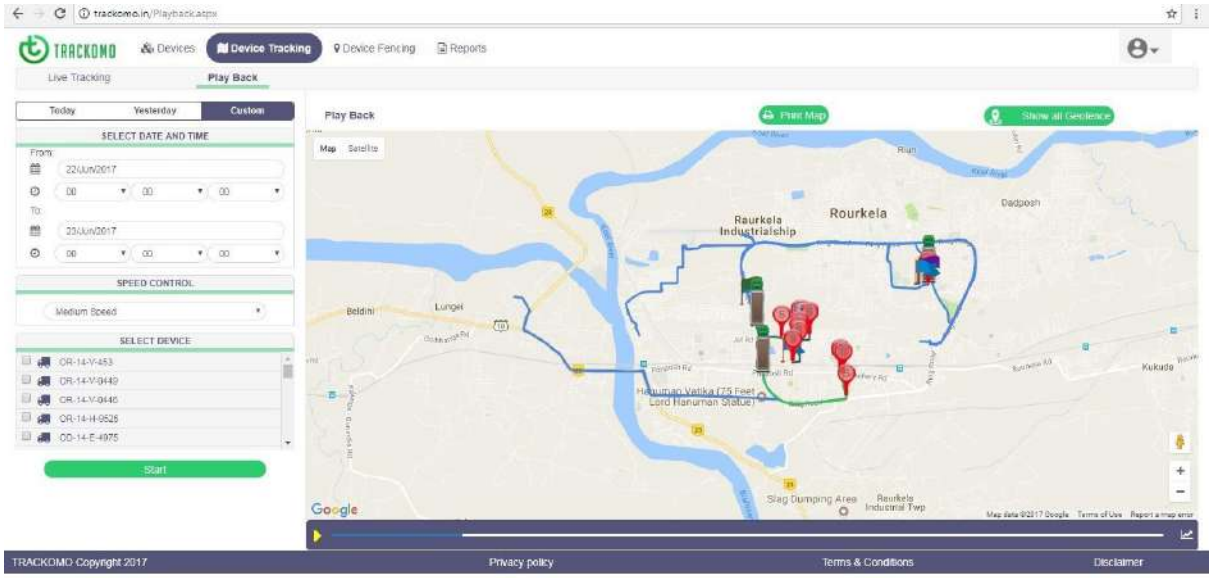
In Rourkela, the ULB has partnered with a third party vendor for tracking of all ULB vehicles and the application allows RMC to monitor live vehicular movement and also keep records of distance travelled, log view, immobilization, stoppages alongside playing back the vehicular movements on a specific date and time. This is an endeavor as part of the Smart City Project.

Table 4-5: -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)	2 trucks X 4,000 L	INR 1,300	6 a.m. to 12 noon	Owned and operated by ULB
2	ULB (new)[24]	2 trucks X 3,000 L	To be confirmed	6am to 6pm	Owned by ULB. Operated by private player.
3	Private operator (3 nos.)	1 truck X 4,000 L 1 trucks X 4,500 L 1 truck X 4,500 L	Price is equivalent to RMC INR 1300	8am to 6pm	Owned and operated by private player
TOTAL		~27,000 L			

Source: ULB data and primary interaction with private operator

Figure 4-8: -Tracking of government vehicular movement



Source: trackomo.in

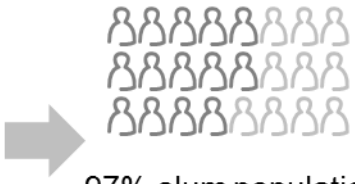
Majority of the trucks in existing fleet are of 4,000 L. Such vehicles typically have width of 2.5 m. This creates difficulty in providing services in city like Rourkela where majority of the roads inside the city are of lesser width. This was confirmed during the primary survey which found that 63% of roads have less than 2m width. The situation is grim in slums which have 97% of road with less than 2 m width. 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 that 18% HHs have received non-mechanical emptying services.

Figure 4-9: -Mechanized emptying services

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

Primary survey

	< 2 metre (m) road width	2 to 5 m width
Slums	97%	3%
Non-slums	68%	32%



97% slum population may remain uncovered with existing cesspool vehicle mix

Operators also mentioned that if there is any place where vehicle movement is not possible then they visit that place beforehand to estimate the distance of cesspool vehicle to the septic tank and how they can do the desludging and accordingly they chalk out the plan.

Cesspool operators during the discussion said that they work according to the regulations given to them. They have their safety kit and use it during their working hours. They said that people usually come to know about emptying services through the newspapers.

71% households reported that they have not desludged their containment units while 14% stated that their units have not been emptied in over three years

4.4 Treatment and disposal/re-use

The city generates 62 m^3 sludge per day[25]. The collected sludge is transported to the designated site near BPUT where solid waste is also disposed. The operators desludge the tank in the area they have excavated and after emptying the sludge they cover it with soil so that it does not come in contact with air or water. The site is 4.5 km from the RMC. But if they travel more distance, i.e. if they are called to the outskirts of the city, then they dispose the sludge in open fields at Luhakera. The primary survey revealed only 30% HHs were aware where the faecal sludge is dumped after emptying. While 91% are aware that open defecation causes ill-health to their children, only 11% aware that faecal contamination can cause malnutrition and 53% aware that it is one of the cause of diarrhea.

There are no regulations governing the disposal of sludge as confirmed through interactions with ULB officials and operators. However, now a mechanism is in place to monitor cesspool emptying services run by the ULB but private operators are not covered under its ambit and they continue indiscriminate dumping.

Cesspool operator informed us that "generally the farmers ask for the faecal waste which helps them to enrich the soil."

As shown in the following table, there are clear indications of coliform in the water probably due to influx of city's wastewater into the rivers. Odisha State Pollution Control Board (OSPCB) has observed 100% deviation in present level of Total Coliform and 92% for BOD.

[25] Calculated at 0.25 m^3 sludge generation per person

Figure 4-10: -River water pollution26

Town	River	Location	Biological Oxygen Demand (BOD)				Total Coliform				Present frequency of deviation	Present % deviation
			2012	2013	2014	2015	2012	2013	2014	2015		
ROURKELA	Brahmani	Upstream	-	-	-	-	-	-	-	-	-	-
		Downstream	3.2	3.3	3.8	3.5	**33,025**	**64,840**	**44,091**	**18,650**	**11 (BOD), 12 (TC)**	**92 (BOD), 100 (TC)**

"Contaminated water is used by communities staying close to the discharge points and slums which have ponds in close vicinity. The wastewater is also discharged to the ponds by the slums." – OSPCB official

The state government has taken steps to implement septage treatment plant in order to treat and thereafter safely dispose or reuse the faecal waste. This is being covered under AMRUT. The treatment plant is designed such that it has capacity to handle faecal waste generated for next 6-7 years, considering a decadal growth rate of 21% for the town and the treatment plant catering to approximately 20% of the local population. Incremental capacity required beyond this is being planned to be covered through sewerage system.

Table 4-6: SeTP - Area, cost and lifecycle

Capacity	Area	Cost	Lifecycle period	Distance from city	Technology	Expected date of completion
40 m^3	2 acre	1.90 crore	20 years	7-8 km from RMC	Settling tank and thickening tank, anaerobic baffled reactor, anaerobic filter, planted gravel filter, sludge drying bed, polishing pond	Dec 2017

Figure 4-11: SeTP site being excavated for foundation

Work on SeTP and STP has started. Land provided was used earlier as dumping site of solid waste by Rourkela Municipal Corporation. After the land allotment for STP and SeTP construction the land is been cleaned of the debris and waste materials.

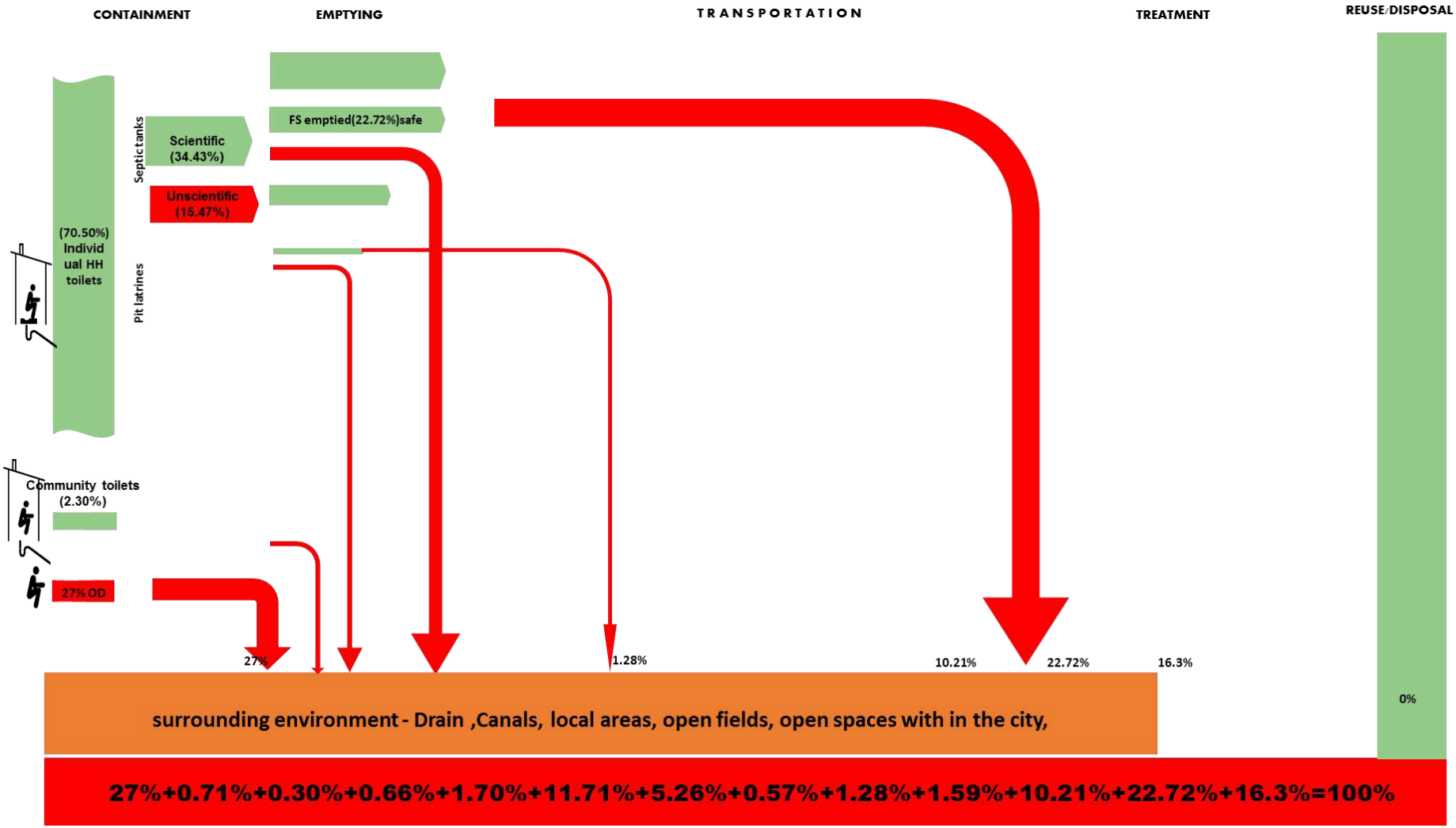
Safe disposal of collected sludge is also required while SeTP is being constructed. Deep row

[26] Odisha State Pollution Control Board. River pollution due to sewage.

entrenchment has been identified as an interim solution. RMC has identified the current sludge disposal site near BPUT for deep row trenches.

Figure 4-12: Temporary Disposal of sludge were the sludge has been covered by soil

4.5 Shit flow diagram for Rourkela



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 69:31 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 66:34.
- 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 chapter.

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 districts level planning committees. Despite the above mentioned 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&UDD ► State SBM Directorate, headed by the State Mission Director reporting to PS H&UDD. It has a Project Management Unit (PMU) ► Technical Support Unit (TSU) on FSSM under the H&UDD. ► Directorate of Town Planning – to integrate FSM 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 the 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 FSM ► 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

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 in Rourkela

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&UDD	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 Organisation (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 Rourkela

	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	Commiserate of police	RTO
Storm Water Drainage	Water Resource Department	Water Resource Department	Water Resource Department
Access to toilets	SBM 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
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. Similarly, in case of storm water drainage. 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

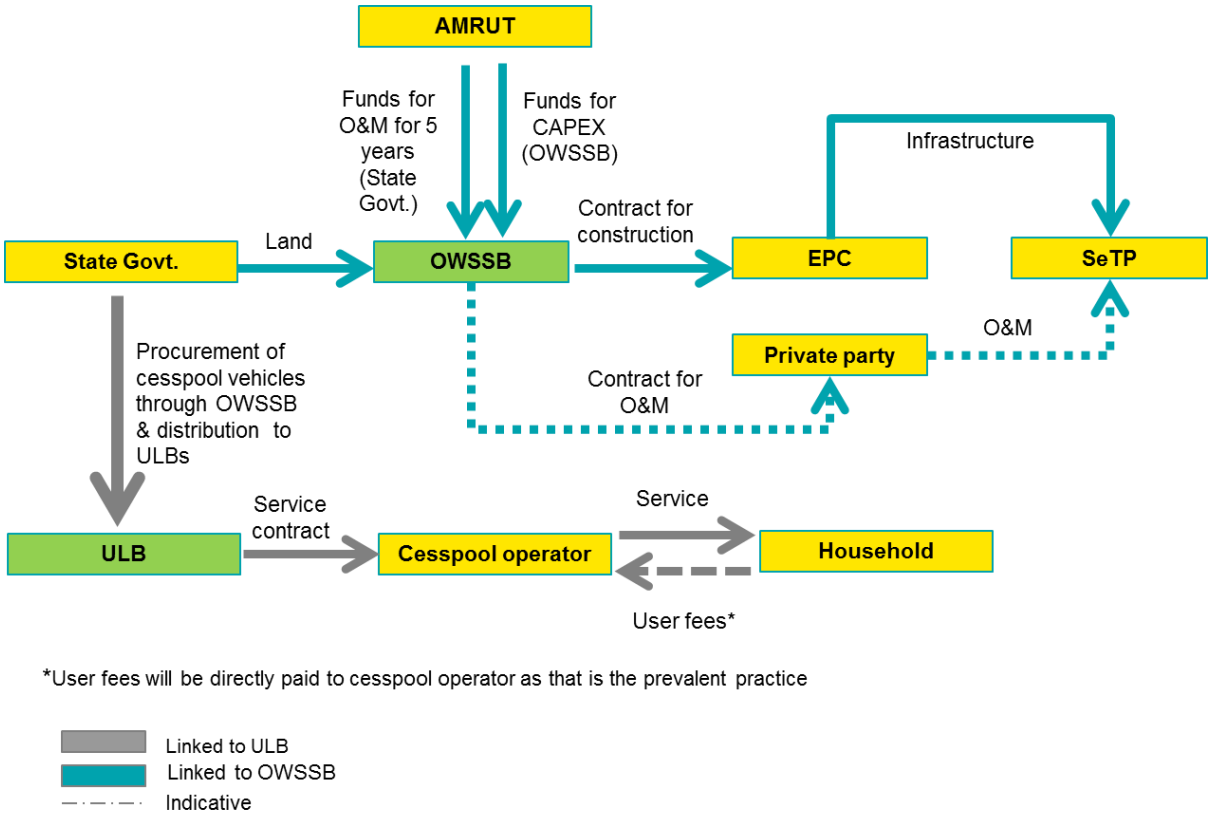
other hand those stakeholders who have high influence often do not have adequate interest in project activities. Hence, a carefully designed strategy of engaging the stakeholders based on an analysis of their interest and influence is quite useful. Influence refers to the power and authority to make 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.

5.3 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.

Figure 5-1: -Institutional framework for FSM 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 for O&M of the treatment plant is by the private parties. The cesspool trucks are placed with the ULBs by the OWSSB[27] 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-

[27] On behalf of H&UDD

- 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.

5. There is a lack of integrated approach to FSSM within various bodies and department. PCB 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

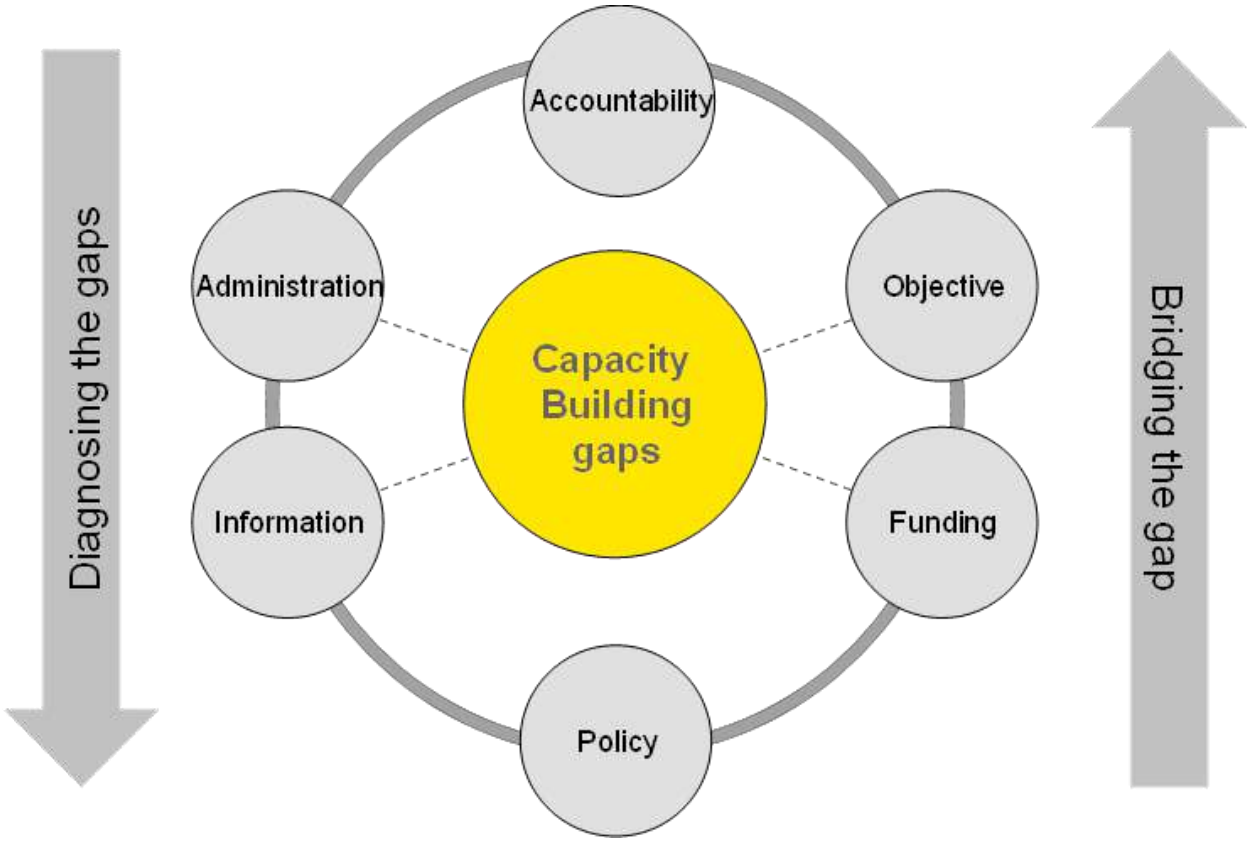


Table 6-1: -Key gap assessments and strategies for capacity building in Rourkela

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 program 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
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 such as NIIT, BPUT, bar associations in the city colleges and associations or societies.	► 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, RMC, RWAs and colony societies ► Engagement with the corporates, lawyers' association, bus owners associations, workers unions, , schools and colleges ► Bar council
City leadership in undertaking reforms/ enforcement/regulation	► Lack of data and knowledge on FSM 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 including city council, mayor, standing committee chairman, and ward councilors	► Mayor, Deputy mayor ► Standing Committee ► Councilors ► Commissioner ► Deputy Commissioners ► Additional commissioners

	► 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 exhausted and may not have capacities to manage the expected workflow of waste-water and SeTPs	► 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	► Engineers ► Finance section ► City health officer ► 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. ► 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, SWM and drainage have missing interlinks operationally but aim to have common outcomes on sanitation	► 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 ► Executive Officer ► City Engineer ► City sanitation officer ► Officials of CDA ► Members DUSC ► Members of CSTF ► Members of DPC ► Members of Standing Committees ► Corporators of Rourkela MC ► Key institutions in the city including other line departments – health, education MLAs, MPs, Department of social justice ► Water Resource Department ► Private agencies

Creation of environmental engineering cell in engineering section	► RMC 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 Rourkela municipal corporation ► 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 jaundice 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 FSM value chain which restricts demands for FSM ► 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 RMC ► 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 ► SAIL and other industries

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 Rourkela 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 309 households are surveyed for the demographic assessment, out of which 62% households are from non-slum areas. Nature of the property is mostly residential (96%). House typology for 47% of the surveyed households is *pucca* house. The owner resided in 39% of the surveyed households and 32% of the households are in public land.

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

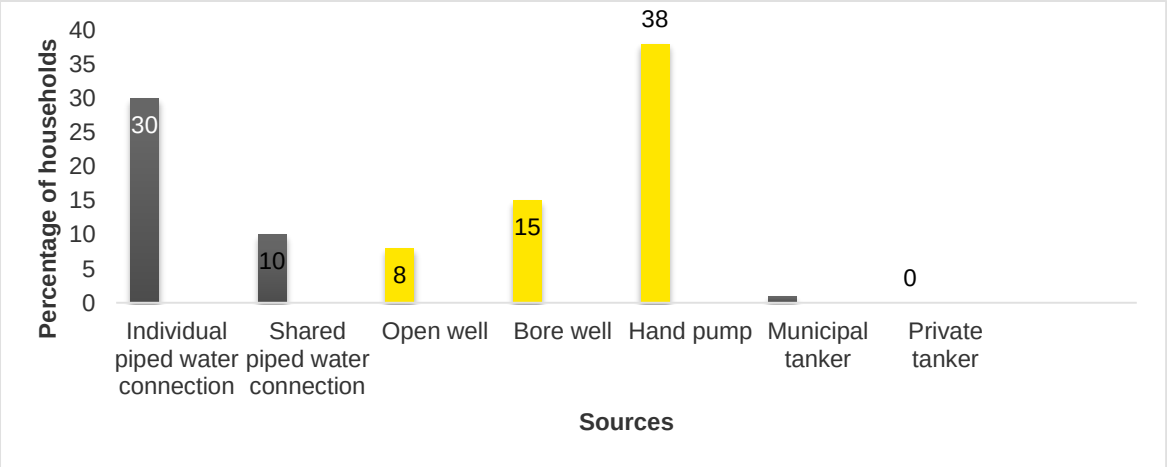
Table 7-1: -Demographic profile of households

Demographic profile of the survey household	n	%
Nature of the locality (N=309)		
Slum	118	38
Non-slum	191	62
Nature of property (N=309)		
Residential	299	96
Institutional	2	1
Commercial	2	1
Any mixed	6	2
House typology (N=309)		
Pucca house	146	47
Apartment	9	3
Kachha house	154	50
Household ownership (N=309)		
Owned	121	39
Rented	79	26
Staff quarter	8	3
Public land	101	32

7.3 Source of water for domestic use

Prime source of domestic water for 30% of households is piped water connection and 81% have water supply for less than two hours per day and only 1% reported that their piped water connection supply is more than four hours per day.

Figure 7-1: -Primary sources of domestic water



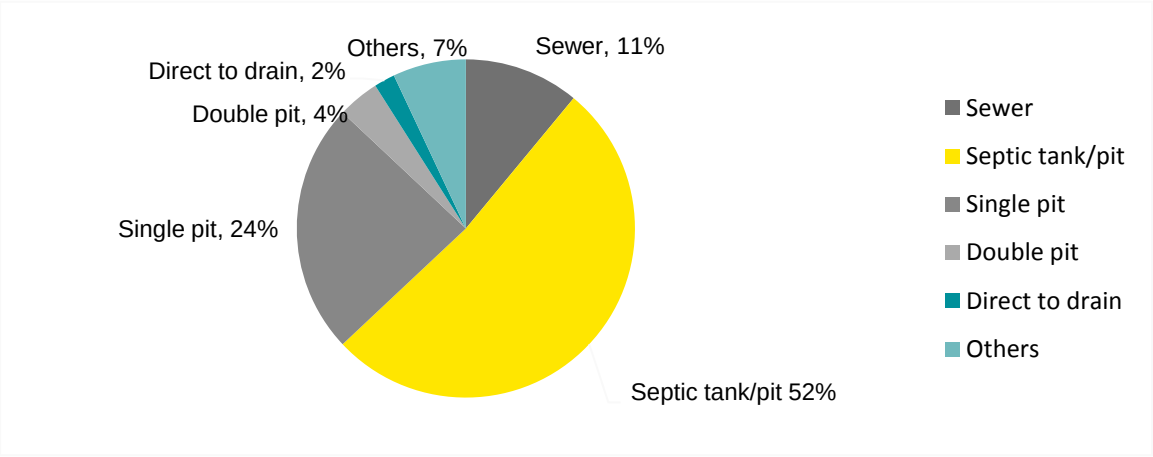
Key findings

- Availability of water is an important component to increase the demand on latrine use. Nearly 30% respondents reported insufficient availability of domestic water for maintenance of toilet.
- More than 60% 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 facility scenario

The study finding show that 61% of the households have latrine facility while 3% share toilets. Households in spite of having latrines practiced OD, mostly because of lack of availability of water (40%) and small septic tank (60%).

Figure 7-2: -Latrine connection for disposal



Findings show that more than half of the households with latrine are connected to septic tank/pits. The proportion of single pit is also high. The regular frequency of cleaning shall be an important criteria for reducing ground water contamination.

7.4.1 Household views towards community/public toilet

The use of community toilets (1%) being less despite 91% of the OD practitioners are willing to use community toilets. The factors which discourage the use of community toilets being lack of water facility, unsafe location, inconvenience and not willing to share with others. Only 6% of the households practicing OD are interested for paying money for use of the CT. 11% agreed for community level

management of CT. *Interventions to tackle these hindering factors have to be undertaken for reducing OD and increasing the use of CT.*

Figure 7-3: Community toilet

7.4.2 Open defecation scenario

85% HH practicing OD did not have individual household latrine nor had access to community/public toilets. Among the households practicing OD, when asked about problems associated with OD, 88% perceived that during OD there is lack of safety for girl and women, 59% felt that inconvenience in terms of time (before dawn and after dusk), and 88% viewed maintaining privacy was a major challenge associated with OD.

Table 7-2: -Open defecation scenario

Open defecation scenario	N	%
Reason for practicing (N=107)		
Lack of access to PT/CT	91	85
Habit	16	15
Problem associated with OD		
Lack privacy**(N=107)**	77	72
Lack of safety for girl and women**(N=107)**	94	88
Lack of dignity **(N=107)**	63	59
Inconvenience in terms of time**(N=107)**	63	59
Inconvenience in terms of distance**(N=107)**	50	47
Infections and diseases**(N=107)**	23	21
Willing for construction of individual household latrine(107)		
Yes	101	94
No	6	6
If no reasons (n=6)		
Lack of fund	4	67
Lack of space	2	33
Willing for individual superstructure with pit/septic tank (N=107)		
Yes	67	63
No	40	37
Will be interested for use of community/public toilet (N=107)		
Yes	97	91
No	10	9
If no reasons		

Not hygienic**(N=10)**	2	20
No water facility**(N=10)**	3	20
Unsafe/insecure**(N=10)**	3	20
Inconvenience**(N=10)**	2	20
Not willing to share with others**(N=10)**	2	20
High cost**(N=10)**	1	10
Willing to pay for using community/public toilet (N=107)		
Yes	8	6
No	101	94
Willing to community level management of community/public toilet (N=107)		
Yes	12	11
No	95	89
Number of household practice OD in spite of having latrine facility (N=191)		
No	186	97
Yes	5	3
Reason for practice OD in spite of having latrine facility (N=5)		
Lack of water facility	2	40
Small septic tank or pit	3	60

Key findings

- Among the households that reported OD practice 94% are willing for construction of individual household latrine.
- The remaining (6%) are not willing to construct individual latrine because of lack of funds (67%) and 33% due to lack of space.
- Willingness to use CT/PT is also very high at 91% but respondents cite lack of hygiene, no water, and lack of security as major reasons of deterrent to usage.

7.4.3 Septic tank/pit status of the households

Total 191 household had septic tank/pit. About 37% of the septic tank/pits are located inside the house. Out of 121 septic tank/pit located outside of the house 70% are in front side and 30% are located in back side of the house. About 61% of the septic tank/pits are rectangular in shape. Around 99% of the households sought advice from mason/contractor for designing and construction of septic tank/pits, *only 1% sought advice from municipality officials; which indicates the capacity building training among mason/contractor on standard guideline for construction of household latrine*. Only 4% household checked ground water level during construction of septic tank/pits. About 79% of the septic tanks are lined.

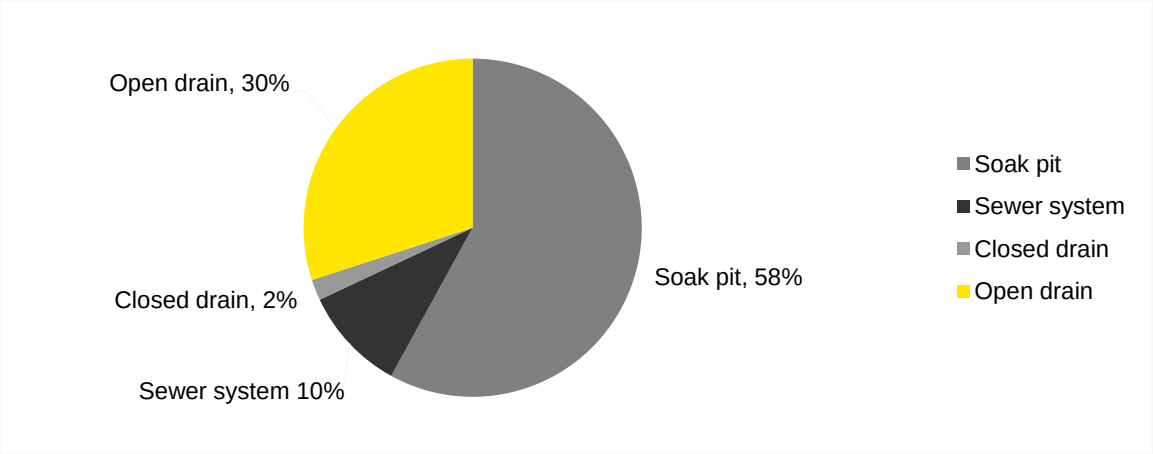
Table 7-3: -Description of septic tank/pit

Description of septic tank/pit	n	%
Location (N=191)		
Inside the house	70	37
Outside the house (n=164)	121	63
Front side of the house	85	70
Back side of the house	37	30
Shape (N=191)		
Rectangular	115	61
Circular	75	39
Seek advice for designing and construction (N=191)		

Mason	180	94
Contractor	10	5
Municipality officials	1	1
Ground water level checked before construction (N=191)		
Yes	6	4
No	185	96
Outfall connection (N=191)		
Soak pit	111	58
Sewer system	20	10
Closed drain	2	1
Open drain	58	30
Type of the lining (N=191)		
Lined	132	69
Non-lined	59	39
Road Accessibility (N=191)		
Narrow road (less than 2 meters)	121	63
Medium road (2.1 to 5 meters)	29	16
Broad road (more than 5 meters)	41	21
Size (N=191)		
Breadth in ft., Average	4.4	
Length in ft., Average	6.5	
Depth in ft., Average	7.7	

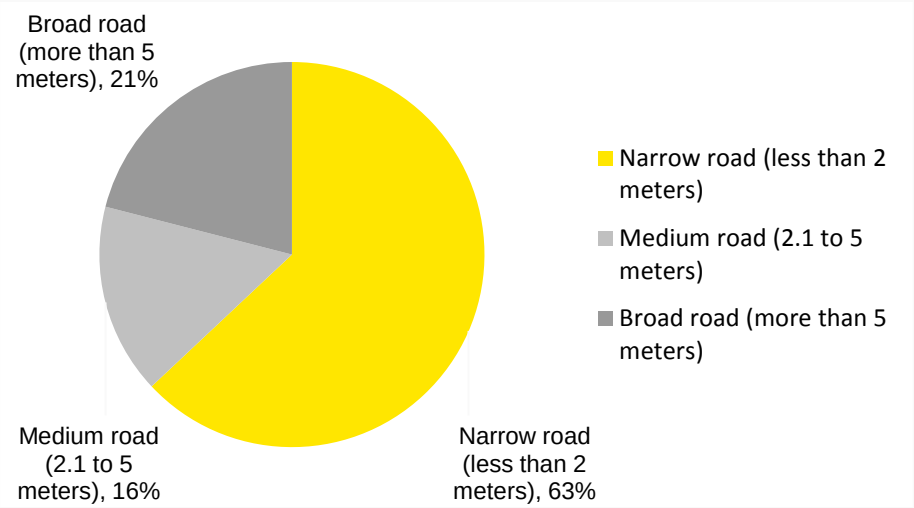
On assessing the septic tank/ pit connection for disposal, 10% of the toilets are connected to sewer network and 30% toilets are directly connected to drain while nearly 60% are connected to soak pits. Only 4% of households checked for ground water levels before construction of the septic tank/pits.

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



From the perspective of road accessibility, 63% households have narrow road (less than 2 meters) and 16% households connected with medium road (2.1 to 5 meters) and 21% households have broad road (more than 5 meters) as described below

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



Findings show that 96% of the roads in the slums are less than 2 meters while 31% of the roads in the non-slum are in the range of 2 to 5 meters. This highlights the need for small vehicles for accessibility to the tank/ pits.

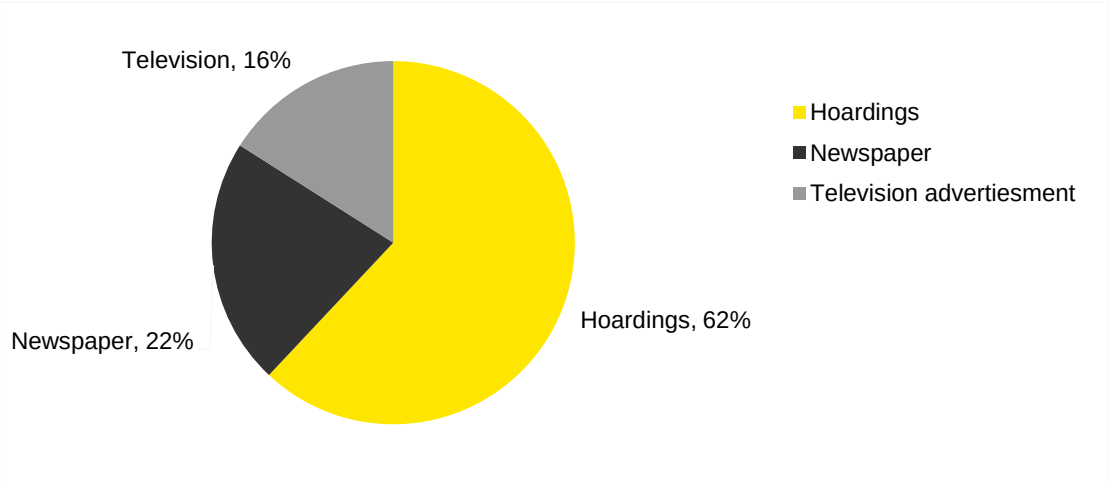
Key findings

- Significance difference can be seen among slum (6%) and non-slums (32%) towards connection to sewer.
- Nearly one third of disposal of septic tank/pit is done to open drains
- Most (99%) of the septic tank/ pit are constructed by seeking advice from masons

7.4.4 Septic Tank emptying practice

The key source of information regarding cesspool operation was hoardings (62%), newspaper (22%) and television advertisement (16%). Below Figure presents the detail source of information.

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



Out of 191 households having septic tank or pits, 55% preferred ULB as the service provider, 25% preferred private providers, 15% preferred local laborers or self -cleaning, and 5% had not yet decided the service providers. About 70% contacted government cesspool for emptying, however, 18% communicated with manual laborers and 12% contacted private operators (n=139).

In 30% of the household cleaning frequency was within 6-12 months duration and 42% of household had cleaning frequency between one to two years. Above 87% households are satisfied with the

emptying services.

Out of 93 households, 66% received the services from ULB cesspool and remaining 34% did the cleaning through non-mechanised services.. Around 37% households paid less than INR 1000, 42% spent INR 1,000 to 1,500, and 13% spent more than INR 2,000 while 8% spent on more than INR 2,000 for emptying the septic tank

Figure 7-7: -Septic tank emptying services received

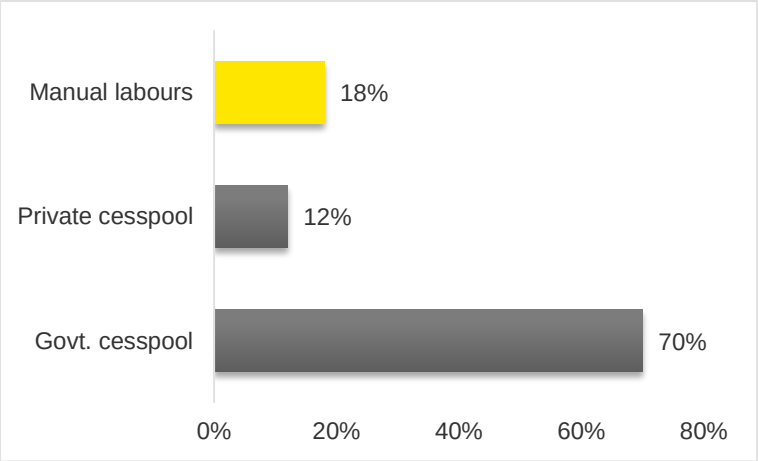


Table 7-4: -Septic tank emptying practices

Septic tank empty practice (N=191)	N	%
Source of information regarding cesspool		
Hoardings	118	62
Newspaper	42	22
Television advisement	31	16
Preferred service provider (N=191)		
Municipality	105	55
Private	48	25
Local labor	28	15
Self	9	5
Contacting for emptying (N=139)		
Govt. cesspool	97	70
Private cesspool	17	12
Manual labors	25	18
Cleaning frequency of septic tank (N=191)		
Not yet clean	98	71
Cleaned (N=93)		
6 months	14	15
6 to 12 months	28	30
12 to 24 months	20	22
24 to 36 months	19	20
More than 36 months	12	13
Septic tank emptying services received (N=93)		
Govt. cesspool	61	66
Manual labors	32	34
Amount spent for emptying process (N=93)		

No cost	0	0
500 to 1000 INR	34	37
1001 to 1500 INR	39	42
1501 to 2000 INR	12	13
2001 to 3000 INR	5	5
More than 3000 INR	3	3
Barriers in emptying (N=93)		
Access of cesspool truck to house	39	42
Breaking floor tiles/manholes	0	0
Difficult to locate	0	0
No barriers	54	58
Satisfied in emptying, transportation and disposal (N=93)		
Yes	81	87
No	12	13

Key findings

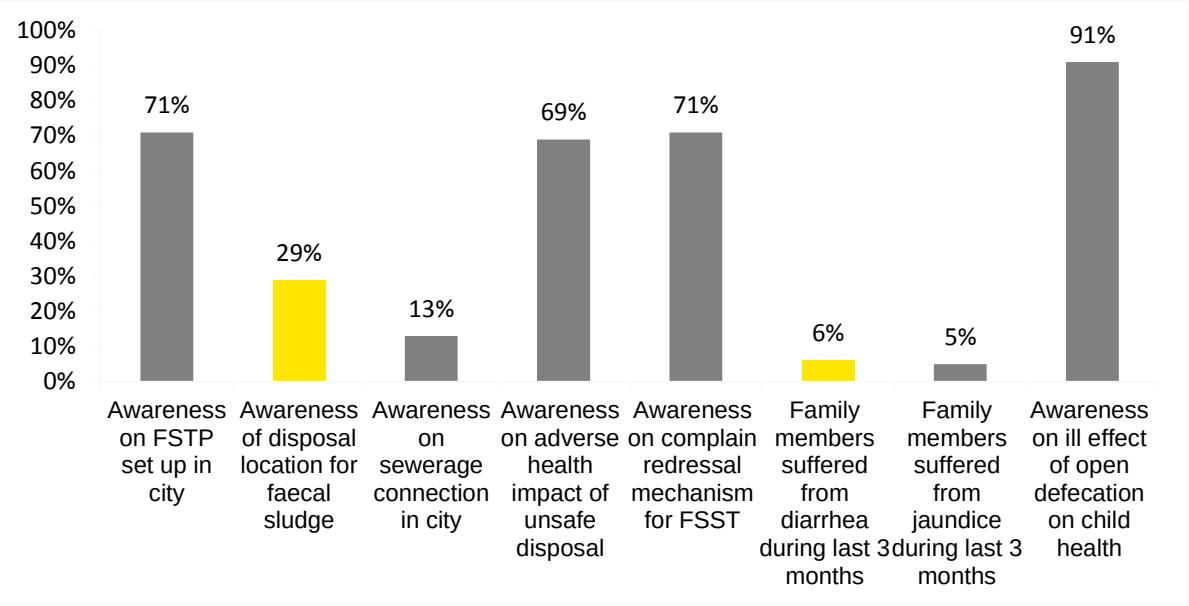
- 71% HHs have never cleaned their septic tank or pit latrine. Also outfalls from 30% of septic tank or pit latrines is connected to open drain. There is significant difference (P=0.001) between slums (37%) and non-slum (7%) with regard to connections to open drain.
- 70% HHs have contacted ULB for emptying service
- 42% informed that road accessibility as a major barrier to cesspool operation.
- The charges paid by 42% of the respondents ranged between INR 1000 to INR 1500

7.4.5 Awareness on environmental and health impact of sludge disposal

Out of 309 households, 69% of households are aware on environmental and health impact of unsafe sludge disposal. On asking on the site of disposal of collected sludge, 7% viewed that the collected sludge was disposed at river, and 22% perceived that the disposal happens at agricultural land and the rest 70% are not aware of the disposal of sludge.

Only 6% (n=19) households family members suffered from diarrhea and only 5% (n=14) family members suffered jaundice during last three months from the survey. 91% (n=280) know about the ill effect of open defecation on child health, 53% know on faecal contamination leading to diarrhea, 46% know on faecal contamination causes worm infection, 71% are aware about SeTP set up in the city but only 13% respondents are aware about sewage connection.

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



Key findings

- 70% HHs unaware on site of emptying of faecal sludge
- 91% are aware that open defecation causes ill-health to their children
- The level of awareness on ill effect of faecal contamination was high for disease such as diarrhea and worm infection while it was low for malnutrition (11%)

7.5 Status of community engagement in sanitation activities

78% of the households reported that Mahila Arogya Samiti and 10% reported that Self Help Groups are creating awareness on sanitation. Issues related to maternal child health are the primary discussion points while FSSM being low (11%). Discussion on use of public and community toilets has to be increased in order to promote the use of these toilets. Table below shows details of community engagement is provided.

Table 7-5: -Community engagement

Community engagement in sanitation(N=309)	N	%
Community group create awareness on sanitation(N=254)		
Mahila Arogya Samiti	198	78
Self Help Group	26	10
Common interest group	9	4
Youth club	6	2
Pooja committee	4	2
If others. Specify	11	4
Sanitation related issues discussed during community engagement (N=205)		
Faecal Sludge and Septage Management	24	11
Issue related children and women	148	72
Promoting use of public and community toilets	25	12
Other sanitation related issue	8	4

8 Key issues and interventions

We 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:

► Municipal Commissioner ► District Collector ► Financial Officer ► SBM nodal officer ► Sanitary Inspector ► Households	► 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 ► 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 0.5% of the households have their toilet outlets to open drains[28]. ► Basis the household survey, we found out that out of 464 HHs, 30% has insanitary toilets and 31% of HH connected to septic tanks have outfall directly into open or closed drains. ► During the consultations (FGDs, IDIs) with the ULB and non-ULB officials and CBOs, insanitary toilet was highlighted as the key issue for sanitation in Rourkela.	► 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 sewer lines ► Community organizers need to be sensitized on insanitary toilets and identifying insanitary latrines, to draw attention towards their ill effects so the same can be conveyed 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 regarding information on government schemes on conversion of insanitary latrines to sanitary latrines ► 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. ► Enforcement of existing law on connecting toilets directly to drains	**Governance reforms**
2	Unscientific septic tanks	► As per the HH survey, ○ Out of 191 HH with septic tanks, 11% are non-lined which can lead to seepage of sewage into groundwater. ○ Outfall of 30% of septic tanks into open drains. ○ About 58% HHs have OSS connected to soak-pit ○ 71% HH have never emptied their OSS	► Further capacity building of masons on design of scientific septic is desired ► 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**

[28] *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
		○ More than 60% of HHs depend on ground water sources such as bore-well, open well and hand pump ► 94% 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. Even if the masons highlights the importance of including baffle wall/ lining, HHs choose to ignore it for saving costs. ► As per discussions with ULB officials and CBO, the households are not aware of adverse effects of unsafe containment ► As per conventional safe practice, minimum distance between groundwater source and containment unit (septic tank/ pit latrine) should be 20m. While the household study revealed the average distance between groundwater source and onsite containment system as 16m. Hence, this could be a possible reason for groundwater contamination through seepage of sewage from unscientific septic tanks.	► Amendments could be made in ULB building bye-law to include provision of scientific septic tank as part of building approval process.	**Governance reforms**
			Communication messages to HHs with focus on: ► Dos and Don'ts of building septic tanks ► Importance of scheduled desludging and how to do it ► How treatment of septage and sludge before disposal has an positive impact on health and environment ► Information on onsite sanitation system 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, 85% of 107 HHs surveyed who defecate in open do not have IHHL and lack access to other toilets facilities ► HH survey highlighted that the households having toilets practice open defecation because of following reasons: 1. Lack of water facilities (40%) 2. Fearing that their small septic tanks would fill up quickly (60 %) ► As per the household survey, 33% households feel that there is lack of space for constructing IHHL	► Construction of IHHL and CT/PT ► Facilitating the process of building IHHL along with the components for applicants so that they are not demotivated. The process needs to be implemented at an accelerated pace.	**Infra-structure (infra and O&M)**
			► Engaging with CBOs to motivate people to build and use IHHL and through CT/PT especially through sustained inter-personal counselling for targeted households who do not have access to toilets.	**IEC/BCC**
4	Lack of space for IHHL		► Greater focus on CT, PT availability and better O&M of the available and upcoming facilities ► Explore sustainable O&M models incl. community led, private operators etc.	**Infra (infra and O&M)**

S.No.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
		► As per discussions with ULB officers, there is lack of availability on land and city has space constraints resulting in difficulty in construction of IHHL ► However, 94% HH not having toilet access and resorting to OD are willing to construct one	► Shared containment/treatment, referring to simplified sewer systems connecting IHHLs to one community level septic tank or decentralized treatment system. ► 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.	
5	Low usage of CT/PT	► As per household survey 91% are willing to use CT/PT but do not use due to: ○ insecure toilet (30%) and ○ lack of water in facility (30%) ► 3 out of existing 10 PT and 5 out of existing 9 CT are defunct presently ► 94% HH surveyed were not willing to pay for use of CT/PT and 89% HH were not interested in community level management of community/public toilet	► Engaging community in taking ownership of 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 security	**Infra (infra and O&M)**
6	Challenges in emptying septic tanks due to	► As per household survey, 97%HHs in slum and 68% HH in non-slum have road width less than 2m. This leaves them inaccessible to majority of existing fleet	► Size of cesspool vehicles should be planned keeping in mind the narrow roads of Rourkela and explore alternative technologies for emptying for procurement. Solutions of mechanized emptying such as Vacutug to be explored along with manually operated mechanized equipment in slums with extremely narrow lanes.	**Infra (infra and O&M)**

S.No.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
	narrow lanes and low usage of mechanized service	of city with ULB and private operator is having minimum width of 2.2m. ► 71% HH have never emptied their OSS ► ULB and other officials and cesspool operators have also highlighted this issue. ► Lack of access to mechanized emptying vehicles indirectly creates scope for non-mechanized manual work	► Need for transfer stations[29] 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	
			► 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	Sewage disposal in adjoining rivers	► As per Odisha PCB report on sewage pollution, the total coliform (TC) for downstream of Brahmani ranged between 18,000 – 65,000 MPN/100ml for the years 2012-2015 ► During the consultations, it was found that majority of sewage is being discharged into Brahmani and Koel from drains. ► Two STPs (8 and 40 MLD) are under construction. Therefore, the sewage generated in the city is currently not treated. ► There is wastewater flowing from the industrial township into Brahmani and Koel	► Creation of onsite sanitation treatment facilities for primary treatment including conversion of insanitary toilets to sanitary toilets by provision of scientific septic tanks can be prioritized ► Readiness of FSTPs and STPs to ensure provision of adequate facilities and efficient operations ► Identify intermittent solutions like at the drain outlet point, interceptors or de-centralized treatment can happen	**Infra-structure (infra and O&M)**
			► Strong regulatory enforcement to stop open discharge from drains into the rivers ► Integration of ULB with Township	**Governance reform**
8	Improper disposal of faecal	► Rourkela city has a designated faecal waste dumping site and it is being used by operators. Operators mention that, however, if farmers request them to	► The bugs in the GPS tagging system should be removed and a person should be capacitated and assigned the responsibility to monitor the operations of the cesspool trucks.	**Infra-structure (infra and**

[29] Transfer stations are intermediate points established to facilitate transfer of faecal 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
	sludge	dispose the faecal waste into their fields, the operators oblige. ► The cesspool trucks are GPS tagged, however, no personnel are attached to monitoring the system and there are bugs in the tracking system. ► Cesspool emptying truck operators are not governed by any regulation for their operation		**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 faecal waste at only designated site	**Governance reform**
9	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)**
10	Recurring incidence of water borne diseases	► As per discussions with ULB officers, health officers and CBO's, jaundice, diarrhea and malaria recurring diseases ► The survey suggested that presence of unlined septic tanks (11%) and average distance between septic tank and water source at 16m is also a probable cause of water borne diseases due to contamination.	► Communication messages for CBOs to link the adverse effect of poor sanitation leading to contamination of water ► Inform citizens about options available for retrofitting existing unscientific septic tank ► Communicate financial impact of poor health to households from poor sanitation	**IEC/ BCC**
			► Focus on treatment of grey water alongside black water to reduce chances of water borne diseases through grey water	**Governance reforms**
11	Attitude of people towards sanitation	► Citizen's apathy and lack of participation and ownership for sanitation and hygiene was reported in FGD and IDI. People openly admit practicing open	► 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**

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	and hygiene	defecation without any apparent embarrassment or shame. ► As per FGD's with MAS, their discussions during community meetings is limited to solid waste management, hygiene and construction of toilets. Even household survey led to the same observation. Over 78% of the households reported that MAS and 10% of the households reported that SHGs were creating awareness on sanitation. However, these discussions are only limited to use of PT and CT.	► For ULB officials (especially Community Organizers, Sanitary Inspectors), CBOs on FSSM and on the key messages to be conveyed to community	**IEC/BCC**
12	Gaps in stakeholder engagement, coordination and institutional framework	► OWSSB is 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 departments are currently working in silos. ► RMC 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	► 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 wastewater. ► Inputs from this model to be incorporated as part of O&M contract for private agency ► Potential integrated FSSM contract i.e. cesspool vehicles operation and SeTP operation to be checked.	**Infra (infra and O&M)**
			► Capacitate target audience through training in concept and program 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 National Institute of Technology Rourkela, Biju Patnaik University of Technology, Indian Institute of Production Management, Kanshabahal, National Institute of Computer Education (NICE), Chhend, High Bar associations etc.	**Capacity building**

S.No.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
			► 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 program 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 ► Integration and cross-functioning of ULB and ITS	**Governance reforms**
13	ULB and private cesspool operations work in silos	► As per discussions with cesspool operators in Rourkela, the following issues were highlighted ○ Private cesspool operators have basic knowledge for adherence to safety and hygiene standards for emptying but do not practice it.	► 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 FSM Operational guidelines from operators	**Governance reform**

S.No.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
		They also do not keep the essential personal protective equipment (PPE). ○ There is lack of awareness on right operating practices for desludging ► Operations from private operator is not regulated or monitoring by ULB formally	► Comprehensive ULB dissemination plan should be drafted to help understand the role they play in cesspool operation	**IEC/BCC**
14	Lack of funds & spending capacity at	► 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	► 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
	the ULB level	innovative sanitation and infrastructure programme. 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

Annexure 1 – Questionnaire for Household Survey

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

ସହରାଞ୍ଚଳ ରେ ପରିମଳ ବ୍ୟବସ୍ଥା ଏବଂ ସ୍ପଷ୍ଟ/ନିର୍ଦିଷ୍ଟ 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 ମୁନିସିପା ଲିଟି ଟ୍ୟାଙ୍କର	h. Private tanker ବେସର କାରୀ 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 labors	
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 labor 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)	YesହଁNoନାହିଁ 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 FSTP is being set up in your city to treat FSS for safe disposal?	1.Yesହଁ 2.Noନାହିଁ	
48	Do you know that faecal 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 faecal 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 ୀ 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 ଅଧିକା	

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

Annexure 2 – Questionnaire for In-Depth Interviews

- **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 FSM as part of sanitation?
  6. How is faecal 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 programmes?
  8. What are the key challenges with regard to FSSM in the City?
  9. How do you see private participation in O&M of cesspool vehicles and SeTPs?
  10. 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?
  11. What kind of capacities need to be built to deal with FSSM at the city & district level?
  12. What do you suggest could be the best way for effective FSSM in the city?
  13. 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 FSTP 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. Program/ 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 faecal 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 programmes?
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?

- I**nterview 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, SeTP?
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 FSM?

- **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 FSM?

- **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 SeTP 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 faecal 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 program 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 programmes?
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?

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 FSM 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 FSM 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 faecal 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 faecal sludge? Provide locations.

S.No	Location	Land use

42. Do you have a dedicated faecal 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 faecal 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 faecal 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?

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

S.no	Name	Organization	Position held	Date of interaction
In-Depth Interviews				
1	Dr. M. Mahaling	PCB	Regional Officer	25.06.2017
2	Er. Birendra Nanada/ Er. Laxmikant Tripathi	OWSSB	Deputy Project Engineer	24.05.2017
3	Er. A. Patel	PHEO	Executive Engineer	23.05.2017
4	Sri. Akshay Kumar Mallick, OAS	ULB	Municipal Commissioner	23.04.2017
5	Dr. Basant Kumar Mishra	ULB	City Health Officer	24.04.2017
6	Dr. Pramod Kumar Nayak	ULB	SBM Nodal Person	25.05.2017
7	Mr Kishor Chandra Nayak	ULB	Accountants Officer	25.06.2017
8.	Mr Khan	ULB	Cesspool Driver	24.04.2017
9.	Mrs Soubhagya Sahoo	ULB	Community Organiser	24.04.2017
10.	Mr Ranjan Mallick	ULB	Sanitary Inspector	23.05.2017
Focus Group Discussion				
1	Masons			08.05.2017
3	Community Based Organization			19.05.2017

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

Our offices

Ahmedabad
2nd floor, Shivalik Ishaan
Near C.N. Vidhyalaya
Ambawadi
Ahmedabad - 380 015
Tel: + 91 79 6608 3800
Fax: + 91 79 6608 3900

Bengaluru
6th, 12th & 13th floor
"UB City", Canberra Block
No.24 Vittal Mallya Road
Bengaluru - 560 001
Tel: + 91 80 4027 5000
+ 91 80 6727 5000
+ 91 80 2224 0696
Fax: + 91 80 2210 6000

Ground Floor, 'A' wing
Divyasree Chambers
11, O'Shaughnessy Road
Langford Gardens
Bengaluru - 560 025
Tel: +91 80 6727 5000
Fax: +91 80 2222 9914

Chandigarh
1st Floor, SCO: 166-167
Sector 9-C, Madhya Marg
Chandigarh - 160 009
Tel: +91 172 331 7800
Fax: +91 172 331 7888

Chennai
Tidel Park, 6th & 7th Floor
A Block (Module 601,701-702)
No.4, Rajiv Gandhi Salai
Taramani, Chennai - 600 113
Tel: + 91 44 6654 8100
Fax: + 91 44 2254 0120

Delhi NCR
Golf View Corporate Tower B
Sector 42, Sector Road
Gurgaon - 122 002
Tel: + 91 124 464 4000
Fax: + 91 124 464 4050

3rd & 6th Floor, Worldmark-1
IGI Airport Hospitality District
Aerocity, New Delhi - 110 037
Tel: + 91 11 6671 8000
Fax + 91 11 6671 9999

4th & 5th Floor, Plot No 2B
Tower 2, Sector 126
NOIDA - 201 304
Gautam Budh Nagar, U.P.
Tel: + 91 120 671 7000
Fax: + 91 120 671 7171

Hyderabad
Oval Office, 18, iLabs Centre
Hitech City, Madhapur
Hyderabad - 500 081
Tel: + 91 40 6736 2000
Fax: + 91 40 6736 2200

Jamshedpur
1st Floor, Shantiniketan Building
Holding No. 1, SB Shop Area
Bistupur, Jamshedpur – 831 001
Tel: +91 657 663 1000
BSNL: +91 657 223 0441

Kochi
9th Floor, ABAD Nucleus
NH-49, Maradu PO
Kochi - 682 304
Tel: + 91 484 304 4000
Fax: + 91 484 270 5393

Kolkata
22 Camac Street
3rd Floor, Block 'C'
Kolkata - 700 016
Tel: + 91 33 6615 3400
Fax: + 91 33 2281 7750

Mumbai
14th Floor, The Ruby
29 Senapati Bapat Marg
Dadar (W), Mumbai - 400 028
Tel: + 91 22 6192 0000
Fax: + 91 22 6192 1000

5th Floor, Block B-2
Nirlon Knowledge Park
Off. Western Express Highway
Goregaon (E)
Mumbai - 400 063
Tel: + 91 22 6192 0000
Fax: + 91 22 6192 3000

Pune
C-401, 4th floor
Panchshil Tech Park
Yerwada
(Near Don Bosco School)
Pune - 411 006
Tel: + 91 20 6603 6000
Fax: + 91 20 6601 5900

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