

Rapid assessment report Puri

October 2017

Report Number: 2017-Delhi-0313

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List of abbreviations

Abbreviations	
ABR	Anaerobic Baffled Reactor
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
AWW	Anganwadi Worker
BIS	Bureau of Indian Standards
BOD	Biological Oxygen Demand
BSS	Basic Safety Standards
CBO	Community Based Organizations
CDMO	Chief District Medical Officer
CHO	City Health Officer
CPHEEO	Central Public Health and Environmental Engineering Organization
CSP	City Sanitation Plan
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
ETP	Effluent Treatment Plant
FGD	Focus Group Discussion
FS	Faecal Sludge
FSM	Faecal Sludge Management
FSSM	Fecal Sludge and Septage Management
FSTP	Fecal Sludge Treatment Plant
Goi	Govt. of India
HH	Households
HRAO	Hotel & Restaurant Association of Odisha
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
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
KL	Kilo L
L	L
M+OG	Municipal area + Outgrowth area
MAS	Mahila Arogya Samiti

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

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

Executive summary

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

Puri is one of the oldest coastal towns of Odisha and is the headquarter of Puri district. Puri is world famous for the Jagannath Temple and millions of pilgrims and tourists visit the town every year. The town has population of 2 lakh and is governed by the Puri Municipality. The total municipality area is into 32 wards spread over 16.32 square km. The town has 40,369 households and out of which 14,522 households reside in 64 slums.

Table: -Key indicators

S.No	Indicators	Data
1	Total Population	2,00,564
2	Slum Population	70,457
3	No. of households	40,369
4	No. of slum households	14,522
5	No. of non-slum households	25,847
6	Average no. of person per household	5
7	Average income of people (INR)	27,000/ month ¹
8	Gender ratio	978 females per 1,000 males
9	No. of PT	26
10	No. of CT	33
11	HHs with toilets connected to septic tank	27,814
12	HHs with toilets connected to pit latrines	2,745
13	HHs with toilets connected to sewer	1,130 HH
14	No of cesspool vehicles	5 trucks with 3000 L each (ULB) + 1 truck with 4,500 L (ULB)



Ground water is the main source of water supply in Puri town. Water demand of the town is 45 MLD. Most of the houses in Puri have their own dug-wells as the ground water table is high. Five major tanks, 1,300 wells, 800 tube-wells and 19 stand-posts along with individual piped water supply are the main sources of water.



The town has a sewer network of 129 km that roughly targets 40% households out of which more than 10% HHs have taken the connection. Rest of the households have onsite sanitation with septic tank and soak-pits. Getting households to connect their

¹ Puri Municipality

onsite sanitation system or toilets to sewer network has been a challenge because most of HHs have their toilets usually at the backside of house and the sewer line is in the front of the house beneath the road. Connectivity would involve excavation work in the house along with road cutting requiring extra expenditure. The primary survey indicated that 54% of the HHs are willing to bear the internal plumbing costs.



Door-to-door collection of solid waste in the town was started on a trial basis in four wards and has been now extended to all the wards. There is a solid waste composting plant of 100 MT per day capacity in the town where the solid waste is being treated.

The waste from the town is transported from waste storage points using compactor trucks and tipper trucks to the treatment plant at Baliapanda. Puri has 372 km of road network. While the Municipality is responsible for creating construction of road network (city roads), the PWD is responsible for its maintenance.



The Odisha Urban Sanitation Strategy 2017 mandates the formation of a Ward Sanitation Committee (WSC) in each ward of the ULB consisting of 11 to 15 members. Presently, Puri doesn't have functional WSCs. The town has community based institutions under National Urban Health Mission (NUHM) such as Ward Kalyan Samiti (WKS) in 16 wards under ULB and also 102 Mahila Arogya Samiti (MAS) groups. Over 500 Self Help Groups (SHGs) are functioning in various wards under National Urban Livelihood Mission (NULM). There are around five prominent NGOs actively working for the urban slum population and sanitation.



The income budget and expense budget estimate for FY 2015-16 was INR 111.12 crore and 92.98 crore respectively. The budget estimate for tax for the year 2015-16 was INR 3.49 crores while the actuals were INR 4.10 crores. While the budget estimate for O&M expenditure was INR 11.63 crore, the municipal corporation only spend INR 3.86 crores.

The total expenses of ULB in FY 2014-15 were INR 24.65 crores as compared to the income, which was approximately 21.19 crore in the same period, the total expenses in FY 2015-16 were INR 30.65 crore as compared to the income, which was approximately 22.88 crore in the same period. This implies that the ULB is not breaking even and is unable to meet the costs despite the fact that Assigned Revenues, contribution and subsidies constitutes 54% of their total income.

Establishment expenses in FY 15-16 constitutes 54% of the total cost. It can be observed that Operations and maintenance constitutes another 13% and administrative expenses are 2%. Depreciation constitutes about 31% of the total expenditure. Mostly development works have been done by state government and municipal funds.

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



The state level stakeholders bring in new policies, reforms and innovation with regard to funding mechanisms, creating an enabling environment and providing opportunities for the ULBs to implement reforms in sanitation or urban development projects in the city levels. While state level stakeholders build strategies, ULBs are critical stakeholders to implement those strategies, policies and plans. The district level stakeholders play supervising roles and monitor the progress besides facilitating the implementing processes in a limited way. Current institutional arrangement for FSSM starts with AMRUT funds being made available to OWSSB which tenders construction (on Engineering Procurement and Construction mode) and five year O&M to private players. Cesspool trucks are procured from state and transferred to ULB for O&M which in turn is tendering out to private players for seven year who are expected to meet operational expenses through service usage charges from households. The BCC and capacity 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 assessment as found during rapid assessment study is described below.



Toilet access and containment

In Puri, 6,096 HHs do not have access to toilets². A total of 6,208 HHs³ are going to be provided with IHHL under the SBM. There are 59 public and community toilets in the town. A total seven hybrid toilets⁴ are allocated out of which three are under construction.

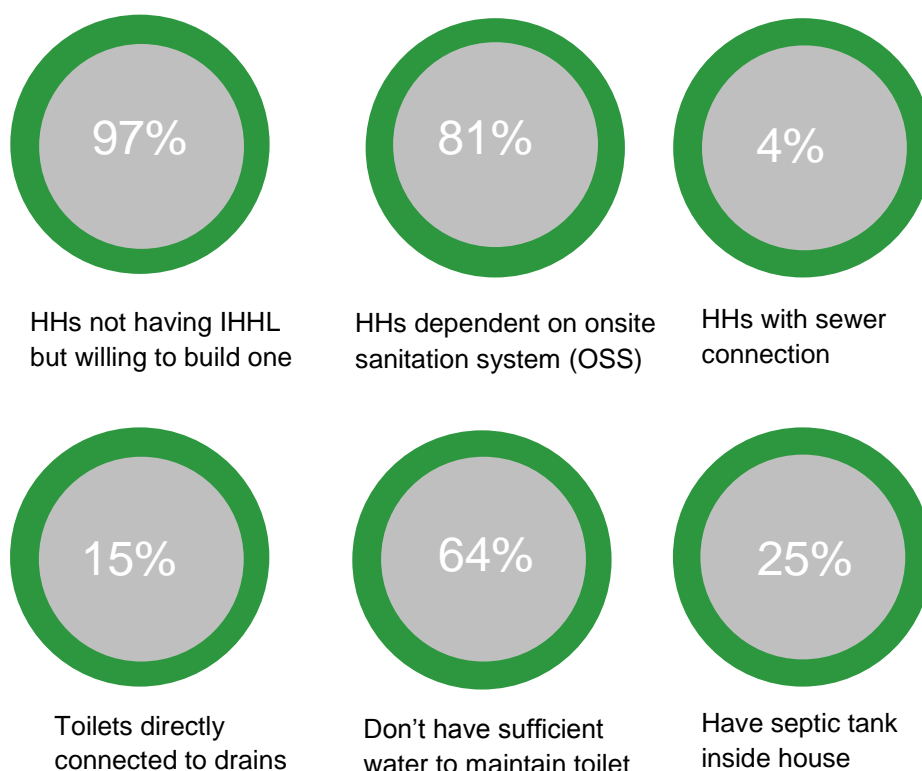
Following figures capture the key findings from the limited primary survey of 5,977 HHs.

² Census 2011

³ Puri Municipality, May 217

⁴ 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.

FSSM situation basis rapid assessment study is described hereunder

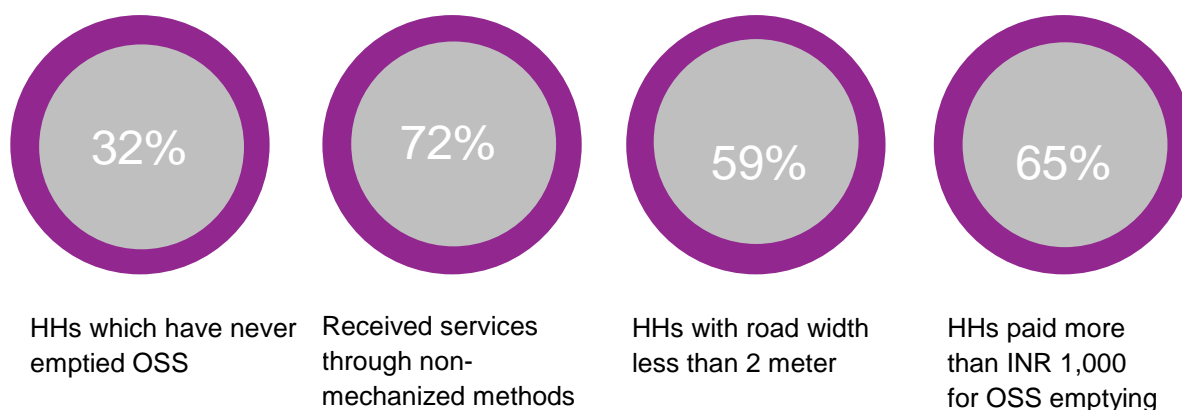


Toilets in 15% HHs are directly connected to drains. Hence, there is a high chance of ground water source contamination resulting into a health hazard since majority of HHs are dependent on ground water. This could be corrected through focused communication with community and capacity building of masons as 94% HHs sought advice from them for designing and construction of septic tank/pits.

Emptying and transport

Current emptying capacity is 13.5 kilo liter (KL) per day which is expected to increase with introduction of four new vehicles from ULB. Currently the tendering process for the four new vehicles is underway. At present, the ULB is the only service provider. 72% HH reported availing non-mechanized services. This could be due to vehicle inaccessibility due to narrow roads, which is 59%. The existing and new fleet of cesspool vehicles have limited access due to vehicle width. ULB and other officials have also highlighted this issue. Interactions with ULB personnel handling cesspool emptying operations revealed that their operations are not governed by any regulation. Below are the key findings from the primary survey.

Awareness needs to be created amongst citizens about toilets connection to either sewer network or to septic tanks and pits. For that, both infrastructure needs to be created and people should be made aware. Infrastructure is being created by the government but people need to be aware of its importance –SBM nodal officer



Treatment, re-use and disposal


At present, the fecal waste and septage is being dumped at the solid waste dumping site. This activity is not monitored though. A 50 KLD (Kilo Liter per Day) Septage Treatment Plant (SeTP) is proposed to treat faecal sludge. Construction has started and the plant is expected to be functional by the end of 2017. Currently there is lack of monitoring mechanism to track dumping of fecal waste⁵. Potential for re-use of treated waste water and dried manure generated post treatment is not yet explored.

The cesspool vehicles being operated by the ULB could be supervised and monitored in a better way. The services should reach people on time as and when they require it. The services should be maximised. – Chairperson, Puri Municipality


Below are the key findings from the primary survey.

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


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	▶ Optimize mechanized emptying fleet through mix of various types and sizes. Also explore potential for	▶ Readiness of SeTP to ensure provision of adequate facilities and efficient operations

⁵ Source: State Pollution Control Board (SPCB) during primary interaction

	Toilet access and containment	Emptying and transport	Treatment, re-use and disposal
	<ul style="list-style-type: none"> ▶ Greater focus on CT, PT availability ▶ Explore sustainable O&M models incl. community led, private operators, micro enterprise led etc. ▶ Innovative models for O&M of these shared toilets (CT/PPT) to be explored while learning from practices adopted in other cities 	<p>transfer stations⁶ which can help in collection and disposal through vehicles of various size.</p> <ul style="list-style-type: none"> ▶ Operating models to increase penetration of mechanized services and make them affordable and available ▶ Pilot project using GPS technology tracking could be initiated in select wards to monitor usage of mechanized emptying services and check illegal dumping ▶ Explore potential for scheduled desludging 	<ul style="list-style-type: none"> ▶ Intermittent solutions like at the drain outlet point, interceptors or de-centralized treatment ▶ Market for manure and treated water to be explored and included as part of the O&M contract to be defined for SeTP operator
Capacity building	<ul style="list-style-type: none"> ▶ 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 	<ul style="list-style-type: none"> ▶ 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 	
Governance reforms	<ul style="list-style-type: none"> ▶ 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 pits. ▶ Amendments could be made in ULB building bye-law to include provision of scientific septic tank as part of building approval process 	<ul style="list-style-type: none"> ▶ Effective implementation of the Odisha septage management guidelines which mandates HHs to clear out the septic tanks and strictly keep away from engaging manual scavengers. ▶ Implement provisions through ULB resolution of for emptying and transport activities. ▶ Explore potential for training and empanelment of cesspool emptying service providers 	<ul style="list-style-type: none"> ▶ 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
	<ul style="list-style-type: none"> ▶ 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 		

⁶ 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
	<ul style="list-style-type: none"> ▶ Restructuring the engineering department with added focus on environmental engineering ▶ Focus should be on zone and ward level interventions – a coordinated program and overall M&E at broader level ▶ Formalization of community level institutions such as CSTF, WSC in city system ▶ Service level scores in each wards including sanitation and its integration with CSPs 		
IEC/BCC	<ul style="list-style-type: none"> ▶ A communication campaign under SBM to motivate people to convert insanitary toilets to sanitary ones using incentive provided under SBM ▶ Disseminate information to citizens on Onsite sanitation system solutions available in market which are economical and quicker to implement 	<ul style="list-style-type: none"> ▶ 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 	

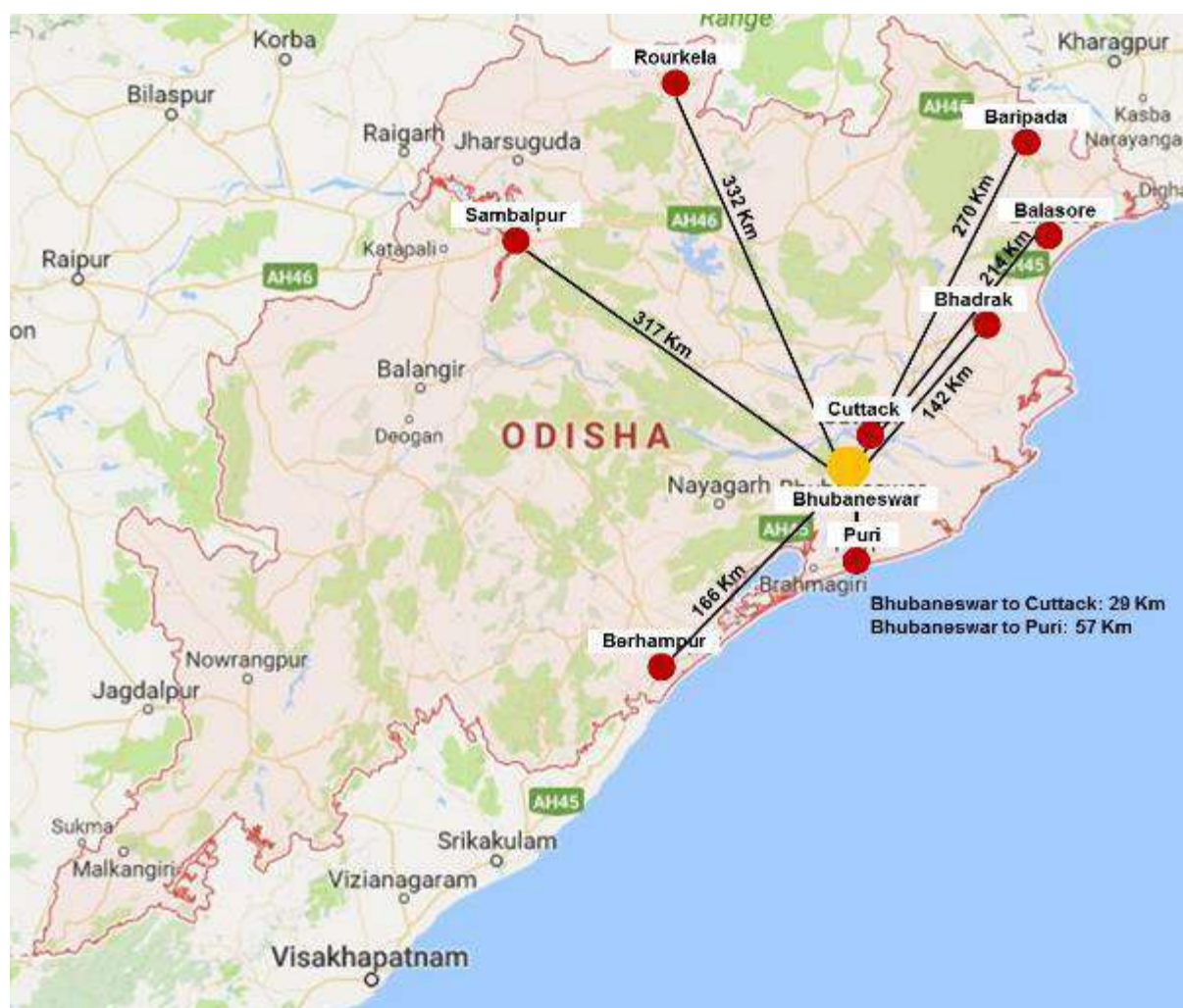
An implementation plan is also supplemented basis the key issues and related interventions as identified above during the rapid assessment. This plan shall focus on key milestones, activities, and identifying integration and dependencies across internal and external stakeholders to help steer FSSM program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

1 Introduction

1.1 Background and rationale of the study

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

In consultation with H&UDD, the towns of Balasore, Baripada, Berhampur, Puri, Bhubaneswar, Cuttack, Bhadrak, 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 Pollution Control Board⁷. 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:



⁷ 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 (Municipality +Out Growth)	31,539	5,425
Baripada (M+OG)	26,079	6,807
Brahampur (MC)	73,335	8,580
Bhadrak (M+OG)	23,084	8,264
Bhubaneswar (MC+OG)	2,04,056	35,098
Cuttack (Municipal Corporation)	1,21,919	14,021
Puri (Municipality)	40,369	6,096
Rourkela (M+OG)	71,368	19,412
Sambalpur (M+OG)	42,623	12,915

Source: Census 2011

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

Objectives of the study

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

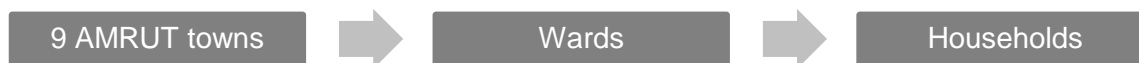
1.2 Approach and methodology

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

1. Household primary survey for households, institutions and commercial establishments on access to onsite sanitation system and practices (Annexure 1 – Questionnaire for Household Survey)
2. In-depth interviews (IDIs) with key stakeholders – Officials and elected representatives of ULBs, 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 Puri

Since EY is conducting census survey on the sanitation facilities across all households, institutions and commercial establishments for Puri town, for the rapid assessment 10% of the households (n= 5977) were taken into account. Three FGDs and 10 IDIs 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 Puri considering the Municipal area and out-growth area (M+OG) is given below:

Table 1-2: -Sample size for Puri

City/Town Name	No. of Households	Wards	No of Wards surveyed	%having latrine
Puri (M)	5977	32	16	82%

Source: Census 2011

Sample size for wards in Puri:

Multistage sampling strategies were followed for the selection of the households. In the first stage, 16 out of 32 wards were selected using simple random sampling methods.

Sample size for households in Puri:

In this assessment, convergent parallel mixed method approach was used. Primary survey was conducted at household level. Total households of the town was the universe of the study and household was the sampling unit. Total number of households in Puri is 40,369 (Census 2011). We expected few households to be locked or not being available to respond, thus along with 10% households, extra samples were taken to meet the requirement. Randomly, 370 households from each of the randomly identified 16 wards were selected using systematic random sampling methods.

Figure 1-1: -Household Questionnaire and Survey

SECTION A: PRIMARY INFORMATION Form 10000 000

1. Survey area/GRID No. _____

2. House No. _____

3. Name of the householder _____

4. Family Type Size _____

5. Type of property _____

6. Property number as per municipal property tax record _____

7. Mark the House type as per household _____

8. Ownership status of the property _____

9. Name of the householder _____

10. Address _____

11. Telephone No. _____

12. Mobile No. _____

13. Email ID _____

14. Date of birth _____

15. Sex _____

16. Education _____

17. Occupation _____

18. Annual Income _____

19. No. of children _____

20. No. of dependents _____

21. No. of family members _____

22. No. of family members _____

23. No. of family members _____

24. No. of family members _____

25. No. of family members _____

26. No. of family members _____

27. No. of family members _____

28. No. of family members _____

29. No. of family members _____

30. No. of family members _____



1.3 Limitations of study

The rapid assessment of sanitation situation in Puri was performed in a period of two months, April to May 2017 with an intent to provide a quick overview of aspects relevant to sanitation and fecal sludge situation in the town and hence, the coverage in the report can be limited.

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

Puri is a coastal town located on the Eastern part of Odisha. It is the district headquarters of Puri district and is situated on the Bay of Bengal, 60 km south of the state capital of Bhubaneswar. The heritage town of Puri is one of the four pilgrimage centres of India and is world famous for the Jagannath Temple. The administrative jurisdiction of the Puri Municipality extends over an area of 16.3268 KM² spread over 32 wards, which includes a shore line of 5 km. Situated on the sea shore of the Bay of Bengal, it can be geographically located at 19°47'55"N latitude and 85°49'5" longitude.

Figure 2-1: -Ward map of Puri



Source: Puri Municipality

2.2 Demography

The town with a population of two lakh is governed by the Puri Municipality which was formed in 1864. The total municipality area is divided into 32 wards comprising eight zones/circles. The floating population of Puri is very high and it attracts a floating population of more than 25,000 pilgrims per day.⁸

The decadal growth rate of the city is at 23.9%. Both horizontal and vertical growth of the city is observed during the recent years. Satellite towns are developing in the out skirts of the city. The urban centers in the region namely, Puri town and Konark NAC have major concentration.⁹

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	2,00,564
2	Slum Population	70,457
3	No. of households	40,369

⁸ Puri Municipality

⁹ SLIP, AMRUT 2015, Puri

S.No	Indicators	Data
4	No. of slum households	9,981
5	No. of non-slum households	25,847
6	Average no. of person per household	5
7	Average income of people (INR)	27,000/month ¹⁰
8	Gender ratio	978/1000

Source: Census 2011

Puri has 32 wards, out of which wards 1, 5, 7, 25, 26, 31, 32 are vulnerable due to the following reasons:

- a) Location of wards near the low lying areas
- b) Vulnerable to natural disasters
- c) High concentration of urban slums
- d) High open defecation and poor sanitation situation

2.3 Overview of sanitation situation in Puri

Puri is an old and congested town with limited sanitation facilities. High floating population of Puri (pilgrims and tourists), lack of desired sanitation behavior and practices among the people and inadequate service delivery are among the major reasons for poor sanitation in the town. Though a sewerage network exists, there is limited sewerage connection and several households have toilets connected to open drains. In fact, Puri is the only town in Odisha to complete the targeted sewer network. It currently has 129 km sewer network¹¹. However, the HHs, so far, are yet to get the connection from their toilet (usually located in the back of the house) to the sewer line passing near their house.

While open defecation rate of the town as per Census 2011 is 15.1%, Puri Municipality data reveals that 24% HHs defecate in the open. Open defecation is practiced as a culturally accepted behavior especially among the males after consuming *bhang* and tobacco. As a result of higher floating population, the town has been provided with 59 CT/PTs along with seven mobile toilets to increase access to toilets.

During the peak rainy days the waste water i.e. storm water and the sewer water floods the roads, household and the intersection area. Due to geographical situation, the town experiences floods once a year and creates problems for citizens. Presently, during water logging, pumps are used to pump out the water in the water logged areas. Water logging and flooding are generally observed during peak rainy season in low lying areas of the City, especially those adjacent to localities near water bodies.¹² As Puri is amongst the Iconic Cities declared by the Gol, sanitation is among the key priorities for both the State Govt. and the Puri administration. There is an inflow of 7-10 lakh pilgrims during June-July for the Rath Yatra festival alone in Puri. The specific details related to access to toilets, open defecation scenario and the FSSM value chain is captured in Section 4: FSSM Situation Assessment.

¹⁰ ULB

¹¹ OWSSB

¹² SLIP, Puri

Puri receives a floating population 25,000 people every day which increases manifold during festivals (Approximately 5-7 lakh). This leads to increase in temporary accommodations that generates solid and liquid wastes of various kinds. Septage management is challenging in Puri because of high water level and it is an old and congested town.

Mr. Abimanyu Behera, SBM nodal officer, Puri Municipality

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

Objective:	To understand key sanitation issues
Participants:	Puri Municipality Chairman, Executive Officer, Sanitary Inspector, SBM nodal officer, City Engineer, Community Organizers, SHGs, NGOs
Key observations:	<ul style="list-style-type: none"> • Insanitary toilets with toilets connected to open drains. • Households with insanitary toilets are unaware about adverse impact on health` • Poor disposal of garbage (open drains, streets & roads) • Open defecation • Limited connection to sewerage network • Lack of O&M of toilets • Lack of awareness on the value chain of FSSM, open defecation and solid waste management and their impact on environment and health • Indiscriminate dumping of fecal sludge, septage & wastage • Citizen's apathy and lack of participation and ownership for issues on sanitation and hygiene. • Frequently occurring diseases are typhoid, gastroenteritis & diarrhea • Puri is a coastal town with high ground water levels, this creates additional challenges. Moreover, since it is a tourist and pilgrimage destination and has to meet the sanitation requirements of the floating and migrant population

Figure 2-2: -Insanitary household toilet along with open drains



Figure 2-4: -IDI with Chairman, Puri Municipality



Figure 2-3: -IDI with EO, Puri Municipality



2.4 Infrastructure facilities

2.4.1 Water supply

The water consumption for the population of Puri is around 40-45 MLD. Water supply in Puri is done by the PHEO, Puri. The ground water table in Puri is very high and water is available at a depth of 5-8 meters, so most of the houses in Puri have their own dug wells. Though the water tastes saline, it is used for non-drinking and sanitation purposes. PHEO supplies water to the households from a few sweet water zones. The two critical sweet water zones in Puri are Chakratirtha Road and Baliapanda. The PHEO supplies water through piped water supply to households twice a day for more than 8 hours. More than 800 tube wells and 19 stand posts exist across the town and covers most of the slums. Other sources of water include few ponds/tanks which are mostly used by the people for non-drinking purposes. There are five major tanks and 1,300 wells. The PHEO also supplies drinking water in the town and carries out water quality tests from stand posts and key water supply tanks.

Figure 2-5: -Water sources in Puri



2.4.2 Sewerage systems

Puri is the only town in Odisha where the sewer system has been commissioned. The total sewage generated in Puri is 34 MLD. The sewerage treatment system includes 10 sewage pumping stations, a 500 KLD Waste Water Treatment Plant (WWTP) at Bankimuhan, a 100 KLD Effluent Treatment Plant (ETP) at Peja Nallah, Sri Jagannath Temple and a 15 MLD STP in Mangalaghat. The SeTP in Puri is a co-treatment plant combined with the STP. The WWTP in Bankimuhan and ETP in Peja Nallah are maintained by JUSCO, a private company engaged by the ULB.

Figure 2-6: -Sewerage network in Puri

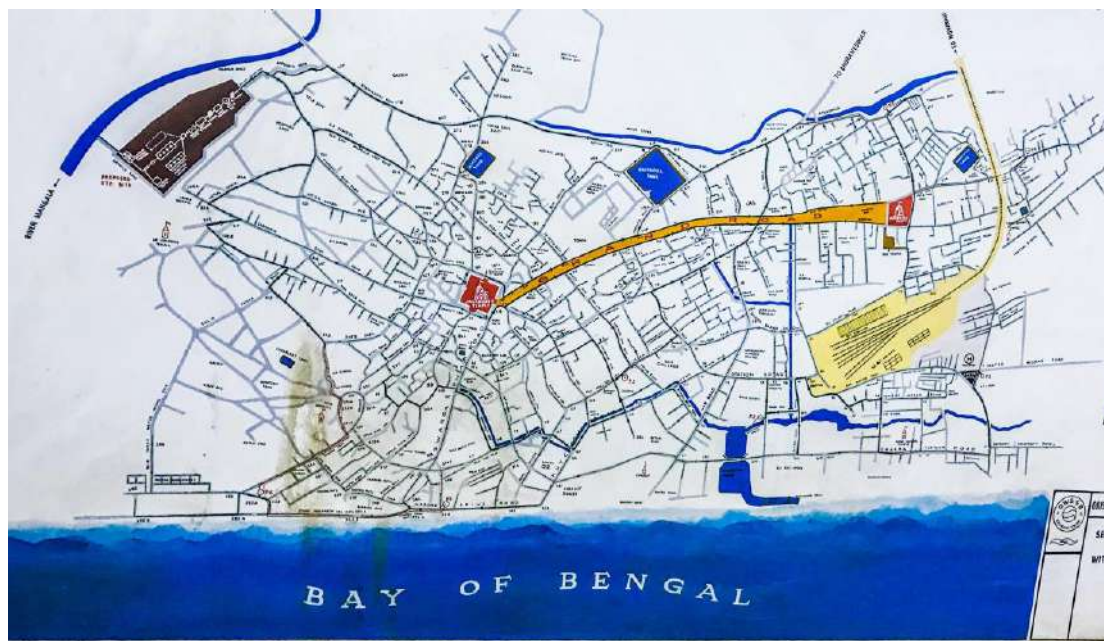


Table 2-3: Details of liquid waste treatment plants in Puri

S.No	Location	Capacity	Technology	Status
1.	STP Mangalaghat	15 MLD	Aerobic Decomposition	Functional
2.	WWTP Bankimuhan	500 KLD	Aerobic Decomposition by Enzyme Dosing	Functional
3.	ETP Peja Nala Jagannath Temple	100 KLD	Mechanical Treatment	Functional
	Total	15.6MLD		

Source: OWSSB

Puri currently has a 129 km sewer network. The network was constructed under the “Gravity Sewer collection and Transport System Project,” implemented by OWSSB in in 2016 (inception 2003)¹³. The sewer network targets to cover 40% of the total households. At present, 2,621 HHs out of the targeted 17,652 HHs have connected their toilets to the sewer network.¹⁴

¹³ CSP 2017, CDD NIUA

¹⁴ OWSSB

The OWSSB is also constructing the septage treatment plant of 50KLD capacity for the town. The SeTP targets to cover 40% of the population. As per the Project Engineer, OWSSB, the construction of the SeTP is going as per the plan and is likely to be commissioned by the end of 2017.

Figure 2-7: -STP and SWM landfill locations in Puri



2.4.3 Solid waste management

The estimated waste generation per day in Puri is about 70 Metric Tons (MT) and 60 metric tons of waste is collected every day. Out of the 70 MT of waste 33 MT is biodegradable and rest 37 MT is non-biodegradable. While 70% of the total waste is household waste, 18% of waste is generated by commercial establishments, 2% waste is generated by industries and remaining 10% waste is generated by hospitals and clinics.. Collection and transportation of mixed solid waste is done using auto tippers, tractors, dumper placers, trucks, compactors and is taken to the transfer station.¹⁵

There are eight transfer stations, 268 waste storage points with a total of 55.3 kilo litre of total volumetric capacity. A dustbin is placed on the main roads at a distance of 50 meters. Door-to-door collection from all the households was initiated by floating a tender and has been assigned to various agencies after implementing on trial basis in four wards and then extending it for all the wards. The citizens have been provided with two different colored dustbins to segregate solid and liquid waste which is then taken to the biodegradable solid waste treatment plant at Baliapanda operated by Krishi Rasayan Pvt. Ltd. Through this, the municipality earns INR 6.5 lakh annually.

The bio-degradable waste is first processed by aerobic decomposition. Out of the 70mt waste generated, 20% is processed.

¹⁵ Puri Municipality

Figure 2-8 Solid waste dumps (top) & the solid waste treatment plant (bottom)



Table 2-4: - IDI and FGD response on solid waste scenario in Puri

Objective:	To understand the solid waste scenario
Participants:	Sanitary inspector, SBM nodal officer, Puri Municipality Chairman, Councilors,
Key observations:	<ul style="list-style-type: none"> • Waste disposed directly into open drains & on streets and roads • Lack of awareness and responsibility among people while disposing solid wastes • Extra solid waste generated due to heavy tourist and pilgrim traffic • Special provision should be made for the daily waste generated by the Jagannath Temple

2.4.4 Road network

Puri is more than 1000-years-old and is characterized by narrow lanes and by lanes. It has a total road network of 372 km. The roads in the internal parts of the town are very narrow and are mostly inaccessible for large vehicles. As per ULB sources, more than 60% of streets are less than 4.5 m in width which creates obstacles even in the middle of the town. In such a situation, cesspool operations via large capacity cesspool vehicles shall be a challenge in most parts of Puri. This indirectly encourages septic tank and pit cleaning through non-mechanized services. Hence, accessibility of cesspool vehicles shall be a key for emptying and transportation to a majority of the HHs in Puri.

2.5 Community based institutions and structures

2.5.1 Ward Sanitation Committee

The OUSS 2017 mandates the formation of a Ward Sanitation Committee (WSC) 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 Community Based Organisations

(SHGs, youth club etc.), senior citizens and eminent persons of the area shall be nominated to the said Committee by the Chairperson/Mayor with due regard to suggestions of local Ward Councilors. The WSCs shall oversee the sanitation activity in the ward. The Member-Convener of each ward would be notified by the Chairman of Municipality.

In Puri, the WSCs were formed in a few wards but have largely remained non-functional. The councilors intend to form the WSCs in all the 32 wards of the city and make it operational.

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

- a) Ward Kalyan Samiti (WKS): WKS is formed at ward level under the urban local bodies (ULBs). It consists of 12 members including the councilor, frontline health workers, SI, Community Organizer 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 Puri, WKS has been formed in only half of the total 32 wards largely due to lack of interest among the councilors.

WSCs have been formed in very few wards out of the total 32 wards and they are non-functional. It has to be officially formulated in all the wards with the required members who have to be oriented on their roles and responsibilities. The WSC members are closest to the communities and are aware of the problems and challenges in the wards. They also interact with the communities on a regular basis and can motivate households to adopt ideal sanitation practices. - **Councilors, Puri Municipality**

- b) Mahila Arogya Samiti (MAS): MAS acts as community group, involved in community awareness, interpersonal communication, community based monitoring and linkages with the services and referral. Each MAS covers around 100 households in Puri. This group focuses on preventive and promotive health care including sanitation, facilitating access to identified facilities and management of revolving fund. A total of 102 MAS have been formed in all the 32 wards. MAS members are active in their respective areas and among the targeted households. They spread awareness and motivate communities to practice desired behaviours in maternal and child health, nutrition, immunization and sanitation.

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

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

Women SHG groups from same section of society/likeminded come together for mobilization of urban poor and for enhancing their livelihood opportunities. It also has a social agenda as it focusses on generating awareness on critical social issues. Till now, over 500 SHGs have been formed in Puri. The women SHG leaders are acceptable community leaders who can sensitize the other group members on sanitation and its impact on health. They can also motivate women to build Individual HH Latrines (IHHL) and adopt desirable sanitation practices

2.5.4 Others

A few local NGOs such as the UAA are involved in forming Slum Sanitation Committees in the slums of Puri. The prominent NGOs actively working for the urban slum population and sanitation in Puri are as follows:

Table 2-5: -NGO's working for urban slum population

S. No.	NGO	Key areas of intervention
1	United Artist Association	Water & Sanitation, disaster management
2	Society for Women Action Development (SWAD)	Women empowerment, livelihood
3	Pencode	Capacity building, health, sanitation
4	Biswajiban Seba Sangha	Health, women & youth empowerment
5	Swayamshree Micro Credit Services	Micro finance & women empowerment

Source: Puri Municipality & primary interaction

Table 2-6: -IDI and FGD response for roles of CBOs in Puri

Objective:	To understand the roles taken by CBOs
Participants:	Sanitary inspector, Councilors, CBOs, Community Organizers
Key observations:	<ul style="list-style-type: none"> Community mobilization measures are being taken by the community based organization like MAS, SHG, community leaders, Anganwadi Workers (AWW) and local NGOs on sanitation including MHM. Awareness of households on the adverse effects of open defecation, insanitary toilets, disposing garbage on roads on health through group meetings and interpersonal counselling WSC have been formed in very few wards but are not functional and members are not aware about their roles and responsibilities There is a need to train the WSCs on subjects like SWM, garbage disposal, FSM, OD and toilet construction. The MAS spreads awareness among targeted households especially in urban slums on health and sanitation (building & using toilets, general cleanliness, SWM)

Figure 2-10: -FGD with CBOs



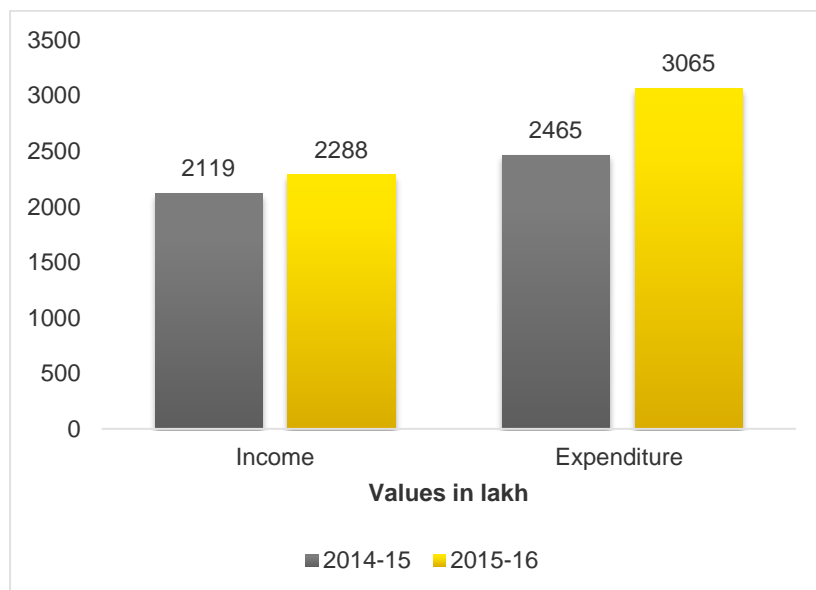
Figure 2-9: -FGD with Community Organisers, Puri Municipality



2.6 Municipal Finance

An attempt is made to analyze the income and expenditure patterns in the municipality during Financial Year 2014-15 and 2015-16. Puri Municipality's expenditure exceeded the income in both financial years. Income increased by 8 % in 2015-16 as compared to 2014-15. Expenses have grown by 24 % in 2015-16 as compared to 2014-15.

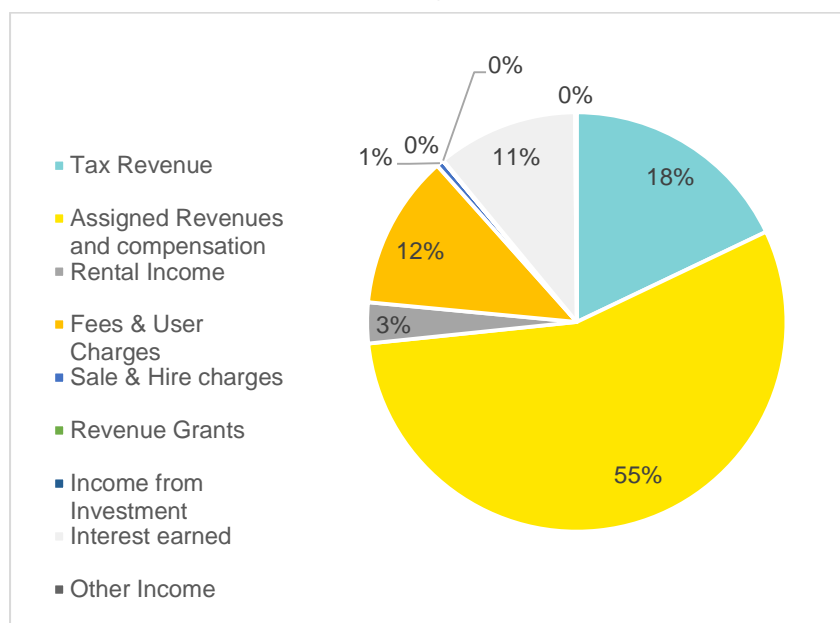
Figure 2-11: -Income and expenditure pattern in Puri Municipality



Income

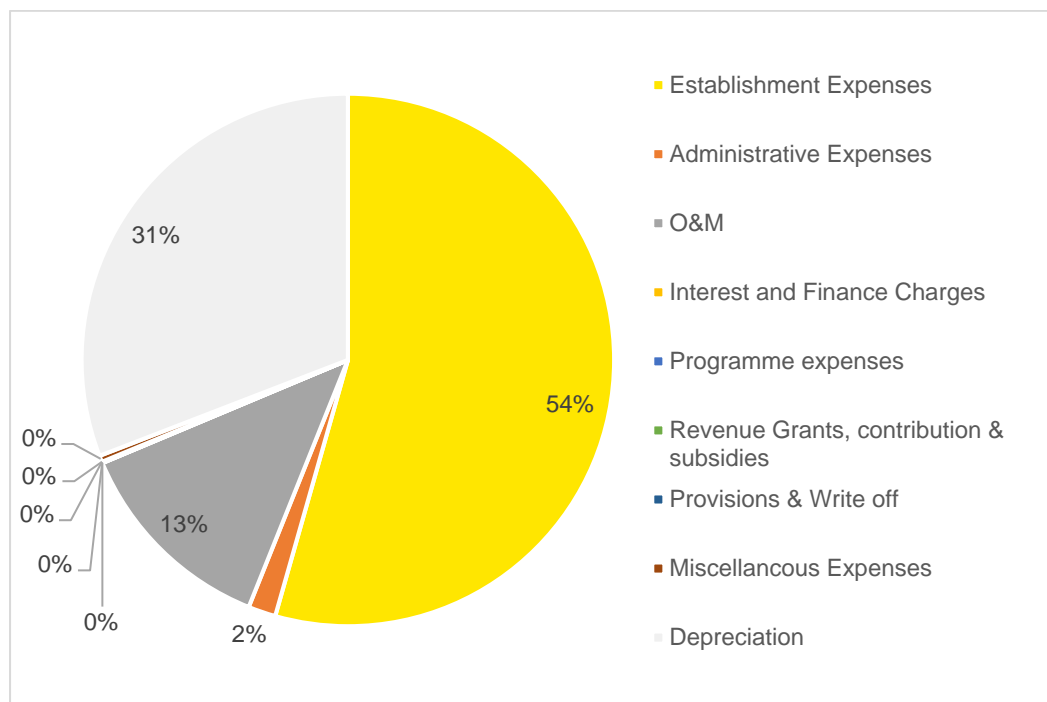
A detailed analysis of municipal revenues and expenditures for the year 2015-16 shows that Assigned Revenues is the single major source of income, contributing an overwhelming 55%. Tax revenue contribute an additional 18%. The revenue base of municipalities is weak and they are heavily dependent on assigned revenues for meeting the expenses. As compared to last year Tax revenue gone down by 5%. Rental income, fees and user charges and Interest contributes 3%, 12% and 11 % respectively to the total income of the municipality in FY2015-16.

Table 2-7: -Income of Puri Municipality in FY2015-16



Expenditure

Table 2-8 Expenditure of Puri Municipality in FY2015-16



The income budget and expense budget estimate for FY 2015-16 was INR 111.12 crore and 92.98 crore respectively. The budget estimate for tax for the year 2015-16 was INR 3.49 crores while the actuals were INR 4.10 crores. While the budget estimate for O&M expenditure was INR 11.63 crore, the municipal corporation only spend INR 3.86 crores.

The total expenses of ULB in FY 2014-15 were INR 24.65 crores as compared to the income, which was approximately 21.19 crore in the same period, the total expenses in FY 2015-16 were INR 30.65 crore as compared to the income, which was approximately 22.88 crore in the same period. This implies that the ULB is not breaking even and is unable to meet the costs despite the fact that Assigned Revenues, contribution and subsidies constitutes 54% of their total income.

Establishment expenses in FY 15-16 constitutes 54% of the total cost. It can be observed that Operations and maintenance constitutes another 13% and administrative expenses are 2%. Depreciation constitutes about 31% of the total expenditure. Mostly development works have been done by state government and municipal funds.

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 comparison to the previous ones. At present, urban sanitation interventions are target oriented¹⁶ and partnership based¹⁷ 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 the Ministry of Urban Development (MoUD), 2016, found progress of Odisha in the SBM targets need accelerations¹⁸ to meet the mission targets. Out of 511 cities¹⁹, declared as ODF till March 2017, not a single city from 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 generation²⁰. 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), 2008²¹

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 do 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;

¹⁶ SBM targets to make India ODF by 2nd October 2019

¹⁷ 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.

¹⁸ MoUD 2017

¹⁹ MoUD 2017

²⁰ SBM(U) guidelines 2016

²¹ 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 order to realize the goals of NUSP, the MoU 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.'²²

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 cover 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 fecal sludge output needs to be managed in an environmentally safe manner including the proper engineering design, construction and maintenance of septic tank systems, pit latrines and such other systems generating fecal sludge. It defines the roles of each level- 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 management²³. However it addresses synergies between FSSM and sewerage systems or municipal solid waste (MSW) management, e.g., co-treatment of fecal sludge and septage at sewage treatment plants or co-treatment and management of fecal sludge and septage, and MSW.

The Policy lay stress on the setting up of fecal sewage treatment plants in cities and urban local bodies, as well as address the restructuring of sewerage systems in urban India. It also addresses gaps in urban sanitation and lays a clear vision and objective to deal with fecal sludge and septage

²² AMRUT reforms

²³ National FSSM 2017

management. It has been duly recognized by the MoUD that the objectives of the SBM cannot be fulfilled without a dedicated FSSM Policy. Management of fecal sludge in urban areas should go hand-in-hand with the installation of toilets before the gap between production of sludge and its treatment becomes too wide to exist. The policy provides proper outcomes with well-defined 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 ++)²⁴
- ▶ 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

²⁴ ODF+ (No undesignated discharge of septage, sewage and black water)

ODF++ (No open discharge of human fecal and liquid waste, and safe containment, transport, treatment, and disposal of all human fecal waste, and waste water (black and grey)

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 cities²⁵ at present, the PHEO handles the O&M wherever sewerage facilities are available.

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.²⁶) 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 a 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 sanitary workers, the Skill Development Authority and finance agencies like SC ST Finance Corporations can be leveraged. Engagement of private agencies has become more common as many corporate houses and private parties have started playing a role in FSSM.

²⁵ 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.

²⁶ Bhubaneswar Development authority, Cuttack Development authority, Sambhalpur Development authority, Berhampur Development authority

District level:

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

City level

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

In Puri, H&UDD is actively considering conversion of insanitary toilets to sanitary ones by connecting toilets to sewer lines as most of the toilets have outlets connected directly to open drains.

HRIDAY scheme for Puri

The Ministry of Urban Development, Government of India, launched the National Heritage City Development and Augmentation Yojana (HRIDAY) scheme on 21st January, 2015, with a focus on holistic development of heritage cities. The scheme aims to preserve and revitalize soul of the heritage city to reflect the city's unique character by encouraging aesthetically appealing, accessible, informative & secured environment.

With a duration of 4 years (Completing in November, 2018) and a total outlay of INR 500 crores, the Scheme is being implemented in 12 identified Cities namely, Ajmer, Amaravati, Amritsar, Badami, Dwarka, Gaya, Kanchipuram, Mathura, Puri, Varanasi, Velankanni and Warangal. The Scheme is implemented in a mission mode. The Scheme supports development of core heritage infrastructure projects which shall include revitalization of urban infrastructure for areas around heritage assets identified/approved by the Ministry of Culture, Government of India and State Governments. These initiatives shall include development of water supply, sanitation, drainage, waste management, approach roads, footpaths, street lights, tourist conveniences, electricity wiring, landscaping and such citizen services. FSSM can be integrated under sanitation for achieving the objectives of this scheme.

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) in 27 districts out of 30, 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 for the urban sanitation infrastructures including SeTPs, constructions of CT, PT and HTs and even purchase of cesspool trucks as these infrastructures involves bulk money to be budgeted. Though all 30 districts are DMF districts, yet nearly 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 activities. 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 to prioritise the CSR fund allocations and spending where urban sanitation is

²⁷ 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.

Regulatory and institutional developments

on high priority. This creates a scope for all ULBs in the state to plan and utilize such funds. Funds to the tune of INR 11 lakh crore is currently being invested in the state.

Another important development is proposal for the Urban Waste Water Management Bill 2016 (which is under legal scrutiny) by the H&UDD and mostly likely be enacted as a law in 2017. This can push regulated sanitation in urban areas by making the processes for FSSM services legally, institutionally, technology wise and managerial point of view implementable in the state.

CASE IN POINT: FSM policy is backed by investment plan

Besides the aforementioned policies, the Government of Odisha also has a plan for FSSM services in the State. The State acknowledges high urban OD rate of 33.2²⁸%, 49.41 % households with septic tanks, only 2% of liquid waste is being treated. The State Government concurs that although underground sewerage is desirable, it requires high investment, longer implementation period as well as a high O&M cost. The government cannot wait longer as the number of toilets are increasing under the SBM and there is a high probability of aggravation of river pollution, surface and ground water contamination and spread of epidemics such as cholera and jaundice etc. in the cities. In this situation, FSSM emerges as an alternative to underground sewerage system which is efficient, effective and has low capital and O&M cost. The government has put in place a financial, technical, institutional and regulatory framework and a septage management model where “sludge may be treated in an anaerobic digester and liquid may be treated in anaerobic baffled reactor and planted gravel filter. The treated sludge and effluent can be reused in horticulture and other similar purpose²⁹. **As a matter of policy³⁰, 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 subsidise.

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 crore³¹ 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 for FSSM services from DMF (District Mineral Foundation), 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.

²⁸ Census 2011

²⁹ MOM of 31.3.2016, the H&UD. detailed presentation of “improving urban sanitation through Septage management”

³⁰ Odisha septage management guidelines

³¹ OWSSB (CAPEX for 8 plants. Bhadrak is not included)

4 FSSM situation assessment

4.1 Toilet containment typologies

Puri has 40,369 households out of which 80% HHs have individual toilets. Open defecation due to lack of toilet access stands at 15.1% which is higher than national urban average of 12.6%. There are few wards in the town like ward no 1, 7, 11, 25 and 32 which have higher incidence of open defecation than the national average. Around 20% of households are dependent on public or community toilet.³² The figure below shows the wards with high OD.

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



Source: Puri Municipality

Puri has a traditional marine culture since it is surrounded by the Bay of Bengal. It has also several water points such as ponds and *nallahs* that where people find it convenient to defecate in the open. During the consultations it emerged that it is a practice, especially among slum dwellers and certain communities to go to the water points for open defecation and take bath. In addition, lack of space, high ground water table, lack of resources among the urban poor, high floating population are among the major reasons for open defecation as revealed from the consultations with key stakeholders.

Open defecation due to incomplete toilet construction

Forty-year-old N. Jamuna resides in the Maheshwar Nagar slum at Baliapanda in ward no 7. Her family has nine members and all of them practice open defecation. She had applied for IHHL under the SBM since a year back and has completed the toilet structure along with a single pit except the roof. She has been unable to complete the rest of the structure as she is yet to receive the incentive. The nearest community toilet is located around one km from her house which she says is too far to reach. She and other members of her community are defecating in the nearby field. She also added that those who use toilets clean their pits through manual labour. The communities in the slum are not very much aware about cesspool services provided by the Municipality and perceive that the service is costly.



³² Census 2011

A summary of IHHL applications received under the SBM is presented hereunder:

Table 4-1: -SBM Progress (as on 27 May 2017)

Received	Verified	Approved	Rejected	Constructed	Commenced
7,006	6,291	6,208	1	1,407	1,639

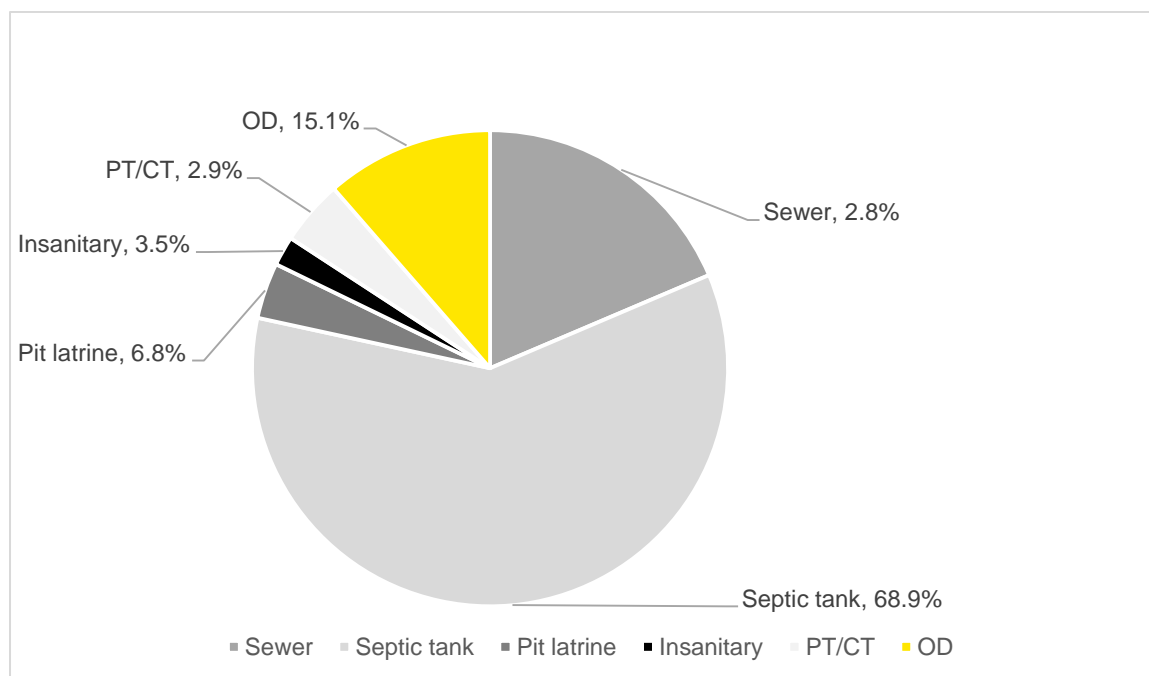
Source: SBM-PMU Odisha

The major challenges in dealing with open defecation in Puri include – high floating population of, lack of space in urban slums, behaviour change among the people to adopt toilet use. However, the OD rate has been coming down fast and we have achieved 50% success. - EO, Puri Municipality

Lack of awareness among people, especially certain communities who believe in the cultural practice of defecating in the open; slow progress in construction and monitoring and floating population of pilgrims are among the key reasons for open defecation in Puri – Chairperson, Puri Municipality

Attitude and behavior of the people, high floating population as compared to the population density of the city and lack of space available for making toilets and septic tanks for people are challenges that Puri faces - PD, DUDA

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



Source: Census 2011

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

Census puts connectivity to sewer network at 2.8%. More than 75.7% of households are dependent on onsite containment system (septic tank and pit latrine).

The limited primary survey indicates that while 49% of HHs have their toilets connected to septic tanks, 31% have connected to single pit and 15% have directly connected to the drain.

Figure 4-3: - Toilet connected directly to the drain with water source nearby in Puri



Only 4% HHs reported to have connected to the sewer network. As per OWSSB, out of the targeted 17,652 HHs, 2,621 have taken connection as of June 2017. One reason for many HHs not connecting their toilets to the sewer network is that the houses mostly have their toilets at the back and the sewer line is in the front of the house beneath the road. This would require excavation work in the house along with road cutting to connect toilets with the network requiring extra expenditure. The primary survey indicated that 54% of the HHs are willing to bear the internal plumbing costs.

Conversion of insanitary toilets into sanitary toilets

Dr. Bideswar Prasad Himanshu is from ward no 31 in Puri. The discharge outlet of the toilet in his house was to a dump converted to an insanitary drain located at the back of his house. He came to know about the sewerage network being laid out in the ward from friends and also from the OWSSB. He decided to connect his toilet to the sewer network and deposited an amount of INR 180. The connection work was started within 15 days by the OWSSB and has been recently completed. Dr. Bideswar says he spent a total amount of INR 35,000 to get the connectivity done and is now satisfied.



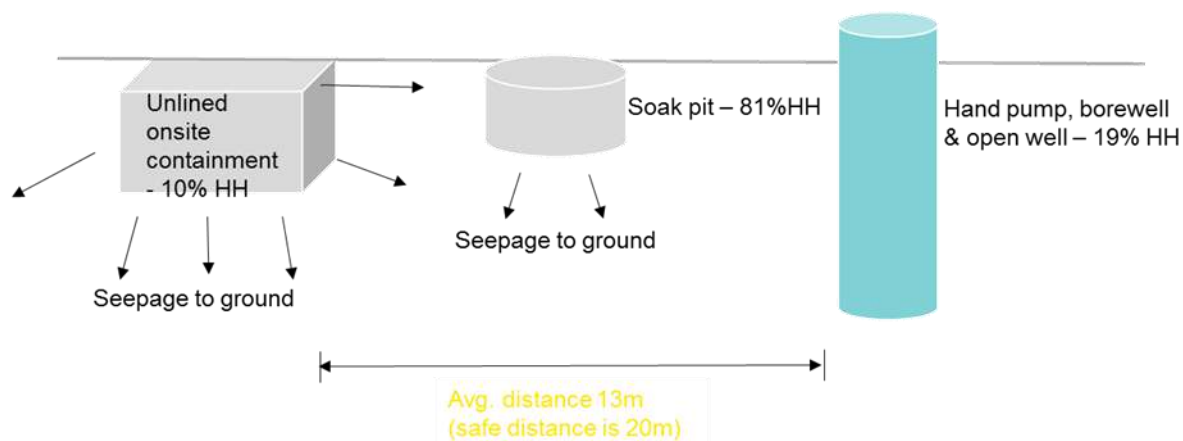
During primary interactions with H&UDD it was informed that the Department is proposing to provide incentive fund of INR 5,300 to HHs with insanitary toilets to get their toilet connected to sewer. This shall be done through SBM funds. A communication campaign is planned to make more citizens aware of this benefit so that they can get their toilets connected to sewer network.

“Many HHs have toilets outside the house, mostly at the backside. They are reluctant to get sewerage connection till the front of the house where the sewerage line exists. Also, there is a lack of adequate space to get the connection” – Councilors, Puri Municipality

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

The primary survey showed that 10% HHs have unlined septic tanks. 32% HH reported that their onsite sanitation system was never emptied. This could be a potential source of ground water pollution due to lack of safe distance from water source. Average distance found between onsite system and open well or hand-pump or bore-well during survey is 13m, which is less than conventionally considered safe distance of 20m. Besides, being a coastal town, ground water table of Puri is high which can lead to further contamination if onsite sanitation systems are not scientifically made or emptied periodically.

Figure 4-3 Situation with onsite containment system as per primary survey for Puri



Most of the stakeholders brought out the problem of direct connection to drains. While only 3.5% HH are insanitary³³ as per census, many of the consultative discussions highlighted connection of toilets to drains as a key sanitation problem in Puri. Here is the summary of various responses received from stakeholders which indicates that this issue needs attention.

“A major challenge is insanitary toilets which has to be addressed through regulation. Such toilets need to be first identified in each ward and given time to convert to sanitary toilet failing which they should be penalised.” – Councilors, Puri Municipality

Overflowing drains and direct disposal of faeces to drain can lead to mosquito borne diseases and water contamination - CHO, Puri Municipality

“Direct discharge from toilets to drains is a major problem in Puri”- Chairperson - Puri Municipality

Primary interaction with masons reveal that while households (HHs) rely on masons for construction of septic tanks, the masons are unaware of the specific standards. They construct septic tanks as per their experience and what they have learnt from their seniors. HHs take a final call on design even if masons are aware of design requirement. Masons revealed that many HHs want big septic tanks or tanks without any chamber. Some people want to connect their toilets to drains directly mostly due to high cost, lack of space, lack of awareness and to be free from responsibility of cleaning.

Variations in design can have bearing on performance of treatment plant as un-digested sludge from unscientific septic tank can have different characteristics than those achieved from scientific septic tanks designed as per norms. The proposed SeTP at Puri is designed considering scientific septic tank.

“Many of them want big septic tanks, or tanks without any chamber. Some people want to connect their toilets to drains directly mostly due to high cost, lack of space, lack of awareness and to be free from the responsibility of cleaning” – FGD with masons

³³ Toilets which directly dispose into drains without any onsite sanitation system and/or require night soil to be removed by human or animal are considered as Insanitary

Figure 4-4: -Interaction with masons and cesspool operator



4.2 Status of CT and PT



Source: SBM-PMU and SAAP- AMRUT Odisha

Census data indicates that 18% of the HHs or 36,000 citizens do not have access to household toilet. Of these 30,000 are going to be provided IHHL under the SBM³⁴ programme. So 6000 citizens do not have household toilets and are directly/indirectly dependent on public or community toilet. In addition, there is need for public toilet to cater to the floating population of 25,000 per day³⁵ who visit Puri.

H&UDD started a novel initiative to build hybrid toilets. The concept being derived from both community and public toilets, where both options of pay-per-daily use and/or pay-per-month options are available. Presently, under the scheme, the Department has signed a memorandum of understanding (MoU) with Sulabh International to build 6,000 toilets in the nine AMRUT towns. The implementation is done under the SBM. Seven hybrid toilets are allocated for Puri. 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)
Public toilet	26	1	-	-
Community toilet	33	2	-	-
Hybrid toilet	-	-	3	4

³⁴ SBM – PMU Odisha

³⁵ Puri Municipality

	Existing complexes (available for usage)	Existing complexes (defunct)	New (under construction)	New (yet to start construction)
TOTAL	59	3	3	4

Source: Puri Municipality

A quick calculation of need for toilet seats in CT reveals that 89 seats for men and 115 seats for women is required as per SBM norms for CT. This is considering only those who do not have IHHL and are not covered under SBM yet.

Figure 4-5: -10 seat mobile unit and public toilet in Penthakata in Puri



Under the scheme of hybrid toilets, presently 7 toilet complexes are to be constructed. All of them are at construction stage or nearing completion. All locations are specifically chosen by Sulabh International considering the O&M sustainability.

Table 4-3: -Management of PT & CT

	Construction	O&M	O&M revenue source
Hybrid	Private agency (Sulabh)	Private agency (Sulabh) – 8 to 10 years contract	User fee
CT (existing)	Puri Municipality	Sulabh, ULB, Community	Community & user fee
PT (existing)	Puri Municipality	Sulabh, Temple Trust	User fee

In addition, there are 7 mobile toilets (10 and 12 seats) available in Puri which are utilized by pilgrims and tourists during big festivals such as Rath Yatra and Bahuda Yatra. However, one is defunct.

4.3 Emptying and transportation

Mechanized emptying and transportation services are provided by ULB as well as private players. Below table provides overall snap-shot of services available in the town. Current emptying capacity is 7.5 Kilo Litre (KL) which shall increase to 19.5 KL with introduction of new vehicles from ULB. A request for proposal was floated in December 2016 inviting tenders from private operators towards the operation and maintenance of the newly acquired trucks. Currently the tendering process is underway.

It will be good for the people if the price is less. For the new cesspool vehicle, the O&M is being undertaken by private operator at a less price – EO, Puri Municipality

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)	1 truck X 3,000 L 1 truck X 4500L	INR 1,000 INR 1500	8am to 6pm	Owned and operated by ULB
2	ULB (new) ³⁶	4 trucks X 3,000 L	INR 790	6am to 6pm	Owned by ULB. Operated by private player.
TOTAL		19,500 L			

Source: ULB data and primary interaction with private operator

Figure 4-6: -Old and new cesspool emptying trucks of Puri Municipality



The trucks in the existing fleet are of 3,000 L capacity or more. Such vehicles typically have a width of 2.2 m. This creates difficulty in providing services in town like Puri where majority of the roads are of lesser width. This was confirmed during the primary survey which found that 59% of roads have less than 2m width. The NIUA-CDD Sanitation Situation Assessment (2017) also acknowledges that 60-70% of onsite sanitation systems are not accessible due to narrow road lanes which are 1.5 to 3 m wide. The various *sahis* or traditional streets located in old Puri like Harichandi Sahi, Mati Mandap Sahi, Kalika Devi Sahi, Mishra Sahi, Suara Sahi especially are inaccessible.

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. The primary survey in Puri showed that more than 55% of the population prefer non-mechanized cleaning than the cesspool vehicles. More than 70% HHs said that they received non-mechanized cleaning services.

Cleaning of septic tanks after several years of installation

Bishnu Chandra Singh from Puri Sadar area had never emptied his septic tank since the construction of his toilet. The septic tank of his house was sealed from top and was located at the back of his house. He decided to clean the septic tank as the toilet's outlets were choked and the septage back flowed into the toilet pan. He contacted the Puri Municipality for emptying services. The cesspool operator had to break the floor to clean the septic tank. The ULB charged a sum of INR 5000 as the house is located in the Puri Sadar area. The sludge was later transported to Archia, the disposal site and disposed.



³⁶ New cesspool vehicle was sent to Puri Municipality in June 2016//

“Most of the HHs empty and clean the septic tanks only when they get full. HHs do not have much knowledge on it and clean it only during emergencies. The septic tanks are cleaned by the cesspool vehicles operated by ULB and also manually especially in those places where the vehicles cannot enter.” – Councillors, Puri Municipality

Smaller cesspool vehicles are required for Puri to increase accessibility – EO, Puri Municipality

Existing regulations and monitoring practices around cesspool emptying are weak or absent. Operators reported that they are currently not required to follow any guidelines around safe practices. This could be perhaps reason why it was found during interview that they do not use personal protective equipment (PPE) while they are fully aware of different type of PPE.

“Cesspool emptying services could be supervised and monitored in a better way. The services should reach people on time as and when they require it. The services should be maximized” - Chairperson - Puri Municipality

4.4 Treatment and disposal/re-use

Currently the city generates 25.46 cubic meter sludge per day.³⁷ However it doesn't have facility to safely treat and dispose fecal waste. Puri Municipality has designated Baliapanda solid waste dumping site also as designated fecal waste disposal site. However, it is more than 5 km from the town center. Primary interactions revealed that operators currently dump fecal waste inside the solid waste dumping site in Archia near Baliapanda. This is leading to pollution of water bodies and serious health implication as this place comes within the sweet water zone available for water supply in the city³⁸.

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.

“The sludge emptied manually are discarded here and there indiscriminately. Some people even bury the sludge in their own backyard.” – Councillors, Puri Municipality

In Puri, the discharge of the fecal sludge and septage is done directly in the dumping site in Archia, Baliapanda with the possibility of contaminating the ground water as the ground water table is very high. Data from OSPCB below clearly indicates presence of faecal coliform which can be linked to poor faecal sludge disposal.

Table 4-5: -Ground water pollution³⁹

Parameters	Month	Value			
pH (6.5 to 8.5)	April	7.5	8.2	8.4	7.1
	October	7	7.1	7.6	7.9
Biological Oxygen Demand. mg/l	April	1.7	2.2	1.5	1.2
	October	0.6	0.3	0.3	0.6
Chemical Oxygen Demand. mg/l	April	6.6	5	5	3.3
	October	8.4	15.4	5.6	8.4
Fecal Coliform,	April	2	5	8	2

³⁷ Sanitation situation assessment 2017, National Institute of Urban Affairs (NIUA) and CDD

³⁸ In discussion with various local households residing around Archia

³⁹ Odisha State Pollution Control Board

Parameters	Month	Value			
MPN/100ml (Absent)	October	8	<2	14	27

The State Government has taken steps to implement septage treatment plant in order to treat and thereafter safely dispose or reuse the fecal waste. This is being covered under the AMRUT programme. The capacity of the SeTP designed for Puri is of 50KLD. The plant design period is considered as 20 years since the service life of all major structural components will have a lifecycle period of 20 years.⁴⁰

The proposed plant shall work on co-treatment approach with supernatant going to pond system for treatment while separated sludge shall be sent to unplanted drying bed to remove pathogens.

Rivers flowing close to and inside Puri are contaminated. Even Daya River which carries part of Bhubaneswar ends at Chilika lake, contaminating the lake – RO, OSPCB, Puri

Figure 4-7: -Co-treatment approach adopted by Puri for disposal of fecal waste

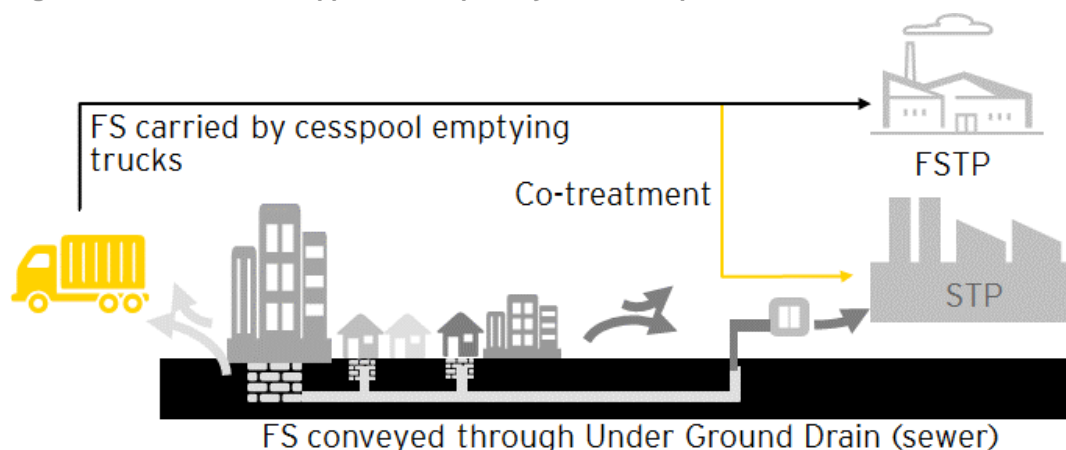


Table 4-6: -Snapshot of proposed SeTP

Capacity	Area	Cost	Lifecycle period	Distance from city	Technology	Expected date of completion
50 KLD (kiloliter per day)	0.5 acre	1.74 crore	20 years	10 KM from Puri Municipality	Co-treatment with STP after solid liquid separation	end of 2017

Source: OWSSB, Puri Municipality and Situation assessment report, 2017 – NIUA and CDD

Figure 4-8: -On-going work at Puri SeTP (co-treatment within STP)

⁴⁰ Sanitation situation assessment 2017, National Institute of Urban Affairs (NIUA) and CDD



Currently, many HHs in Puri are not covered under the sewer network which the SeTP will cater to. Also, the service could be extended for households and communities from the peripheral areas of the town where there will be no sewer connectivity. - Project Engineer, OWSSB, Puri

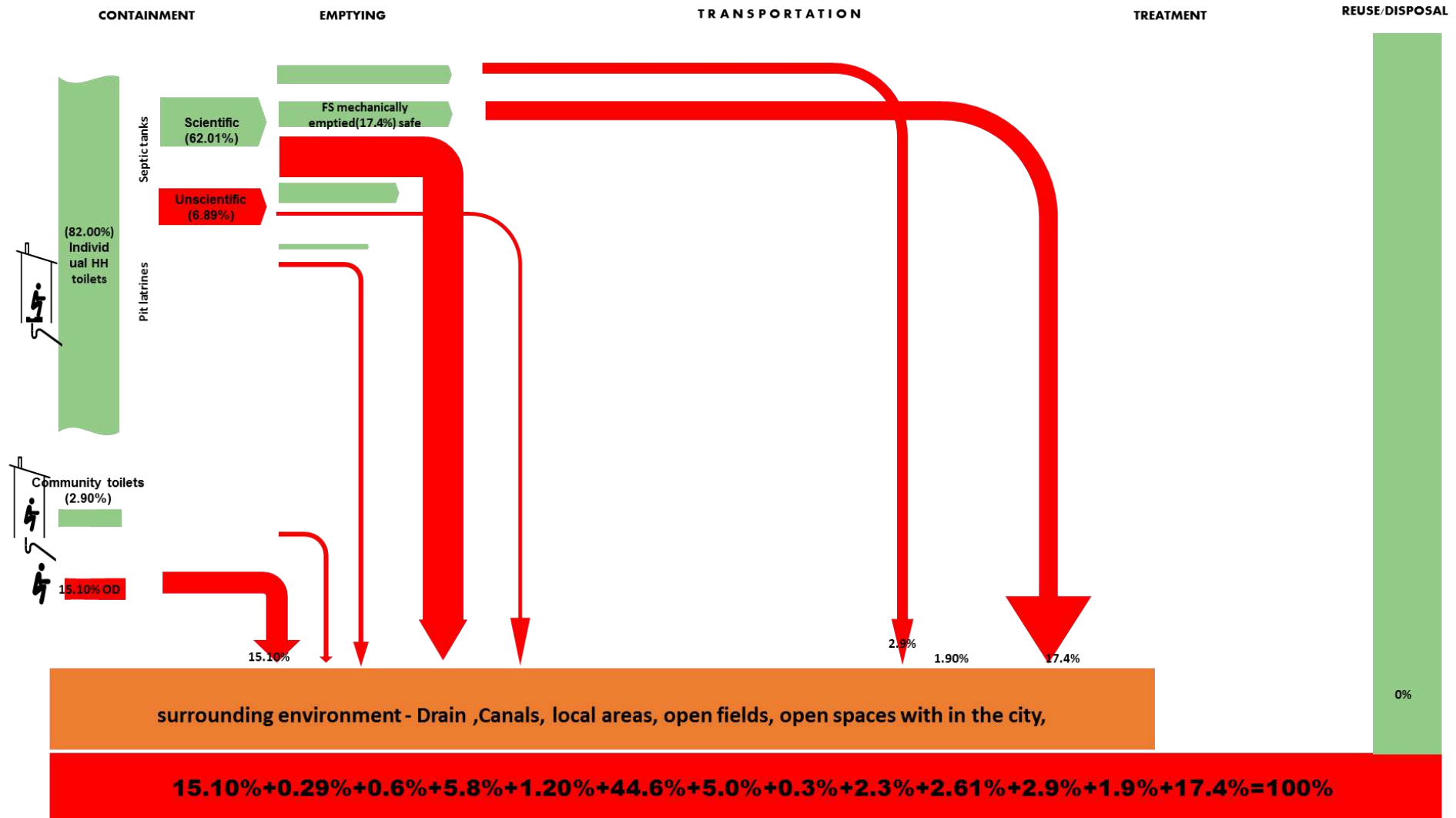
In addition, during the construction phase of the SeTP at Mangalaghat, safe disposal is required for the fecal waste being generated by Puri. As such, an interim solution of deep row entrenchment has been identified and notified by the State Government. Puri Municipality is to identify total of 0.77 acres of land for deep row entrenchment considering the present situation of on-site containment in Puri. Mangalaghat could be the location for disposal of fecal waste with no concerns over local disputes over disposal. However this is currently in discussion phase within the Municipality as cost of such trenches could be very high in Puri considering its high water table which would require lining. Also the SeTP is scheduled for commissioning by end of 2017 which may eliminate need for temporary disposal.

Figure 4-9: -Typical deep row entrenchment site



Source: FSM book, 2014

4.5 Shit flow diagram (SFD) of Puri



4.6 Assumptions made for SFD

- ▶ Census 2011 data used for access related information
- ▶ Scientific and unscientific septic tanks and pit latrines are divided in the ratio 90:10 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 28:72.
- ▶ 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.

5.1 Stakeholder identification

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

Table 5-1 Stakeholders at state level and district level

State level	District level
<ul style="list-style-type: none"> ▶ State Urban Sanitation Mission headed by the Chief Minister of Odisha which is the highest policy making body for urban sanitation ▶ State High Power Committee headed by the Chief secretary of Odisha and convened by the PS H&UD ▶ State SBM Directorate, headed by the 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 FSSM rules and standards into town planning laws ▶ Department of Water Resource ▶ Directorate of AMRUT headed by Special Secretary for infrastructure creation, funding and reforms ▶ Directorate of Municipal Administration (DMA) to monitor 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 	<ul style="list-style-type: none"> ▶ 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 OSPCB – 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
	<p>City level</p> <ul style="list-style-type: none"> ▶ 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 ▶ Residential Welfare Associations/ Slum federations ▶ NGOs, CBOs, youth clubs, Puja/ peace committee, citizen groups etc. ▶ Outsourced agencies as service providers

In addition to the above mentioned institutions, the following stakeholders are also critical.

1. Shri Jagannath Temple Administration (SJTA) – The Jagannath Temple and its surrounding areas where servitors reside is highly narrow, dense and congested (characterized by 11 *Sahis* or streets) and retrofitting of roads and buildings is a prerequisite for provision of sanitation facilities. Under this scenario, cooperation and proactive involvement of SJTA with the Municipality is highly essential. The top priority of coordination involvement should be to reduce open defecation practiced by servitor, SWM and reluctance to take sewerage connection despite the provision.
2. Coastal Regulatory Zone can play a more active role in regulation of pollution of beaches and coastal zone through regulatory measures as they have the required execution power.
3. Department of Tourism and Culture – Puri is an important pilgrimage and tourist destination and attracts 50-60 lakh tourists every year. Poor sanitation would affect tourism prospects directly. This Department has funding and governance powers which can be leveraged for improvement of sanitation in Puri.
4. The National Highway Authority of India (NHAI) is responsible for the operation and maintenance of Grand Road in Puri. Major sewerage and drainage lines pass through and cut across this road. This creates a major problem of water logging/choking in rainy season as the road gets submerged. This needs to be tackled through better coordination between Water Resource Department and the NHAI.
5. Hotel & Restaurant Association Orissa (HRAO)-Most of the hotels in the city are affiliated to the HRAO. This body can be leveraged to improve the impact of sanitation of commercial properties.

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 Puri.

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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	Mission director ate	ULB, Community Based Organisatio n		SBM director/te/ ULB	ULB	ULB/ SBM director/te
Capacity Building	SBM Director ate	SBM director ate	ULB, Community Based Organisatio n		SBM director/te	ULB	ULB/ SBM director/te/ 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 Office (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 Puri

	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

	Stakeholders		
Sector	Planning, Regulation Monitoring	Implementation	Operation and Maintenance
Access to toilets	SBM directorate	ULB (Sanitation department)	ULB(Sanitation department)
Solid Waste Management	ULB (Sanitation and engineering)	ULB (Sanitation and engineering)	ULB (Sanitation and engineering)
Slum Development/ Urban Poverty 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.

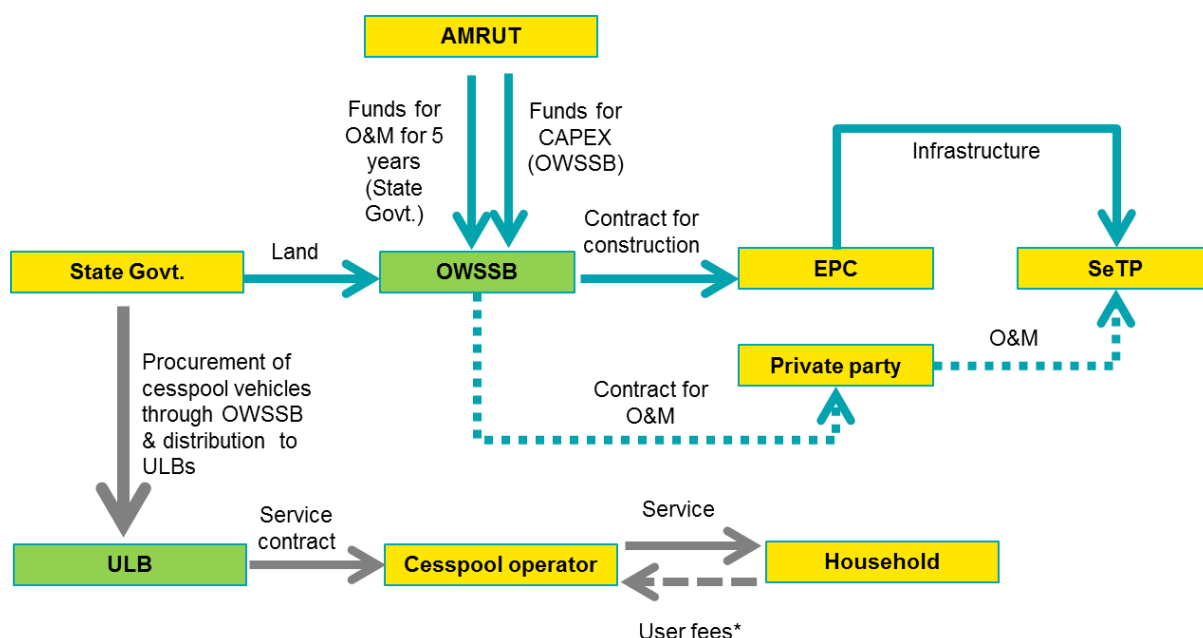
It has been observed from the past experience of implementing projects that often the beneficiaries who are most affected by the project outcomes do not have adequate influence on the project. On the other hand, those stakeholders who have high influence often do not have adequate interest in project 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



*User fees will be directly paid to cesspool operator as that is the prevalent practice

Linked to ULB
 Linked to OWSSB
 Indicative

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 O&M of the treatment plant is by the private parties. The cesspool trucks are placed with the ULBs by the OWSSB⁴¹ after central procurement at the state level (June 2016). ULBs are responsible for engagement with private operators for emptying and transportation. Thus, different parts of the value chain are mapped to different stakeholders which can result in coordination challenges.
2. Further clarity is required on-
 - ▶ Revenue generation from SeTPs
 - ▶ Cost recovery from reuse of treated resources
 - ▶ Tariff policy
 - ▶
3. Under the present scenario, cesspool trucks are not considered as revenue generation assets for most of the ULBs. However, certain human resource as well as operational costs are involved in management of the fleet of cesspool vehicles. Currently the operations are proposed to be managed by private operators. The critical aspect to consider is who will bear the expenses for O&M of SeTP after five years and what will be operating model at that stage.
4. Scaling up the FSSM solution in non-AMRUT cities under this framework will be challenging because OWSSB is not an institutional structure. It is a project based organization of the PHEO and has presence in almost 103 cities in the State. Therefore, roles of different levels should be clarified and a functional relationship should be established between the ULB, district administration, parastatals – OWSSB and OSPCB etc. for FSSM services.

⁴¹ On behalf of H&UDD

5. There is a lack of integrated approach to FSSM within various bodies and departments. The 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 isolation 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 primary interactions with the stakeholders.

6 Capacity Building

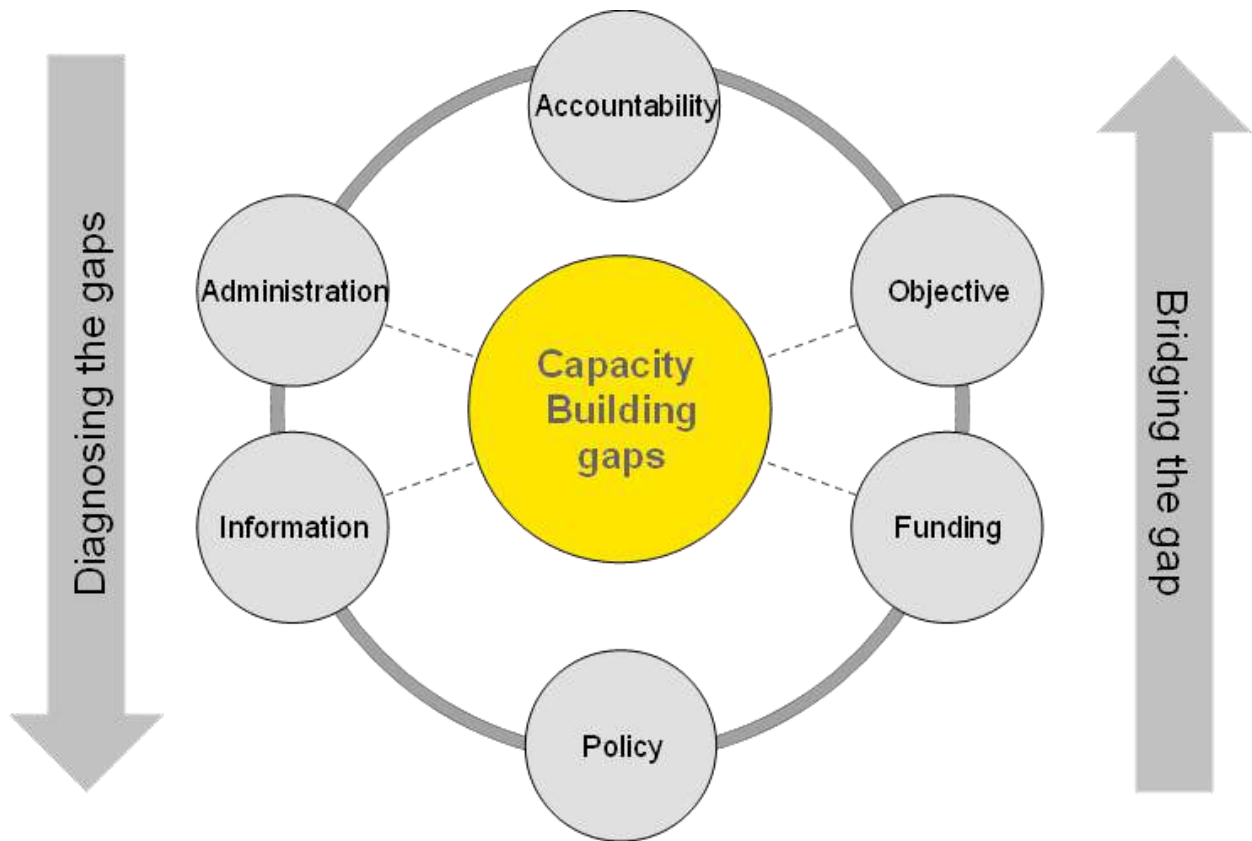


Table 6-1: -Key gap assessments and strategies for capacity building in Puri

Key capacity areas	Gaps Identified / observations	Strategies suggested	Key target groups
Institutional arrangement within city	<ul style="list-style-type: none"> ▶ 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. 	<ul style="list-style-type: none"> ▶ Integration of community level informal groups with city sanitation programmes ▶ Formalization of community level institutions such as CSTF, WSC in city system ▶ Strengthening front-line departmental groups for FSSM services in cities ▶ Focus should be on zone and ward level interventions – a coordinated programme and overall M&E at broader level at ward level 	<ul style="list-style-type: none"> ▶ CSTF, WSC ▶ Puja committees, Sahi committees, slum federations, youth clubs, sports clubs, cultural groups etc. ▶ Mahila Arogya Samiti, Ward Kalyan Samiti , SHGs ▶ Ward Councilors ▶ Zone level officials of city
Community engagement and ownerships	<ul style="list-style-type: none"> ▶ 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 or limited data availability to prepare ward wise plans ▶ Potential Institutions/ establishments are not mapped and consulted for sanitation campaign in the city ▶ Communication and messaging are stereotyped and typically ineffective. 	<ul style="list-style-type: none"> ▶ Promotion of volunteering and mentorship on sanitation at ward level including community engagement and recognition systems and processes ▶ Integration with ULB council, staffs and committees through interactions ▶ Converging all community level influencers, line departmental frontal units and city councilors at zones and ward levels to discuss, decide and agree over key sanitation issues ▶ Base line sharing with ward councilors ▶ Service level scores in each wards including sanitation and its integration with CSPs ▶ Messaging needs to target community engagement and more inclusive and contextual ▶ Assign each ward level sanitation promotion to the key institutions in the city such as SCS College, Bar associations, etc. 	<ul style="list-style-type: none"> ▶ 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 OSPCB, OWSSB, PHEO Puri Municipality, RWAs and colony societies ▶ Engagement with the corporates, lawyers' association, bus owners associations, workers unions, doctors association, schools and colleges ▶ Bar council
City leadership in undertaking reforms/ enforcement/regulation	<ul style="list-style-type: none"> ▶ Lack of data and knowledge on FSSM and overall sanitation sectors ▶ Low skill to comprehend issues of sanitation in local contexts and finding solutions 	<ul style="list-style-type: none"> ▶ Exposure visits to learn leading practices ▶ Better data management for improved decision making process in councils. Data should be regularly shared from wards to 	<ul style="list-style-type: none"> ▶ Mayor, Deputy mayor ▶ Standing Committee ▶ Councilors ▶ Commissioner

Key capacity areas	Gaps Identified / observations	Strategies suggested	Key target groups
	<ul style="list-style-type: none"> ▶ Accountability and power lies with different stakeholders leading to gaps in planning and implementation ▶ Incoherent relationship between council, standing committee and executive wings (commissioner) and district administration ▶ The capacities of engineering department are already maxed and may not have capacities to manage the expected workflow of waste-water and SeTPs 	<ul style="list-style-type: none"> city level including city council, mayor, Standing Committee chairman, and ward councilors ▶ Capacitate target audience through training in concept and programme design to increase their involvement ▶ Create pilots to show workability of concepts and plan roll-out ▶ Model SoPs should be prepared and shared with the city officials ▶ CSP should be adopted as a binding document ▶ City level resolutions on critical sanitation decisions should include enforcement and regulatory mechanism as well as involvement of community structures in its implementation 	<ul style="list-style-type: none"> ▶ Deputy Commissioners ▶ Additional commissioners ▶ Engineers ▶ Finance section ▶ City health officers ▶ Sanitation department ▶ PIUs- AMRUT, SBM, PMAY, NULM and others ▶ Departmental front line organizations
<p>Administrative/ governance areas</p>	<ul style="list-style-type: none"> ▶ 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. ▶ 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, 	<ul style="list-style-type: none"> ▶ 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 	<ul style="list-style-type: none"> ▶ District Collector ▶ ADM, Tehsildar ▶ PD DUDA ▶ DFO ▶ Regional PCB ▶ Regional OWSSB ▶ Regional PHEO ▶ City Commissioner ▶ Deputy Commissioners ▶ City Engineer ▶ City sanitation officer ▶ Officials of PKDA ▶ Members DUSC ▶ Members of CSTF ▶ Members of DPC ▶ Members of Standing Committees ▶ Councilors of Puri Municipality

Key capacity areas	Gaps Identified / observations	Strategies suggested	Key target groups
	<p>SWM and drainage have missing interlinks operationally but aim to have common outcomes on sanitation</p>		<ul style="list-style-type: none"> ▶ Key institutions in the city including other line departments – Health, Education, WCD ▶ MLAs, MPs, Department of Social Justice ▶ Water Resource Department ▶ Private agencies ▶ SJTA ▶ Ministry of Tourism & Culture (ASI) ▶ NHAI ▶ Coastal Zone Regulation Authority ▶ Hotel & Restaurant Association
<p>Creation of environmental engineering cell in engineering section</p>	<ul style="list-style-type: none"> ▶ Puri Municipality does not have environmental engineering sections to comply with standards in public health and environment. 	<ul style="list-style-type: none"> ▶ Restructuring the engineering department with added focus on environmental engineering 	<ul style="list-style-type: none"> ▶ Chairperson, Councilors, Puri Municipality ▶ Executive Officer ▶ Standing Committee on Sanitation and Health ▶ City engineer
<p>Private participation in the urban infrastructures (Capital and operating expenditure)</p>	<ul style="list-style-type: none"> ▶ People are not aware of reasons of privatization of sanitation services leading to dissatisfaction among the workers ▶ SWM is accepted and adopted as an essential element of sanitation vis-à-vis FSSM having limited understanding and acceptance ▶ Recurring and frequent outbreaks of water borne diseases in Puri 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 	<ul style="list-style-type: none"> ▶ Interfacing of Puri Municipality 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 Resident Welfare Association (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 	<ul style="list-style-type: none"> ▶ Private operators ▶ Masons ▶ Banks and financial institutions ▶ Skill development authorities ▶ NULM ▶ NBFCs and MFIs

Key capacity areas	Gaps Identified / observations	Strategies suggested	Key target groups
	<ul style="list-style-type: none"> ▶ High expectation of public from ongoing sewerage projects and people are expecting it to address to address all sanitation issues 	corporations, micro-finance institutions, Livelihood and Skill development authority	

7 Primary survey - household level

7.1 Rationale of the primary survey

As described in Section 1.3, a limited primary survey was conducted in the selected areas of Puri 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

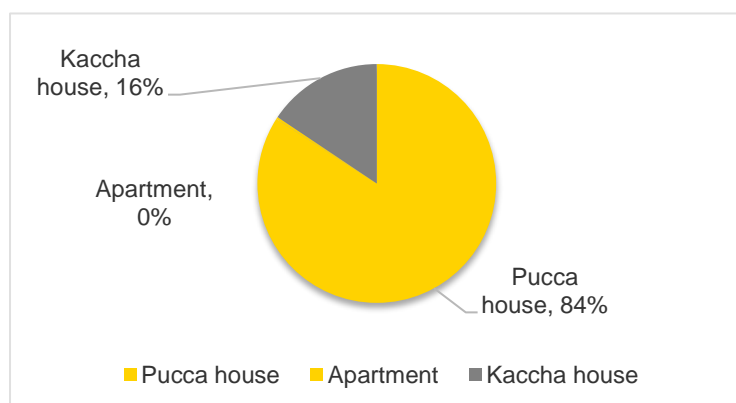
A total of 5,977 households were surveyed for the demographic assessment, out of which 68% households were from non-slum areas. Nature of the property was mostly residential (97%). House typology for 84% of the surveyed households were *pucca* house. The owner resided in 67% of the surveyed households and 3% of the households were 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=5977)		
Slum	1917	32
Non-slum	4060	68
Nature of property (N=5977)		
Residential	5821	97
Institutional	82	2
Commercial	48	1
Any mixed	26	1
Household ownership (N=5977)		
Owned	3999	67
Rented	1788	29
Staff quarter	10	1
Public land	180	3

Figure 7-1: -House typology



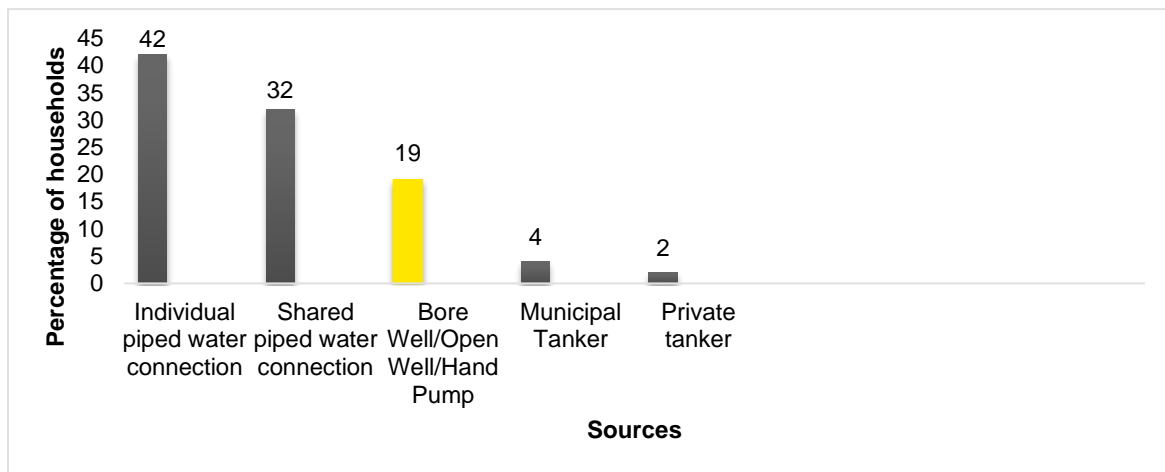
7.3 Source of water for domestic use

Prime source of domestic water for 42% of households is individual piped water connection to household. 45% had water supply more than eight hours per day and only 1% reported that their

piped water connection supply was less than two hours per day. About 19% depended on hand pump and bore well.

In order to increase the demand for latrine use, availability of water is an important component. 22% respondents reported that availability of domestic water is not sufficient for maintenance of toilet.

Figure 7-2: -Primary source of domestic water



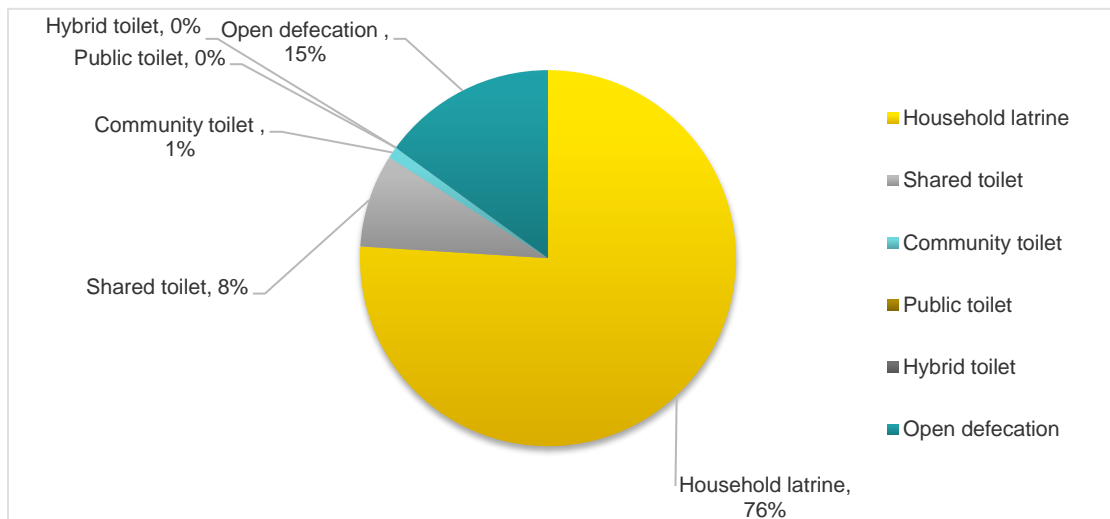
Key findings

- ▶ 19% of HHs depend on ground water sources such as bore-well and hand pump. There is a high chance of groundwater contamination for the 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 the average distance between the well/ hand pump situated in house/ plot and pit/ septic tank is 13 m.

7.4 Household sanitation accessibility/facility scenario

Out of 5,799 households, 76% households had individual latrines and only 9% depended on shared/ community/public toilets and none of the household used hybrid toilet. Figure 6-3 shows household sanitation accessibility/facility.

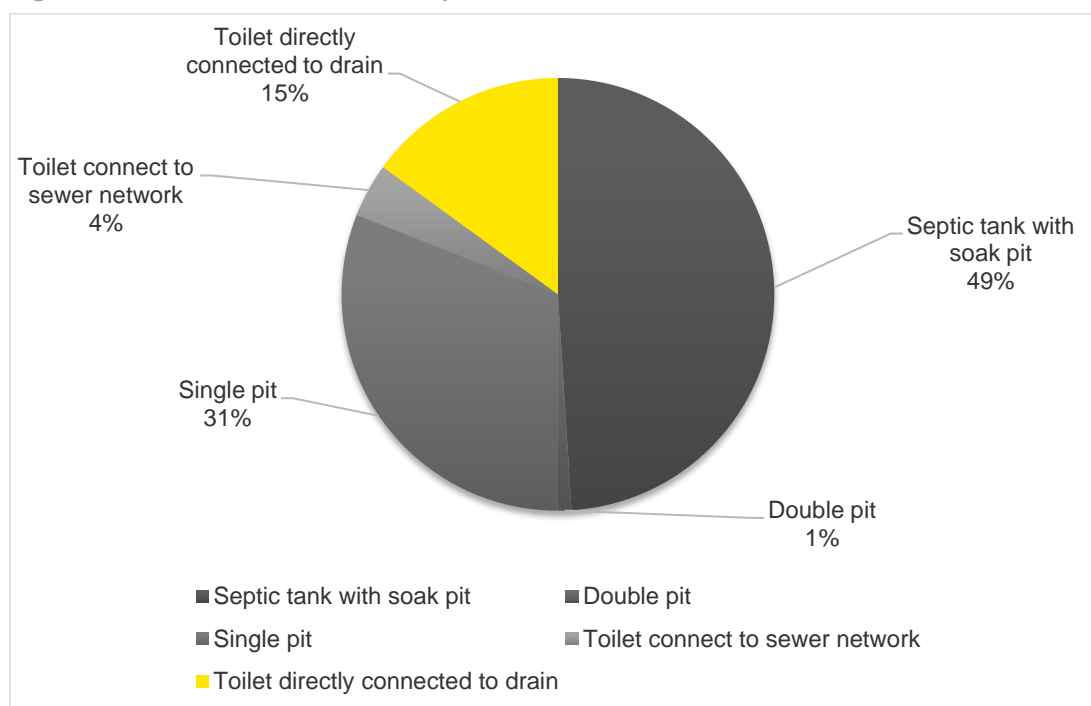
Figure 7-3: -Defecation practice by households



Among 5,078 households using toilet, 49% had septic tank and 32% had pit latrines. 4% of the toilets

were connected to sewer network and 15% toilets were directly connected to drain. Figure 7-4 gives information on disposal from latrine connection

Figure 7-4: -Latrine connection for disposal



7.4.1 Household views towards community/public toilet

Out of 5,799 households, only 0.75% HHs used community toilets. Among these, 34 HHs viewed that there is a separate toilet for male and female, one opined the availability of dustbin for disposal of sanitary pads. 41% HHs pays less than INR 50 9%, spends INR 50 to 100 per month and only 5% HHs are paying more than INR 100 per month. With respect to maintenance of the toilets, two reported that the maintenance was done by the Municipality, 70% felt that the maintenance was done by the community and 25% felt that there is no agency that is maintaining the community/ public toilets. While 1% households using community toilets felt that the toilets were clean and well maintained, the remaining felt that the cleanliness and maintenance done was average. However most of them perceived that there is a scope of improvement in maintaining the toilets and improve security situation at the facilities.

7.4.2 Open defecation scenario

72% HHs practicing open defecation do not have individual household latrine nor had access to community/public toilets. Among the OD households 97% were willing for construction of individual household latrine. The remaining (3%) were not willing to construct individual latrine because of lack of funds (57%), which emphasizes the need for support on individual latrine construction under SBMs IHHL program, and 43% had lack of space, which signifies the need for construction of PT/CT or hybrid toilet.

Table 7-2: -Open defecation scenario

Open defecation scenario	N	%
Reason for practicing (N=899)		
Lack of household latrine	447	49
Lack of access to PT/CT	113	13
Cultural preference	339	38
Willing for construction of individual household latrine (N=899)	872	97

Reasons for not willing to construction of individual household latrine (n=27)		
Lack of fund	15	57
Lack of space	12	43
Willing for individual superstructure with pit/septic tank (N=142)	42	30
Will be interested for use of community/public toilet (N=142)	125	88

7.4.3 Septic tank/pit status of the households

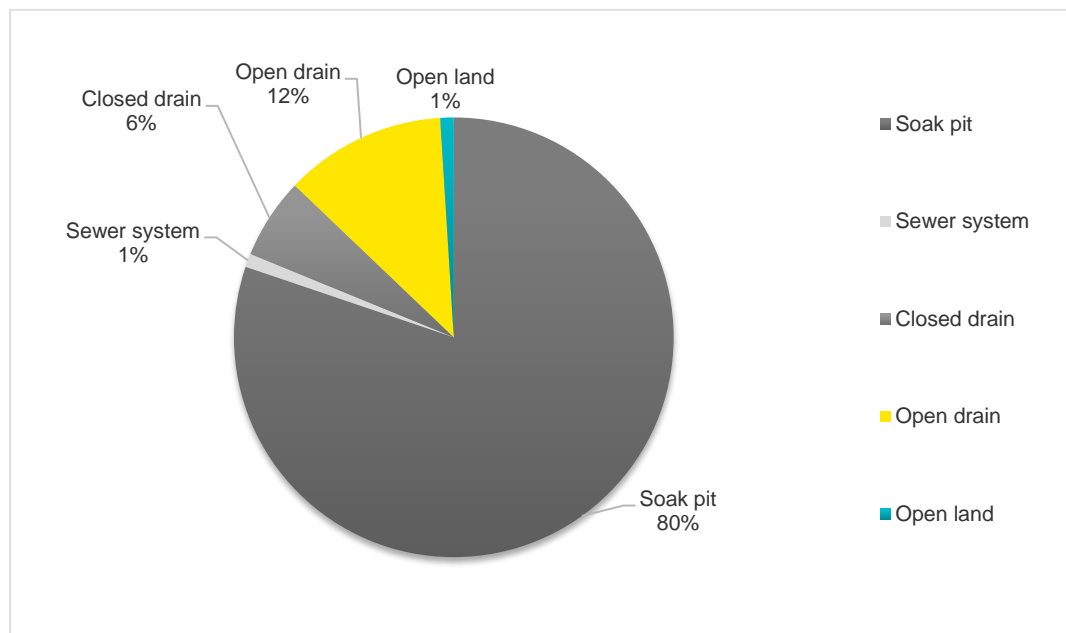
Total 2,547 household had septic tank/pit. About 25% of the septic tank/pits were located inside the house. Out of 1,910 septic tank/pit located outside of the house 42% were in front side and 58% were located in back side of the house. About 84% of the septic tank/pits were rectangular in shape. Around 96% HHs sought advice from mason/contractor for designing and construction of septic tank/pits, *only 1% sought advice from municipality officials; which indicates the capacity building training among mason/contractor on standard guideline for construction of household latrine.* Only 11% household checked ground water level during construction of septic tank/pits. About 90% of the septic tanks were lined.

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

Description of septic tank/pit	n	%
Location (N=2547)		
Inside the house	637	25
Outside the house (n=1910)	1910	75
Front side of the house	803	42
Back side of the house	1108	58
Shape (N=2547)		
Rectangular	2139	84
Circular	408	16
Seek advice for designing and construction (N=2547)		
Mason/ Contractor	2346	96
Municipality officials	25	1
NGO/Neighbor/Relative/Friend	76	3
Ground water level checked before construction (N=2547)	280	11
Type of the lining (N=2055)		
Lined	1805	90
Non-lined	205	10
Size (N=262)		
Breadth in ft, Average	8	
Length in ft, Average	8	
Depth in ft, Average	6	

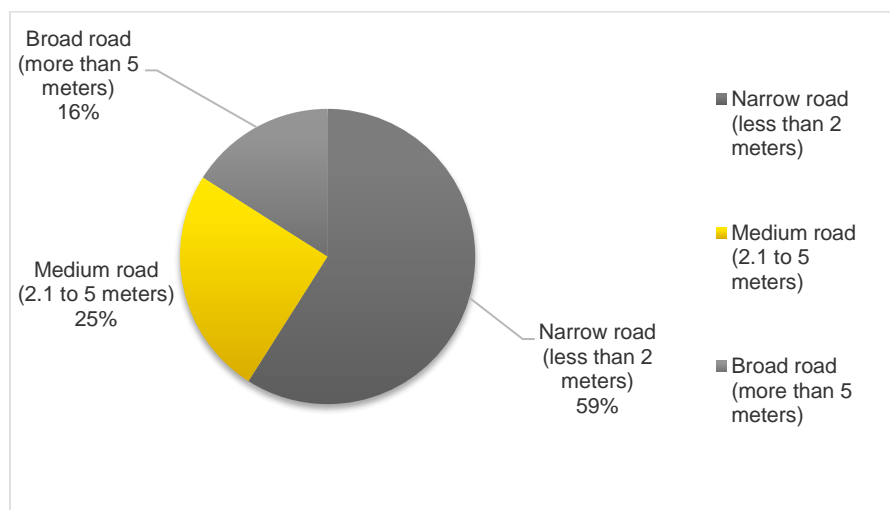
Out of 2,574 septic tank/pits, 81% were connected to soak pit, 1% sewer system and remaining 18% to drains. Figure 7-5 details the outfall connection.

Figure 7-5: -Outfall connection of septic tanks/pits



From road accessibility perspective, 59% household had narrow road (less than 2 meters) and 25% households connected with medium road (2.1 to 5 meters) as described in Figure 7-6

Figure 7-6: - Road accessibility to households having septic tanks/pits



Key findings

- ▶ 96% HHs sought advice from masons for designing and construction of septic tank or pit indicating that they could be influence makers in ensuring proper design of septic tanks and pits
- ▶ 18% HHs have their septic tank outfall connection to open drains

7.4.4 Septic Tank emptying practice

Out of 1,729 households having septic tank or pits, 32% preferred municipality as the service provider, 16% preferred private providers, 57% preferred local laborers, or self-cleaning. However

only 20% received the services from government cesspool while 72% HH get the services from manual labours. The cleaning frequency for 39% households was more than 24 months.

Figure 7-7: -Septic tank emptying services received

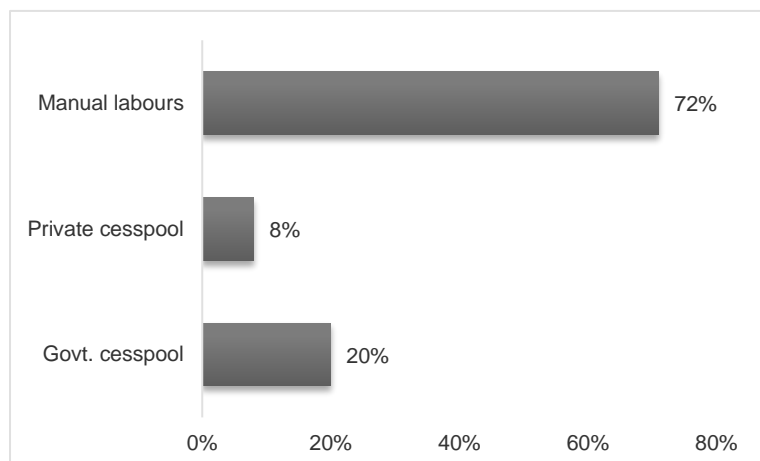


Table below presents the detail of septic tank emptying practices. Around 35% households paid less than INR 1000, 40% spent INR 1,000 to 1,500, and 24% spent more than INR 2,000 INR for emptying the septic tank.

Table 7-4: -Septic tank emptying practice

Septic tank empty practice (N=262)	n	%
Preferred service provider (N=1729)		
Municipality	550	32
Private	269	16
Local labor	910	52
Cleaning frequency of septic tank (N=2547)		
6 months	198	8
6 to 12 months	202	8
12 to 24 months	322	13
24 to 36 months	236	9
More than 36 months	771	30
Not yet cleaned	814	32
Amount spent for emptying process (N=1729)		
No cost	80	5
500 to 1000 INR	526	30
1001 to 1500 INR	360	21
1501 to 2000 INR	354	20
2001 to 3000 INR	147	9
More than 3000 INR	262	15

7.4.5 Awareness on environmental and health impact of sludge disposal

Out of 5,977 HH surveyed, only 4% were aware on SeTP being set up in Puri. 57% HHs were aware on the sewerage connection in the town. Only 2% HH family members suffered from jaundice during last three months from the survey.

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:

<ul style="list-style-type: none"> ▶ Chairperson, Puri Municipality ▶ Councilors ▶ Executive Officer ▶ SBM nodal officer ▶ Finance Officer ▶ Sanitary Inspectors ▶ Community Organisers ▶ City Engineer ▶ City Health Officer ▶ Households 	<ul style="list-style-type: none"> ▶ Project Director, District Urban Development Authority (DUDA) ▶ Executive Engineer, Public Health Engineer Organization (PHEO) ▶ Regional Officer, Pollution Control Board ▶ Chief District Medical Officer 	<ul style="list-style-type: none"> ▶ Project Engineer, Odisha Water Supply and Sewerage Board (OWSSB) ▶ District Social Welfare Officer ▶ Community based organizations ▶ Masons ▶ Cesspool operator
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In the following table, we are describing a summary of key findings, issues, references and required interventions.

S.N o.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
1	Insanitary toilets	<ul style="list-style-type: none"> ▶ The Census 2011 shows that about 3.5% of the households have their toilet outlets to open drains⁴². ▶ Basis the household survey, we found out that out of 5,078 HHs, 15% HHs had toilet directly connected to drain. ▶ During the consultations (FGDs, IDIs) with the ULB and non-ULB officials and CBOs, insanitary toilet was highlighted as one of the key issues for sanitation in Puri. 	<ul style="list-style-type: none"> ▶ 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 ▶ Ward councilors/ corporators need to be sensitized on this to convey to households in their respective wards ▶ CBOs such as MAS, SHGs and Ward Sanitation Committees should be oriented to spread awareness among households in their respective wards ▶ Information on onsite sanitation system solutions available in market which are economical and quicker to implement to be disseminated to citizens 	IEC/BCC
			<ul style="list-style-type: none"> ▶ A regulatory set-up can be proposed for ensuring effective implementation of the issue. Amendments could be made in ULB building bye-law to include provision of scientific septic tank as part of building approval process. ▶ 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	<ul style="list-style-type: none"> ▶ As per the HH survey, out of 2,547 HHs with septic tanks, 10% are non-lined which can lead to seepage of sewage into groundwater. The primary survey also shows that 19% of the HHs depend on ground water sources. ▶ 94% of HHs indicated during primary survey that they rely on mason for designing and construction of septic tank/pit. However, as per discussions with masons in the FGD, HHs take a final decision on this aspect. Even if the masons highlight the importance of 	<ul style="list-style-type: none"> ▶ 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
			<p>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.</p> <ul style="list-style-type: none"> ▶ Amendments could be made in ULB building bye-law to include provision of scientific septic tank as part of building approval process. 	Governance reforms

⁴² Toilets which directly dispose into drains and/or require night soil to be removed by human or animal are considered as Insanitary

S.N o.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
		<p>including baffle wall/ lining, HHs sometimes choose to ignore it for saving costs.</p> <ul style="list-style-type: none"> ▶ As per discussions with ULB officials and CBOs, the households are not aware of adverse effects of unsafe containment ▶ As per conventional safe practice, minimum distance between groundwater source and containment unit (septic tank/ pit latrine) should be 20m. While the household study revealed the average distance between groundwater source and onsite containment system as 13m. Hence this could be a possible reason for groundwater contamination through seepage of sewage from unscientific septic tanks. 	<p>Communication messages to HHs with focus on:</p> <ul style="list-style-type: none"> ▶ 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 <hr/> <ul style="list-style-type: none"> ▶ Explore potential for scheduled desludging programme 	<p>IEC/BCC</p> <hr/> <p>Infrastructure (infra and O&M)</p>
3	Practice of open defecation	<ul style="list-style-type: none"> ▶ As per primary survey, 79% of 899 HHs surveyed who defecate in open do not have IHHL and lack access to other toilets facilities. 38% HHs said that they preferred to defecate in the open as part of their conventional culture. 	<ul style="list-style-type: none"> ▶ 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. <hr/> <ul style="list-style-type: none"> ▶ Engaging with CBOs to motivate people to build and use IHHL and through CT/PT especially through sustained inter personal counselling for targeted households who do not have access to toilets. 	<p>Infra-structure (infra and O&M)</p> <hr/> <p>IEC/BCC</p>
4	Lack of space for IHHL	<ul style="list-style-type: none"> ▶ As per the household survey, 43% 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 	<ul style="list-style-type: none"> ▶ Greater focus on CT, PT availability and better O&M of the available and upcoming facilities ▶ Explore sustainable O&M models including community led, private operators etc. ▶ Under the Prime Minister Awas Yojna (PMAY), the government has adopted AWASS Yojana in the Odisha where urban poor and slums dwellers have been given opportunities to avail decent housing units for their stay in cities. Under the affordable housing schemes and slum rehabilitation through PPP models, a large number of housing units are being constructed where toilets are also constructed along with the containment units which need to be constructed as per FSSM requirements. Particularly, the beneficiary led housing schemes where 	<p>Infra (infra and O&M)</p>

S.N o.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
			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	<ul style="list-style-type: none"> ▶ The household survey highlighted that 66% HHs were dissatisfied while using CT/PT. 32% HHs perceived the cleanliness/maintenance as poor 	<ul style="list-style-type: none"> ▶ 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. 	
6	Challenges in emptying septic tanks due to narrow lanes and low usage of mechanized service	<ul style="list-style-type: none"> ▶ As per household survey, 59%HHs had road width less than 2m. This leaves them inaccessible to majority of existing fleet of city with the ULB (except a 1,500 liter vehicle with private operator) having minimum width of 2.2m. ▶ 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 ▶ More than 70% HHs reported using the services of manual labour for emptying septic tanks/pits 	<ul style="list-style-type: none"> ▶ Size of cesspool vehicles should be planned keeping in mind the narrow roads of Puri and explore alternative technologies for emptying during procurement. Solutions of mechanized emptying such as Vacutug to be explored along with manually operated mechanized in slums with extremely narrow lanes. ▶ Need for transfer stations⁴³ which can help use of vehicles of different sizes to be explored to optimize the cost of transport which could help reduce price of service delivery. ▶ Operating models that can help makes payment for cesspool emptying affordable for urban poor to be devised 	Infra (infra and O&M)
			<ul style="list-style-type: none"> ▶ Strengthened monitoring at community level by building capacity of MAS, Ward Sanitation committee, CSTF and SHG to promote usage of mechanized emptying. 	Capacity building

⁴³ 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
			<ul style="list-style-type: none"> ▶ 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 ▶ Spreading awareness and information on the cesspool emptying services of the ULB 	IEC/BC
			<ul style="list-style-type: none"> ▶ 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	Disposal of faecal sludge & septage	<ul style="list-style-type: none"> ▶ Puri city has a designated faecal sludge and septage waste dumping site but considering the high level of emptying done by manual labour indiscriminate dumping of faecal sludge and septage takes place indiscriminately. ▶ There is no monitoring mechanism in place to track dumping of faecal waste. ▶ Cesspool emptying truck operators are not governed by any regulation for their operation 	<ul style="list-style-type: none"> ▶ 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)
			<ul style="list-style-type: none"> ▶ 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
			<ul style="list-style-type: none"> ▶ Communicate the harmful impact of indiscriminate dumping non-mechanized emptying to relevant stakeholders - citizens, leaders, community groups, sanitation workers and ULB staff 	IEC/BCC

S.N o.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
			<ul style="list-style-type: none"> ▶ Regulation at ULB level to enforce disposal of fecal 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	<ul style="list-style-type: none"> ▶ Implementation strategy and plan to be devised based on learnings from Project Nirmal and interventions in other places. ▶ Market for manure and treated water to be explored and included as part of the O&M contract to be defined for SeTP operator 	Infra-structure (infra and O&M)
9.	Ground Water Contamination	<ul style="list-style-type: none"> ▶ Considerable faecal contamination was found in the four areas where ground water was tested by OSPCB. The contamination increases in October, speculatively due to higher percolation during monsoons of faecal waste into the ground water along with rain water. ▶ In 5 out of 8 cases total dissolved solids were more than 500 mg/L (Standard prescribed by IS: 10500 for drinking water). This can lead to gastro-intestinal irritation. ▶ Considerable nitrate contamination (more than 45 mg/L) was found in the 3 out of 8 cases and mostly in October, where ground water was tested by OSPCB. Speculatively due to higher percolation during monsoons of faecal waste into the ground water along with rain water. This leads to Methemoglobinemia, an increase in methaemoglobin in blood as opposed to haemoglobin. 	<ul style="list-style-type: none"> ▶ 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 ▶ 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. ▶ Readiness of SeTPs 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 	
10	Attitude of people towards sanitation	<ul style="list-style-type: none"> ▶ Citizen's apathy and lack of participation and ownership for sanitation and hygiene was reported in FGD and IDI. 	<ul style="list-style-type: none"> ▶ 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

S.N o.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
	and hygiene	<ul style="list-style-type: none"> ▶ As per FGDs with MAS, their discussions during community meetings is limited to solid waste management, hygiene and construction of toilets. Even household survey led to the same observation. Over 16% of households reported that MAS, 16% of the households reported that SHGs and 17% WKSS are creating awareness on sanitation. 	<ul style="list-style-type: none"> ▶ 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	<ul style="list-style-type: none"> ▶ The OWSSB is constructing SeTPs and will take care of O&M until the facility is handed over to the ULB. Further clarity needs be brought in for - <ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> ▶ 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)
		<ul style="list-style-type: none"> ▶ 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 	<ul style="list-style-type: none"> ▶ 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
			<ul style="list-style-type: none"> ▶ 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 	Governance reforms

S.No.	Key issue/observation	Supporting data	Proposed interventions / Action point/	Thrust area
12	Lack of funds & spending capacity at the ULB level	<ul style="list-style-type: none"> ▶ One of the key issues which emerged during the IDIs and FGDs with ULB officials and council members is "the lack of funds and human resources" at the ULB level as a major bottleneck to undertake need based innovative sanitation and infrastructure programme. 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 from 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. 	<ul style="list-style-type: none"> ▶ 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
			<ul style="list-style-type: none"> ▶ The ULB should tap funding from the DMF and CSR funds. 	Governance Reporms

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

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Form ID:

ସୂଚନାପତ୍ର

ଅନୁସନ୍ଧାନର ଅଭିପ୍ରାୟ: ମୁଁ ହାଉସିଂ ଆଣ୍ଡ ଅର୍ବାନ ଡେଭେଲପମେଣ୍ଟ ଡିପାର୍ଟମେଣ୍ଟ 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 ଲଜ୍ଜୁକ ଥିବା ସତ୍ତ୍ୱେ ଯେ କୌଣସି ସମୟରେ ଯଦି ଆପଣ ଚାହଁବେ, ତାହା ହେଲେ ଆପଣଙ୍କ ମତ ପରିବର୍ତ୍ତନ କରି ଆଲୋଚନାରୁ ଓହ୍ଲାଇଯାଇପାରିବେ । 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 ଅତ୍ୟନ୍ତ ଲାଗେ ତେବେ, ଆପଣ ତାହାର ଉତ୍ତର ନ ଦେଇପାରନ୍ତି ବା ସେଥିପାଇଁ ଆପଣ ଆଲୋଚନାରୁ ଯେ କୌଣସି ସମୟରେ ଓହ୍ଲାଇଯାଇପାରନ୍ତି 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 ମାଗୁଛି । ଏହି ଅନୁସନ୍ଧାନରେ ଆପଣଙ୍କ ନାମ ଏବଂ ଆପଣ ଦେଇଥିବା ସମସ୍ତ ତଥ୍ୟ ଗୋପନୀୟ ରଖାଯିବ । ଅନୁସନ୍ଧାନରେ ଜଡ଼ିତ ଥିବା କର୍ମଚାରୀଙ୍କ ବ୍ୟତୀତ ଏହି ତଥ୍ୟ ଆଉ କାହାରିକୁ ଜଣାଯିବ ନାହିଁ । ଯଦି ଆପଣଙ୍କର ଏହି ଅନୁସନ୍ଧାନ ସମ୍ବନ୍ଧରେ କିଛି ଜିଜ୍ଞାସା/ସନ୍ଦେହ ଅଛି, ତାହେଲେ ଆପଣ ଡିସ୍ଟ୍ରିକ୍ଟ କୋଡିନେଟରଙ୍କ ସହ ଯୋଗାଯୋଗ କରନ୍ତୁ ।

ସମ୍ମତି / ଅନୁମତି ପ୍ରମାଣପତ୍ର

ଅଂଶଗ୍ରହଣକାରୀ/ ଅଭିଭାବକଙ୍କର ମତ୍ତବ୍ୟ

ମୋତେ ଏହି ଅନୁସନ୍ଧାନର ଆଲୋଚନାରେ ଭାଗ ନେବା ପାଇଁ ଅନୁରୋଧ କରାଯାଇଛି । ପୂର୍ବରୁ ସୂଚନା ପତ୍ରରେ ଥିବା ତଥ୍ୟକୁ ମୁଁ ପଢ଼ିଛି ଏବଂ ମୋତେ ପଢ଼ି ଶୁଣାଇ ଦିଆଯାଇଛି । ସୂଚନା ପତ୍ରରେ ଥିବା ବିଷୟ ବସ୍ତୁ ଏବଂ ସେହି ସମ୍ବନ୍ଧରେ 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 : _____

ଅଂଶଗ୍ରହଣକାରୀଙ୍କ ଦସ୍ତଖତ _____

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

ସାକ୍ଷ୍ୟକାରୀଙ୍କ ନାମ _____



ଅଂଶଗ୍ରହଣକାରୀଙ୍କ/ ଅଭିଭାବକଙ୍କର ଚିପ ଚିହ୍ନ

ସାକ୍ଷ୍ୟକାରୀଙ୍କ ଦସ୍ତଖତ _____

ତାରିଖ (ଦିନ / ମାସ /ବର୍ଷ) _____

ଅନୁସନ୍ଧାନ / ସମ୍ପତ୍ତି ନେଉଥିବା ବ୍ୟକ୍ତିଙ୍କ ଘୋଷଣା: ମୁଁ ସଠିକ ଭାବରେ ସମ୍ଭାବ୍ୟ ଅଂଶଗ୍ରହଣକାରୀଙ୍କୁ ସୂଚନା ପତ୍ରଟି ପଢ଼ିବାର ସୁଯୋଗ ଦେଇଛି/ପଢ଼ି ଶୁଣେଇଛି ଓ ମୋର ଶ୍ରେଷ୍ଠ ଦକ୍ଷତା ଅନୁସାରେ ବିଶ୍ୱାସ ରଖୁଛି 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 ବାଧ୍ୟ କରାଯାଇ ନାହିଁ; ସେ ନିଜ ଇଚ୍ଛା ଅନୁସାରେ ଅଂଶଗ୍ରହଣ ପାଇଁ ନିଜର ସମ୍ପତ୍ତି ପ୍ରଦାନ କରିଛନ୍ତି ।

ଅନୁସନ୍ଧାନକାରୀଙ୍କ ଦସ୍ତଖତ _____

ତାରିଖ (ଦିନ / ମାସ /ବର୍ଷ) _____

SECTION A: PRIMARY INFORMATION କ ବିଭାଗ : ପ୍ରାଥମିକ ସୂଚନା

<p>Survey area ସର୍ବେକ୍ଷଣ ଅଞ୍ଚଳ (Fill the Details)(ସମ୍ପୂର୍ଣ୍ଣ ପୂରଣ କରନ୍ତୁ)</p> <p>i. Town: ସହର</p> <p>ii. Ward Number ---ଖାଡ଼ ନମ୍ବର-</p> <p>iii. House No-----ଘର ନମ୍ବର _____</p> <p>Locality Type: Slum-----, Non slum----- କି ପ୍ରକାର ଅଞ୍ଚଳ : ବସ୍ତି ----- ଅଣ ବସ୍ତି-----</p> <p>Locality name: ଅଞ୍ଚଳର ନାମ -----</p> <p>GPS Location Id of Septic Tank----- ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ର ଜିପିଏସ କୋଡ଼</p> <p>Picture of the household/institution/commercial establishment ଘର /ଅନୁଷ୍ଠାନ / ବ୍ୟବସାୟିକ ସଂସ୍ଥା ର ଫଟୋ</p>	<p>Name of the Head of Household/Supervisor of the apartment: ପରିବାରର ମୁଖ୍ୟ କ ନାମ / ଆପାର୍ଟମେଣ୍ଟ ସୁପରଭାଇଜର କ ନାମ</p> <p>1. Male 2. Female <input type="checkbox"/> ପୁରୁଷ ମହିଳା <input type="checkbox"/></p> <p>Age:(in years)ବୟସ <input type="text"/></p> <p>Education: ଶିକ୍ଷା <input type="text"/></p> <p>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 ପଢ଼ି ପାରନ୍ତି, 3-ପ୍ରାଥମିକ, 4-ଉଚ୍ଚ ପ୍ରାଥମିକ ,5-ହାଇସ୍କୁଲ , 6-+2 , 7-ଗ୍ରାଜୁଏଟ/+3 ,8-ପି ଜି ଏବଂ ଉପରୁ)</p> <p>Aadhar Card: Yes/No:If Yes, Number: ଆଧାର ନମ୍ବର-ହଁ ନା : ଯଦି ହଁ ତେବେ ନମ୍ବର-</p> <p>Contact No:ଯୋଗଯୋଗ ନମ୍ବର :</p>
<p>Type of property ସ୍ମାରକ/ସମ୍ପତ୍ତିର ପ୍ରକାର</p>	<p>Residentialଆବାସିକ Institutionalଆନୁଷ୍ଠାନିକ Commercialବ୍ୟବସାୟିକ Mixedଉଭୟ ବର୍ଗ/ଶ୍ରେଣୀର Residential +Institutionalଆବାସିକ+ ଆନୁଷ୍ଠାନିକ Institutional + Commercial ଆନୁଷ୍ଠାନିକ+ ବ୍ୟବସାୟିକ Residential + Commercial ଆବାସିକ +ବ୍ୟବସାୟିକ</p>
<p>Property number as per municipal property tax record ମ୍ୟୁନିସିପାଲିଟି ଟ୍ୟାକ୍ସ ରେକର୍ଡ ଅନୁସାରେ ସମ୍ପତ୍ତି ର ସଂଖ୍ୟା</p>	<p>Number: ସଂଖ୍ୟା</p>
<p>Mark the House typology (only if 2 is residential) କି ପ୍ରକାର ଘର ଡାହାଣ ସୂଚିତ କରନ୍ତୁ (କେବଳ ଯଦି ପ୍ରଶ୍ନ 2 ରେ ଉତ୍ତର ଆବାସିକ)</p>	<p>Stand-alone houseଗୋଟିକିଆ ଘର Multi-story Apartment ଏକାଧିକ ମହଲା ଆପାର୍ଟମେଣ୍ଟ Row house with common shared walls ଗୋଟିଏ କାନ୍ଥରେ ଯାଡ଼ିକିଆ ଘର Slum House (Kachha walls) ବସ୍ତି ଘର (ଖାଚିମାଟି କାନ୍ଥ) SlumHouse (Pucca walls)</p>

	<p>ବନ୍ଧି ଘର (ପଙ୍କା କାଢ଼)</p> <p>Other (please specify)</p> <p>ଅନ୍ୟାନ୍ୟ (ଦର୍ଶାଅ.....)</p>
<p>Ownership Status of the property</p> <p>ସମ୍ପତ୍ତିର ମାଲିକାନା ସ୍ଥିତି</p>	<p>Owned ନିଜସ୍ୱ</p> <p>Rented ଭଡ଼ା</p> <p>Staff quarter କର୍ମଚାରୀ ବାସଗୃହ</p> <p>On encroached land (non-slum) ଜବର ଦଖଲ ଜମିରେ (ଅଣ ବନ୍ଧି ଅଞ୍ଚଳ)</p> <p>On public land (slum) ସରକାରୀ/ସର୍ବସାଧାରଣ ଜମିରେ (ବନ୍ଧି)</p> <p>On private land (slum) ବେସରକାରୀ/ଘରୋଇ ଜମି (ବନ୍ଧି)</p> <p>Other (please specify)</p> <p>ଅନ୍ୟାନ୍ୟ (ଦୟାକରି ଦର୍ଶାଅ)</p>
<p>In case of apartment, name of the apartment building</p> <p>ଯଦି ଆପାର୍ଟମେଣ୍ଟ , ତେବେ ଆପାର୍ଟମେଣ୍ଟର ନାମ ଲେଖନ୍ତୁ</p>	<p>Name ନାମ</p> <p>_____</p>
<p>No of blocks ବ୍ଲକ୍ ସଂଖ୍ୟା</p>	<p>Number ସଂଖ୍ୟା</p> <p>_____</p>
<p>How many flats are there in this property ଏହି ଜାଗାରେ କେତୋଟି ଫ୍ଲାଟ ଅଛି</p>	<p>Number ସଂଖ୍ୟା _____</p>
<p>Number of flats that are occupied କେତୋଟି ଫ୍ଲାଟ ଅଧିକୃତ/ଦଖଲରେ ଅଛି</p>	<p>Number ସଂଖ୍ୟା _____</p>
<p>How many households are there on this property? ଏହି ପ୍ଲଟରେ କେତେଜଣ ପରିବାର ଅଛନ୍ତି</p>	<p>Number ସଂଖ୍ୟା _____</p>
<p>How long has your family been staying in this house? (Not applicable in case of unauthorized slum)</p> <p>ଏହି ଘରେ ଆପଣଙ୍କ ପରିବାର କେତେଦିନ ହେଲା ରହି ଆସୁଛନ୍ତି ? (ଅଣ ସାକୃତିପ୍ରାପ୍ତ ବନ୍ଧି ପାଇଁ ଏହା ପ୍ରଯୁଜ୍ୟ ନୁହେଁ)</p>	<p>Number ସଂଖ୍ୟା _____</p>
<p>Select the type of Institution (only if 2 is institutional)</p> <p>ଅନୁଷ୍ଠାନଟି କି ପ୍ରକାର ବାଛନ୍ତୁ (କେବଳ ଯଦି ପ୍ରଶ୍ନ 2 ରେ ଉତ୍ତର ଅନୁଷ୍ଠାନ ଥାଏ)</p>	<p>Hospital/Nursing Home ଡାକ୍ତରଖାନା/ନର୍ସିଙ୍ଗହୋମ</p> <p>School/College ସ୍କୁଲ/କଲେଜ</p> <p>Religious Institution ଧାର୍ମିକ ଅନୁଷ୍ଠାନ</p> <p>Government Office ସରକାରୀ ଅଫିସ</p> <p>Other (Please Specify) ଅନ୍ୟାନ୍ୟ (ଦର୍ଶାଅ)</p>
<p>Select the type of commercial (only if 2 is commercial)</p>	<p>Industry ଶିଳ୍ପ</p> <p>Shop/private office ଦୋକାନ/ବେସରକାରୀ ଅଫିସ</p>

ବ୍ୟବସାୟୀକ ସଂସ୍ଥାଟି କି ପ୍ରକାର ବାଛନ୍ତୁ (କେବଳ ଯଦି ପ୍ରଶ୍ନ 2 ରେ ଉତ୍ତର ବ୍ୟବସାୟୀକ ଥାଏ)	Hotel/Lodgeହୋଟେଲ/ଲଜ Other (please specify)ଅନ୍ୟାନ୍ୟ (ଦର୍ଶାଅ)
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SECTION B: WATER ବିଭାଗ-ଖ : ପାଣି

14	Sources of Water for domestic use(<i>Can mark more than one</i>) ଘରୋଇ ବ୍ୟବହାର ପାଇଁ ପାଣିର ସ୍ରୋତ (ଏକାଧିକ ସ୍ରୋତ ମାର୍କ କରିପାରିବ)								
	Piped water supply ପାଇପ ବ୍ଲାର ପାଣି ଯୋଗାଣ		Public (Free) ସର୍ବସାଧାରଣ (ମାଗଣା)		e. Bore well ବୋରିଂ କୂଅ	f. Hand pump ନଳ କୂଅ	g. Municipal Tanker ମୁନିସିପାଲିଟି ଟ୍ୟାଙ୍କର	h. Private tanker ବେସର କାରୀ ଟ୍ୟାଙ୍କର	i. Others (specify) ଅନ୍ୟାନ୍ୟ (ଦର୍ଶାନ୍ତୁ)
	a. Individual HH Connection ଘରେ ନିଜ ଋଜନେକ୍ସନ	b. Shared HH Connection ଗୋଟିଏ ଘରୋଇ ପାଣି ପାଇପ କନେକ୍ସନ କୁ ଏକାଧିକ ପରିବାର ବ୍ୟବହାର	c. Stand Post ଷ୍ଟାଣ୍ଡ ପୋଷ୍ଟ	d. Open well ଖୋଲା କୂଅ					
15	Please indicate duration of water supply. <i>If the option of Que no 14 is a/b/c</i> ଦିନକୁ କେତେ ସମୟ ପାଣି ଆସେ। (ଯଦି ପ୍ରଶ୍ନ 14 ରେ ଉତ୍ତର 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 Noନାହଁ						

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

ବିଭାଗ ୧1 : ପରିମଳ – ଯଦି ଘରେ/ଅନୁଷ୍ଠାନ/ବ୍ୟବସାୟୀକ ସଂସ୍ଥାରେ ପାଇଖାନା ଥାଏ

<p>17</p>	<p>How is your toilet connected to, for disposal? Pls. take a picture of the facility, if possible.</p> <p>ଆପଣଙ୍କ ପାଇଖାନା କାହା ସହିତ କନେକ୍ସନ ହୋଇଛି ? ଯଦି ସମ୍ଭବ ଦୟାକରି ଏହାର ଫଟୋ ନିଅନ୍ତୁ</p> <p><i>(To be physically verified by surveyor)</i></p> <p>(ସାକ୍ଷାତକର୍ତ୍ତା ନିଜେ ଯାଞ୍ଚ କରନ୍ତୁ)</p> <p>(Picture would be put against each of the option)(ପ୍ରଶ୍ନ ପଚାରିଲା ସମୟରେ ଫଟୋ ଦେଖାଇ ଉତ୍ତର ଲେଖନ୍ତୁ)</p>	<p>Sewer network ଭୂତଳ ନର୍ଦ୍ଦମା / ଡ୍ରେନ ବ୍ୟବସ୍ଥା</p> <p>Septic tank with soak pit ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ଶୋକପିଟ ସହିତ</p> <p>Septic tank connected to open/closed drain ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ଠି ଖୋଲା/ବନ୍ଦ ଥିବା ନର୍ଦ୍ଦମା ସହିତ କନେକ୍ସନ</p> <p>Single pit ଗୋଟିଏ ପିଟ</p> <p>Double pit ଦୁଇଟି ପିଟ</p> <p>Directly to open/closed drain ଖୋଲା/ବନ୍ଦ ଥିବା ନର୍ଦ୍ଦମା ସହିତ ସିଧାସଳଖ କନେକ୍ସନ</p> <p>Others, specify ଅନ୍ୟାନ୍ୟ , ବର୍ଣ୍ଣାୟ</p>	
<p>18</p>	<p>Picture of the toilet taken ପାଇଖାନାର ଫଟୋ ନିଆଗଲା ?</p>	<p>Yes ହଁ</p> <p>No ନାହିଁ</p>	
<p>19</p>	<p>Provide a brief description of the septic tank/ Pit</p> <p>ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ/ପିଟର ସମ୍ପୂର୍ଣ୍ଣ ବିବରଣୀ ଦିଅନ୍ତୁ</p> <p>Location ଅବସ୍ଥିତି</p> <p>Shape ଆକୃତି</p> <p>Size ଆୟତନ</p> <p>Access road to the septic tank</p>	<p>Inside the house ଘର ଭିତରେ</p> <p>Outside the house ଘର ବାହାରେ</p> <p>In case of option 2, ଯଦି ଉତ୍ତର 2 ହୁଏ ,</p> <p>2i. Front Side of the property ଘର ଆଗରେ</p> <p>2ii. Back Side of the property ଘର ପଛରେ</p> <p>Rectangular ଆୟତାକାର</p> <p>Circular ଗୋଲାକାର</p> <p>Don't Know ଜାଣିନାହିଁ</p> <p>Breadth/Diameter _____ft.</p> <p>ଓସାର/ବ୍ୟାସ ...ଫୁଟରେ</p> <p>Length _____ft. ଲମ୍ବ.....ଫୁଟରେ</p>	

	<p>ସେପ୍ଟିକ ଟ୍ୟାଙ୍କକୁ ପହଞ୍ଚିବା ରାସ୍ତା</p> <p>Type of the bottom</p> <p>ତଳ ଭାଗ ଟି କି ପ୍ରକାର ର</p>	<p>Depth_____ft.ଗଭୀର.....ଫୁଟରେ</p> <p>No of rings used in septic tank (in case the shape is Circular):</p> <p>Don't knowଜାଣିନାହିଁ</p> <p>Narrow road (less than 2 mts.)</p> <p>ଅଣ ଓସାରିଆ ରାସ୍ତା (2ମିଟରରୁ କମ)</p> <p>Medium (less than 5 mts.)</p> <p>ମାଧ୍ୟମ ଧରଣ(5 ମିଟରରୁ କମ)</p> <p>Broad road (more than 5 mts.)</p> <p>ଓସାରିଆ ରାସ୍ତା (5ମିଟରରୁ ଅଧିକ)</p> <p>Linedସିମେଣ୍ଟ ପ୍ରସ୍ତର</p> <p>Non-linedମାଟି ପ୍ରସ୍ତର</p>	<p>(Picture would be put against each of the two option) (ପ୍ରଶ୍ନ ପଚାରିଲା ସମୟରେ ଫଟୋ ଦେଖାଇ ଉତ୍ତରର ଲେଖକ୍ତୁ)</p>
20	<p>How old is your toilet</p> <p>ଆପଣଙ୍କ ପାଇଖାନାଟି କେତେବର୍ଷର ପୁରୁଣା</p>	<p>_____ (in years)(ବର୍ଷରେ)</p>	
21	<p>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)</p>	<p>Children (less than 18 year):____, Other Male: ____</p> <p>Other female: ____</p> <p>ଛୋଟ ପିଲା (୧୮ ବର୍ଷରୁ କମ).....,</p> <p>ଅନ୍ୟାନ୍ୟ ପୁରୁଷ :.....</p> <p>ଅନ୍ୟାନ୍ୟ ମହିଳା</p>	
22	<p>Do you share your toilet with any other Family</p>	<p>Yesହଁ</p> <p>Noନାହିଁ</p>	
23	<p>If yes who are the members from other</p>	<p>Male</p> <p>Female</p>	

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

		Avoid frequent cleaning ବାରମ୍ବାର ସଫାକରିବାକୁ ପଡ଼ିବନି 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 ଗୁଡ଼ିକ 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 ଗୁଡ଼ିକୁ ଟିକ ଚିହ୍ନ ଦିଅନ୍ତୁ ।	Total Number (where applicable) ସମୁଦାୟ ସଂଖ୍ୟା (ଦରକାର ସ୍ଥାନରେ)
27	Outflow of septic tank/pit latrine is connected to ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ/ ପିଟ ପାଇଖାନାରୁ ବାହାରୁଥିବା ମଇଳା କାହା ସହିତ କନେକ୍ସନ ହୋଇଛି	Open drains ଖୋଲା ନର୍ଦ୍ଦମା / ଡ୍ରେନ Closed drain ସ୍ଥାବ / ଘୋଡ଼ଣିଥିବା ନର୍ଦ୍ଦମା / ଡ୍ରେନ Sewer system ଭୂତଳ ନର୍ଦ୍ଦମା / ମାଟି ତଳେ ଯାଇଥିବା ଡ୍ରେନ ର ବ୍ୟବସ୍ଥା Soak pit ପାଣି ଶୁଖିବା ଖାତ	
28	Where does the discharge of grey water and effluent from septic tank or latrines take	Drain ନର୍ଦ୍ଦମା / ଡ୍ରେନ Sewer system ଭୂତଳ ନର୍ଦ୍ଦମା / ମାଟି ତଳେ ଯାଇଥିବା ଡ୍ରେନ	

	place? ପାଇଖାନା କିମ୍ବା ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ରୁ ବାହାରୁଥିବା ମଇଳା ପାଣି ଏବଂ ଆବର୍ଜନା କେଉଁଠି ଯାଏ ?	Soak pitପାଣି ଶୁଖିବା ଖାତ Any other, please specifyଅନ୍ୟାନ୍ୟ ଦର୍ଶାନ୍ତୁ	
29	Where is the liquid waste from your house discharged? ଘରୁ ବାହାରୁଥିବା ମଇଳା ଆବର୍ଜନା ପାଣି କେଉଁଠି 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 ସେପ୍ଟିକ 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 ଗହୀରତାର ନିଷ୍ପତ୍ତି କରିବା ପୂର୍ବରୁ ପାଣିର ସ୍ତର କେତେ ଅଛି ଯାଞ୍ଚ କରିଥିଲେ କି ?	Yesହଁ Noନାହିଁ	
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 ବୁଲାଇନ୍ତୁ)	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	<p>Do you think the water from the well can get contaminated due to proximity to toilet?</p> <p>ପାଖରେ ପାଇଖାନା ରହିଲେ କୁଅ ର ପାଣି ଦୂଷିତ/ସଂକ୍ରମିତ ହେବ ବୋଲି ଆପଣ ଭାବୁଛନ୍ତି କି?</p>	<p>Yesହଁ</p> <p>Noନାହଁ</p>	
35	<p>Whom you contact for emptying of septic tank</p>	<p>1.ULBs</p> <p>2.Govt Cesspool operators</p> <p>3.Private cesspool operators</p> <p>4.Manual labours</p>	
36	<p>What was the source of information related to emptying septic tank</p>	<p>1.Hoardings</p> <p>2.Newspaper</p> <p>3.T.V. Ads</p> <p>4.Pump lets</p> <p>5.Internet</p> <p>Others if any...specify</p>	
37	<p>Did any member of your family suffer from diarrhea/dysentery in the last 3 months?</p> <p>ଗତ 3 ମାସ ଭିତରେ ଆପଣଙ୍କ ପରିବାରର କୌଣସି ସଦସ୍ୟ କୁ ଡାକରିଆ / ଝାଡ଼ା ବାନ୍ତି / ପତଳା ଝାଡ଼ା ହୋଇଛି କି ?</p>	<p>Yes- 01 ହଁ No-02 ନାଁ</p> <p>If Yes, who : ଯଦି ହଁ ତେବେ କିଏ ?</p> <p>1. Children ପିଲାମାନେ</p> <p>2. Adult ବୟସ୍କ</p> <p>3. Both ଉଭୟ</p>	
38	<p>Did any member of your family suffer from jaundice in the last 3 months?</p> <p>ଗତ 3 ମାସ ଭିତରେ ଆପଣଙ୍କ ପରିବାରର କୌଣସି ସଦସ୍ୟ କୁ ଜଣ୍ଡିସ ହୋଇଛି କି ?</p>	<p>Yes- 01 ହଁ No-02 ନାଁ</p> <p>If Yes, who : ଯଦି ହଁ ତେବେ କିଏ ?</p> <p>1. Children ପିଲାମାନେ</p> <p>2. Adult ବୟସ୍କ</p> <p>3. Both ଉଭୟ</p>	
39	<p>How frequently is the septic tank/pit latrine emptied?</p> <p>କେତେ ବ୍ୟବଧାନରେ ସେପ୍ଟିକଟ୍ୟାଙ୍କ /ପିଟ ପାଇଖାନା ସଫା କରାଯାଏ</p>	<p>6 months 6 ମାସ</p> <p>6 – 12 months 6-12 ମାସ</p> <p>12 – 24 months 12-24 ମାସ</p> <p>24 – 36 months 24-36 ମାସ</p> <p>More than 36 months 36 ମାସରୁ ଅଧିକ</p> <p>Not yet emptied since construction</p>	

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

		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 ।	Municipalityମୁନିସିପାଲିଟି Private operatorବେସରକାରୀ ସଂସ୍ଥା/ଅପରେଟର Local Labourସ୍ଥାନୀୟ ଶ୍ରମିକ Self ନିଜେ Any otherଅନ୍ୟକେହି	
44	How much do you pay for the emptying services? (Encircle appropriate no.) ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ସଫା କରିବା ପାଇଁ କେତେ ଟଙ୍କା ଦେବାକୁ ପଡିଥିଲା ? (ସଠିକ ଉତ୍ତରରେ ଚିହ୍ନ 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 ଅଧିକ No cost- କୌଣସି ଖର୍ଚ୍ଚ କରିନାହାନ୍ତି	
45	Are you satisfied with the services related to proper emptying, transportation and disposal?(multiple answer) ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ଠିକ ଭାବରେ ସଫା କରିବା ,ବାହାରିଥିବା ମଳ କୁ ନେଇ ଠିକ ଭାବରେ ପକାଇବା ବିଷୟରେ ଆପଣ ସନ୍ତୁଷ୍ଟ କି ? (ଏକାଧିକ ଉତ୍ତର ସମ୍ଭବ)	Yesହଁ Noନାହିଁ Give reasons in case option is Yes ଯଦି ଉତ୍ତର ହଁ ହୁଏ ତେବେ ଏହାର କାରଣ କଣ ? Lower costକମ ଖର୍ଚ୍ଚ Timely availability/ quick response ଠିକ ସମୟରେ ମିଳିବା/ ଶୀଘ୍ର ଆସନ୍ତି Ease of contactଯୋଗାଯୋଗ ଅତି ସହଜ Better expertiseଉତ୍ତମ ଦକ୍ଷତା Better equipmentଉନ୍ନତ ଉପକରଣ Any Otherଅନ୍ୟକିଛି Give reasons incase option is No ଯଦି ଉତ୍ତର ନାହିଁ ହୁଏ ଏହାର କାରଣ କଣ ? High cost ଅଧିକ ଖର୍ଚ୍ଚ Delay in responseଆସିବାରେ ଟେରି କରନ୍ତି Difficult to contact ଯୋଗାଯୋଗ କରିବାରେ ଅସୁବିଧା Poor expertise କମ ଦକ୍ଷତା Poor equipment ନିମ୍ନମାନର ଜନ୍ତୁପାତି / ଉପକରଣ	

		Any otherଅନ୍ୟକିଛି	
46	<p>Where is the sludge collected from septic tanks disposed? (for authentication, user may be asked whether they have actually seen it)</p> <p>ସେପ୍ଟିକ ଟ୍ୟାଙ୍କରୁ ବାହାରୁଥିବା ମଇଳାଗୁଡ଼ିକ କେଉଁ ସ୍ଥାନରେ ପକାଯାଏ ? (ଉତ୍ତରଦାତା କୁ ପଚାରନ୍ତୁ ସେ ନିଜେ ଏହା ଦେଖିଛନ୍ତି କି ?)</p>	<p>Next to the houseଘର ପାଖରେ</p> <p>Drain/Canalଡ୍ରେନ/କେନାଲ</p> <p>Agricultural landଚାଷ ଜମିରେ</p> <p>Any Other (Specify)ଅନ୍ୟାନ୍ୟ (ଦର୍ଶାଅ)</p> <p>Riverନଦୀ</p> <p>Not awareଜଣାନାହିଁ</p>	
47	<p>Are you aware that a FSTP is being set up in your city to treat FSS for safe disposal?</p>	<p>1.Yesହଁ</p> <p>2.Noନାହିଁ</p>	
48	<p>Do you know that faecal sludge can be treated as a resource and reused?</p>	<p>1.Yesହଁ</p> <p>2.Noନାହିଁ</p>	
49	<p>Are you concerned about where the sludge is disposed? ଯେଉଁ ଜାଗାରେ ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ର ମଳ ପକାଯାଉଛି ସେଥିପାଇଁ ଆପଣ ଚିନ୍ତିତ କି ?</p>	<p>Yesହଁ</p> <p>Noନାହିଁ</p>	
50	<p>Are you aware of the adverse impact on health and environment due to unsafe disposal of faecal sludge? ଝାଡ଼ା/ ଆବର୍ଜନା ଗୁଡ଼ିକ ଅସୁରକ୍ଷିତ ଭାବରେ ପକା ଯାଉଥିବା ଯୋଗୁଁ ସ୍ୱାସ୍ଥ୍ୟ ଏବଂ ପରିବେଶ ଉପରେ ପ୍ରତିକୂଳ ପ୍ରଭାବ ପକାଉଛି ବୋଲି</p>	<p>Yesହଁ</p> <p>Noନାହିଁ</p> <p>If yes describe them ----- ଯଦି ହଁ , କେଉଁ କେଉଁ ପ୍ରତିକୂଳ ପ୍ରଭାବ ପକାଉଛି କୁହନ୍ତୁ -----</p>	

	ଆପଣ ଜାଣିଛନ୍ତି କି ?		
51	<p>Are you aware whether any sewerage connection being laid down in your area</p> <p>ଆପଣଙ୍କ ଅଞ୍ଚଳ ଦେଇ ଭୂତଳ ନର୍ଦ୍ଦମା/ ଡ୍ରେନ ଯାଇଛି ବୋଲି ଆପଣ ଜାଣିଛନ୍ତି କି ?</p>	<p>Yesହଁ</p> <p>Noନାହଁ</p> <p>NA ପ୍ରଯୁଜ୍ୟ ନୁହେଁ</p>	
52	<p>Did the municipal authority/OWSSB inform you to connect your septic tank/pit latrine with the sewerage line</p> <p>ଆପଣଙ୍କ ଭୂତଳ ନର୍ଦ୍ଦମା/ପିଟ ପାଇଖାନା ସହିତ କନେକ୍ସନ ପାଇଁ ମୁନିସିପାଲ ଅଧିକାରୀ/ ଓଡିଶା ଜଳ ଯୋଗାଣ ଏବଂ ସ୍ଵେଚ୍ଛେକ ବୋର୍ଡବିଭାଗ ତରଫରୁ ଆପଣଙ୍କୁ ସୂଚନା ଦିଆଯାଇଥିଲା କି ?</p>	<p>Yesହଁ</p> <p>Noନାହଁ</p> <p>NA ପ୍ରଯୁଜ୍ୟ ନୁହେଁ</p>	
53	<p>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 –</p> <p>ଆପଣଙ୍କ ପୁଟ ପାଟେରି ରୁ ପାଖରେ ଥିବା ଭୂତଳ ନର୍ଦ୍ଦମା/ ଡ୍ରେନ ସହିତ ସଂଯୋଗ ପାଇଁ ହେଉଥିବା ଖର୍ଚ୍ଚ ଓଡିଶା ଜଳ ଯୋଗାଣ ,ସ୍ଵେଚ୍ଛେକ ବୋର୍ଡ ବିଭାଗ ବହନ କରିବ ବୋଲି ଆପଣ କୁ କୁହା ଯାଇଛି କି ?</p>	<p>Yesହଁ</p> <p>Noନାହଁ</p> <p>NA ପ୍ରଯୁଜ୍ୟ ନୁହେଁ</p>	
54	<p>If 52 is Yes, what are the impediments in taking a sewerage connection</p> <p>ଯଦି ପ୍ରଶ୍ନ 52 ରେ ଉତ୍ତର ହଁ ହୁଏ –ଭୂତଳ ନର୍ଦ୍ଦମା / ଡ୍ରେନ ସହିତ କନେକ୍ସନ କଲେ କି ପ୍ରକାର</p>	<p>Difficulties in obtaining road cutting permission from municipality</p> <p>ରାସ୍ତା କାଟିବା ପାଇଁ ମୁନିସିପାଲିଟି ର ଅନୁମତି ପାଇବାକୁ ଅସୁବିଧା</p> <p>Inconvenience due to Digging / Cutting the Road</p> <p>ରାସ୍ତା ଖୋଳିବା / କାଟିବା ଯୋଗୁ ଅସୁବିଧା</p>	

	ବାଧାବିନ୍ୟ / ଅସୁବିଧା ହେବ ?	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 ଖର୍ଚ୍ଚ କରିବା ପାଇଁ ଆପଣ ସକ୍ଷମ କି ?	Yesହଁ Noନା NA ପ୍ରଯୁଜ୍ୟ ନୁହେଁ	
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	
<p>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</p>			
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(ଝାଡ଼ା) କରିବା ପାଇଁ କେଉଁଠି ଯାଆନ୍ତି	Public toilet ସର୍ବସାଧାରଣ ପାଇଖାନା Community toiletsଗୋଷ୍ଠୀ ପାଇଖାନା Neighbor's toilet ପଡ଼ିସା ଘର ପାଇଖାନା	
59	Is there separate toilet for men and women ପୁରୁଷ ଏବଂ ମହିଳାଙ୍କ ପାଇଁ ଅଲଗା ପାଇଖାନା ଅଛି କି	Yesହଁ Noନା	
60	Is there closed dustbin for disposal of used	Yesହଁ	

	sanitary napkinବ୍ୟବହୃତ ସାନିଟାରି କପଡା ପକାଇବା ପାଇଁ ଘୋଡଣି ଥିବା ଡଷ୍ଟବିନ /ଅଳିଆ ବାସ୍ତୁ ଅଛି କି	Noନାଁ	
61	What is the status of cleanliness/maintenanc e of the public toilet? If the option of Que 54 is 1ସର୍ବସାଧାରଣ ପାଇଖାନା ଟି ର ସଫା ସୁତୁରା /ଦେଖାରଖା କିପରି ହୁଏ – ଯଦି ପ୍ରଶ୍ନ 54 ରେ ଉତ୍ତର 1 ହୁଏ	Very Goodବହୁତ ଭଲ Goodଭଲ Averageମଧ୍ୟମ ଧରଣର / ଚଳିବ 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/maintenanc e 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	Yesହଁ Noନାଁ	

	<p>charges? ଗୋଷ୍ଠୀ ପାଇଖାନା ବ୍ୟବହାର କରିବା ପାଇଁ ଆପଣଙ୍କୁ ଟଙ୍କା ଦେବାକୁ ପଡେ କି</p> <p>If the option of Que54 is 2 (ଯଦି ପ୍ରଶ୍ନ 54 ରେ ଉତ୍ତର 2 ହୁଏ)</p>	<p>If yes, how much ଯଦି ହଁ ତେବେ କେତେ</p> <p>Less than Rs 50 per month per family. ପରିବାର ପ୍ରତି ମାସକୁ 50 ଟଙ୍କା ରୁ କମ</p> <p>Between Rs 50 to Rs 100 per month per family. ପରିବାର ପ୍ରତି ମାସକୁ 50 ରୁ 100 ଟଙ୍କା ଭିତରେ</p> <p>More than Rs 100 per family per month. ପରିବାର ପ୍ରତି ମାସକୁ 10 0 ଟଙ୍କା ରୁ ଅଧିକ</p>	
66	<p>How satisfied are you with community toilet? ଗୋଷ୍ଠୀ ପାଇଖାନା ବ୍ୟବହାର ରେ ଆପଣ କେତେ ସନ୍ତୁଷ୍ଟ</p> <p>If the option of Que 54 is 2 ଯଦି ପ୍ରଶ୍ନ 54 ରେ ଉତ୍ତର 2 ହୁଏ</p>	<p>Highly Satisfied ଅତି / ବହୁତ ସନ୍ତୁଷ୍ଟ</p> <p>Satisfied ସନ୍ତୁଷ୍ଟ</p> <p>Neither satisfied or dissatisfied ସନ୍ତୁଷ୍ଟ ନୁହଁ କି ଅସନ୍ତୁଷ୍ଟ ନୁହଁ</p> <p>Dissatisfied ଅସନ୍ତୁଷ୍ଟ</p> <p>Highly dissatisfied ଅତି / ବହୁତ ଅସନ୍ତୁଷ୍ଟ</p>	
67	<p>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)</p>	<p>Facilities ସୁବିଧା</p> <p>Maintenance ଦେଖା ରଖା</p> <p>Security ସୁରକ୍ଷା</p> <p>Any other, please specify ଅନ୍ୟାନ୍ୟ ଦର୍ଶାନ୍ତୁ</p>	
68	<p>Do you practice hand washing with soap/detergent/liquid soap in the toilet? ଆପଣ ଶୌଚଳୟ ରେ ହାତ ଧୋଇବା ପାଇଁ ସାବୁନ / ସାବୁନ ପାଉଡର / ଲିକ୍ସୁଇଡ ସାବୁନ ବ୍ୟବହାର କରନ୍ତି କି</p> <p>(This question is to be asked to all households) ଏହି ପ୍ରଶ୍ନ ଟି ସମସ୍ତ ପରିବାର କୁ ପଚରାଯିବ</p>	<p>Yes ହଁ</p> <p>No ନାଁ</p>	
69	<p>If No, why ଯଦି ନାଁ କାହିଁକି</p>	<p>No handwashing station ହାତ ଧୋଇବା ପାଇଁ ବେଶିନ ନାହିଁ</p> <p>Soap not available ସାବୁନ / ସାବୁନ ପାଉଡର / ଲିକ୍ସୁଇଡ ସାବୁନ ଉପଲବ୍ଧ ନାହିଁ</p>	

		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 ୩ : ପରିମଳ –ଯଦି ଘରେ ଶୈତଳୟ ନାହିଁ			
ବାହାରକୁ ମଳତ୍ୟାଗ (ଝାଡ଼ା)କରିବାକୁ ଯାଆନ୍ତି			
70	Do your family members practice open defecation?ଆପଣ କିମ୍ବା ଆପଣଙ୍କ ପରିବାରର ସଦସ୍ୟ ମାନେ ଖୋଲା ରେ/ ବାହାରକୁ ମଳତ୍ୟାଗ କରିବାକୁ ଯାଆନ୍ତି କି ?	Yes, Alwaysହଁ ସବୁବେଳେ Yes, Sometimesହଁ ବେଳେବେଳେ 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, please specify:ଅନ୍ୟାନ୍ୟ ଦୟାକରି ଦର୍ଶାନ୍ତୁ	
73	What are the problems associated with open defecation faced by you and your family members?(ଖୋଲା ରେ/ବାହାରକୁ ଶୈତ/ ଝାଡ଼ା 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 Dignityସମମାନ / ମର୍ଯ୍ୟାଦା ହାନି 4. Inconvenience – timeଅବେଳରେ ଯିବା ଅସୁବିଧା 5. Inconvenience – distanceଦୂରତା ଜନିତ ଅସୁବିଧା	

		5. Infections and Diseases ସଂକ୍ରମଣ/ରୋଗ ର ଆଶଙ୍କା 7. Any other, Specify: ଅନ୍ୟାନ୍ୟ , ଦର୍ଶାନ୍ତୁ	
74	<p>Will you be interested in using a community/public toilet if individual toilet is not possible? ଯଦି ନିଯେ ପାଇଖାନା ତିଆରି କରିବା ସମ୍ଭବ ନୁହେଁ ତେବେ ଆପଣ ଗୋଷ୍ଠୀ /ସର୍ବସାଧାରଣ ପାଇଖାନା ବ୍ୟବହାର କରିବା ପାଇଁ ଆଗ୍ରହୀ ହେବେ କି ? (ଏକାଧିକ ଭଉଁର ସମ୍ଭବ)</p>	<p>Yes ହଁ No ନାଁ If no, give reasons ଯଦି ନାଁ ତେବେ କାରଣ କୁହନ୍ତୁ Not hygienic ସ୍ୱାସ୍ଥ୍ୟକର ନୁହେଁ No water facility ପାଣିର ସୁବିଧା ନାହିଁ Unsafe/ insecure ଅସୁରକ୍ଷିତ/ବିପଦପୂର୍ଣ୍ଣ Inconvenience ସୁବିଧା ନୁହେଁ Not willing to share with others ଅନ୍ୟ ମାନଙ୍କ ସହିତ ମିଶି ବ୍ୟବହାର କରିବା ପାଇଁ ଇଚ୍ଛା ନୁହେଁ High cost ଅତ୍ୟଧିକ ଖର୍ଚ୍ଚ Any other ଅନ୍ୟାନ୍ୟ</p>	
75	<p>Are you willing to pay for the use of public / community toilet? ପଇସା ଦେଇ ସର୍ବସାଧାରଣ / ଗୋଷ୍ଠୀ ପାଇଖାନା ବ୍ୟବହାର କରିବା ପାଇଁ ଆପଣ ଇଚ୍ଛା କରିବେ କି ?</p>	<p>Yes ହଁ No ନାଁ 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 ଶୈତାଳୟ ଗୋଷ୍ଠୀ ଶୈତାଳୟ</p>	
76	<p>Are you willing for individual superstructure with common pit/ septic tank? ଗୋଟିଏ ନିଜସ୍ୱ ଶୈତାଳୟ ର ଢାଞ୍ଚା ରେ ଏକାଧିକ ପରିବାର ବ୍ୟବହାର ଯୋଗ୍ୟ ସେପ୍ଟିକଟ୍ୟାଙ୍କ /ପିଟ ତିଆରି କରିବାକୁ ଆପଣ ଇଚ୍ଛା କରିବେ କି ?</p>	<p>Yes ହଁ No ନାଁ</p>	

77	<p>Were there any efforts made in your area to construct community toilet? (<i>Encircle appropriate no's</i>)ସରକାରଙ୍କ ତରଫରୁ ଆପଣଙ୍କ ଅଞ୍ଚଳରେ ଗୋଷ୍ଠୀ ପାଇଖାନା ତିଆରି କରିବା ପାଇଁ ପଦକ୍ଷେପ ନିଆ ଯାଇଥିଲା କି ?</p>	<p>Yesହଁ Noନାଁ</p>	
78	<p>Do you think your community will take responsibility for O&M of a community toilet?ଆପଣଙ୍କ ଅଞ୍ଚଳର ଲୋକମାନେ ଗୋଷ୍ଠୀ ପାଇଖାନା ର ଦେଖାବଖା ଦାୟିତ୍ଵ ନେବେ ବୋଲି ଆପଣ ଭାବୁଛନ୍ତି କି</p>	<p>Yesହଁ Noନାଁ</p>	
79	<p>Will you be interested in constructing individual toilet in your house? ଆପଣ ଘରେ ଗୋଟିଏ ନିଜସ୍ଵ ପାଇଖାନା ତିଆରି କରିବା ପାଇଁ ଆଗ୍ରହୀ କି ? (ଏକାଧିକ ଉତ୍ତର ସମ୍ଭବ)</p>	<p>Yesହଁ Noନାଁ</p> <p>If no, give reasons:ଯଦି ନାଁ ତେବେ କାରଣ କଣ</p> <p>Lack of fundsଟଙ୍କା ପଇଶା ର ଅଭାବ</p> <p>Lack of spaceଜାଗାର ଅଭାବ</p> <p>Out of habitବାହାରକୁ ଯିବା ର ଅଭ୍ୟାସ</p> <p>Any otherଅନ୍ୟାନ୍ୟ</p>	
80	<p>From where do you get information on sanitation (toilets, sewerage system, septic tank emptying ଆପଣ ପରିମଳ ବିଷୟରେ (ଯଥା ଶୌଚାଳୟ, ସ୍ଵେଚ୍ଛେତ ବ୍ୟବସ୍ଥା / ଭୂତଳ ନର୍ଦ୍ଦମା/ ଡ୍ରେନ , ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ସଫା କରିବା ଇତ୍ୟାଦି) କେଉଁଠାରୁ ସୂଚନା ପାଆନ୍ତି ଏକାଧିକ ଉତ୍ତର ସମ୍ଭବ)</p>	<p>Municipal officialsମୁନିସିପାଲିଟି କର୍ମଚାରୀ</p> <p>Media (TV, radio) ଗଣ ମାଧ୍ୟମ (ଟିଭି , ରେଡିଓ , ଖବର କାଗଜ ଇତ୍ୟାଦି)</p> <p>Mikingମାଇକ ଦ୍ଵାରା ପ୍ରଚାର</p> <p>Neighbour/friends/relatives ପଡୋଶୀ/ସାଙ୍ଗ ସାଥୀ/ ବନ୍ଧୁ ବାନ୍ଧବ</p> <p>NGOsଏନ ଜି ଓ</p> <p>Others (Specify)ଅନ୍ୟାନ୍ୟ</p>	
81	<p>What more information would you like to know about septic tank emptying?ସେପ୍ଟିକ ଟ୍ୟାଙ୍କ ସଫା କରିବା ବିଷୟରେ ଆପଣ</p>	<p>When to empty କେବେ ସଫା କରାଯିବ</p> <p>About service providers & their contact details ସଫା କରୁଥିବା ସଂସ୍ଥା / ସେମାନଙ୍କ ସମ୍ପୂର୍ଣ୍ଣ ଯୋଗାଯୋଗ</p>	

	ଆଉ ଅଧିକ କି ପ୍ରକାର ସୁଚନା ଜାଣିବା ପାଇଁ ଚାହାନ୍ତି (ଏକାଧିକ ଉତ୍ତର ସମ୍ଭବ)	ନମ୍ବର Fees/Chargeଫିସ /ପାଉଣା /ମୂଲ୍ୟ About benefits of doing it ଏହା କଲେ କି କି ଉପକାର /ସୁବିଧା ମିଳିବ ବା ବିଷୟରେ About disposal ପକାଇବା ଜାଗା ବିଷୟରେ 6.Design	
		<u>Community Engagement with HH</u>	
82	Are you aware about any citizen/Community groups working on health and sanitation in your area	Yesହଁ 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	
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N:B - Response for questions from 51 to 55 are to be collected from respondent of Puri, Bhubaneswar, Puri, Rourkela & Sambalpur.

Name of the Investigator: ସାକ୍ଷାତକର୍ତ୍ତା କି ଦସ୍ତଖତ	Date of investigation: ସାକ୍ଷାତକାର 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 କି ନାମ	Date of back check: ପଞ୍ଜୀ 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 fecal sludge/septage managed in the City?
7. Does the City have a sewerage system? If yes, what is the status of coverage?
8. What is the level of coordination with OWSSB, PHEO, PCB, Water Resource Department etc. to deal with SWM and liquid waste?
9. How many cesspool trucks are operating under the ULB? What is your suggestion to make cesspool vehicle operation a profitable business?
10. Are you aware about the ongoing SeTP being constructed in your city?
11. How can citizens and communities be made aware about the benefits of SeTP and be engaged proactively?
12. How is the ULB planning to undertake the O&M of SeTP?
13. Are you aware about the recent changes in urban sanitation policies and program 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 program?
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 program?
8. What are the key challenges with regard to FSSM in the City?
9. How do you see private participation in O&M of cesspool vehicles and SeTPs?
10. Awareness level is very low among the people on FSSM as toilet construction is still ongoing. How do you propose to undertake IEC, BCC and capacity building activities on FSSM in the city?
11. What kind of capacities need to be built to deal with FSSM at the city & district level?
12. What do you suggest could be the best way for effective FSSM in the city?
13. What do you think about the opportunities for reuse of treated septage (fertilizer)?

► Interview with Financial Officer

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

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

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

► **Interview with Sanitary Inspector**

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

► **Interview with Corporator**

1. What are the major sanitation issues in your ward?
2. Whether Ward Sanitation Committees have been formed?
3. If yes, what is the size of the Committee and how does it function?
4. What role do ward councilors/corporators and ward committees play in making their respective wards ODF?
5. How is fecal sludge/septage managed in your Ward?
6. How can communities from your ward be mobilized to participate in FSSM?
7. What kind of capacity building do you require to work on FSSM?

8. How can Ward Committee members be effectively engaged for improved sanitation in the wards and help the communities raise demand for sanitation services?
9. Do you think the people from your ward will agree to pay more for improved sanitation in your respective wards?

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

1. What are the key issues related to urban sanitation in urban areas?
2. What are the key roles and responsibilities of DUDA in implementation of sanitation program?
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 program 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 SePT at the ULB level?
6. Are there any challenges which you faced during the SeTP construction? If yes, please state them.
7. What is the plan for integrating the SeTP with the other services of the FSSM value chain?
8. What plans are in place for making the SeTP socially acceptable, like landscaping etc.?
9. What portion of the city's population has been considered to calculate the capacity of the SeTP?
10. What plans are in present for the remaining population?

▶ **Interview with City Engineer**

1. What is the status of sanitation infrastructure in the City? (Length of sewer lines, status of desludging, cesspool operation, and disposal sites if any for septage, solid waste etc.)
2. What is status of the sewerage system in Baripada?
3. Is there any target when the City will be Open Defecation free? How many HHL, CT/PT, hybrid toilets are been sanctioned, completed and in use?
4. What is the status of disposal site?
5. How important is the issue of FSSM in city sanitation?
6. Do you think when fecal sludge gets discharged in open drain or dumped in open it will contaminate water bodies?
7. Who monitors the cesspool vehicle?
8. How does the ULB coordinate with other departments, is there any joint planning, coordination or joint review of 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 program?
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 fecal load in the vehicle? What do you do if it happens??
40. Did your vehicle ever leaked from the container when it is loaded? What will be your first step if such thing happens?
41. What is the most commonly used location for disposal of fecal sludge? Provide locations.

S.No	Location	Land use

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

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

S.no	Name	Organization	Position held	Date of interaction
1	Mr. Jayant Kumar Sarangi	Puri Municipality	Chairperson	3 rd May 2017
2	Meeting with Councillors		Councillors	3 rd May 2017
3	Mr. Sanjay Mishra		Executive Officer	22 nd April, 2017
4	Mr. Nanda Nandana Rath		Finance Officer	3 rd May 2017
5	Mr. Abhimanyu Behera		SBM nodal officer	22 nd April, 2017
6	Ganesh Prasad Singh Kalpataru Mishra Khetramohan Das		Sanitary Inspectors	6 th May 2017
7	Meeting with Councilors		Councilors	3 rd May 2017
8.	Dr. Pradeep Pradhan		CHO	18 th May 2017
	1. Alka Singh 2. Minati Pradhan 3. Pusparani Mohanty 4. Manasmita Dalai 5. Sasmita Nayak 6. Anusuya Patnaik 7. Reshma Nayak		Community Organizers	5 th May 2017
9	Mr. DB Sarangi	City Engineer	20 th May 2017	
10.	FGD with CBOs (NGOs, MAS, SHGs)			5 th May 2017
9	FGD (Masons)			5 th May 2017
10	Mr. Hayat Khan	ULB cesspool operator	operator	15 th May 2017
13.	Mr. U. C. Majhi	District Administration	PD, DUDA	19 th May 2017
14.	Mrs. Golapamanjari Das	District Administration	DSWO	19 th May 2017
15.	Dr. Harihar Patanaik	District Administration	CDMO	20 th May 2017
16.	Mr. Sarat Chandra Mishra	PHEO	EE, PHEO	24 th May 2017
17.	Mr. S. S. Nanda	OWSSB	OWSSB PE	5 th May 2017
18.	Mr. Hari Bandhu	OSPCB	RO, OSPCB	25 th May 2017

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