Rapid assessment report Sambalpur

October 2017
Report Number: 2017-Delhi-0317

Building a better working world

Disclaimer

This rapid assessment report for Sambalpur has been prepared by Ernst & Young LLP (hereinafter referred to as "EY"). EY is working with support from Bill & Melinda Gates Foundation (BMGF) and at the request of Housing & Urban Development Department (HUDD), Government of Odisha and assisting to improve the sanitation situation through effective FSSM in select towns of the state. This report captures findings for the city of Sambalpur through the primary household survey, discussions with ULB officials, community based organization and other key stakeholders.

The inferences/ analysis made in this report are based on information collated through secondary data, primary household survey and through in-depth interviews and focused group discussions. Due care has been taken to validate the authenticity and correctness of the information from various sources, however, no representations or warranty, expressed or implied, is given by EY or any of its respective partners, officers, employees or agents as to the accuracy or completeness of the information, data or opinions provided to EY by third parties or secondary sources.

Nothing contained herein, to the contrary and in no event shall EY be liable for any loss of profit or revenues and any direct, incidental or consequential damages incurred by BMGF or any other user of this report. In case the report is to be made available or disclosed to any third party, this disclaimer along with all the limiting factors must be issued to the concerned party. The fact that EY assumes no liability whatsoever, if for the reason any party is led to incur any loss for acting upon this report, must be brought to the notice of the concerned party.

Table of contents

List of tables

List of figures

List of abbreviations

Abbreviations	
ABR	Anaerobic Baffle Reactor
ADARSA	Association for Development and Research Socio-Economic Association
ADM	Additional District Magistrate
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
AWW	Anganwadi Workers
BIS	Bureau of Indian Standards
BOD	Biological Oxygen Demand
BSS	Basic Safety Standards
CBO	Community Based Organization's
CDMO	Chief District Medical Officer
CDP	Comprehensive Development Plan
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 Toilet
DEWATS	Decentralized Wastewater Treatment
DFO	District Forest Officer
DLRMC	District Level Review and Monitoring Committee
DMA	Directorate of Municipal Administration
DMF	District Mineral Foundation
DPR	Detailed Project Report
DUDA	District Urban Development Agency
DUSC	District Urban Sanitation Committee
EE	Executive Engineer
FGD	Focus Group Discussion
FS	Faecal Sludge
FSM	Faecal Sludge Management
FSSM	Faecal Sludge and Septage Management
HH	Households
H&UDD	Housing & Urban Development Department
IDI	In-depth interviews
IEC/BCC	Information, Education and Communication/Behavior Change Communication
IHHL	Individual Household Latrines
IMTS	Indian Management and Technical Society
J PAL	The Abdul Lateef Jameel Poverty Action Lab
KL	Kilo Liter
M+OG	Municipal area + Outgrowth area
MAS	Mahila Arogya Samiti

Abbreviations	
MHM	Menstrual Hygiene Management
MLD	Million Liters per day
MoU	Memorandum of Understanding
MoUD	Ministry of Urban Development
MSW	Municipal Solid Waste
m	Meter
NAC	Notified Area Council
NBC	National Building Code
NGO	Non-Government Organization
NULM	National Urban Livelihood Mission
NUSP	National Urban Sanitation Policy
O&M	Operations & Maintenance
OD	Open Defecation
ODF	Open Defecation Free
OISP	Odisha Integrated Sanitation Improvement Project
OSPCB	Orissa State Pollution Control Board
OUIDF	Odisha Urban Infrastructures Development Fund
OUSS	Odisha Urban Sanitation Strategy
OWSSB	Odisha Water Supply and Sewerage Board
PGF	Planted Gravel Filer
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
RWA	Residential Welfare Associations
SAAP	State Annual Action Plans
SAI	Social Awareness Institution
SARC	Social Action For Rural Community
SBM (U)	Swachh Bharat Mission - Urban
SDA	Sambalpur Development Authority
SeTP	Septage Treatment Plant
SFD	Shit Flow Diagram
SHG	Self Help Group
SLIP	Service Level Improvement Plan
SMC	Sambalpur Municipal Corporation
STP	Sewage Treatment Plant
TC	Total Coliform
TSU	Technical Support Unit
UIDSSMT	Urban Infrastructure Development Scheme for Small and Medium Towns

Abbreviations	
ULB	Urban Local Bodies
WATCO	Water Corporation of Odisha
WKS	Ward Kalyan Samiti
WSC	Ward Sanitation Committee
WTP	Water Treatment Plant
WWTP	Waste Water Treatment Plant

Executive summary

With urban population of 7 million (Census 2011), the urban local bodies in Odisha are currently facing challenges of safe sanitation and effective 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 Sambalpur town. In this assessment, convergent parallel mixed method approach comprising of both quantitative and qualitative methods were used to collect data.

Sambalpur lies in the western part of Odisha and is one of the largest and oldest cities. It is located on the eastern side of River Mahanadi at the downstream side of Hirakud dam. The city has two satellite towns developing in the fringes -Burla and Hirakud. The total corporation area has been divided into 41 wards spread over 303 square km. The city has 1, 13, 665 households out of which 30% resides in 171 slums. There has been rapid migration from rural areas in search of livelihood and most of them settle in slum areas.

Sl. No	Indicators	Data
1	Total Population	3,35,761
2	Slum Population	1,13,120
3	No. of households	78,803
4	No. of slum households	34,862
5	No. of non-slum households	43,941
6	Average no. of person per household	2.95
7	Average income of people	INR 30,366 per month
8	Gender ratio	948 females per 1,000 males
9	No. of PT/CT	18
10	HH with toilets connected to septic tank	53.6% [1]
11	HH with toilets connected to pit latrines	11.6%
13	HH with toilets connected to sewer	7.4%

Mahanadi river, Hirakud dam and bore wells are the sources of water supply across Sambalpur. Water taken from the mentioned source are treated. There is one treatment plant in Sambalpur, three plants in Burla and one in the Hirakud area. Around 49% of the population has water service connection while rest depend on other sources such as pumping wells, open wells, hand pump and tube well.

The government is planning to build the sewage treatment plant in Bhatra that will cater to 18 wards. Work for sewer network has started in some wards. Government is considering providing incentives such as zero connection charges, one year off on sewerage charges among others. In spite of this, connectivity of sewer line to household will be challenging as faced in Puri currently. Most of the households have onsite sanitation with septic tank and pit latrines.

Collection of solid waste for 41 wards in the city is done door-to-door. There is no existing solid waste treatment plant in the city. The transportation of solid waste is done through small vehicles and

[1] Census 2011

dumped at Dumping Yard 1 (Durgapali) and is again collected through large vehicles (Hiwa and JCB) and dumped at Dumping Yard 2 (Reloading area) at out scoot of Hirakud town area. The city has narrow lanes thus most roads of the city are congested not only in the peak hours but throughout the day due to encroachments by street vendors, hawkers etc.

The Odisha Urban Sanitation Strategy 2017 mandates the formation of a Ward Sanitation Committee in each ward of the ULB consisting of 11 to 15 members. Sambalpur has recently passed the resolution for the formation of Ward Health Sanitation Committees (WHSC). The WHSCs are yet to be formed in the wards of the city. The City also has community based institutions under the National Urban Health Mission (NUHM) such as Ward Kalyan Samiti (WKS) in all wards under ULB and also 190 Mahila Arogya Samiti (MAS) groups. Over 240 Self Help Groups (SHGs) are functioning in various wards under National Urban Livelihood Mission (NULM).

The income budget and expense budget estimate for FY 2015-16 was INR 249.90 crore and 239.19 crore respectively. The total expenses of ULB in FY 2015-16 were INR 28.79 crores as compared to the income, which was approximately 9.85 crore in the same period. The major part of the income is generated through tax which is 48% of the total income out of which round 47% was collected from property tax. The budget estimate for tax for the year 2015-16 was INR 3.48 crore while the actuals were INR 4.75 crore. While on the other hand the major part of the expenditure was due to administrative expenses which is 66% of the total expenditure. Operations and Maintenance constituted another 32% and establishment expense 1%. While the budget estimate for administrative expenditure was INR 34.54 crore, the municipal corporation only spend INR 18.77 crore.

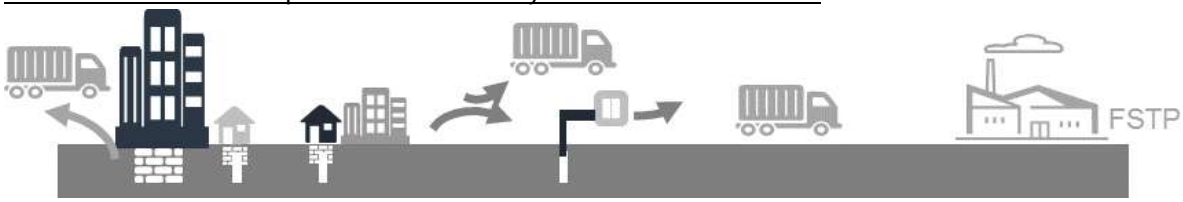
The key policies regulations and guidelines focused on FSSM are indicated below.

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 years O&M to private players. Cesspool trucks are procured from the state and transferred to ULB for O&M which are in turn tendered out to private players for 7 year who are expected to meet operational expenses through service usage charges from households. BCC and capacity building activities are planned to be conducted through SBM funds. Remaining funds are to be allocated through convergence with other schemes and

departments such as National Urban Health Mission, National Urban Livelihood Mission and Labour Commission among others.

FSSM situation of the city

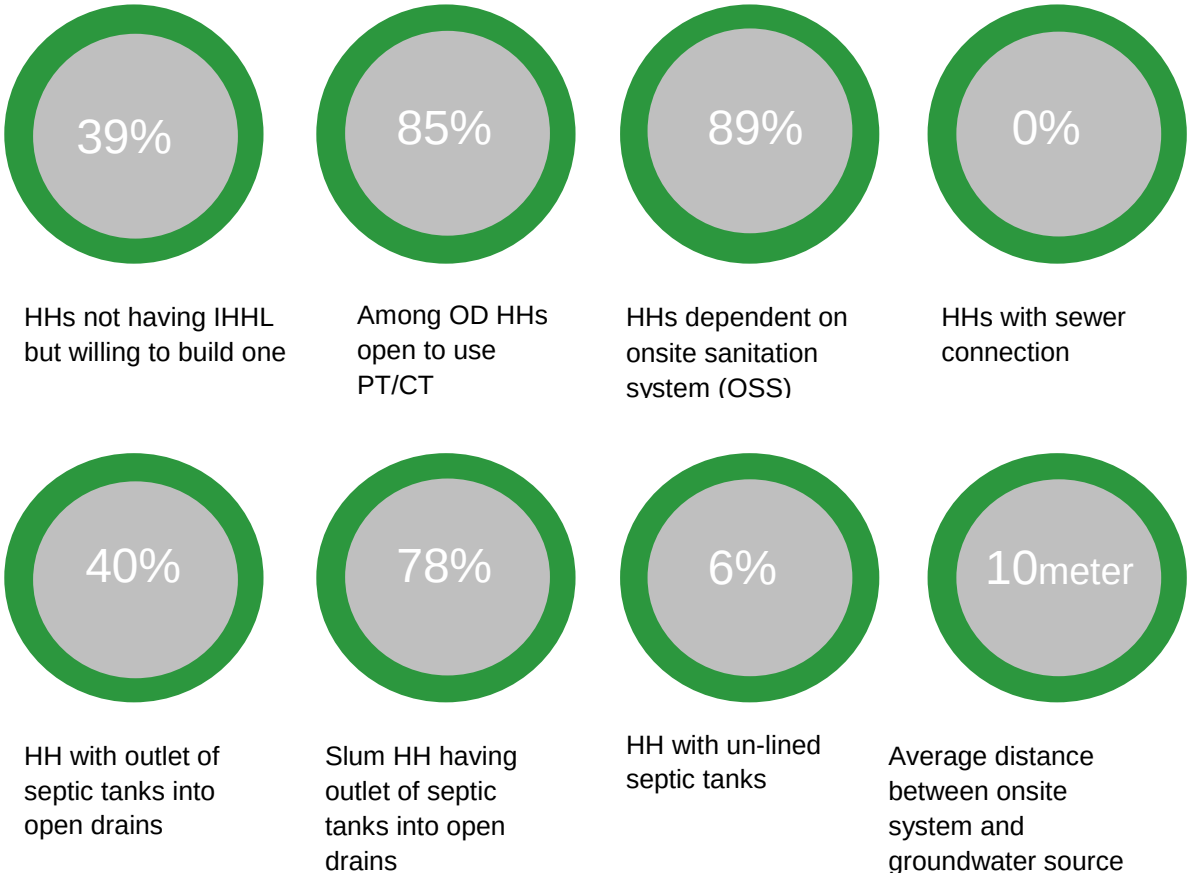
FSSM situation basis rapid assessment study is described hereunder



Toilet access and containment

A total of 12,915 out of 42,623 households have been targeted for individual household latrine construction under the SBM for the year 2016-17. This leaves out 1,619 HHs or 7,431 citizens directly or indirectly dependent on CTs/ PTs. Total 18 for hybrid toilets[2] are allocated out of which four are existing and ready for usage while the rest are under construction. O&M of existing CT/PT is also a concern specifically in slum areas which force people to resort to OD. However there are also instances of OD in non-slum household due to habitual preferences.

In primary survey 337 HHs were surveyed. Below are the key findings from the primary survey.



75% of the non-slum households have septic tank and 39% of the slum households use single pit. There is a high chance of ground water source contamination as distance between such sources (wells/hand pump) and OSS found to be 10m which is less than the desired 20 m. Health implication is also huge for citizens as half the population as per the SLIP report is dependent on ground water. This could be corrected through focused communication with community and capacity building of

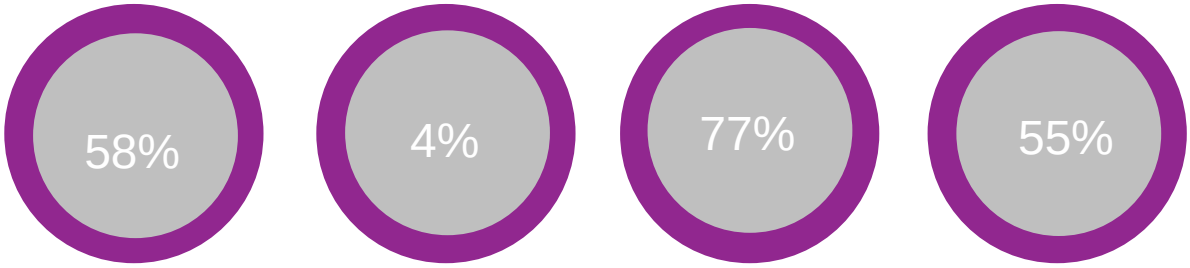
[2] Hybrid toilets is a concept being derived from both community and public toilets, where both options of pay-per-daily use and/ or pay-per-month options are available.

masons as 85% HHs sought advice from them for designing and construction of septic tank/pits.

Emptying and transport

The ULB is currently providing emptying services. The existing capacity is 6 Kilo Liter (KL) which shall increase to 15 KL with introduction of three new vehicles from ULB. Recently, the tender has been awarded to Ashoka Infracore Private Limited at INR 800 per trip and services for the same started from 5th June 2017 on the eve of World Environment Day. 17% HH reported availing non-mechanized services while 56% HHs have not yet decided to approach any service provider. This could be due to two reasons – vehicle inaccessibility and unawareness on cesspool vehicles. Existing and new fleet of cesspool vehicles will have limited access due to vehicle width. The District Collector and the Municipal Commissioner also highlighted the issue. Interactions with ULB personnel handing cesspool emptying operations revealed that their operations are not governed by any regulation. Below are the key findings from our primary survey.

During the interview conducted with the Collector of Sambalpur, he highlighted that the SeTP is far from the satellite towns of Burla and Hirakud and hence the collection and transportation of septage from these towns would be difficult. He suggested that the two towns should have separate SeTPs. He also mentioned that the width of the roads is too narrow and hence there would be a major requirement of smaller cesspool vehicles to de-sludge.



HHs which have never emptied OSS

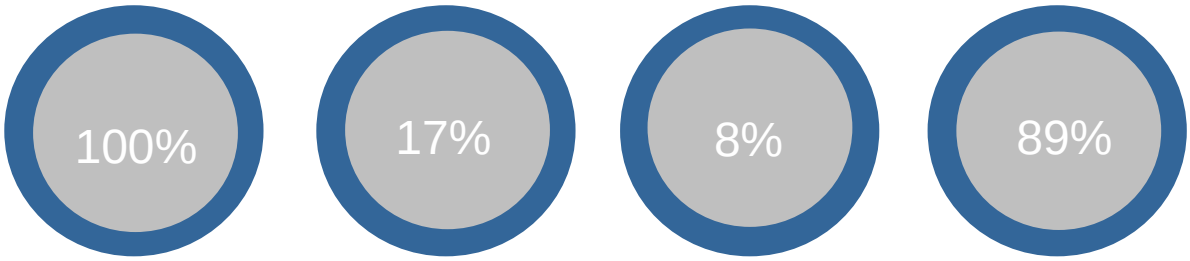
Received services through non-mechanized methods

HHs with road width less than 2 meter

HHs paid less than INR 1,000 for OSS emptying

Treatment, re-use and disposal

As per the primary interaction, faecal waste is being dumped by operators in open fields and drains. However, a new site for temporary disposal through deep row entrenchment is identified in Bhatra area which is 7 km from the city. A 20 KLD (Kilo Liter per Day) Septage Treatment Plant (SeTP) is proposed to treat faecal sludge. Construction for the same has started and 10% of the work has been completed. As per discussions with the Regional Officer (RO), Odisha State Pollution control board (OPCB), the municipal sewage and septage contribute majorly to the contamination of the river. Below are the key findings from the primary survey.



Deviation in total coliform level in river

Deviation in BOD level in river

HHs aware where faecal sludge is dumped

HHs aware on ill-effect of OD on health

There is a tripartite agreement between the ULBs (only AMRUT towns) in Odisha, H&UDD and the OWSSB. As per this agreement OWSSB shall be the financial and implementation intermediary on behalf of ULBs for urban infrastructures. Yet there is a 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 does not have environmental engineering sections to comply with standards in public health and environment. Primary survey found low level of citizen participation due to lack of engagement and recognition in the city governance.

Awareness among citizens

While 89% of the participants are aware that open defecation causes ill-health to their children, only 10% aware that faecal contamination can cause malnutrition and 48% aware that it is one of the cause of jaundice.

9% of the households reported that Mahila Arogya Samiti (MAS) and only 4% reported that Self Help Groups (SHGs) were creating awareness on sanitation and that too is limited to promotion of use of public or community toilets.

- Citizen's apathy, lack of participation and ownership for sanitation and hygiene were reported in FGD and IDI Table 7-5

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

	**Toilet access and containment**	**Emptying and transport**	**Treatment, re-use and disposal**
Infra-structure (infra and O&M)	► Conversion of insanitary toilets to sanitary toilets by provision of scientific septic tanks can be prioritized ► Facilitating the process of building IHHL along with the components for applicants so that they are not demotivated. The process need to be implemented at an accelerated pace.	► Optimize mechanized emptying fleet through mix of various types and sizes. Also explore potential for transfer stations[3] which can help in collection and disposal through vehicles of various size. ► Operating models to increase penetration of mechanized services and	► Readiness of SeTP to ensure provision of adequate facilities and efficient operations ► Provision for treatment of fresh sludge or undigested sludge ► Intermittent solutions like at the drain outlet point, interceptors or

[3] 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 and also for FSSM in some cities of Africa.

	**Toilet access and containment**	**Emptying and transport**	**Treatment, re-use and disposal**
	► Greater focus on CT, PT availability ► Explore sustainable O&M models incl. community led, private operators, micro enterprise led etc.	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 ► Analyse potential to replicate interventions identified for Puri to boost connectivity from HH latrines to sewer network	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 OSS including possibility of retrofitting or modifications in existing units ► 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 ► Preparing consumers to pay for the charges of sludge treatment and imparting knowledge on safe disposal	
Govern-ance reforms	► A regulatory set-up can be proposed for ensuring effective implementation of the Odisha septage management guidelines which mandates HHs to make it compulsory for all households to construct scientific septic tanks/ twin pits/ VIP toilets. ► Amendments could be made in ULB building bye-law to include provision of scientific septic tank as part of building approval process	► Effective implementation of the Odisha septage management guidelines which mandates HHs to clear out the septic tanks and strictly keep away from engaging manual scavengers. ► Implement provisions through ULB resolution for emptying and transport activities including adoption of usage of PPEs. ► Explore potential for training and empanelment of cesspool emptying service providers	► Strong regulatory enforcement to stop open discharge from drains into the river ► Regulation at ULB level to enforce disposal of faecal waste at only designated site
	► Strengthening district administration through participatory planning in city levels for integration with district planning and effectively escalate the issues to state levels through planning structures ► Restructuring the engineering department with added focus on environmental engineering ► Focus should be on zone and ward level interventions – a coordinated 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		

	**Toilet access and containment**	**Emptying and transport**	**Treatment, re-use and disposal**
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, retrofit table 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. Prepare community to build ownership on safe sanitation including ways by which we can help in building financial sustainability for FSSM services through interventions such as property tax or holding tax, sewerage charges among others. Also build their willingness to contribute towards paying for using well functional CT/PT through communication and effective operational models which reduce dependence on user fee. ► Identify ways to increase penetration of information to citizens on mechanized emptying service providers ► Promote use of hybrid toilets and CT/PT.	

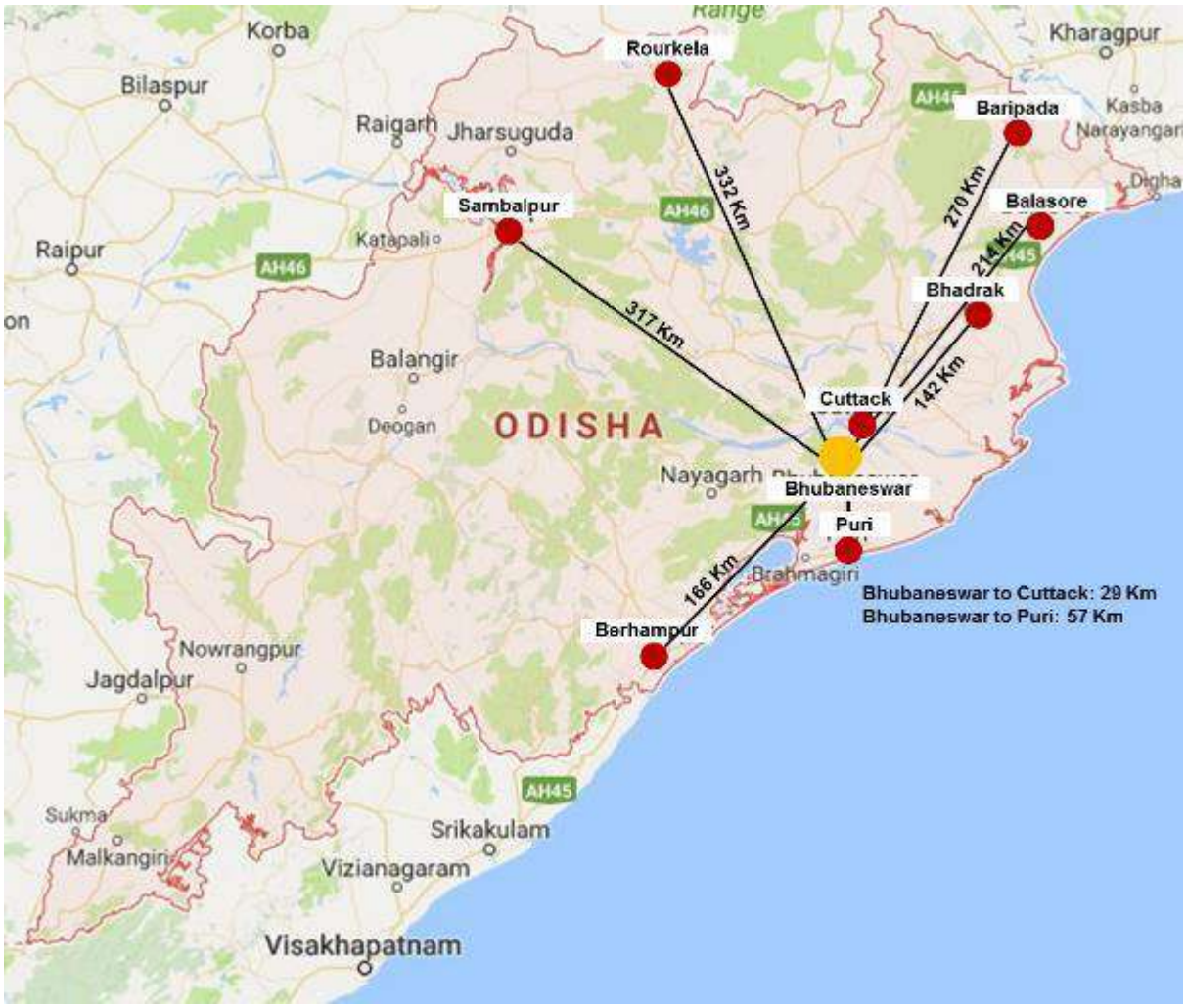
An implementation plan is also supplemented basis the key issues and related interventions as identified above during the rapid assessment. This plan shall focus on key milestones, activities, and identifying integration and dependencies across internal and external stakeholders to help steer FSSM programme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

1 Introduction

1.1 Background and rationale of the study

The management of onsite sanitation remains a neglected component of urban sanitation and wastewater management. Only recently have national governments, cities, and wastewater utilities begun to address the management of septage or the sludge that accumulates inside septic tanks and other onsite sanitation systems. With urban population of 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 the 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)	78,803	26,793

Source: Census 2011 M- Municipality, MC – Municipal Corporation, OG – Out growth

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 nine AMRUT towns.

Objectives of the study

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

1.2 Approach and methodology

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

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

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

Sample size for Sambalpur

For the city of Sambalpur, 337 households were surveyed, 10 IDIs two FGDs and were conducted over the period of April to May 2017 (Annexure 4 – In-Depth Interviews and Focused Group Discussion details). The quantitative data was analyzed using descriptive statistics and qualitative data using content analysis methods.

The analysis for sample size calculation for 9 AMRUT towns considering their Municipal area and out-growth area (M+OG) is given below:

Table 1-2: -Sample size for Sambalpur

City/Town Name	No. of Household	Wards	Required No of Wards	HH Required each city universe	%having latrine	Design effect	No of households surveyed
Sambalpur (MC)	78,803	41	11	337	65	2	337

Source: Census 2011

Sample size for wards in Sambalpur:

Multistage sampling strategies were followed for the selection of the households. In first stage, 11 out of 41 wards were selected using simple random sampling methods, and then 30 households from each ward were selected using systematic random sampling methods.

Sample size for households in Sambalpur:

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 Sambalpur city is 42,623 (Census 2011). Sample size was calculated based on anticipated prevalence i.e. percentage of the household having individual latrine (66%). The power 80%, 95% Confidence Interval (CI 95%) and design effect 2 was applied to the households having individual latrine to arrive at the number of households to be surveyed.

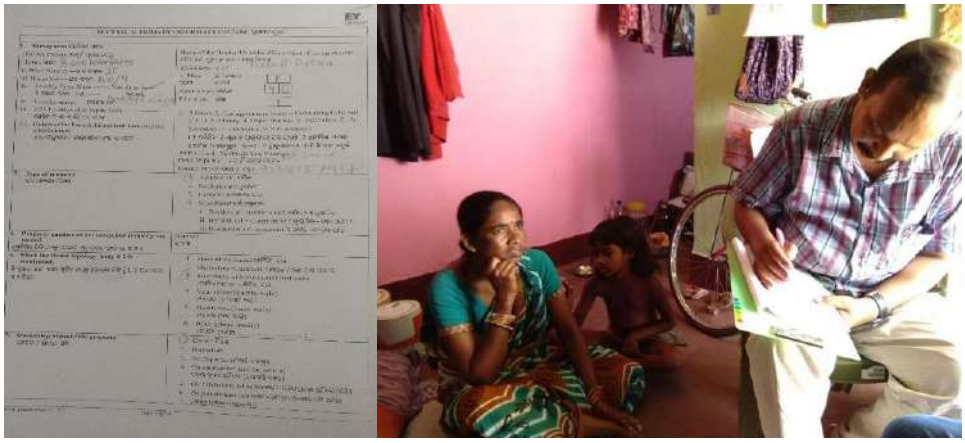
The formula used for calculating the sample size in open EPI info software is:

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

For Sambalpur, the required number of households calculated using the above mentioned statistical information and formula was 337.

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

Figure 1-1: -Household Questionnaire and Survey



1.3 Limitations of study

The rapid assessment of sanitation situation in the city of Sambalpur is performed in a period of 2 months, April to May 2017 with an intent to provide a quick overview of aspects relevant to sanitation and faecal sludge situation in a city and hence, the coverage of 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 techniques explains the limitations in detail.

Storm water drainage is not being considered as part of the report 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

Sambalpur lies in the western part of Odisha and is one of the largest and oldest cities in Odisha. The area under the jurisdiction of the Sambalpur Municipal Corporation (SMC) covers 303 square km. The city is located at the eastern side of river Mahanadi at the downstream side of Hirakud dam. Sambalpur town is located 21^{o} -28' North Latitude and 83^{o} 58' East Longitude in Western Orissa. It has an average elevation of 150 m. The population of the town is 3,35,761.

Satellite towns are developing in the outskirts of the city. Recently merged towns i.e. Burla and Hirakud are likely to develop in the future to constitute a regional hub. Hirakud is a small town and a Notified Area Council (NAC) in Sambalpur District. As of 2001 India census, Hirakud had a population of 26,397. It is known for the Hirakud Dam built over the Mahanadi River. Burla is a small town and Notified Area Council (NAC) situated on the west bank of the Mahanadi, and is about 15 km from Sambalpur. The town lies at one end of the Hirakud Dam which is located approximately 6 km to the west of the town.

The town has a gentle slope towards river Mahanadi. The city is elevated at North- East and slopes towards south-west. River Mahanadi flows at the south-west of the city. Two hillocks viz. Brooks hill and Buddaraja hill, are located at the center of the town and it divides the town into various drainage zones. The town has four major drains which ultimately joins river Mahanadi. Adequate land is available for horizontal growth of the city and to accommodate future infrastructure needs with low environmental risk. There is adequate potable water available to match the national benchmark.[5]

2.2 Demography

The city with a population of 3.35 lakh is governed by the Sambalpur Municipal Corporation (SMC).The total corporation area has been divided in to 41 wards. There are 171 identified slums in the city.

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	3,35,761
2	Slum Population	1,13,120
3	No of households	78,803
4	No of slum households	34,862
5	No of non-slum households	43,941
6	Average no of person per household	2.95
7	Average income of people	30,366
8	Gender ratio	948 females per 1,000 males

Source: Census 2011

The city has one vulnerable ward (as shown in Figure 2-1), called Station Pada due to the following reasons:

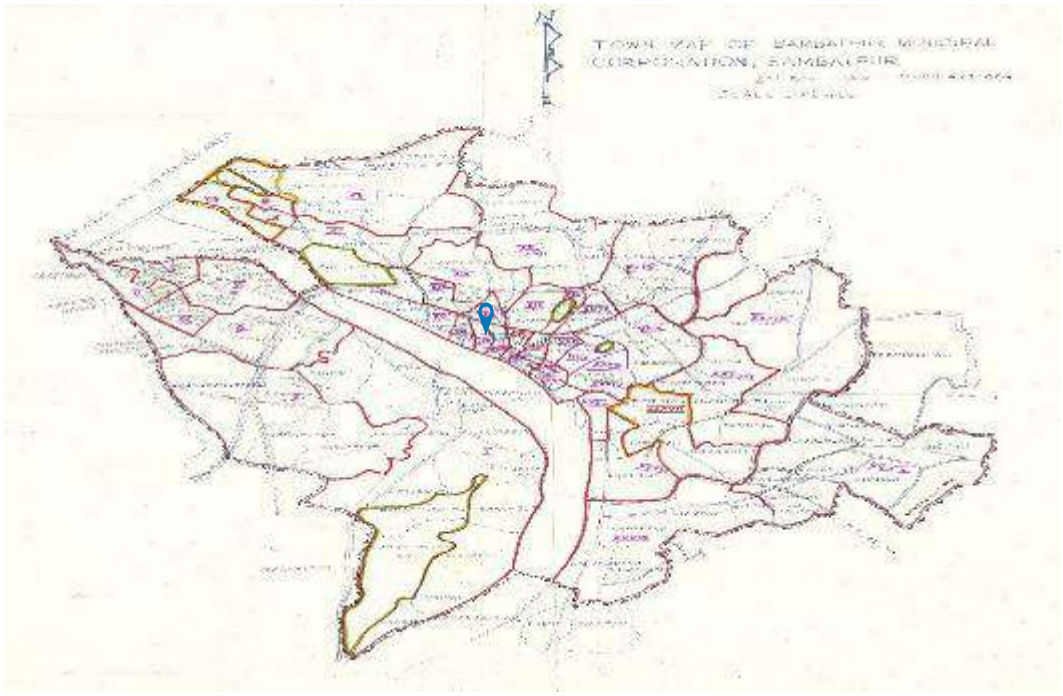
a) Location of wards near the low lying areas

[5] Sambalpur Municipal Corporation (SMC)

b) Proximity of wards to flood prone area

c) Major outbreaks of diarrhea and malaria due to contamination of water bodies near the wards

Figure 2-1: -Vulnerable wards in Sambalpur



Source: Sambalpur Municipal Corporation

2.3 Overview of sanitation situation in Sambalpur

34% of the population reside in slums. There are 171 notified slums covering 34,862 households with a population of 1, 13,120. Insanitary toilets, open defecation, choked drains, solid wastes dump yards are especially prevalent in the slums leading to water and vector borne diseases. As per the Comprehensive Development Plan (CDP) for Sambalpur, most people in the urban area of Sambalpur Development Authority (SDA) either defecate in the open along the *nala*s or use the public toilets wherever available.

Sambalpur has 1, 13,665 households. 66% of the households have individual toilets. Open defecation due to lack of toilet access stands at 11.4%, which is lower that national urban average of 12.6%. However, there are 27 wards having higher instances of open defection than national average. There are 18 community/public toilets (CT/PT) functioning in Sambalpur, out of which 8 CTs are being maintained by the ULB and 11 PTs being managed by out-sourced agency. Around 3.8% of households are dependent on public or community toilet. [6]18 hybrid toilets have been sanctioned for Sambalpur out of which four are completed and rest 14 are under construction. The specific details related to access to toilets, open defecation scenario and the FSSM value chain is captured in Section 4: FSSM Situation Assessment

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

Objective:	To understand key sanitation issues
Participants:	Commissioner – SMC; Dy. Commissioner – SMC; Health Officer – SMC; Sanitary Inspector- SMC; Community Organizers – SMC; and Self Help Group (SHG)

[6] Census 2011

Key observations:	• Open defecation is prevalent near major water bodies because of the following reasons: ▪ Lack of awareness regarding consequences about Health Hazards ▪ Operations and maintenance of existing toilets and surroundings ▪ Lack of space for constructing toilets as Sambalpur and old city and does have planned agglomeration. • Households having insanitary toilets are not aware of health implication due to contamination ` • Lack of knowledge about the construction of septic tanks as per norms or guidelines. • Solid waste is thrown in drains or open areas • Lack of awareness on the value chain of FSSM, open defecation and its impact on environment. • Citizen's apathy and lack of participation and ownership for issues on sanitation and hygiene. • Jaundice, diarrhea and malaria are recurring diseases • Consumption of contaminated water and food, leads to health issues such as indigestion, loss of appetite, gastro-intestinal infections, jaundice, amoebiasis and diarrhea • Open drains which are flooded during the rainy season are contaminated with house hold water bodies.

2.4 Infrastructure facilities

2.4.1 Water supply

The Mahanadi River, bore wells and Hirakud Dam piped water are the major sources of water supply across Sambalpur. The city is divided into 17 zones for water supply distribution. 69.25 MLD of water is supplied daily for two hours. Apart from this, there are 2221 hand pumps and 1950 stand posts for water supply in Sambalpur. As per the SLIP report, 49% of the households have direct water supply connection whereas the rest depend on ground water/non-revenue source of water. There are two water treatment plant in Sambalpur viz. Bareipali and Modipara having capacity is 11.25 Million Liters per day (MLD) and 40.00 MLD. Burla area has three treatment plants- in Town – 4.50 MLD; Burla Medical College – 2.25 MLD; Burla University – 2.25 MLD. Hirakud has one treatment plant in town area with capacity of 9.00 MLD. The city has plans to reduce non-revenue source of water by way of introduction of HH level metering, reducing illegal connections and reducing technical losses.

Figure 2-2: -Water sources in Sambalpur

Source: Public Health Engineering organization (PHEO), Sambalpur

2.4.2 Sewerage systems

Sambalpur generates 56 MLD of sewage per day[7]. Till date, there is no sewage network in Sambalpur. However, the government is planning to build a sewage treatment plant in Bhatra with capacity of 40 MLD per day that will cater to 18 wards. However this project will not cater to the sewage treatment demands of Burla and Hirakud. Design and estimates have been approved by the OWSSB. The total project cost is INR 324.31 crore. The agency who has taken up the work is Gharpure Engineering and Construction Pvt. Ltd.

2.4.3 Solid waste management

Sambalpur generates around 100 Metric Tons per Day (TPD) of solid waste. Solid waste collection is being done door-to-door by the SMC. . The user fee for collection is INR 30 per household.

Small vehicles are used to collect solid waste which is dumped at Dumping Yard 1 (Durgapali). Solid waste from Durgapali yard is collected through large vehicles (Hiwa and JCB) and dumped at Dumping Yard 2 (Reloading area) Hirakud town area. Sambalpur does not have any treatment plant or disposal plant.

An integrated municipal solid waste management system for Sambalpur city has been proposed to be developed at Nildungri on the outskirts of the city on a 31-acre land.

Table 2-3: - IDI and FGD response on solid waste scenario in Sambalpur

Objective:	To understand the solid waste scenario
Participants:	Project Director – DUDA, Sambalpur; Commissioner – SMC; Dy. Commissioner – SMC; District Social Welfare Officer (DSWO) – Sambalpur; Chief District Medical Officer (CDMO); Health Officer – SMC; and Sanitary inspector – SMC
Key observations:	• There is lack of solid waste management in city. • Absence of safe and sanitary drainage system as most of the drains are open. • Lack of awareness on segregation of waste and disposing waste in bins. • Lack of facilities (dustbins, collection in all wards) • Open defecation is high near major water bodies • Households having insanitary toilets are not aware of the health implication ` • Solid waste is directly thrown in drains • Lack of awareness on the value chain of FSSM, open defecation and solid waste management and their impact on environment and health • Citizen's apathy and lack of participation and ownership for issues on sanitation and hygiene. • Poor stagnation of waste water leading to mosquito breeding and spreading of vector borne diseases.

2.4.4 Road network

The width of the approachable road is one of the key determinants for water and sanitation programme. Sambalpur an old city like Cuttack and Berhampur, the roads in the internal parts of the city are narrow and are mostly inaccessible for large vehicles. Encroachment by street vendors, hawkers, shop keepers and parking lots have led to reduction in the width of the roads. Most of the major arteries of the city are congested not only in the peak hours but throughout the day due to these encroachments. Also there is no space available to create parking areas because the roads are too narrow. Currently, the SMC has two government operated cesspool trucks and one private operated cesspool truck and hence there is a demand of smaller cesspool vehicles in the city. Under such a scenario, there is a high probability of households using non-mechanised service to clean the septic tanks. Therefore, going forward improving the accessibility of cesspool vehicles shall be important for emptying and transporting waste.

2.5 Community based institutions and structures

2.5.1 Ward Sanitation Committee (WSC)

[7] Sambalpur Municipal Corporation

The OUSS 2017 mandates the formation of a Ward Sanitation Committee in each ward of the ULB consisting of 11 to 15 members. Ward Councilor/Corporator, Sanitary Inspector or a designated officer by ULB for each ward, frontline workers, representatives of local Committee / Bazar Committee /Sahi Committee, representatives of Residential Welfare Associations (RWAs) of the ward, representatives from slum sanitation committee, representatives of CBO (SHGs, youth club etc.), senior citizens and eminent persons of the area shall be nominated to the said Committee. The WSCs shall oversee the sanitation activity in the ward. The member-convener of each ward would be notified by the Commissioner.

The WSCs are expected to be formed in all the 41 wards of the city after municipal elections as after declaration of SMC, a case has been filled and the High Court has given orders to hold the election procedure until finalization of the hearing.

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

a) Ward Kalyan Samiti (WKS): WKS is to be formed at ward level under the urban local bodies (ULBs). It consists of 12 members including the corporator, frontline health workers, SI, community organizers etc. One of the main responsibilities of the WKS is to identify various health, water, sanitation and nutrition related issues/ problems and health resources of the ward particularly the slum areas. In Sambalpur, WKS has not been formed due to non-availability of elected representative.

b) 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 be consists of 11-15 women members depending on the slum. It addresses local issues related to health, nutrition, water, sanitation and social determinants of health at slum level. It is facilitated by the ASHA who acts 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. Sambalpur has 190 MAS groups.

   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 is used for conducting fortnightly/monthly meetings of MAS on sanitation and hygiene, meeting emergency health needs etc. The MAS meet at least once in a month.

   In Sambalpur the MAS have been active in generating awareness on health and sanitation among the targeted households and several women have emerged as community leaders. 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 FSM would be useful in spreading awareness among the households.

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

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

Women SHG groups are being formed for mobilization of urban poor and for enhancing their livelihood opportunities. Till now, over 240 SHGs have been formed in 41 wards of Sambalpur. The women SHG leaders are acceptable community leaders who can sensitise 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

2.5.4 Others

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

Table 2-4: -NGO's working for urban slum population

S. No.	NGO	Major focus area
1	Association for Development and Research Socio-Economic Association (ADARSA)	IEC activities for SBM
2	Social Action For Rural Community (SARC)	

Table 2-5: -IDI and FGD response for roles of CBO in Sambalpur

Objective:	To understand the roles taken by CBOs
Participants:	Commissioner, Dy. Commissioner, Sanitary inspector, Community Organizers, CDMO, DSWO, PD DUDA, Executive Engineer (EE) PHEO and Project Engineer, OWSSB.
Key observations:	• Community mobilization measures are to be taken up in massive scale though out the urban areas. • Organization like MAS, SHGs, community leaders, sanitary workers, Anganwadi Workers (AWW) spread awareness on sanitation aspects in the city. • Awareness to households on the adverse effects of open defecation, having insanitary toilets, disposing garbage on roads and its health impact can be disseminated through group meetings and interpersonal counselling. • WSC have not been formed in the wards. • There is a need to form the WSCs and train them on subjects like SWM, garbage disposal, FSM, OD and toilet construction. • The ASHA, AWW and MAS spread awareness on toilet construction under Swachh Bharat Mission. • Eco restoration of polluted drains in Sambalpur • Drinking water pipelines going through open drains is a major source for contamination and health hazard. • Generation of awareness on solid waste management within the community.

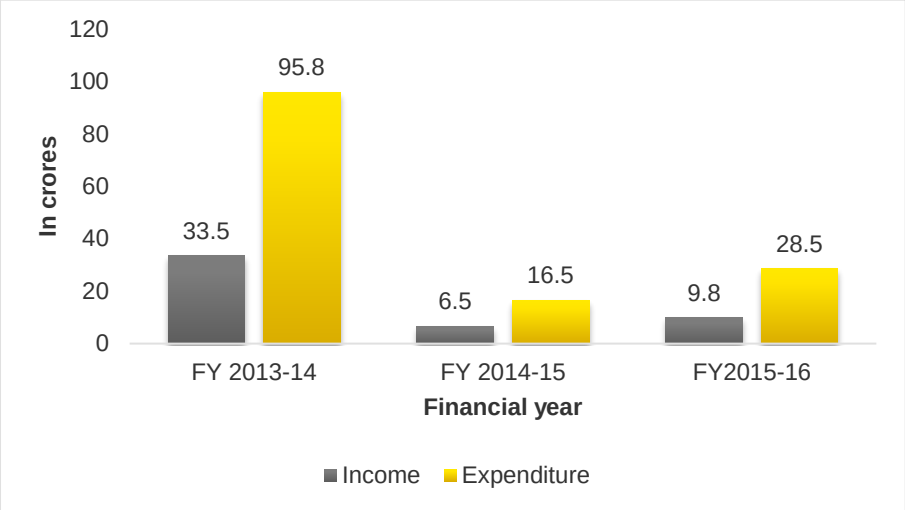
Figure 2-3: -FGD with CBO

Figure 2-4: -FGD with SHG

2.6 Municipal Finance

An attempt is made to analyze the income and expenditure patterns in the Municipality during FY 2013-14, FY 2014-15 and FY 2015-16. It is observed that the income estimated during FY 2013-14 is 80% higher than that of FY 2014-15 because of compensation received in lieu of octroi and expenditure is 82% higher than that of FY 2014-15 because of depreciation. Income and expenditure of FY 2015-16 are marginally higher than those in FY2014-15. While income has increased by 33%, expenditure has also grown by 42%.

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

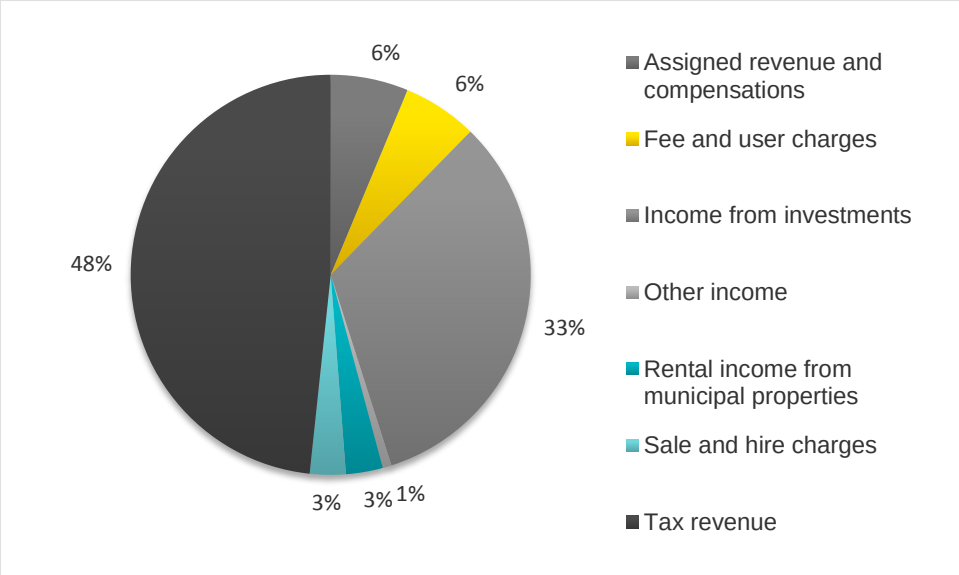


Income[8]

A detailed analysis of municipal revenues and expenditures for the latest year 2015-16 shows that tax revenue to an overwhelming 48% of the total revenues. Tax revenue includes property tax, water tax, lighting tax, animal tax, advertisement tax land hoardings and toll tax. The major tax comes from property tax which is 47% of the total revenue. The next major contribution is from income from investment which is 33% of the total revenue.

Sources such as assigned revenue and compensations and fee and user charges contributes 6% each of the total revenue while rental income from municipal properties and sale and hire charges contribute to 3% each of total revenue.

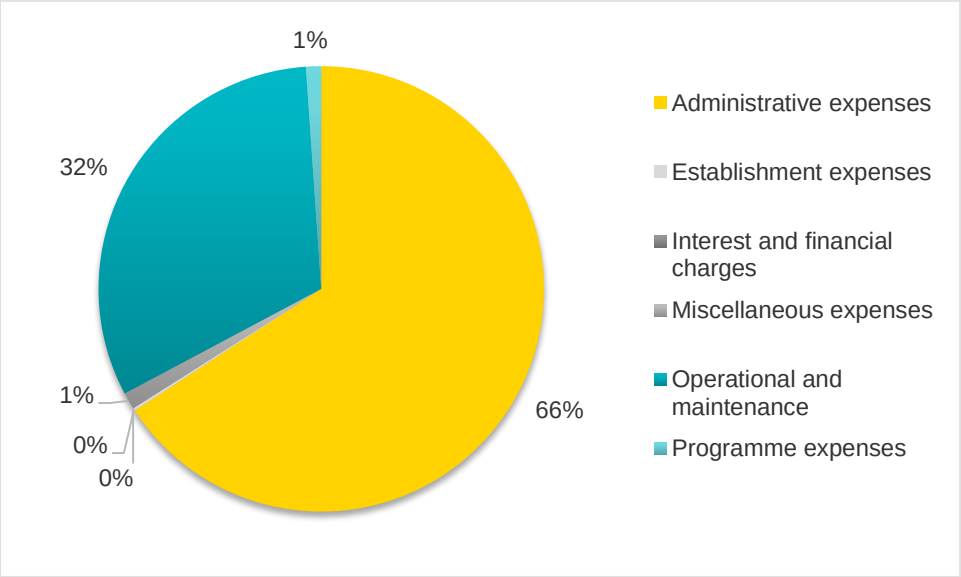
Table 2-6: -Income of SMC in FY2015-16



[8] The sources of income provided by SMC has been clubbed owing to their nature of revenue and the details of the same has been provided in Annexure 6 – Income and Expenditure of SMC

Expenditure

Table 2-7: -Expenditure of SMC in FY2015-16



The income budget and expense budget estimate for FY 2015-16 was INR 249.90 crore and 239.19 crore respectively. The total expenses of ULB in FY 2015-16 were INR 28.79 crores as compared to the income, which was approximately 9.85 crore in the same period.

The major part of the income is generated through tax which is 48% of the total income out of which round 47% was collected from property tax. The budget estimate for tax for the year 2015-16 was INR 3.48 crore while the actuals were INR 4.75 crore. While on the other hand the major part of the expenditure was due to administrative expenses which is 66% of the total expenditure. It can be observed that Operations and Maintenance constituted another 32% and establishment expense 1%. While the budget estimate for administrative expenditure was INR 34.54 crore, the municipal corporation only spend INR 18.77 crore.

.

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[9] and partnership based[10] 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[11] to meet the mission targets. Out of 511 cities[12], 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[13]. 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 [14]

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;

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

[10] 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.

[11] MoUD 2017

[12] MoUD 2017

[13] SBM(U) guidelines 2016

[14] 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.[15]

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 Plans (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[16]. 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

[15] AMRUT reforms

[16] 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.

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 ++)[17]
- 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

[17] 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)

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[18] at present. The O&M of sewerage facilities is done by the OWSSB for the CDA area in Cuttack and in Puri and the Rourkela Municipal Corporation (RMC) for Koel Nagar area in Rourkela.

State level

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

The Directorate of Municipal Administration (DMA) is the key department to monitor the ULBs for adherence of rules and regulations and promote capacity in HR and Finance. The Urban Sanitation Mission is headed by the Chief Minister of Odisha and the State Steering Committee is headed by the Chief Secretary and the State Management Committee is headed by the Principal Secretary of H&UDD. Public health and environment standards are as per the CEPHEO guidelines and the Orissa State Pollution Control Board (OSPCB) serves notices to violators including the ULBs. It is strictly mandated under the laws to adhere to BIS, Basic Safety Standards (BSS) and National Building Code (NBC) for the construction of septic tanks. The two mission directorates - AMRUT and SBM - are handling FSSM services. However, the above mentioned standards and guidelines are required to be implemented by development authorities (BDA, PKDA, CDA SDA, BeDA etc.[19]) 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.

[18] 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.

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

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.

The City Sanitation Plan was drafted for SMC in October 2011 as a response to NUSP 2008. This document needs to be revisited after various developments like AMRUT, SBM (U), FSSM guidelines, re-notification of OUSS to ensure ease of implementation and increased focus on FSSM under sanitation. Sambalpur needs to be prioritized as it is in the upper end of Mahanadi River and discharges its wastewater directly into it, putting 42 other cities (downstream) and many villages at risk.

Sambalpur is frequently affected by outbreaks of water borne diseases. In 2015, jaundice epidemic continued for 7-8 months caused death of 26 people. One of the major reasons for this is contamination of water distribution channels in most part of the city. Considering the urgency of the matter, the State Government has provided 100 crore special package for Sambalpur to ensure safe drinking for citizens.

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[20]%, 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, FSM emerges as an alternative to underground sewerage system which is efficient, effective and has low capital and O&M cost. The government has put in place a financial, technical, institutional and regulatory framework and a septage management model where "sludge may be treated in an anaerobic digester and liquid may be treated in anaerobic baffled reactor and planted gravel filter. The treated sludge and effluent can be reused in horticulture and other similar purpose[21]. **As a matter of policy[22], 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[23] 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.

[20] Census 2011

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

[22] Odisha septage management guidelines

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

Regulatory and institutional developments

From the point of view of urban sanitation in general and FSSM in particular, most encouraging developments in Odisha are formations and operations of District Mineral Development Foundation (DMF)24 in all 30 districts, formation of CSR state Council under the chairmanship of Chief secretary of Odisha and the proposal for enactments of Urban Waste Water Management Act.

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

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

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

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

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

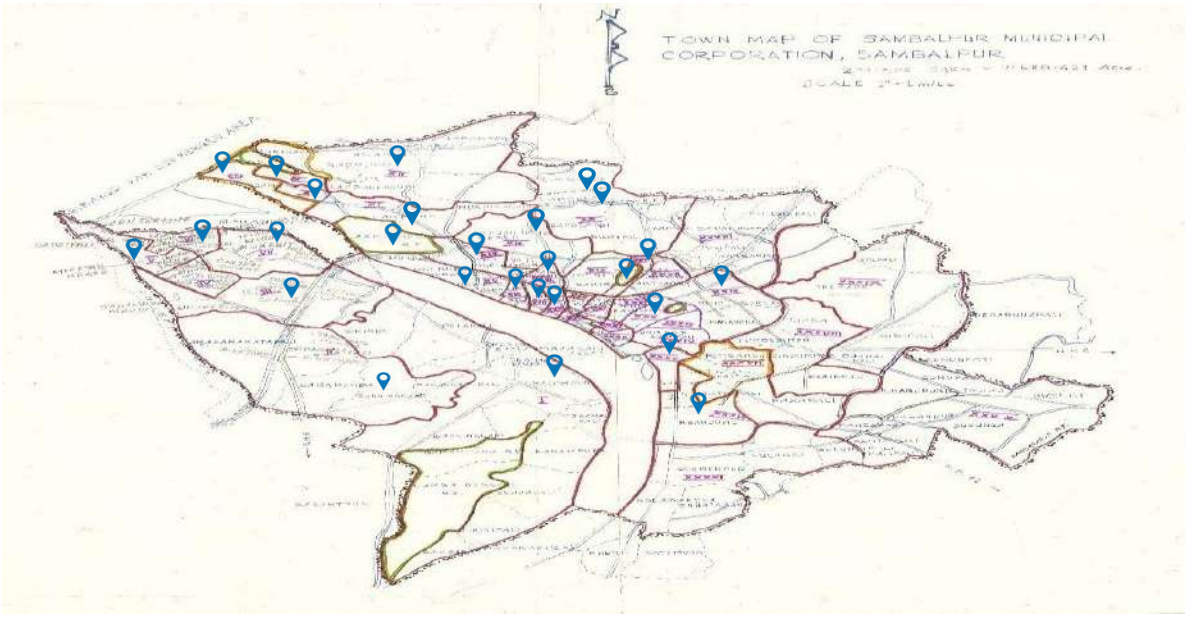
[24] DMF provides support to person and areas in districts affected by mining related operations. Fund is collection through royalty from mine lease holders, a part of which (typically 33% of royalty collected) is contributed towards DMF.

4 FSSM situation assessment

4.1 Toilet containment typologies

The city of Sambalpur has 1,13,665 households as per census 2011. 66% of the households have individual toilets. Open defecation due to lack of toilet access stands at 30.3%, which is higher that national urban average of 12.6%. Secondary sources such as draft Comprehensive Development Plant (CDP) 2013, put OD at 40%. There are 27[25] wards having higher instances of open defection than national average. Almost 70% of the households of ward no. 31 resorts to open defecation. Around 3.8% of households are dependent on public or community toilet.

Figure 4-1 Ward map indicating high open defecation areas



During consultative discussions, the City Health Officer shared that it a common practice, especially for slum dwellers to defecate in the open near rivers and then take bath. Households having access to CT/PT are not aware on how to use the toilets properly. ULB officials opine that people should also be guided on how to use and maintain the toilets. Therefore, there should be sign boards on how to utilize PTs and CTs. Having sufficient water supply to the toilets should be there for ease of use. Maintenance is another issue for the uses of CT/PT.

During the limited primary survey it was found that there is significant difference between OD practices among slum and non-slum households (P=0.000); above 43% of the slum houses practicing OD, however only 11% of non-slum households practice OD. Latrine accessibility also significantly varied among those households owned the house and those households reside in government land (P=0.010). Owned households have better latrine accessibility (73%) than households reside in government land (58%).

Among the household practicing OD, when asked about problems associated with OD, 98% reported about lack of privacy as the major reason, 88% perceived that during OD there is lack of safety for girl and women, 70% felt that inconvenience in terms of time (before dawn and after dusk) and 64% reported inconvenience in terms of distance.

In order to increase the demand on latrine use, availability of water is an important component. 73% respondents reported that availability of domestic water is not sufficient for maintenance of toilet.

The primary survey shows that 39% HH not having toilet access and resorting to OD are willing to construct one. Those unwilling cite lack of funds (48%) and space (52%) as constraint. A significant majority of HHs (85%) are also open to use CT/PT.

[25] The ward numbers are1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 and 31.

"Open defecation and not proper utilization of CT / PT is a major issue" – Municipal Commissioner

Lack of availability of toilets at the community level especially in slum areas is a problem. There is low motivation for use of toilets. Ensuring adequate water supply in toilets is important- CDMO

Figure 4-2: -OD hotspot along Mahanadi river bank

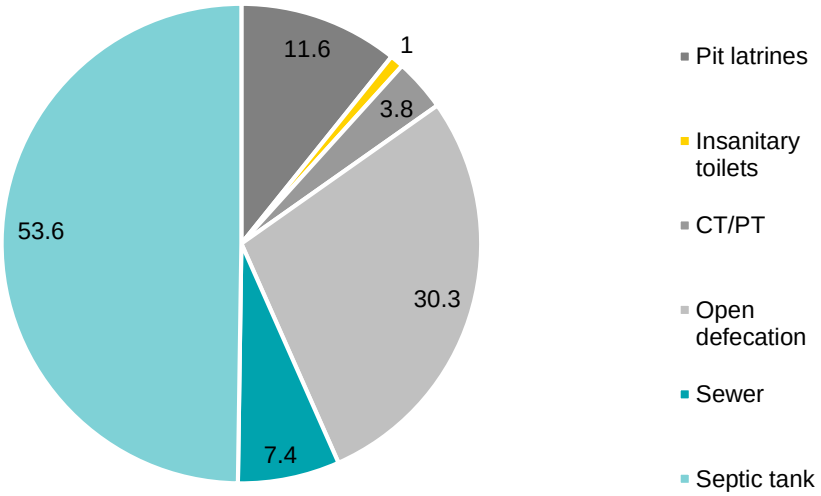
Under SBM, requests for 10,719 IHHL have been received and summary is presented hereunder:

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

Received	Verified	Approved	Constructed	Commenced
10,719	2,183	2,181	53	69

Source: SBM-PMU Odisha

Figure 4-3 Sanitation system at household level and access to toilets as per census 2011



Source: Census 2011
Toilets which directly dispose into drains without onsite sanitation system and/or require night soil to be removed by human or animal are considered as Insanitary

The limited primary survey indicates that connectivity to sewer network is nil. Majority of the households (89%) are dependent on Onsite Sanitation System (OSS) such as septic tanks and pit latrines. 75% of the non-slum households have septic tank compared to 39% in slums. In contrast, 39% non-slum households use single pit. 11% HH reported direct connection of their toilet to open drain (insanitary toilet).

Outfall of 40% of septic tanks/pits OSS is reported to be into open drains which can lead to

contamination of water bodies or environment. Difference in connections from OSS to open drain between slum (78%) and non-slum HHs (46%) is significant (P=0.000).

94% households (HH) reported presence of lined onsite systems which helps in preventing contamination. However average distance found between onsite system and open well or hand-pump or bore-well during survey is 10m, which is less than conventionally considered safe distance of 20m. This holds significance as 48% of HH reported dependence on ground water source near their home. The city administration also use ground water for further processing and supply to citizens as mentioned in Section 2. Also 58%.HHs have OSS connected to soak-pits. Another 58% HHs have never emptied their OSS. Together, this could be a potential source of ground water pollution and associated health problems due to lack of safe distance from water source. Situation with containment system as per the limited primary survey is given in figure below.

Figure 4-4 Situation with onsite containment system as per our primary survey for Sambalpur

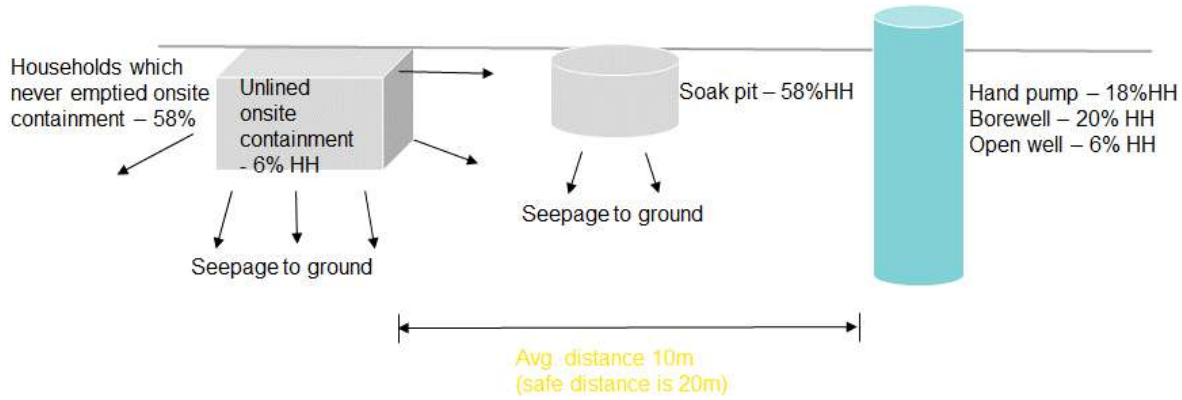


Figure 4-5 Toilet discharge directly into open drain

Some of the stakeholders also brought to light the problem of direct connection to drains.

"Most of HHs have toilet outlets connected to open drains leading to hygiene issues" – District Collector

"More than half of the toilets open to the drains" – Deputy Commissioner.

"Many toilets are connected to open drains which is connected to water body."– Sanitary Inspector

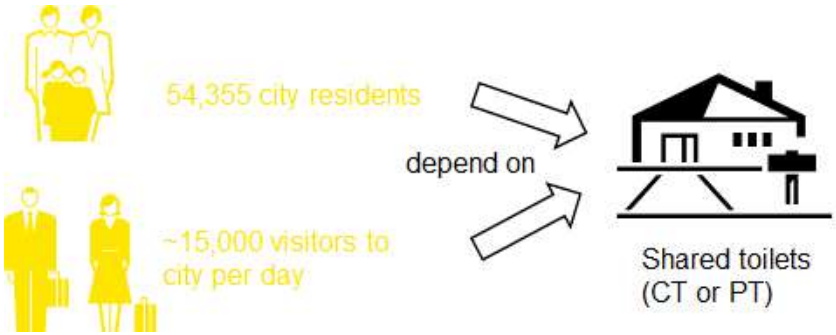
Jaundice, diarrhea and malaria are recurring diseases in Sambalpur due to food and water contamination caused by poor sanitation." - CDMO

"FSSM services are critical for Sambalpur considering its topography. Instances of ground water contamination are recorded frequently due to poor sanitation services and hence FSSM plays a critical role to address this issue." – City Health Officer (CHO)

Case in Point: Presence of insanitary toilets and lack of PT/CT

Sri. Kulamani Sahu, a plumber, lives in Chandan Nagar of Ward No 12 of Sambalpur with 6 family members including 3 children. The family has been living in the house since 40 years. He is the only earning member of the family. The family had a thatched house earlier but have been living in a constructed building since the last 20 years. The family goes out for defecation. The latrine is under construction. The latrine is connected to a pit made out of 4 rings of 6 feet height and covered with cement slabs. The family has connected the pit latrine directly to a *nala* for excess water to be flown to the municipality drain. They defecate near the river bed and take bath as well. The family is not aware about the cesspool services provided by the ULB. Upon further inquiry they said that due to non-construction of latrine and non-availability of public latrines they face difficulty during rainy season as the river bed is submerged with water as the gates of Hirakud Dam are opened to release excess rain water.

4.2 Status of CT and PT



Source: SBM-PMU and SAAP- AMRUT Odisha

As per census 2011, 14,534 HHs do not have access to individual toilets. Of these, 2,181 are to be provided IHHL under the SBM based on status till May 2017. This leaves out 12,353 HHs or 54,355 citizens directly or indirectly dependent on CTs/PTs. City receives average floating population of 15,000 every day[26].

10,719 HHs have applied for provision of IHHL under the SBM. If achieved, this should significantly bring down the need for CT/PT for citizens. A quick calculation of need for toilet seats in CT reveals that 182 seats for men and 240 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.

The HUDD 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, 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. 18 hybrid toilets are allocated for Sambalpur. 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)
Community/Public	19	0	-	-

[26] SAAP- AMRUT Odisha

	Existing complexes (available for usage)	Existing complexes (defunct)	New (under construction)	New (yet to start construction)
toilet[27]				
Hybrid toilet	4	0	14	-
TOTAL	**23**	**0**	**14**	**-**

Source: Sambalpur Municipal Corporation (SMC)

Figure 4-6 Five to ten seat - Newly constructed Hybrid unit at Burla bus stand and Bareipali

Under the scheme of hybrid toilets, presently 18 toilet complexes are to be constructed.

Table 4-3: -Management of PT & CT

	Construction	O&M	O&M revenue source
Hybrid	Private agency (Sulabh)	Private agency (Sulabh) –10 years contract	User fee
PT (existing)	19 - SMC	8 – SMC; 11 - Private agency	User fee

The primary survey indicates that 85% citizens are willing to use CT/PT and many are open to pay for usage. They highlighted concern due to lack of safety and inconvenience as concern. They are willing to explore community led models for O&M of the facilities.

Figure 4-7 Key responses from citizens through primary survey

Willingness to use CT/PT – 85%

Willingness to pay for usage – 58%

Openness for community led O&M– 65%

Deterrent to usage: lack of safety and inconvenience– 75%

4.3 Emptying and transportation

Mechanized emptying and transportation services is provided by the ULB. The current emptying capacity is 6 Kilo Liter (KL) which has increased to 15 KL with introduction of new vehicles from the ULB. Below table provides overall snap-shot of services available in the city. A request for proposal was floated in December 2016 inviting tenders from private operators towards the operation and maintenance of the newly acquired trucks. The tender has been awarded to Ashoka Infracore Private Limited at INR 800 per trip. The service started from 5th June 2017 on the eve of World Environment

[27] SMC counts both community and public toilets together

Day.

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

S. N.	Service provider	Capacity	Service rates (INR/trip/truck)	Service hours	Operating model
1	ULB (existing)	2 trucks X 3,000 L	INR 500	8a.m. to 4 p.m.	Owned and operated by SMC
2	ULB (new)	3 trucks X 3,000 L	INR 800	8a.m. to 4 p.m.	Owned by ULB. Operated by private player
TOTAL		~15,000 L			

Figure 4-8: -Existing old vehicle (left) and new (right) cesspool emptying vehicles of SMC

Vehicles in existing fleet are of 3,000 liter capacity and such vehicles typically have width of 2.2 meter. This creates difficulty in providing services in city like Sambalpur were majority of the roads are of lesser width. This was confirmed during the primary survey which found that 77%of roads have less than 2m width. This could effectively leave services inaccessible to many citizens. In such situation, it is possible that households may resort to other means such as non-mechanised emptying and open defecation to prevent filling of onsite sanitation system.

"Small vehicles would be necessary due to the road width" – District Collector

Cesspool vehicles reaching households with narrow accessibility is one of the key challenges for FSSM in the city – Municipal Commissioner

Lesser trips per day also impacts SMC's cesspool services. Sanitary Inspectors reported during interview that citizens typically have to wait for 3 to 4 days to avail services from the SMC. This could make HHs look for non-mechanized emptying. During the primary survey, 22% HHs confirmed receiving such services.

The key source of information regarding cesspool operation reported by HH is ULBs (28%), newspaper (11%), wall paintings and hoardings (6%) and television advisement (6%). *About 44% of the households did not get information about cesspool operators from any of the source.*

4.4 Treatment and disposal/re-use

Currently, the city doesn't have facility to safely treat and dispose faecal waste. The SMC has designated Bhatra SeTP site for dumping faecal waste disposal. It is more than 7 km from the city. This site is considered to be far for Burla and Hirakud NAC which is now part of SMC. Primary interactions revealed that operators currently dump faecal waste in open fields and drains. This leads to pollution of water bodies and serious health implications.

The limited primary survey revealed only 8% HHs are aware where faecal sludge is being dumped after emptying. While 89% are aware that open defecation causes ill-health to their children, only 10% are aware that faecal contamination can cause regular infection leading to malnutrition and 48% are aware that it is one of the cause of jaundice.

Figure 4-9: -Open drain in which faecal waste is disposed

There are no regulations governing the operations of cesspool operators as confirmed through interactions with ULB officials and operators. Also mechanism to track their operations is presently absent.

"Last major outbreak of jaundice in Sambalpur was in 2015 where many people lost their lives. Drain water seeps through rusty water supply pipelines thus contaminating drinking water." – City Health Officer

"Municipal sewage and septage contributes majorly to the contamination of the river. Mahanadi being the river close to Sambalpur is affected by both industrial and domestic waste." – RO, OSPCB

As shown in the following table, Mahanadi river enters Sambalpur almost uncontaminated before wastewater from the city is discharged into them, if only measured through Biological Oxygen Demand (BOD). However, there are clear indications of coliform in the water even before entering the city; these numbers furthermore increase drastically once the city's wastewater combines with the rivers. Odisha State Pollution Control Board (OSPCB) has observed 100% deviation in present level of Total Coliform and for BOD levels.

Figure 4-10: -River water pollution[28]

River	Location	Biological Oxygen Demand (BOD) (milligram/liter)				Total Coliform (TC) (MPN/100ml)				Present freq. of deviation	Present % deviation
		2012	2013	2014	2015	2012	2013	2014	2015		
Mahanadi	Up-stream	1.6	1.3	1.1	0.9	3,608	7,710	14,036	12,692	9 (TC)	75
	Down-stream	2.8	3.0	2.8	2.6	**76,042**	**38,300**	**49,091**	**46,742**	**2 (BOD, 12 (TC)**	**17 (BOD), 100 TC**

The State Government has taken steps to set-up septage treatment plants to treat and thereafter safely dispose or reuse the faecal waste. This is being covered under the AMRUT programme. Summarized information on the proposed SeTP is given below.

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

Table 4-5: -Snapshot of proposed SeTP

Capacity	Area	Cost	Lifecycle period	Distance from city	Technology	Expected date of completion
20 KLD (Kilo Liter per day)	2 acre	1.92 crore	20 years	10 km from SMC	Sludge thickening tank + ABR[29] + Sludge drying bed + PGF	Work has started with 10% completion

Figure 4-11 : - Location of designated faecal waste dumping site and proposed SeTP

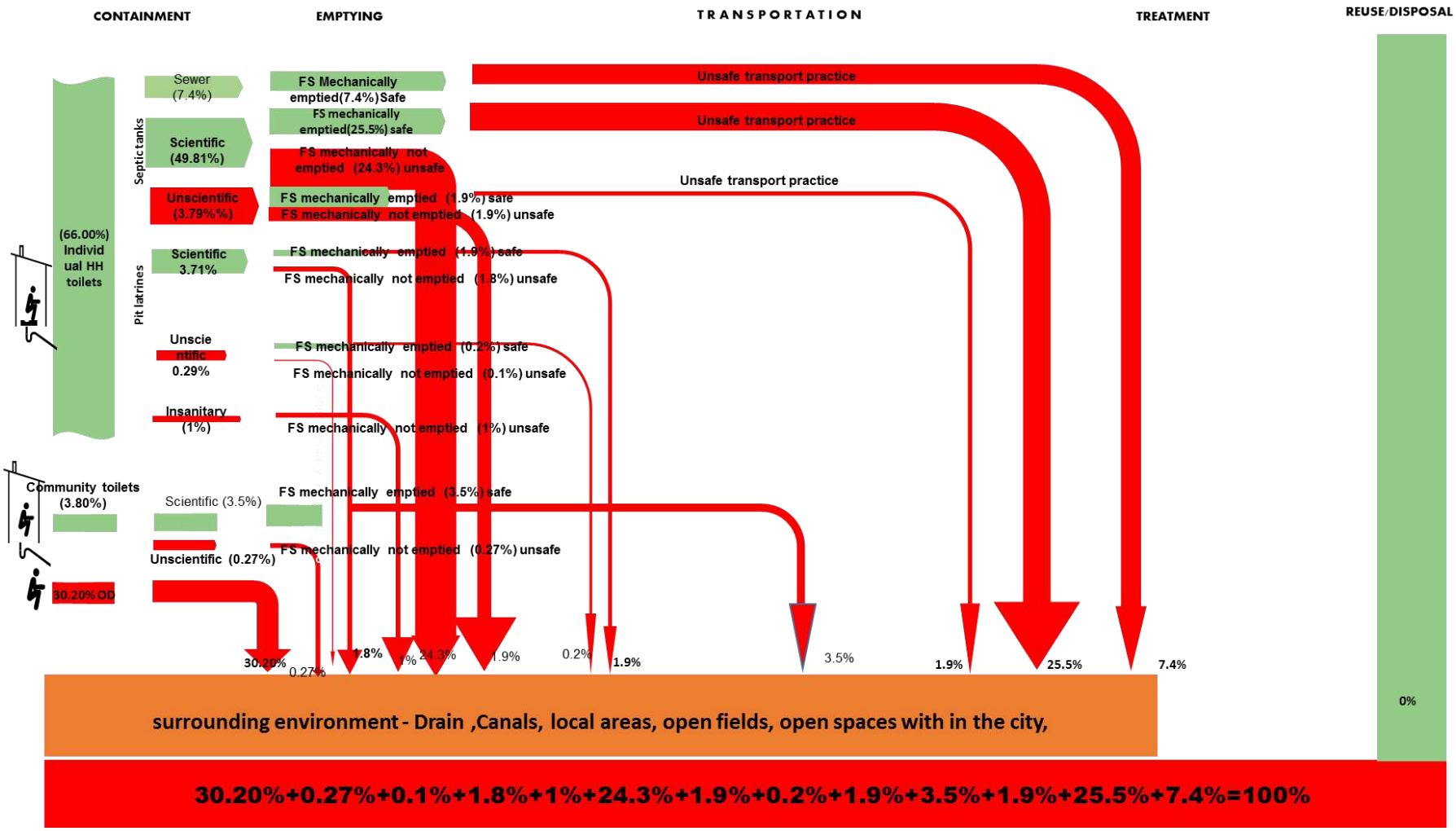
In addition, during the construction phase of the SeTP, temporary safe disposal is required for the faecal waste being generated. As such, an interim solution of deep row entrenchment has been identified and prepared in Bhatra area. Total 0.54 acre of land for deep row entrenchment considering the present situation of on-site containment.

[29] Anaerobic Baffle Reactor (ABR), Planted Gravel Filter (PGF)

Figure 4-12 Typical deep row entrenchment site

Source: FSM book, 2014

4.5 Shit flow diagram (SFD) of Sambalpur



4.6 Assumption made for SFD

- Census 2011 data used for access related information
- Scientific and unscientific septic tanks and pit latrines are divided in the ratio 92:8 respectively based on finding of our primary survey covering lined and unlined containment system.
- 'Other systems' identified in census is included as pit latrine
- Toilet which have night soil removed by animal and human as part of insanitary toilet.
- FS emptying and transport is divided as safe and unsafe in the ration of 52:48.
- 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 the district level planning committees. Despite the abovementioned provisions, urban development programs 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 Mission 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

Sambalpur Municipal Corporation (SMC) is an amalgamation of 3 ULBs namely Sambalpur Municipality, Hirakud NAC (Notified Area Council) and Burla NAC and surrounding villages.

Although the SMC was notified in 2013, no elections have been held so far. However, Burla and Hirakud NAC continue to be critical stakeholders. Seven key roles have been identified across the sanitation value chain encompassing funding, planning & designing, implementation, operation & maintenance, policy support, regulatory function and monitoring mechanism. The table below presents the outcomes of the mapping of stakeholders for overall sanitation management in Sambalpur.

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

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

	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	Mission directorate	ULB (Sanitation department)	ULB(Sanitation department)
Solid Waste Management	ULB (Sanitation and engineering)	ULB (Sanitation and engineering)	ULB (Sanitation and engineering)
Slum Development/ Urban Poverty Program	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. Therefore, government may consider giving opportunities and chance to the ULBs to undertake urban infrastructural projects so that they can gain knowledge, skill and experiences to usher a new beginning and have the required power as well as accountability.

It has been observed from the past experience of implementing projects that often the beneficiaries

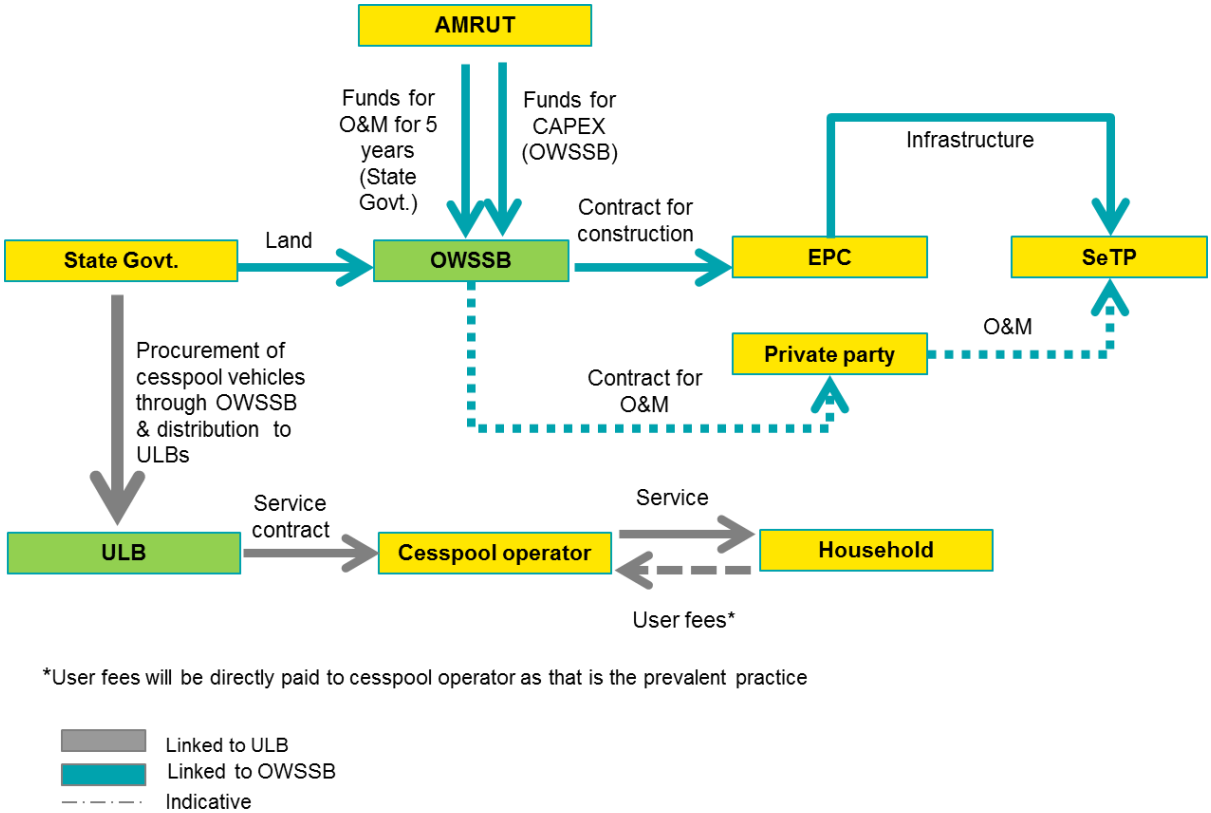
who are most affected by the project outcomes do not have adequate influence on the project. On the other hand, those stakeholders who have high influence often do not have adequate interest in project activities. Hence, a carefully designed strategy of engaging the stakeholders based on an analysis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

Key issues in stakeholder interrelationship

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

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

Table 5-4: -Institutional framework for 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 of the O&M of the treatment plant is by the private parties. The cesspool trucks are placed with the ULBs by the OWSSB[30] after central procurement at the state level (June 2016). ULBs are responsible for engagement with private operators for emptying and transportation. Thus different parts of the value chain are mapped to different stakeholders which can result in coordination challenges.

2. Further clarity is required on-
   - Revenue generation from SeTPs

[30] On behalf of H&UDD

- 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 departments. OSPCB is responsible for monitoring to ensure that dumping of waste into drains or rivers. While they have the authority to penalize, they can only notify the private and ULB run vehicles in case of indiscriminate dumping. They have the regulatory power but no executive authority to implement it. It is important that monitoring is done in coordination and not in insolation by multiple departments.
6. City systems have weak structure as they have no formal power. Under the AMRUT programme, ULBs are the prime stakeholder for reforms implementation. However, in practice, ULBs have formally transferred the service procurements and implementation of infrastructural projects under AMRUT to the parastatals through ULB's council resolutions and through tripartite agreements between H&UDD parastatals and ULB. But district level institutions have shown interest in taking responsibilities provided they are given clarity of their roles over ULB affairs by the government. This is a positive trend observed during interactions with the stakeholders.

6 Capacity Building

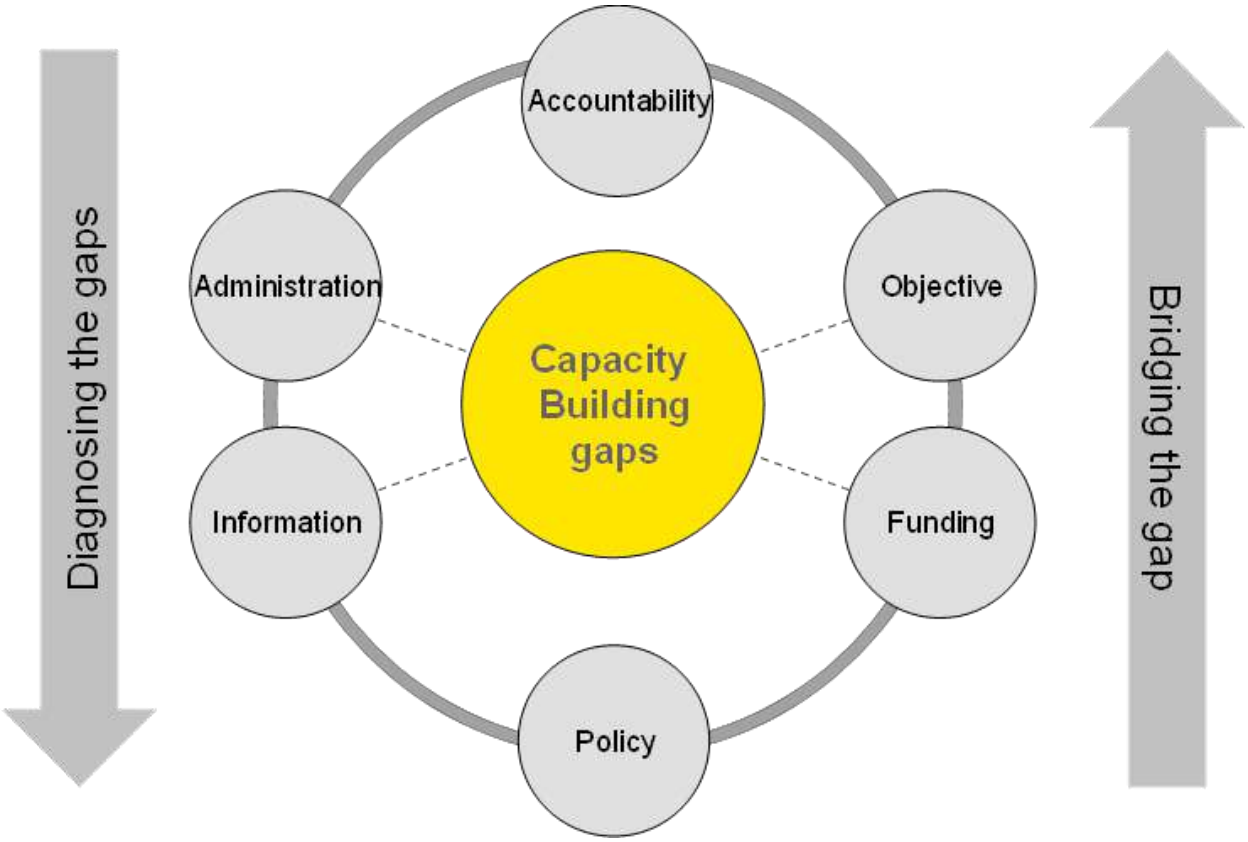


Table 6-1: -Key gap assessments and strategies for capacity building in Sambalpur

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 programs ► Formalization of community level institutions such as CSTF, WSC in city system ► Strengthening front-line departmental groups for FSM 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 Councilor ► 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 in the city like Burla Medical College, Burla University etc.	► SHGs and SHG federations ► Ward councilors and standing committee members ► City officials ► Community organizers, sanitary inspectors - MAS, WKS, Youth Clubs, Traders associations ► Slum committees directly interacting with PCB, OWSSB, PHEO,SMC, RWAs and colony societies ► Engagement with the corporates, lawyers' association, bus owners associations, workers unions, doctors' association, Burla Medical College, Burla University, 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 ► Accountability and power lies with different stakeholders leading to gaps in planning and implementation	► 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 corporators (when formed)	► Commissioner ► Deputy Commissioners ► Additional commissioners ► Engineers ► Finance section ► City health offices ► Sanitation department

Key capacity areas	Gaps Identified / observations	Strategies suggested	Key target groups
	► Incoherent relationship between council, standing committee and executive wings (commissioner) and district administration ► The capacities of engineering department are already maxed and may not have capacities to manage the expected workflow of waste-water and SeTPs	► 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 S0Ps 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	► PIUS- AMRUT, SBM, PMAY, NULM and others ► Departmental front line organizations ► Mayor, Deputy Mayor ► Standing Committee ► Corporators
Administrative/ governance areas	► Multiple agencies are involved in services and no coordination and accountability ► Lack of skilled manpower ► Low planning and spending capacity of available funding ► Low capacity in mobilization of own sources of revenue and alternative financing sources (DMF, CSR, PPP and others) ► Awareness of FSSM is limited, whether it is a complimentary, supplementary or alternative solution among other technical aspects. Similarly, the planning needs to be integrated going forward, for example in Sambalpur 100% areas of households and institutions are targeted to be covered in the sewerage services by 2022 ► 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 ► City Commissioner ► Deputy Commissioners ► City Engineer ► City sanitation officer ► Officials of SDA ► Members DUSC ► Members of CSTF ► Members of DPC ► Members of Standing Committees ► Councilors of SMC ► Key institutions in the city including other line departments – health, education MLAs, MPs, Department of social justice ► MCL(Mahanadi Coal field Limited)

Key capacity areas	Gaps Identified / observations	Strategies suggested	Key target groups
			► Vimsar (Veer Surendra Sai Medical College and Hospital Burla Sambalpur Odisha.) ► Water resource department ► Private agencies
Creation of environmental engineering cell in engineering section	► SMC 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	► 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 in Sambalpur 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 SMC 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 ► Institutions like Indian Institute of Management (IIM) Sambalpur, Odisha state open university Sambalpur, and VIMSAR can play an important role in promoting sustainable sanitation with technical and managerial inputs	► Private operators ► Masons ► Banks and financial institutions ► Skill development authorities ► NULM ► NBFCs and MFIs ► IIM,OSOU,VIMSAR ► Mayor, Deputy Mayor of SMC

7 Primary survey – household level

7.1 Rationale of the primary survey

As described, a limited primary survey is conducted in the selected areas of Sambalpur 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 337 households are surveyed for the demographic assessment, out of which 52% households are from non-slum areas. Nature of the property is mostly residential (96%). The owner resided in 49% of the surveyed households and 41% 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=464)		
Slum	162	48
Non-slum	175	52
Nature of property (N=464)		
Residential	325	96
Institutional	1	1
Commercial	0	0
Any mixed	11	3
Household ownership (N=464)		
Owned	165	49
Rented	30	9
Staff quarter	3	1
Public land	139	41

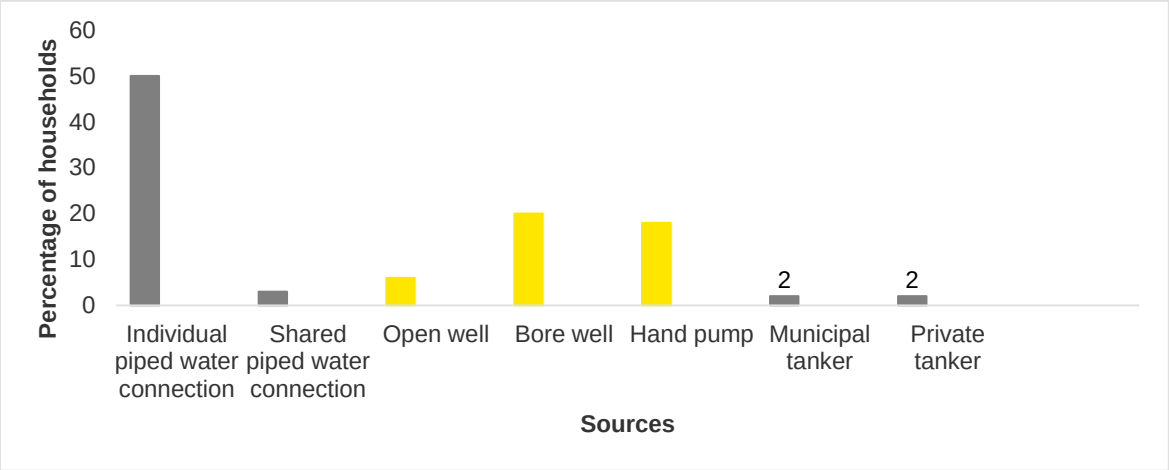
7.3 Source of water for domestic use

Prime source of domestic water for 50% of households is municipality water supply. Households with piped water connection, 94% had water supply less than two hours per day and only 6% reported that their piped water connection supply was two to four hours per day. About 48% depended on hand pump, open well and bore well.

In order to increase the demand on latrine use, availability of water is an important component. 73% respondents reported that availability of domestic water is not sufficient for maintenance of toilet.

There is a high chance of groundwater contamination for households having well/hand pump in close proximity to pit/septic tanks owing to seepage from the pit / septic tanks. The survey result shows that households have well/ hand pump situated in house/ plot with average distance of 10 meters from pit/ septic tank.

Figure 7-1: -Primary source of water

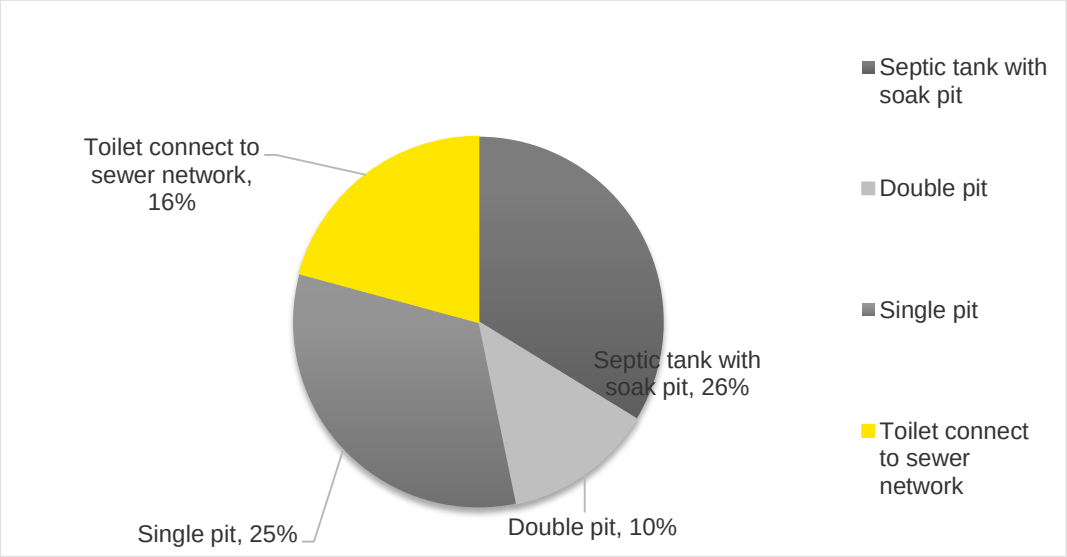


7.4 Household sanitation accessibility/facility scenario

Out of 337 households, 65% of the households had individual latrines and only 4% depended on community/public toilets.

39% slum HH have septic tank and 49% have single pit latrines whereas, 75% non-slum HH have septic tanks and 16% non-slum HH have single pit latrines. Detailed information on disposal from latrine connection for both slum and non-slum HH is presented in Figure 7-2

Figure 7-2: -Latrine connection for disposal



7.4.1 Household views towards community/public toilets

Among the HHs using community toilets, all of them reported that there is a separate toilet for male and female and opined the availability of dustbin for disposal of sanitary pad. 33% respondents said that there is an availability of hand washing. With respect to user fee, 50% HH paid less than 50 INR and the rest spent 50 to 100 INR per month. With respect to maintenance of the toilets, 75% HH reported that the maintenance was done by the municipality, while the rest felt that the maintenance was done by the community.

Key findings

- 67% households using community toilets felt that the toilets were clean and well maintained
- Most of them perceived that there is a scope for improvement in facilities, maintenance of toilets and security situation at the facilities.

7.4.2 Open defecation scenario

Out of 105 households which were practicing open defecation, 96% of them did not have had access to community/public toilets. Among the household practicing OD, when asked about problems associated with OD, 98% reported about lack of privacy as the major reason, 88% perceived that during OD there is lack of safety for girl and women, 70% felt that inconvenience in terms of time (before dawn and after dusk) and 64% reported inconvenience in terms of distance.

About 6% HH, in spite of having latrines practiced OD, mostly because of lack of availability of water (85%), and the remaining 15% prefer to defecate outside.

Table 7-2: -Open defecation scenario

Open defecation scenario	N	%
Reason for practicing (N=105)		
Lack of access to PT/CT	101	96
Habit	4	4
Perceived problem associated with OD		
Lack privacy **(N=105)**	103	98
Lack of safety for girl and women **(N=105)**	92	88
Lack of dignity **(N=105)**	83	79
Inconvenience in terms of time **(N=105)**	74	70
Inconvenience in terms of distance **(N=105)**	67	64
Infections and diseases **(N=105)**	20	19
Willing for construction of individual household latrine (N=105)	41	39
Reasons for not willing to construction of individual household latrine (n=105)		
Lack of fund	32	48
Lack of space	37	52
Willing for individual superstructure with pit/septic tank (N=105)	21	20
Will be interested for use of community/public toilet (N=105)	89	85
Perceived reasons for not willing to use community/public toilet		
Not hygienic **(N=16)**	4	25
No water facility **(N=16)**	2	12
Unsafe/insecure **(N=16)**	12	75
Inconvenience **(N=16)**	12	75
Not willing to share with others **(N=16)**	3	19
Willing to pay for using community/public toilet (N=105)	61	58
Willing to community level management of community/public toilet (N=105)	68	65
Number of household practice OD in spite of having latrine facility (N=220)	13	6

Open defecation scenario	N	%
Reason for practice OD in spite of having latrine facility (N=13)		
Lack of water facility	11	85
Small septic tank or pit	0	0
In order to avoid frequency of cleaning	0	0
Cultural preference	2	15

Key findings

- There is significant difference between OD practices among slum and non-slum households (P=0.000); above 43% of the slum houses practicing OD, however only 11% of non-slum households practice OD.
- Latrine accessibility also significantly varied among those households which owned the house and those households which reside in government land (P=0.010). Owned households have better latrine accessibility (73%) than households reside in government land (58%).
- Among the OD households 39% are willing for construction of individual household latrine.
- 61% HH are not willing to construct individual latrine because of lack of funds (48%), and lack of space (52%)
- 85% of the household practicing OD were interested to use community toilet
- 58% of the households were interested for paying money for use of the CT
- 65% agreed for community level management of CT

7.4.3 Septic tank/pit status of the households

Total 206 households had septic tanks/pits. About 50% HHs had their septic tanks/pits located inside the house. Out of 104 septic tanks/pits located outside the house 69% were in front and 31% were located in back side of the house. About 72% of the septic tank/pits were rectangular in shape. Around 85% of the households sought advice from mason/contractor for designing and construction of septic tank/pits, none of the household sought advice from municipality officials. Only 5% household checked ground water level during construction of septic tank/pits. About 94% of the septic tanks were lined.

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

Description of septic tank/pit	N	%
Location (N=206)		
Inside the house	102	50
Outside the house (n=104)	104	50
Front side of the house	72	69
Back side of the house	32	31
Shape (N=206)		
Rectangular	148	72
Circular	58	28
Seek advice for designing and construction (N=206)		
Mason	173	85
Contractor	29	14
Municipality officials	0	0
Neighbor/Relative/Friend	6	1

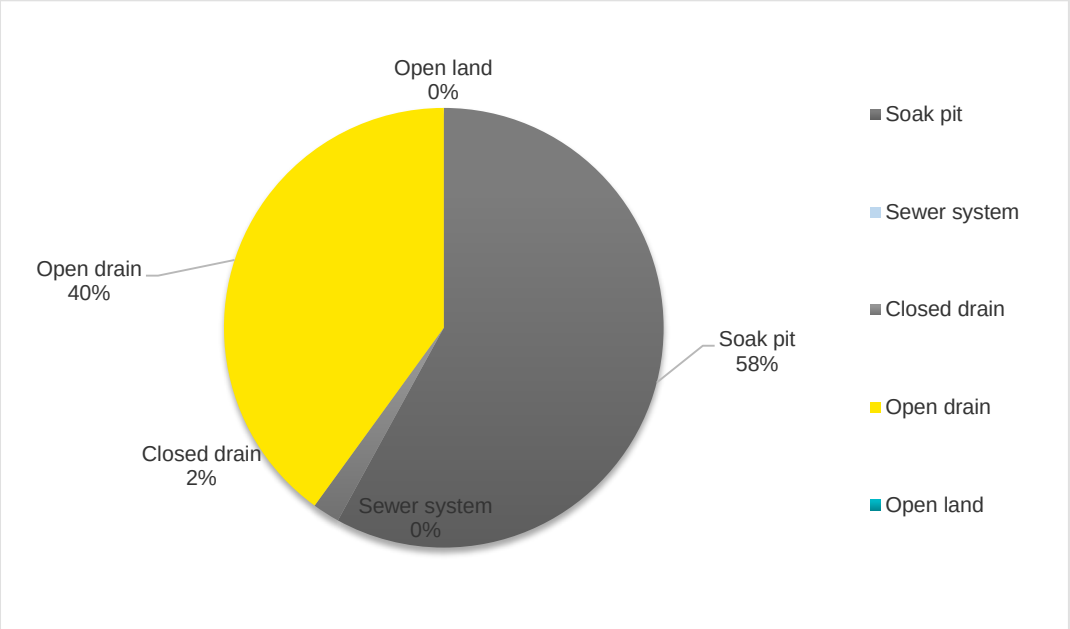
Description of septic tank/pit	N	%
Ground water level checked before construction (N=206)	11	5
Type of the lining (N=206)		
Lined	194	94
Non-lined	12	6
Gray water connection to septic tank/pit (N=206)		
Kitchen water/washing/bating water/ Surface/roof water	0	0
Size (N=206)		
Breadth in ft., Average (range)	5 (2 – 15)	
Length in ft., Average (range)	6 (2 – 20)	
Depth in ft., Average (range)	8 (2 – 18)	

Figure 7-3 details the outfall connection for both slum and non-slum HH

Key findings

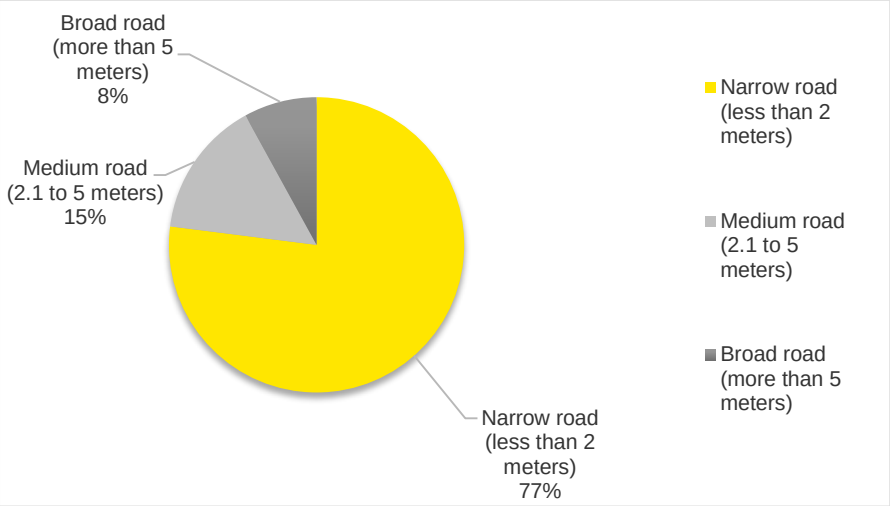
- Difference in connections from OSS to open drain between slum (65%) and non-slum HHs (32%) is significant (P=0.000).
- 31% slum HH have outfall connection to soak pits compared to 67% non-slum HH

Figure 7-3: -Outfall connection of septic tanks/pits



From road accessibility perspective, 77% households had narrow road (less than 2 meters) and 15% households connected with medium road (2.1 to 5 meters) as described in Figure 7-4

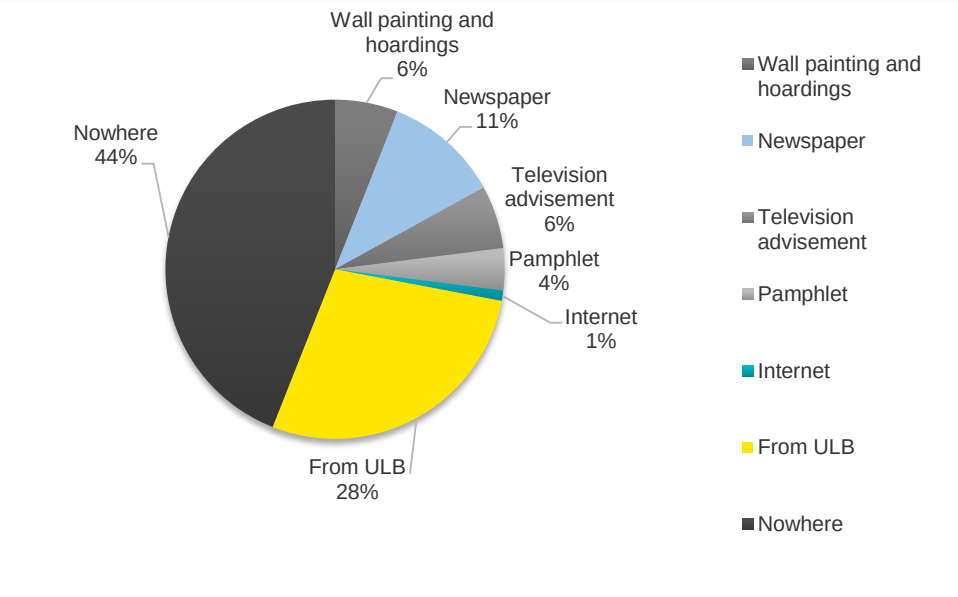
Figure 7-4: - Road accessibility to households having septic tanks/pits



7.4.4 Septic tank emptying services

The key source of information regarding cesspool operation was ULB (28%), newspaper (11%), wall paintings and hoardings (6%), and television advisement (6%). About 44% of the households did not get information about cesspool operators from any of the source. Figure 7-5 presents the detail source of information.

Figure 7-5: -Source of information regarding cesspool operations



Out of 206 households having septic tanks or pits, 27% preferred municipality as the service provider, 17% preferred –non-mechanised cleaning and 56% had not yet decided the service providers. About 72% contacted government cesspool for emptying, however, 4% communicated with manual laborers. Out of 206 households, only 78% received the services from government cesspool operators. Figure 7-6 presents the description of the operators for septic tank cleaning.

For 59% HHs, the cleaning frequency was more than 36 months and for 20% HHs it was between 12-24 months. Around 76% households did not face any barriers during cleaning, however, only 24% households faced barriers related to breaking of floor tiles/manholes and difficulty to locate the septic tanks. Above 70% households were satisfied in emptying, transportation and disposal.

Table 7-4 presents the detail of septic tank emptying practices. Around 55% households paid less

than INR 1000, 20% spent INR 1,000 to 1,500, 11% spent INR 1,500 to 2,000 and 14% spent more than INR 2,000 INR for emptying the septic tank.

Figure 7-6: -Septic tank emptying services received

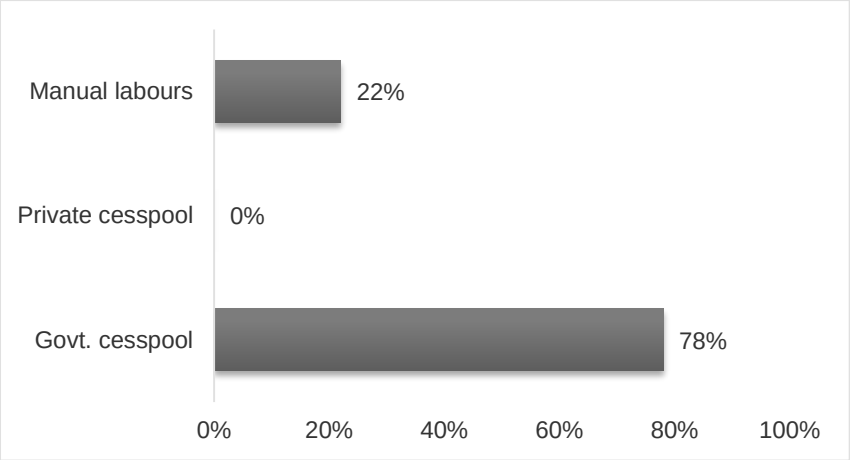


Table 7-4: -Septic tank emptying practice

Septic tank empty practice (N=206)	n	%
Preferred service provider (N=206)		
Municipality	55	27
Private	0	0
Local labor	35	17
Self	0	0
Not yet decided	116	56
Contacting for emptying (N=206)		
Govt. cesspool	148	72
Private cesspool	2	1
Manual labors	9	4
Not yet communicated	47	23
Cleaning frequency of septic tank (N=206)		
Not yet clean	117	58
Cleaned (N=87)	87	42
6 months	6	7
6 to 12 months	11	13
12 to 24 months	17	20
24 to 36 months	2	1
More than 36 months	51	59
Amount spent for emptying process (N=87)		
500 to 1000 INR	48	55
1001 to 1500 INR	17	20

Septic tank empty practice (N=206)	n	%
1501 to 2000 INR	10	11
2001 to 3000 INR	1	1
More than 3000 INR	11	13
Barriers in emptying (N=87)		
Access of cesspool truck to house	0	0
Breaking floor tiles/manholes	21	24
Difficult to locate	0	0
No barriers	66	76
Satisfied in emptying, transportation and disposal (N=87)	61	70

Key findings

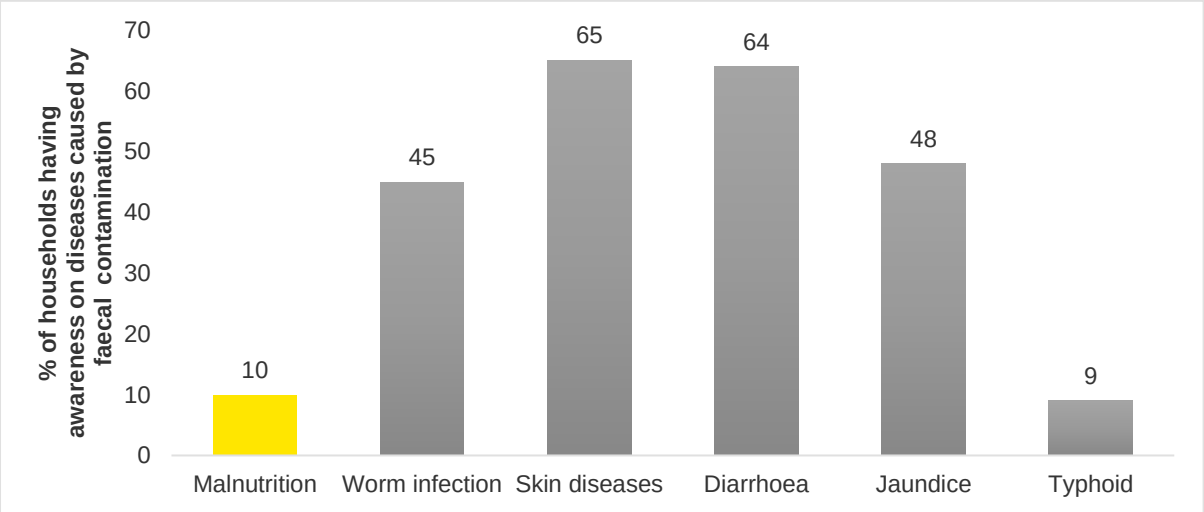
- ULB is the most preferred service provider in Sambalpur with 72% preferring it
- 72% HHs having septic tank with soak pits and 45% HHs having single pit latrines have never cleaned their septic tank or pit latrine yet
- Above 70%% HHs were satisfied in emptying, transportation and disposal of sludge.
- 24% reported that breaking floors tiles/manholes was a major barrier while emptying septic tanks/pits

7.4.5 Awareness on environmental and health impact of sludge disposal

Out of 337 households, only 44% households were aware of the adverse health impact of unsafe sludge disposal. Out of 337 households those who were aware on disposal of collected sludge, 4% viewed that the collected sludge was disposed at drain/canal, and 4% perceived that the disposal happens at agricultural land; however 92% reported that they were not aware about the disposal of the faecal sludge.

Only 3% HH family members had suffered from diarrhea and only two family members suffered jaundice during last three months from the survey. Figure 7-7 shows that 89% on ill effect of open defecation on child health, 66% on faecal contamination leading to diarrhea, 41% on faecal contamination causes worm infection.

Figure 7-7: -Awareness on diseases caused by faecal contamination



Key findings

- 92% HHs unaware where faecal sludge is dumped after emptying.
- While 89% are aware that open defecation causes ill-health to their children, only 10% are aware that faecal contamination can cause malnutrition and 48% aware that it is one of the cause of jaundice.

7.5 Status of community engagement in sanitation activities

Only 9% of the households reported that Mahila Arogya Samiti and 4% reported that Self Help Groups were creating awareness on sanitation. However, they were only promoting use of public or community toilets. Table 7-5 details of community engagement is provided.

Table 7-5: -Community engagement

Community engagement in sanitation	n	%
Community group create awareness on sanitation (N=337)		
Mahila Arogya Samiti	31	9
Self Help Group	12	4
Ward Kalyana Samiti	23	7
Youth club	7	2
Pooja committee	5	1
Sanitation related issues discussed during community engagement (N=337)		
Children and women health	60	18
Faecal sludge and septage management	0	0
Promoting use of public and community toilets	17	5
Other sanitation related issue	15	4

8 Key issues and action plan

The rapid assessment study 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 section 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
- Deputy Commissioner & SBM nodal officer
- Sanitary Inspector
- Households
- Project Director, District Urban Development Authority (DUDA)
- Executive Engineer, Public Health Engineer Organization (PHEO) & City Engineer
- City Health Officer
- Chief District Medical Officer
- Project Engineer, Odisha Water Supply and Sewerage Board (OWSSB)
- District Social Welfare Organization
- Masons
- Cesspool operator
- Regional Officer, OSPCB

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 1%of the households have their toilet outlets to open drains[31]. ► Basis the limited household survey of 337 households, it was it was reported that 11% HHs have insanitary toilets and 40% HH having septic tanks have their outfall connected to open 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 Sambalpur.	► 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 after construction. ► Ward committees need to be sensitized on this to convey to households in their respective wards. ► CBOs such as MAS, SHGs and Ward Sanitation Committees should be oriented to spread awareness among households in their respective wards. ► Information on onsite sanitation system 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 Odisha septage management guidelines which mandates HHs to make it compulsory for all households to construct septic tanks and stop the sludge from out flowing into municipal drains. ► Amendments could be made in ULB building bye-law to include provision of scientific septic tank as part of building approval process.	**Governance reforms**
2	Unscientific septic tanks	► As per our primary survey ○ Outfall of 40% of septic tanks into open drains. Difference in connections from OSS to open drain between slum (65%) and non-slum HHs (32%) is significant ○ 6% households (HH) reported presence of unlined onsite systems and majority of them are single pits. ○ About 58%.HHs have OSS connected to soak-pit. ○ 58% HHs 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**
			► A regulatory set-up can be proposed for ensuring effective implementation of the Odisha septage management guidelines which mandates ULBs 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.	**Governance reforms**

[31] *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
		► As per PHEO, there are 2221 tube-wells. Further, 44% of the city population depends on groundwater for water supply. ► As per the SLIP report, 2015, present source of water used is ground water. ► 85% 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 the 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.	Communication messages to HHs with focus on: ► Dos and Don'ts of building septic tanks ► Importance of schedule desludging and how to do it ► How treatment of septage and sludge before disposal has an positive impact on health and environment ► 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**
			► Explore potential for scheduled desludging program	**Infrastructure (infra and O&M)**
3	Practice of open defecation	► As per primary survey, 96% of 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 lack of water facilities (85%) and habit/ culture (15%) ► 39% households not having toilet access and resorting to OD are willing to construct one. ► 85% HHs interviewed during primary survey showed willingness to use CT/PT.	► 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 need 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 a targeted households who do not have access to toilets.	**IEC/BCC**
4	Lack of space for IHHL	► As per the household survey, 52% households feel that there is lack of space for constructing IHHL ► 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	► 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. ► 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	**Infra (infra and O&M)**

S. No.	Key issue/ observation	Supporting data	Proposed interventions / Action point/	Thrust area
			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	► The household survey highlighted two primary reasons for not using CT/PT - Unhygienic toilet (25%) and lack of water in facility (85%).	► Engaging community in taking ownership CT/ PT while involving a private firm for management. ► Innovative models for O&M of these shared toilets to be explored while learning from practices adopted in other cities. ► Plan for refurbishment of the defunct shared toilets through SBM and other avenues ► Develop sustainable ways to ensure 24X7 availability of water and electricity	**Infra (infra and O&M)**
6	Challenges in emptying septic tanks due to narrow lanes and low usage of mechanized service	► As per household survey, 77% HHs have narrow roads (less than 2m width). This leaves them inaccessible to majority of existing fleet of city with ULB. ► 58% reported during survey that they never cleaned their septic tank or pit ► 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. Currently 22% HH confirmed receiving such services.	► Size of cesspool vehicles should be planned keeping in mind the narrow roads and explore alternative technologies for emptying during procurement. Solutions of mechanized emptying such as Vacutug to be explored along with manually operated mechanized machines in slums with extremely narrow lanes. ► Need for transfer stations[32] 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 ► Devise monitoring mechanisms to track usage of mechanized emptying services	**Infra (infra and O&M)**

[32] 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
		► 44% HHs have reported that they aren't aware of any communication medium through which they can access information on mechanized emptying service providers	► 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/BC**
			► A regulatory set-up can be proposed for ensuring effective implementation of the Odisha septage management guidelines which mandates HHs. 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. ► Explore potential for empanelment of cesspool emptying service providers with ULB and provisions to implement applicable sections of septage operating guidelines 2016 for emptying and transport activities.	**Governance reform**
7	Sewage disposal in adjoining rivers	► As per OSPCB report on sewage pollution, the total coliform (TC) for downstream of Mahanadi ranged between 51,000 – 55,000 MPN/100ml for the years 2012-2015. During the consultations, it was found that more than 11% into Mahanadi from drains. ► The STP with capacity 40.00 MLD located in Bhatra is under construction. Therefore, the sewage generated in the city is currently not treated. ► Separate treatment plant for FSSM or STP to be built for Burla and Hirakud areas to cater to the households in that area	► 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 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 river	**Governance reform**

S. No.	Key issue/ observation	Supporting data	Proposed interventions / Action point/	Thrust area
8	Improper disposal of faecal sludge	► There is no identified disposal site by the ULB. Therefore, undocumented process of disposal of faecal sludge from the ULB cesspool vehicle. ► Cesspool emptying truck operators are not governed by any regulation for their operation	► Readiness of SeTP to ensure provision of adequate facilities and efficient operations ► A pilot project using GPS technology tracking could be initiated in select wards. ULB vehicles can be mounted with GPS devices which track the movement of vehicles. Considering that site for temporary disposal is being identified, GPS tracking would help map the trips made to this site.	**Infra-structure (infra and O&M)**
			► Strengthened monitoring at community level by building capacity of MAS, Ward Sanitation committee, CSTF and SHG to promote disposal of waste at designated sites	**Capacity building**
			► Communicate the harmful impact of indiscriminate dumping non-mechanized emptying to relevant stakeholders - citizens, leaders, community groups, sanitation workers and ULB staff	**IEC/BCC**
			► Regulation at ULB level to enforce disposal of faecal waste at only designated site	**Governance reform**
8	Re-use of treated waste	► Potential for re-use of treated waste water and dried manure generated post treatment is not yet explored	► Implementation strategy and plan to be devised and interventions in other places. ► Market for manure and treated water to be explored and included as part of the O&M contract to be defined for SeTP operator	**Infra-structure (infra and O&M)**
9	Recurring incidence of water borne diseases	► As per discussions with ULB officers, health officers and CBO's, jaundice and diarrhea are recurring diseases. ► The survey suggested that presence of unlined septic tanks (6%) and average distance between septic tank and water source at 10m is also a probable cause of water borne diseases as 44% HH are dependent on ground water sources near their house.	► Communication messages for CBOs to link the adverse effect of poor sanitation and FSSM on water and food contamination and consequent effect on health ► Inform citizens about options available for retrofitting existing unscientific septic tank	**IEC/ BCC**

S. No.	Key issue/ observation	Supporting data	Proposed interventions / Action point/	Thrust area
		► As per PHEO, the city is mostly reliant on ground water		
10	Attitude of people towards sanitation and hygiene	► Citizen's apathy and lack of participation and ownership for sanitation and hygiene was reported in FGD and IDI. ► As per FGD 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. 9% of the households reported that MAS, 4% of the households reported that SHGs and 7% WKSs are creating awareness on sanitation.	► Building capacity of CBOs such as MAS, SHGs and Ward Sanitation Committees to spread awareness on importance of sanitation, hygiene and FSSM among households in their respective wards.	**Capacity building**
			► For ULB officials (especially Community Organizers, Sanitary Inspectors), CBOs on FSSM and on the key messages to be conveyed to community	**IEC/BCC**
11	Gaps in stakeholder engagement , coordination and institutional framework	► OWSSB constructing SeTPs and will take care of O&M until the facility is handed over to the ULB. Further clarity needs be brought in for - a. Revenue generation from SeTPs b. Cost recovery from reuse of treated resources c. Tariff policy d. Transition plan and management after 5 years ► There is a need of integrated approach to FSSM. Multiple department work are currently working in silos. ► ULB 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 waste water. ► Inputs from this model to be incorporated as part of O&M contract for private agency ► Potential integrated FSSM contract i.e. cesspool operation and SeTP operation to be checked. ►	**Infra (infra and O&M)**
			► Capacitate ULB, parastatal and district officials 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 ►	**Capacity building**
			► Strengthening district administration through participatory planning in city levels for integration with district planning and effectively escalate the issues to state levels through planning structures ► Restructuring the engineering department with added focus on environmental engineering	**Governance reforms**

S. No.	Key issue/ observation	Supporting data	Proposed interventions / Action point/	Thrust area
			► Focus should be on zone and ward level interventions – a coordinated programme and overall M&E at broader level ► Formalization of community level institutions such as CSTF, WSC in city system ► Service level scores in each wards including sanitation and its integration with CSPs	
12	Limited awareness created by CBOs such as MAS, SHG, WKS and other citizen groups on FSSM	► Primary survey shows that only 9% of the households reported that Mahila Arogya Samiti (MAS) and 4% reported that Self Help Groups (SHGs) were creating awareness on sanitation. Also, they were only promoting use of public or community toilets and about children and women health ► HHs reported during survey that FSSM is not being discussed currently during the community engagement of these CBOs	► Capacity building programme focused building understanding of sanitation and FSSM among bodies that function at various levels in the urban areas of district in the following order: District Urban Sanitation Committee (DUSC), City Sanitation Task Force (CSTF), Ward Kalyan Samiti (WKS), MAS and SHG. ► Monitoring of dissemination and concurrent evaluation of impact achieved	**Capacity building**
13	Lack of funds & spending	► 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	► 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
	capacity at the ULB level	level as a major bottleneck to undertake need based 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

9.1 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/ନିର୍ଦ୍ଦିଷ୍ଟ ଭାବେ ନର୍ଦମା ମଳ ର ଅଭ୍ୟାସ ଏବଂ ଏହାର ସଫା ପରିଚାଳନା ବିଷୟରେ ସର୍ଭେ

ସର୍ଭେ ପ୍ରଶ୍ନାବଳୀ

Form ID:
ସୂଚନାପତ୍ର

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

<u>ସମ୍ମତି / ଅନୁମତି ପ୍ରମାଣପତ୍ର</u>

ଅଂଶଗ୍ରହଣକାରୀ/ ଅଭିଭାବକଙ୍କର ମନ୍ତବ୍ୟ

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

ଅଂଶଗ୍ରହଣକାରିଙ୍କ ଦସ୍ତଖତ_____

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

ଅଂଶଗ୍ରହଣକାରିଙ୍କ/ ଅଭିଭାବକଙ୍କର ଟିପ ଚିହ୍ନ

ସାକ୍ଷ୍ୟକାରୀଙ୍କ ଦସ୍ତଖତ _____

ତାରିଖ (ଦିନ / ମାସ /ବର୍ଷ) _____

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

ଅନୁସନ୍ଧାନକାରିଙ୍କ ଦସ୍ତଖତ_____

ତାରିଖ (ଦିନ / ମାସ /ବର୍ଷ)_____

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

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

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

SECTION B: WATERବିଭାଗ-ଖ : ପାଣି

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

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

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

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

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

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

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

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

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

43	Who is your preferred service provider for emptying septic tank? ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ସଫା କରିବା ପାଇଁ ଏମାନଙ୍କ ମଧ୍ୟରୁ ଆପଣ କାହାକୁ ପସନ୍ଦ କରନ୍ତି ।	Municipalityମୁନସିପାଲିଟ Private operatorବେସରକାରୀ ସଂସ୍ଥା/ଅପରେଟର Local Labourସ୍ଥାନୀୟ ଶ୍ରମିକ Self ନିଜେ Any otherଅନ୍ୟକେହି	
44	How much do you pay for the emptying services? *(Encircle appropriate no.)* ସେପ୍ଟିକଟ୍ୟାଙ୍କ ସଫା କରିବା ପାଇଁ କେତେ ଟଙ୍କା ଦେବାକୁ ପଡିଥିଲା ? (ସଠିକ ଉତ୍ତରରେ ଟିକ୍ କରନ୍ତୁ)	Rs 500 – 1000 ୫୦୦ ରୁ ୧୦୦୦ Rs 1000-1500 ୧୦୦୦ ରୁ ୧୫୦୦ Rs 1500 -2000 ୧୫୦୦ ରୁ ୨୦୦୦ Rs 2000-3000 ୨୦୦୦ ରୁ ୩୦୦୦ More than 3000 3000 ରୁ ଅଧିକା No cost- କୌଣସି ଖର୍ଚ କରିନାହାନ୍ତି	
45	Are you satisfied with the services related to proper emptying, transportation and disposal?(multiple answer) ସେପ୍ଟିକଟ୍ୟାଙ୍କ ଠିକ ଭାବରେ ସଫା କରିବା ,ବାହାରିଥିବା ମଳ କୁ ନେଇ ଠିକ ଭାବରେ ପକାଇବା ବିଷୟରେ ଆପଣ ସନ୍ତୁଷ୍ଟ କି ?(ଏକାଧିକ ଉତ୍ତର ସମ୍ଭବ)	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 SeTP 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 ଗୋଷ୍ଠୀ 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

9.2 Annexure 2 – Questionnaire for In-Depth

- **Interview with Mayor**

1. What are the key sanitation issues in your city?
2. What are the main water borne diseases that occurs in the City since the last 5 years? How do you deal with them?
3. Will the City be able to meet the SBM deadline?
4. What are the key challenges in toilet construction and usage in the City?
5. How important is 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 SeTP budget and its O&M?
9. Do you think engagement of private operator will be helpful, what is your take on PPP model?
10. Is there any specific funds allocated for Capacity building for various stakeholder under sanitation domain?
11. As per your knowledge, who will be expected target group for potential capacity building strategy in Baripada?
12. Looking at the current finance budget how much funds can be mobilized for Capacity building strategy in within ULB budget?
13. Is there any other funds received from any Company / DMF / Govt. 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?

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

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

9.3 Annexure 3 – Questionnaire for Focused Group Discussion

► Community based organizations

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

► Masons

1. Are you aware of NBCC / IS standards for septic tanks and pits?
2. Do you practice these standards while constructing the septic tanks?
3. Based on your experience, what percentage of septic tanks and pits conform to these standards?
4. Do you think the current design of the septic tank is good? If No, can you suggest the best kind of technology for 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?

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

Sl. No.	Name	Position Held	Date of Interaction
1.	Mr. Samarth Verma (IAS)	District Collector	09.05.2017
2.	Mr. Bimalendu Ray (OAS – GI)	Municipal Commissioner	09.05.2017
3.	Mr. Sudhansu Bhoi (OAS)	Deputy Commissioner	28.04.2017
4.	Mr. Jyoti Kumar Lakra (OAS)	PD, DUDA	18.05.2017
5.	Mr. Sanghamitra	DSWO	17.05.2017
6.	Dr. Kudanda Rao (O&G)	CDMO	18.052017
7.	Dr. Manoj Nanda	PHEO	18.05.2017
8.	Mr. B. N. Dash	Project Engineer, OWWSB	28.04.2017
9.	Dr. Mahendra Nanda	Health Officer, SMC	28.04.2017
10.	Mr. Pradeep Mahapatra,	Sanitary Inspector, SMC, Sambalpur	19.05.2017
11.	Community Organizers	SMC	28.04.2017
12.	Mr. Nandalal Mahand	Burla Cesspool Operator	12.05.2017
13.	Mr. Deepak Hati	Sambalpur Cesspool Operator	27.05.2017
14.	Er. M. R. Nanda	City Engineer	27.05.2017
15.	Meeting with SHG		19.05.2017

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

CHAPTER-IX

MONITORING BY WARD COMMITTEE

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

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

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

9.6 Annexure 6 – Income and Expenditure of SMC

Income	Heading
Audit Recovery	Negative value
Trade license fees	Assigned revenues and compensations
License fees	
License fees from Dangerous/Offensive Trade	
Income from providers of telephony services	Fees and user charges
Fees from Daily/Weekly Market	
Advertisement fees	
Property transfer charges/Mutation Fees	
Application fees	
Miscellaneous fees	
Marriage Registration Fees	
Septic tank cleaning charges	
Charges for supply of water by tankers	
Parking Fees from Bus/Car/Taxi/Auto/Rickshaw/Cycle Stand	
User Fees	
Entry Fee from Parks	
Other Fees and Charges	
Interest on Fixed Deposit	Income from investments
Interest from Bank Accounts	
Penalty Others	Other income
Recovery charges for damages to roads	
Income from Town Bus Service	
Transfer from Gratuity and Leave Salary Fund	
Rent from Markets	Rental income from municipal properties
Rent from Shopping Complexes	
Rent from Kalyan Mandap	
Rent from Guest House	
Rent from lease of land	
Lease Rentals Others	
Sale of tender papers	Sale and hire charges
Sale of ration card and other forms	
Sale of Bitumen/Drums/Empty Gunny Bags	
Hire Charges for Vehicles	
Property Tax on Building	Tax revenue
Water Tax	
Lighting Tax	
Animal Tax	
Advertisement Tax Land hoardings	
Toll Tax	

Expenditure	Heading
Salaries and Allowances Officers	Administrative expenses
Salaries and Allowances Staff	
Wages	
Revised Pay Arrear	
Leave Travel Concession	
House Rent Allowance	
Leave Salary	
Retirement Gratuity	
Electricity charges Official Premises	
Telephone expenses	
Postage and Courier expenses	
Newspapers	
Printing expenses	
Stationery	
Computer stationery and consumables	
Traveling and Vehicle expenses	
Fuel, Petrol and Diesel Travel	
Hire and Conveyance expenses	
Insurance Charges	
Legal Fees	
Technical fees	
Consultancy fees	
Guest entertainment expenses	
Advertisement expenses	
Consumption of Stores	
Consumption of General Stores	
Bulk Water Purchase Expenses	Establishment expenses
Bulk Electricity Purchase Expenses	
Interest on Loans from Banks and Other Financial Institutions	Interest and finance charges
Bank Charges	
Miscellaneous Expenses	Miscellaneous expenses
Prior Period Expenses Other	
Road Tax RTO	Operations and maintenance
Electricity Charges O&M	
Repair and Maintenance Roads and Bridges	
Repair and Maintenance Water Supply and drains	
Repair and Maintenance Parks, Nurseries and Gardens	
Repair and Maintenance Playgrounds and stadium	
Repair and Maintenance Markets and complexes	
Repair and Maintenance Public toilets	
Repair and Maintenance Office buildings	
Repair and Maintenance Residential buildings	
Repair and Maintenance Other Buildings	

Repair and Maintenance Vehicles	
Repair and Maintenance Furniture and fixture	
Repair and Maintenance Electrical appliances	
Repair and Maintenance Office equipment’s	
Repair and Maintenance Other fixed assets	
Repair & Maintenance Others	
Cleaning by private agencies	
Election Expense	Programme expenses
Honorarium for Census Work/Census Expenditure	
Training Programme Expense	
Puja and Celebration Expense	
Awareness Program Expense	
Share in Programme of Others	
Obsequies Cremation Ceremony Expense	

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

About EY

EY is a global leader in assurance, tax, transaction and advisory services. The insights and quality services we deliver help build trust and confidence in the capital markets and in economies the world over. We develop outstanding leaders who team to deliver on our promises to all of our stakeholders. In so doing, we play a critical role in building a better working world for our people, for our clients and for our communities.

EY refers to the global organization, and may refer to one or more, of the member firms of Ernst & Young Global Limited, each of which is a separate legal entity. Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients. For more information about our organization, please visit ey.com.

Ernst & Young LLP is one of the Indian client serving member firms of EYGM Limited. For more information about our organization, please visit www.ey.com/in.

Ernst & Young LLP is a Limited Liability Partnership, registered under the Limited Liability Partnership Act, 2008 in India, having its registered office at 22 Camac Street, 3rd Floor, Block C, Kolkata - 700016

EYINXXXXXXX

ED None