Monitoring of Faecal Sludge Management Services in Informal Urban Settlements in Odisha, India

KEY MESSAGES

- *Giving numerical value to demand, supply and existing challenges in providing safe emptying of pits persuade the urban local body and other stakeholders to take measures for expediting the safe empty of pits*
- *Community engagement and participatory monitoring results in securing safe sanitation and ensure service inclusion of last-mile population*
- *Tracking slum-wise demand within a Ward reduced the waiting time of desludging of pits and instilled a sense of dignity in the women headed households*

Background

Organization, Partners and Project

As part of the Australian Government's Water for Women Fund CFAR and RTI's project 'Mobilizing, facilitating and replicating socially inclusive WASH initiatives in India's urban slums of Bhubaneswar and Jaipur (2018-2022)' aims at increasing access to safe WASH services for the marginalised and vulnerable communities. To achieve inclusive, gender responsive and convergent WASH services, the project facilitates consistent communication between the community and government through the 'Single Window' mechanism - a one-stop set up to generate and manage demand for pit emptying at the community level and is managed by volunteers drawn from the community. There are two sets of volunteers - Community Management Committee (CMC) at the slum level and two representatives from each slum who constitute the Single Window Forum (SWF) members at the ward level. Each volunteer or member represents different constituencies/groups-disabled, transgender, adolescents, single women, elderly and people from Scheduled Castes (SCs) and Scheduled Tribes (STs) and Other Backward Classes (OBCs). The community strengthening of each of these groups is done by partnering with a Disabled People's Organisation (Swabhiman) and other Civil Society Organisations representing transgender people (SAKHA) and elderly people (HelpAge).

The CFAR team provides backend support to the Single Window team especially in the area of evidence gathering and connecting the community with key stakeholders. For the latter, CFAR works closely with Ernst &Young (E&Y), who function as technical support unit of the Department of Housing and Urban Development, Government of Odisha. The CMC and SWF members volunteer time for WASH activities and simultaneously leverage their knowledge of and skill in WASH-related activities to strengthen income generation opportunities as members of Self-help groups, as community surveyors, consultants and as frontline workers

Case study context

India's national-level sanitation programme Clean India Mission (Swachh Bharat Mission) aimed at building over 7.5 million toilets across urban areas, including over 20,000 toilets in the city of Bhubaneswar in the state of Odisha. In response to the challenge of the growing number of insanitary toilets and unsafe disposal of waste, the State Government of Odisha released the Urban Septage Management Guidelines (2018) and began strengthening Faecal Sludge Management (FSM), covering infrastructure development, improving regulation and providing desludging services to the urban slums with the support of private operators. In light of these developments, the process of monitoring safely managed sanitation for each beneficiary not only assumed importance for the community but also the government.

In order to understand the sanitation practices, CFAR conducted a baseline study in Bhubaneswar in 2018-19. In a sample survey of 1061 respondents from 10 slums, we found that while almost 98% of respondents were dependent on on-site septage management, a mere 29% did periodic desludging, with most of it being done manually and disposed- off in an unsafe manner in open fields or drains. When we studied this issue further and surveyed 1018 households in 8 slums to understand community perception, practice and priorities, we found that 36% and 39% of households prioritised safe sanitation safe water respectively. On unsafe sanitation, they pointed out that apart from improper emptying of pits, in many cases the liquid waste was flowing into the drain and polluting the water source and water bodies. From this set of households and slums, a sample audit of pits of 199 households in 3 slums revealed that for many households where pits that were collecting both black and grey water, they were tending to fill up faster and desludging was proving to be unaffordable.

Objectives of monitoring safely managed sanitation

- Track individual and aggregated demand, slum and ward-wise, in order to plan scheduled de-sludging
- Identify barriers and track progress in delivery of FSM services
- Provide data to the Urban Local Body and other stakeholders on service status, i.e., demand, existing supply and challenges from ease of/bottlenecks in securing FSM service
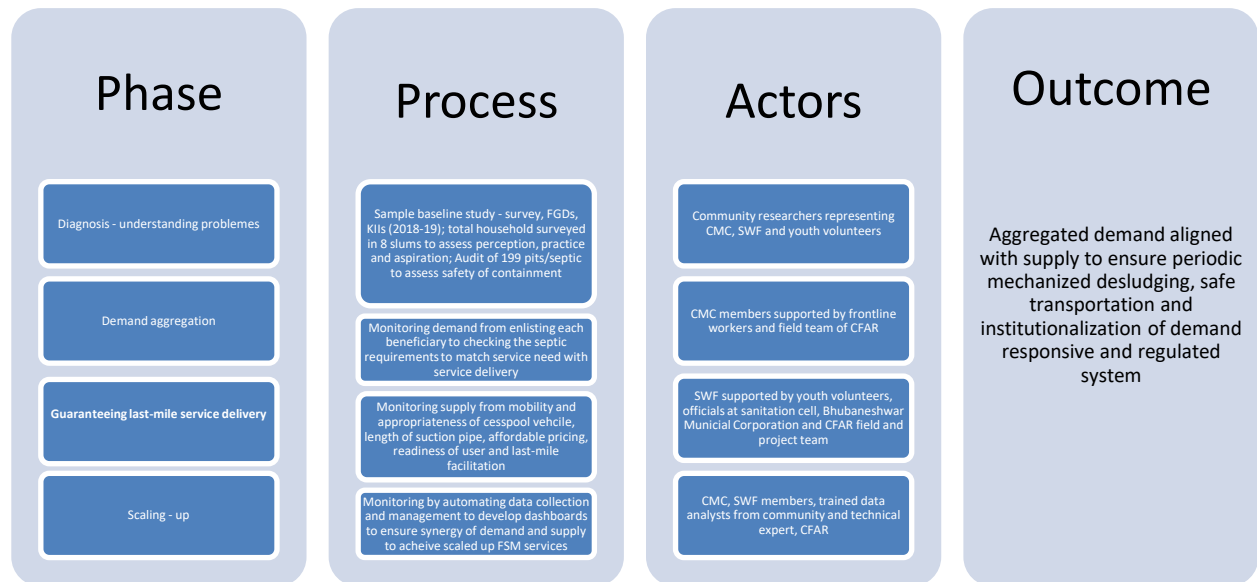
Methods

Primary data, total aggregated demand and supply, observed challenges before and after execution of demand, and measuring against baseline are primarily chosen methods for monitoring. Demand and service inclusion data was collected manually in the beginning and now Google form is being used, and further transcribed into MS excel sheet. In addition, qualitative information such as households' feedback and members of CMC and SWF are also taken into account.

Diagnostic Tools

For the baseline study, Bhubaneswar, 2018-19, we used tools such as household surveys, focus group discussions and key informant interviews to assess access to water, sanitation and hygiene services and practice amongst the people living slums in Bhubaneswar. The tools were designed as per JMP guidelines with the inputs of field staffs and experts working in the WASH sector. Primarily the tools such as household survey helped in capturing the existing status of WASH in the informal settlements and quantifying the level of challenges; whereas FGDs and KIIs captured the voice of groups and individuals who underlined specific problems and suggested solutions.

In keeping with the diagnostic tool stated above, a follow up survey was done using sanitation checklist and visual tool with an image denoting essential standard and explanation to gauge their perception on what constitute safely managed sanitation and water supply. When we found that proper emptying of pits was proving to be a major concern, we audited all pits in three settlements to assess the problem. Thereafter to enlist the demand for proper emptying of pits we recorded the following: Household members; verifying type of containment-pit/septic tank, single pit/ twin pit, shared pit/septic tank, inlet and outlet pipe connection, emptying by private or government cesspool vehicle, unit cost paid,

frequency of pit/tank emptying, mobile number of the beneficiary and whether the house of the beneficiary has been allotted under the government housing scheme.

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Phase	Process	Actors	Outcome
Diagnosis - understanding problemes	Sample baseline study - survey, FGDs, KIIs (2018-19); total household surveyed in 8 slums to assess perception, practice and aspiration; Audit of 199 pits/septic to assess safety of containment	Community researchers representing CMC, SWF and youth volunteers	Aggregated demand aligned with supply to ensure periodic mechanized desludging, safe transportation and institutionalization of demand responsive and regulated system
Demand aggregation	Monitoring demand from enlisting each beneficiary to checking the septic requirements to match service need with service delivery	CMC members supported by frontline workers and field team of CFAR	
Guaranteeing last-mile service delivery	Monitoring supply from mobility and appropriateness of cesspool vehcile, length of suction pipe, affordable pricing, readiness of user and last-mile facilitation	SWF supported by youth volunteers, officials at sanitation cell, Bhubaneshwar Municial Corporation and CFAR field and project team	
Scaling - up	Monitoring by automating data collection and management to develop dashboards to ensure synergy of demand and supply to acheive scaled up FSM services	CMC, SWF members, trained data analysts from community and technical expert, CFAR	

Demand aggregation

As mentioned above, for monitoring the safe emptying of pits and transportation of sludge, the CMC members tracks each individual starting with capturing details of each applicant and their spouse and family and then details about location of the house, size of containment, ascertaining the kind of documentary proof they can furnish for securing the service, date of emptying the pit, date of last emptying of pit, and finally the name of the CMC member, who will facilitate the process.

Guaranteeing last-mile service delivery

On the day the service is provided, the SWF member then monitors it in the reverse. For this the data collected by CMC of each applicant is updated in the Monitoring Register, maintained by SWF and the Grievance Cell, Bhubaneswar Municipal Corporation. This is jointly monitored by SWF member and officials of the Grievance Cell. They monitor and cross-check all the columns working backwards to ensure proper delivery

CMCs and SWFs ➡️ Service Providers

SI No	Date	Name of SWF Member	Category(1-PWD,2-Elderly, 3-Widow,4-TG, 5-General, 6-SC, 7-ST, 8-General)	Date of Request made for desludge	Approximate pipe length to reach lined pit/tank	Size of lined pit/tank	Date of Last desludge done	Next Possible date for desludge	Name of HH	HH Contact Number	Settlement	Date of service given	Name of cesspool vehicle operator(A-Govt., B-Private)	Unit Cost	HHs Documents (1-Ration Card, 2-Aadha Card 3-Eletricity bill, 4-Voter Icard,	Beneficiaries remark (1-good, 2-Satisfactory, 3-partly satisfied, 4-dissatisfactory)	Signature of SWF member	Remark by SWF member (1-Households not available, 2-Shortage of cesspool pipe, 3-Driver not present, 4-Household financially	Stakeholders/Visitors Remarks
1	29.06.2021	Pramila Chanda	5	29.06.2021	70	1500	20.06.2020	20.06.2022	Bauri Das	8455829903	Aditya Nagar	30.06.2021	B	600	3	2	Pramila chanda	NA	
2	29.11.2020	Pramila Chanda	5	29.11.2020	70	1500	20.11.2019	01.11.2022	Jyonti Sahoo	9438147544	Aditya Nagar	30.11.2020	B	600	3	2	Pramila chanda	NA	
3	12.06.2021	Chanchala Khande	5	12.06.2021	150	1500	12.06.2020	10.06.2022	Kunilata Rout	9337960905	Janta Nagar	12.06.2021	B	600	2	2	Chanchala Khan	NA	
4	10.08.2020	Chanchala Khande	5	10.08.2020	30	2000	01.02.2020	01.12.2020	Sulochana Behera	9778839696	Janta Nagar	12.08.2020	B	600	2	1	Chanchala Khan	NA	On dated January 1,2021, Mr. Sanjay Ku. Das and Mr. Ajay Mishra ward officer and ms. Rasmita
5	10.02.2021	Rakesh Makar	5	10.02.2021	30	1500	07.04.2020	01.03.2020	Annapurna Sethi	9040309395	Nirankari Nagar	11.02.2021	A	600	2	1	Rakesh Makar	NA	
6	10.02.2021	Rakesh Makar	5	10.02.2021	30	1500	04.06.2020	07.06.2020	BishnuPriya Sethi	7735898218	Nirankari Nagar	11.02.2021	A	600	2	1	Rakesh Makar	NA	
7	11.01.2021	Geetanjali Bagha	5	11.01.2021	50	1000	12.01.2020	12.01.2022	Kuntala Patra	7978661328	Bastibikash-1	13.01.2021	B	900	2	3	Geetanjali Bagha	NA	
8	01.02.2021	Kaberi Bhoi	6	01.02.2021	20	1500	01.09.2020	01.08.2021	Bharati Singh	7326428011	Bastibikash-2	02.02.2021	B	600	2	2	Kaberi Bhoi	NA	
9	01.02.2021	Kaberi Bhoi	6	01.02.2021	100	1500	20.08.2020	01.08.2021	Urmila Bibi	9658965346	Bastibikash-2	02.02.2021	B	600	2	2	Kaberi Bhoi	NA	
10	10.05.2021	Rakesh Makar	5	10.05.2021	60	1500	04.11.2020	01.10.2021	Ranju Makar	9777630619	Baliapata	18.02.2021	A	600	2	2	Rakesh Makar	NA	
11	10.05.2021	Rakesh Makar	5	10.05.2021	70	1500	01.12.2020	05.10.2021	Rakesh Makar	7787967933	Baliapata	18.02.2021	A	600	2	2	Rakesh Makar	NA	
12	31.12.2020	Kusuma Jena	5	31.12.2020	70	1500	30.12.2021	25.12.2022	Prabhati panda	8596045215	Barabhuja Basti	01.01.2021	A	300	2	1	Kusuma Jena	NA	

Users (Beneficiaries) ⟵ SWF, Service Providers

This monitoring helps to estimate the demand within and across the settlement and take note of the progress of desludging services as well as in identifying the barriers. Regular updating of the above information in the tracking sheet helped the members of SWF and CMC to keep track of demand and supply, and further share the data with urban local body to figure out the demand for cesspool vehicles, human resources and ensure regular support for emptying of the pit and safe transportation of the sludge.

Analysis

We monitored safe emptying of pits and safe transportation of sludge to check a) demand generation; b) supply of service especially the last mile delivery through proper movement of cesspool vehicle; c) user-friendliness - frequency and periodicity, safety of all (workers/operators and users) and total mechanisation, affordability and quality of desludging; d) social and technical capability to address inequalities and gaps in inclusion. It is observed that safe emptying is not only about availability of services and cesspool vehicles, but socio-economic factors of households such caste and gender, and geographical location of the household play key role.

Less privileged caste groups - Scheduled Castes (SCs), Scheduled Tribes (STs) and Other Backward Castes (OBCs)	• Located at the back of the slum, with no paved lane and least serviced, income-poverty, no representation in the power structure, employed in informal work	→ Through representative CMCs and SWFs – Out of 573 CMCs' members, 3% are STs, 17% are SCs and 63% are OBCs and out of total 160 members 6% are ST, 20% are SCs and 25% are OBCs.
Socially marginalized groups- Transgender persons, elderly, disabled, single women and adolescents	• Socially excluded, stigmatized, present in small number as they are dispersed, often invisible and left out of basic/universal entitlements	→ By sensitizing the officials of sanitation cell - Municipal Corporation and operators *sections;* 2276 applications were submitted and 30 meetings and consultations held with service providers and officials of Bhubaneswar Municipal Corporation
		→ By last mile facilitation- 68% of the HHs desludged using more than 120 feet pipe length (usual pipe length is between 90 feet -120 feet) and 78% of the HHS accessed cesspool vehicle of 3000 litres.

Amuli Parida, a person with disability or PwD, 50 lives with her husband in the Barabhuja Basti. She said, that timely emptying of pit has helped her to avoid going for toilet in the open but also enabled her to get it done at half the price. "We used to avoid using our pits as it gets filled soon and for emptying it, we have to pay Rs 1100."

Phula Devi, 45, lives with her family in Radhakrishan Basti. She is a tribal and from a highly marginalized group. She said that her husband income is not enough to arrange three-time meals for the family and therefore emptying of pit was never been a priority. The male members and children used to go for open defecation to delay the filling of pit. She recalls that once it got filled and no one was ready to get her pit emptied even she was ready to pay as per the demand of the cesspool operator. She said, " the cesspool vehicle operators do not want to come to this area as it is very congested and my house is in the narrow lane. So, for emptying the pit, cesspool operator needs longer length pipe than they have. But last year she gets her pit emptied within two days of placing a request of desludging at Rs 300 only".

Who uses the monitoring data and how?

Monitoring data is used at two levels - a) By the service provider including the Single Window team to streamline the process from deploying right vehicle that can manoeuvre through narrow lanes, right length of pipes to reach homes deep inside, optimize number of households in same area to do back to back desludging, ensure an efficient route from the starting point to the slum to the treatment plant; b) By the different stakeholders including municipal corporation, both private and government cesspool operator, CFAR staffs, and other agency like Ernst &Young who has been contracted to function as the

Technical Resource Unit for the Government of Odisha. This data helps to plan procurement of cesspool vehicles; to strengthen regulation and fix affordable tariff, providing training to cesspool operators and sanitation workers and distribution of safety gears.

Monitoring barriers

In the light of monitoring the barrier – two broad categories, less privileged groups and socially marginalized groups are recognized. Monitoring identified these barriers and further quantified the demand and safe emptying of pits.

Social barriers – To leave no one behind

Monitoring both demands enlisted and fulfilled of less privileged caste and socially marginalized groups revealed that out of total demand of 2273, less privileged castes accounted for 60% and socially marginalized groups for 18%. In terms of securing the service the less privileged secured it to the extent of 60% and socially marginalized groups 31%.

The ability to address the barriers was connected with the representation of both groups in CMC and SWF. While the less privileged castes accounted for representation as high as 84%, the socially marginalized groups had a critical representation of 19%.
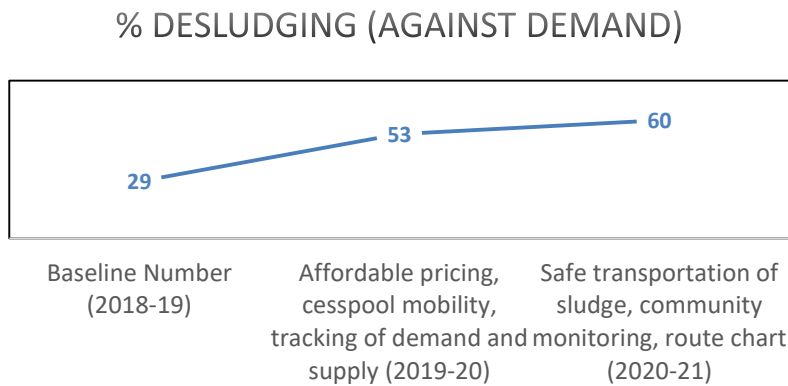
Programmatic connect to sensitize decision makers and implementers/service providers about both problems and solutions

Monitoring the connect with decision makers and implementers/service providers we tracked 30 visits to different settlements and Wards to check both service feasibility and delivery in response to 2276 applications/petitions requisitioning service when they were ready to avail it.

Guarantee last mile delivery- To ensure all barriers related to terrain, location, mobility of cesspool vehicle and affordability

The monitoring process took note of capacity of cesspool vehicles used and length of suction pipe usually needed to conduct the desludging. For example, 52% of the facilitated households used 1000 litres capacity vehicles, where as 78% used 3000 litres capacity cesspool vehicles and only 18% have used 4500 litres cesspool vehicles. The usage was often done on cost-sharing basis. In reaching the last-mile population, the data reflect that 68% of the facilitated households needed more than 120 feet long pipeline for desludging which is usually not provided by the government or private cesspool operator.

The annual analysis from the baseline measuring and quantitative changed observed after the baseline also tracked and analysed. The rate of service inclusion has changed from 29% to 60% against the total aggregated demand.

% DESLUDGING (AGAINST DEMAND)

29	53	60
Baseline Number (2018-19)	Affordable pricing, cesspool mobility, tracking of demand and supply (2019-20)	Safe transportation of sludge, community monitoring, route chart (2020-21)

Regular monitoring has not only increased the overall rate of safe emptying of sanitation through reducing the barriers related to costing and mobility of cesspool vehicles but also helped less privileged and socially marginalized groups to get their pits emptied within a short span of time.

What worked?

From the monitoring it is clear that what worked was in being able to demonstrate proof of concept and able to showcase across 1218 households that the Single Window mechanism converged everyone from decision maker, service provider to end user.

The quantification of demand and supply, and existing challenges persuaded the city decision makers to procure cesspool vehicles, hire cesspool operators and provide them training and safety gears. Coordination between CMC and SWF members has created a system which is helping the community or end users in securing the service on time and enhanced the operational efficiency of service providers.

What needs work better?

For scaling-up, as we need to have robust system to monitor demand and supply, and tracking record of safe transportation of sludge, we will require extensive use of technology to do real time monitoring and turning it into performance dashboards; also need to monitor accountability and conformity to standard operating procedure and monitor profitability of desludging especially for small operators representing

women, transgender and sanitation workers to last but not the least to ensure safe sanitation as an inclusive and sustainable practice.