

Aastha Dang
Chinmay Mishra
Indira Patil
K Kranthi Kumar
Kavita Chauhan
Ritwik Sarkar

Learning from collective-led sanitation enterprises in urban Odisha, Tamil Nadu and Telangana

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About this paper

This paper summarizes the findings of a learning study under the Sanitation-linked Livelihoods Program. The aim of the study was to document the processes and glean lessons from recent efforts of state governments to improve sanitation services and provide employment opportunities to urban collectives through fecal sludge management, and operation and maintenance of community and public toilets. All content is the sole responsibility of the authors and does not represent the opinions of 3ie, its donors or its board of commissioners. Any errors and omissions are the sole responsibility of the authors. All affiliations of the authors listed on the title page were in effect at the time they submitted the report. Please direct all comments or queries to the corresponding author, Aastha Dang at adang@3ieimpact.org.

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Aastha Dang
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Chinmay Mishra
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Indira Patil
3ie

K Kranthi Kumar
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3ie

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3ie

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Summary

In October 2014, the Indian government launched the Swachh Bharat Mission (SBM), comprising two components: Swachh Bharat Mission (Gramin) and Swachh Bharat Mission (Urban), which focus on rural and urban sanitation, respectively. Under the program, the government invested in a massive expansion of individual and community toilets, installing over 62,60,606 individual toilets and 6,15,864 community toilets between 2014 and 2019 (Swachh Bharat Mission Urban - Dashboard).

While this expansion successfully improved sanitation coverage, operation and maintenance of the new sanitation infrastructure and safe waste disposal proved to be an ongoing challenge. As a potential solution, the SBM and Deendayal Antyodaya Yojana-National Urban Livelihoods Mission (DAY-NULM) convergence guidelines of 2018 proposed that urban collectives could be engaged for work across the sanitation value chain.

This model would offer livelihood opportunities for collective members while also tackling ongoing operations and maintenance challenges. Several state governments, including Odisha, Tamil Nadu, and Telangana have taken strides forward in implementing these guidelines.

This report presents the results of a learning study conducted by the International Initiative for Impact Evaluation with support from the Bill & Melinda Gates Foundation. The main objective of the study is to document processes and glean lessons from recent efforts of state governments to improve sanitation services and provide employment opportunities to urban collectives through fecal sludge management and operations and maintenance of community and public toilets. Urban collectives include self-help groups, women, transgender people, people with disabilities, and other vulnerable groups.

The study focused on implementation, both barriers and facilitators, aiming to provide inputs and recommendations to policymakers and technical support units who are working closely with the state governments on implementation of the SBM – DAY-NULM convergence framework.

We conducted qualitative research in six cities in the states of Odisha, Telangana, and Tamil Nadu. Our methodology relied on in-depth interviews and focus group discussions with members of sanitation collectives, technical support unit representatives, urban local body officials, community leaders and other stakeholders. Over a five-month period, we conducted 224 in-depth interviews and focus group discussions, and observed 50 community and public toilets.

The study finds that state governments have achieved varying levels of success in leveraging urban collectives for sanitation enterprises. It concludes that the program provides a platform for women collectives to obtain livelihood generation, as well as an avenue for socioeconomic empowerment. The program has offered employment opportunities to marginalized groups, especially during COVID-19. It has also led to increased societal acceptance and validation of transgender individuals and women from marginalized populations.

Although each state is deploying its own innovative approach to making the intervention sustainable, some challenges to scaling up remain. Foremost amongst these are delays in payment to sanitation workers, infrastructural challenges, and individuals causing damage to property – which in turn increase operational costs and lack of financial viability, particularly for community and public toilets.

Despite the implementation of different types of sanitation enterprise models by the states, and varying levels of success, the overall findings appear to coalesce in broad terms.

Operational challenges remain in seeking resources to implement sanitation enterprise work, there is a need to review the income and expenditure model, and gender and caste-based impressions are shaping community acceptance of the work. Although there is a level of acceptance, people are yet to view this as an aspirational career option, especially for their children.

Several key recommendations emerge for more effective implementation of the collective-led sanitation model. First, the development and implementation of a robust training mechanism for managing and sustaining sanitation enterprises should be contextual and stakeholder-specific in the sanitation value chain. Training should include an evaluation system to assess its effectiveness.

Second, in terms of financial sustainability – keeping in mind that the six cities spread across three states have distinct sanitation models as well as socioeconomic and political contours – the study recommends the formulation of tailored strategies for financial sustenance. These must be developed in close consultation with key stakeholders and should be context-specific, catering to the localized needs of the institution and the collectives.

Finally, the model would benefit from strengthened monitoring systems and an evaluation that measures impact at scale. Real-time monitoring with a grievance redressal system is an imperative step to making the program more effective. Under the urban collective-led model, behavior change communication is carried out with the objective of increasing uptake of sanitation facilities and raising awareness about sanitation-related activities.

This, alongside the formation of community groups, which have participation from influential members of the community to enhance community ownership of the project, could be implemented, as they have the potential to ensure effective monitoring for sanitation.

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Abbreviations and acronyms

3ie	International Initiative for Impact Evaluation
ALF	Area-level federation
ASCI	Administrative Staff College of India
BMC	Berhampur Municipal Corporation
CT/PT	Community toilet/public toilet
DAY	Deendayal Antyodaya Yojana
FGD	Focus group discussion
FSSM	Fecal sludge and septage management
FSTP	Fecal sludge treatment plant
IDI	In-depth interview
IIHS	Indian Institute of Human Settlements
MEPMA	Mission for Elimination of Poverty in Municipal Areas
MoHUA	Ministry of Housing and Urban Affairs
NULM	National Urban Livelihood Mission
O&M	Operation and maintenance
ODF	Open defecation free
PPE	Personal protective equipment
PwD	Persons with disabilities
RO	Resource organization
SBM	Swachh Bharat Mission
SeTP	Septage treatment plant
SHE	Sanitation and hygiene education
SHG	Self-help group
SLF	Slum-level federation
SWM	Solid waste management
TSU	Technical support unit
ULB	Urban local body
WAVE	Women's Action for Village Empowerment

Glossary

Area-level federation: This association of self-help group representatives in an area guides and monitors existing groups, mobilizes women to form new ones, and trains them.¹

Biju Swasthya Kalyan Yojana: This scheme of the Odisha government aims to provide universal health coverage with a specific emphasis on economically-marginalized families and women. It has two components: under the first, the state government bears the full cost of treatment for all patients, irrespective of economic status, at all government hospitals. Under the second, the state government provides health coverage of five *lakhs* (500,000) to economically weaker families, and an additional five *lakhs* to women after they have exhausted their initial coverage in all government-enlisted private hospitals.²

Community toilets: According to the Ministry of Housing and Urban Affairs, community toilets are shared facilities provided for all people in a settlement. They are usually meant for low-income groups living in slums, which lack space for individual household toilets.³

Core sanitation worker: This includes any person employed in core sanitation work (other than domestic work) by the urban local body or outsource agency for at least 50 days per financial year, and registered with the concerned urban local body.⁴

Fecal sludge and septage management: As part of the Swachh Bharat Mission launched in 2014, the Indian government planned to construct over 3 million toilets by 2019. This means that over 150 million liters per day of fecal sludge and septage will be diverted away from the River Ganges. The Ministry of Urban Development introduced a National Policy on Fecal Sludge and Septage Management in 2017 to help state governments and cities to achieve safe disposal of the sanitation waste.⁴

GARIMA: This scheme introduced by Odisha government aims to ensure the safety and dignity of core sanitation workers in urban areas. To streamline the benefits of the scheme, a survey is conducted in all 114 urban local bodies of Odisha to identify core sanitation workers. These workers are classified as “highly skilled” or “skilled,” and assured minimum wages accordingly. Their work schedules are reduced to six hours without any reduction in salary. Under this scheme, workers are eligible for health insurance, life insurance, and disability support, apart from periodic health checkups and “illness allowance.” They are also eligible for benefits under the Maternity Benefits Act of 1961. The scheme also focuses on ensuring quality sanitation by setting up an emergency response sanitation unit to provide timely service delivery.⁵

¹ https://nulm.gov.in/PDF/NULM_Mission/NULM-SMID_Guidelines.pdf

² Biju Swasthya Kalyan Yojana website: <https://health.odisha.gov.in/PDF/FAQ-English-BSKY.pdf>

³ http://swachhbharaturban.gov.in/writereaddata/SBM_Guideline.pdf

⁴ [https://www.cseindia.org/national-policy-on-faecal-sludge-and-septage-management-fssm-6938#:~:text=Share-,National%20Policy%20on%20Faecal%20Sludge%20and%20Septage%20Management%20\(FS SM\),Defecation%20Free%20India%20by%202019](https://www.cseindia.org/national-policy-on-faecal-sludge-and-septage-management-fssm-6938#:~:text=Share-,National%20Policy%20on%20Faecal%20Sludge%20and%20Septage%20Management%20(FS SM),Defecation%20Free%20India%20by%202019)

⁵ Government of India, Department of Housing and Urban Sanitation website: <http://www.urbanodisha.gov.in/pdf/GARIMA-Scheme-Booklet.pdf>

Jaga Mission: The mission was started by the Odisha government as a participatory slum upgradation program, and it acknowledges residents as city makers.

Mission Shakti: Mission Shakti was established by the Odisha government to empower women in self-help groups by facilitating their socioeconomic activities, credit facilities, and market linkages.⁶

National fecal sludge and septage management alliance portal: This is a global partnership of 24 organizations supported by the Bill & Melinda Gates Foundation, committed to drive the discourse of human waste management in India.

Public toilet: According to the Ministry of Housing and Urban Affairs, these are toilet facilities for floating populations in public places such as bus stops, railway stations, marketplaces, parks, areas near government offices, or anywhere people pass by.⁷

Septage: Septage is a by-product from the pre-treatment of household wastewater (sewage) in a septic tank. After a few years of accumulation, septage is usually pumped out of a septic tank by a vacuum truck, then transported to a local sewage treatment plant.

Solid waste management: This term refers to the method of collecting, treating, and recycling garbage from living settlements. The Indian government, under the ambit of the Swachh Bharat Mission, stipulated the rules and guidelines under clause 15(a) of the 2016 Solid Waste Management Rules for urban municipalities that manage the waste.⁸

Slum-level federation: This is a federation of women's self-help groups at the slum level in urban areas facilitated or promoted by the Mission for Elimination of Poverty in Municipal Areas.⁹

Swachh karmis: These include people who work at the wealth centers (micro composting centers and material recovery facilities) and are engaged in the transportation of segregated waste in solid waste management. They include women and transgender self-help group members, rag pickers, and sanitation workers.

Swachh Sarvekshan: This is an annual survey conducted to assess the sanitation and cleanliness of towns and cities. It aims to reinforce healthy competition among cities to improve their service in sanitation. Swachh Sarvekshan was first launched in 2016 by India's Ministry of Housing and Urban affairs and is implemented under the ambit of the Swachh Bharat Mission (Urban). The 2022 survey was designed to capture initiatives taken by cities in protecting the well-being of sanitation workers. The opinions of both senior citizens and youth are given equal priority in order to capture diverse opinions and mobilize all sections of society to commit to clean cities.¹⁰

⁶ <https://missionshakti.odisha.gov.in/about-us/about-department>

⁷ http://swachhbharaturban.gov.in/writereaddata/SBM_Guideline.pdf

⁸ <https://mohua.gov.in/upload/uploadfiles/files/Part2.pdf>

⁹ <https://www.lawinsider.com/dictionary/slum-level-federation>

¹⁰ <https://www.mygov.in/mygov-survey/swachh-survekshan-2022/> and <https://www.gktoday.in/topic/swachh-survekshan-20/>

Swachh sathis: These are representatives from Mission Shakti's women's self-help groups, who are engaged in behavior change, awareness, and demand-generation among households and communities in both fecal sludge management and solid waste management, and also in collection of user fees for solid waste management. *Swachh sathis* are paid a monthly incentive of Rs.4,000 for 600 households in a ward. There are also *swachh* supervisors who monitor four *swachh sathis* each, who are paid a monthly incentive of Rs.8,000.

Town-level federation: A town-level federation is an association of representatives of the slum-level federation, which aims to monitor the functioning of slum-level federations. Town-level federations are facilitated and promoted by the Mission for Elimination of Poverty in Municipal Areas, Department of Municipal Administration and Urban Development.¹¹

Town *vikalangula samakyas*: These are urban collectives of persons with disabilities, formed and promoted by the Mission for Elimination of Poverty in Municipal Areas to promote, strengthen, and nurture self-sustainable community-based organizations of persons with disabilities. They achieve these objectives through social mobilization activities organized in all urban local bodies.¹²

Urban collective: This is a group of women from economically vulnerable sections of society, mobilized to empower women by providing socioeconomic activities, financial credit, and market linkages. In this study, urban collectives are used for self-help groups, groups of women, transgender people, disabled people, and other vulnerable groups in fecal sludge management.

¹¹ <https://www.lawinsider.com/dictionary/slum-level-federation>

¹² https://tmepma.cgg.gov.in/files/ap_7139.pdf

1. Introduction

The Indian government launched the ambitious Swachh Bharat Mission (SBM) in 2014 to achieve an open defecation free (ODF) India, with a five-year timeline to provide universal access to toilets. Since then, 66 *lakhs* (6.6 million) household toilets and more than 6 *lakhs* (600,000) community and public toilets (CT/PTs) have been constructed (NITI Aayog & NFSSM Alliance 2021), and the country was declared ODF in 2019 (Ibid). However, providing access to sanitation is insufficient without ensuring toilet use and maintenance for long-term use. To address this, the second phase of the SBM focuses on solid waste management (SWM) and maintenance of sanitation facilities, which includes emptying toilet pits and septic tanks, and treating waste.

The Indian government has, over the years, launched several initiatives that focus on eliminating supply-side barriers through construction, expansion, and renovation of urban sewage systems, sewage treatment plants, and community toilets (Wankhade 2015). The government's commitment to addressing these barriers is further exemplified in its National Policy on Fecal Sludge and Septage Management (FSSM) (MoUD 2017), which seeks to create a sustainable delivery platform for FSSM services in all urban areas of the country. The policy has been operationalized in several states, including Tamil Nadu, Odisha, Telangana, Andhra Pradesh, and Maharashtra, with others on track to follow suit.

India's increase in infrastructure for better sanitation facilities highlighted the need for human resources to operate and manage these facilities, as well as the waste generated within them. Without an adequate skilled workforce, the task of upkeep remained a challenge for the government.

Simultaneously, there have been sustained efforts to reduce poverty and vulnerability among the urban poor. This is being carried out through the Deendayal Antyodaya Yojana-National Urban Livelihoods Mission (DAY-NULM), the flagship mission of the of the Ministry of Housing and Urban Affairs (MoHUA) (DAY-NULM; MoHUA & SBM 2018). Through these self-help groups (SHGs), the government aims to provide access to skills and livelihood opportunities (Baradi *et al* 2021).

The DAY-NULM aims to reduce poverty and vulnerability among poor urban households. The objective of SBM (Urban) program (also implemented by MoHUA) is to make India ODF and achieve scientific management of municipal waste. In 2018, guidelines were issued by the Indian government that suggested a framework and models to converge efforts under DAY-NULM and SBM (Urban), through the promotion of livelihood options for collectives of women and other marginalized communities in the sanitation value chain.

This includes the collection and transportation of waste, processing and conversion of municipal solid waste to wealth (value-added by-products), and the operation and maintenance (O&M) of sanitation facilities – including CT/PTs (Ibid). This initiative is designated as a sanitation-linked livelihood program. It includes a role for urban local bodies (ULBs) and provides them with regular support and guidance from the mission management units of both programs.

Several states have taken strides in adopting the SBM – DAY-NULM convergence guidelines. In Odisha, the management of 51 fecal sludge treatment plants (FSTPs) has been handed over to SHGs in select districts, with a commitment for an eventual pan-

state scale-up. This is a critical time to understand state-level implementation of these guidelines and extract lessons in order to inform the work of policymakers and program implementors engaged with the convergence framework.

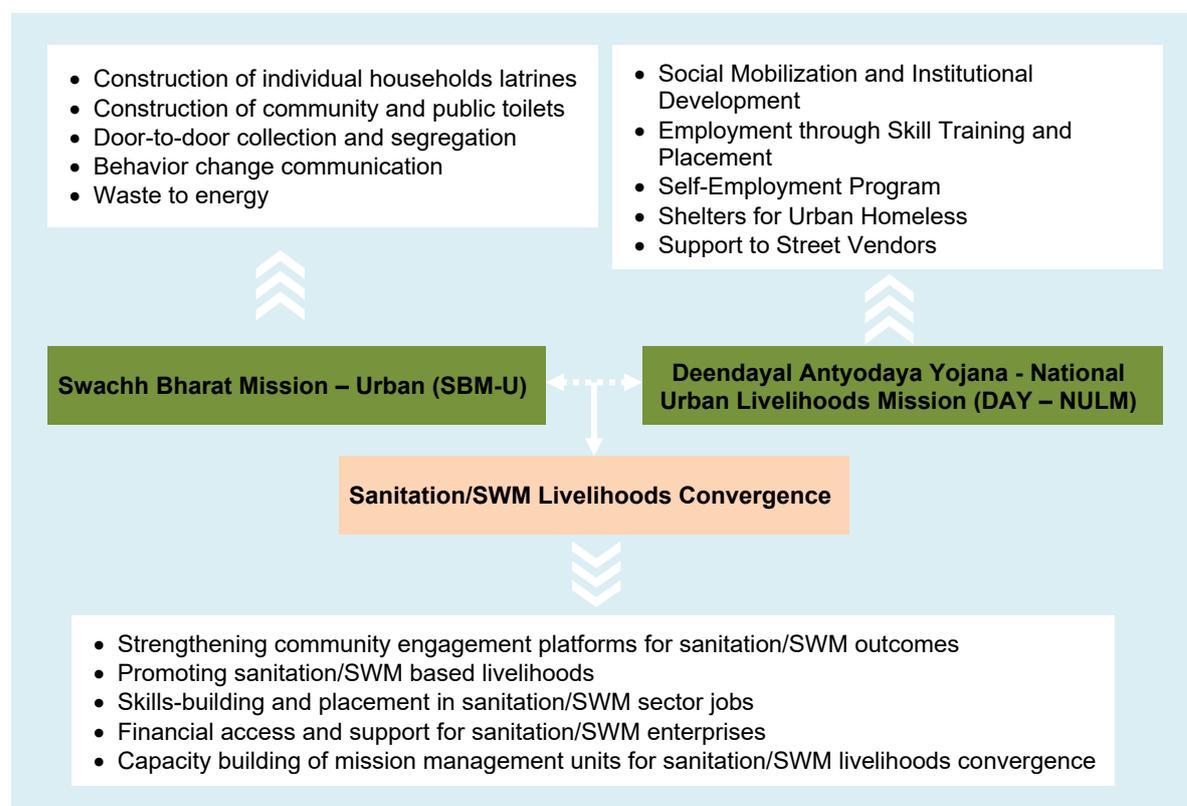
1.1 Study objectives

To shed light on these initiatives, the International Initiative for Impact Evaluation (3ie), with support from the Bill & Melinda Gates Foundation, designed a learning study in March 2021. The goals of the study included:

- Gathering evidence and lessons from recent efforts of state governments to provide employment opportunities to urban collectives in fecal sludge management. Collectives include groups of women, transgender people, persons with disabilities (PwD), and other vulnerable groups.
- Providing evidence-informed insights to state governments and informing the national-level policy and guidelines work at NULM to promote sanitation-linked livelihoods models for the urban poor.

Since these enterprises are still in the early stage of operations, we have a unique opportunity to learn important lessons that can help to refine the models within the three states and offer lessons for other states and the central government. The outcomes of this study were expected to feed into the work of the water, sanitation, and hygiene technical support units (TSUs) in focus states, helping their governments to assimilate these lessons as they scale up the sanitation livelihoods models.

Figure 1: SBM – DAY-NULM convergence framework



Source: Empowering Marginalized Groups - Convergence Between SBM and DAY-NULM, March 2018

1.2 Selection of cities

Our study focuses on two cities in each of three states: Odisha, Tamil Nadu, and Telangana. Each city operates different models of sanitation entrepreneurship led by collectives (Table 1). These cities were selected in consultation with the state TSU partner, ULBs, and other government stakeholders based on the following criteria:

1. Diversity in types of collectives engaged
2. Maturity of enterprises (operating for at least two years before the study)
3. Presence of TSU partner

Table 1: Key features of cities included in the study

States	City 1	Details	City 2	Details
Odisha	Berhampur	Opportunity to study the entire value chain of liquid waste management managed by SHGs and their federations. The age of sanitation enterprise at the time of study was approximately two years.	Dhenkanal	The city has different types of solid and liquid waste management systems in place being operated by urban collectives.
Telangana	Warangal	The highest number of contracts issued to collectives (around 80) for managing CT/PTs. Currently testing innovative revenue-generating sanitation models. Warangal is the leading ULB in Telangana for sanitation work since the Swachh Survekshan was first announced in 2017.	Nizamabad	The city has the second-highest number of contracts issued to slum-level federations (around 18).
Tamil Nadu	Tiruchirappalli	The focus is on promoting inclusive sanitation – looking at governance, gender, and involvement of vulnerable groups. These experiences may serve as demonstration sites for scale up. The enterprises present examples of what kind of technologies can be employed, focusing on capacity building and behavior change.	Coimbatore	The focus is on promoting inclusive sanitation – looking at governance, gender, and involvement of vulnerable groups. Implementation of collective-run CT/PT is still in its nascent stage in Coimbatore.

1.3 Stakeholder mapping

To understand the sanitation ecosystem and inform the learning agenda, we conducted a desk review to start mapping individuals in key positions and resource organizations that play a pivotal role in the sanitation-linked livelihoods work in the respective states. We used publicly available information on state websites and other pertinent portals such as

the National FSSM Alliance.¹³ We then worked to understand their relative importance in the FSSM and CT/PT space. Based on this, we categorized the learning questions into major thematic domains and refined them. These questions were then discussed with an inclusive task force of stakeholders during the first kick-off meeting in March 2021.

The task force included representatives from the Bill & Melinda Gates Foundation, Dasra (an impact foundation), 3ie, and partners from the TSUs of the three study states. The objective was to understand recent sanitation initiatives by different states, collaboratively discuss, and list key areas of inquiry and associated learning questions. Following this meeting, 3ie set up bilateral meetings with each state to discuss further areas of collaboration for the research study. We also used the bilateral meetings with the TSUs to identify other relevant stakeholders (Table 2).

Table 2: Stakeholder mapping

List of key stakeholders	Tamil Nadu	Odisha	Telangana
TSU	Indian Institute of Human Settlement	Urban Management Centre (Asia) and Ernst & Young	Administrative Staff College of India
Resource organization	Gramalaya, Keystone Foundation	Janaagraha and Centre for Policy Research	NA
Others	Society for Education Village Action and Improvement, SCOPE, HDFC, the HT Parekh Foundation	NA	Safai Karamchari Mazdoor Union, Transgender Association, Warangal Kareemabad Pragathi Dalita Society

We also tailored the relevant learning questions to the stakeholders and developed the interaction guides. Detailed learning questions are available in Annexure 1.

1.3.1 Factors influencing sanitation uptake

Urban sanitation is increasingly rising to the forefront as a key development challenge relating to the quality of life of poor urban households (Annamalai et al. 2017). Sustained sanitation and hygiene practices depend on a multitude of factors that are affected by both supply and demand contexts. From the demand perspective, the literature suggests a variety of proximate causes of non-compliance with good sanitation practices: the convenience of open defecation (Coffey et al. 2014), strongly held socio-cultural beliefs, values and norms about purity and pollution of private spaces (Coffey et al. 2015; Sugden 2013), and construction and design concerns (Routray et al. 2015; Shah et al. 2013).

Supply-side factors that determine sustained toilet usage include infrastructure quality, type, and design (Aiemjoy et al. 2017). Poor and incomplete construction can make toilets unsafe to use (Khanna and Das 2016). Lack of sufficient available water for purification and anal cleansing after defecation (Coffey et al. 2014) and long queues or waiting times in large households can make it difficult for all members to use the toilet (Thys et al. 2015).

¹³ The National FSSM Alliance was established with support from the Bill & Melinda Gates Foundation in 2016 to support safe sanitation at the national, state, and city level. In collaboration with MoHUA and the Department of Drinking Water and Sanitation, it was instrumental in the passage of India's first national policy on FSSM in 2017.

In addition, the perceived small size of toilet pits, a preference for deep pits, a poorly functioning sanitation supply chain, and a complex toilet incentive disbursement method are all likely to discourage economically poor households from acquiring and using toilets (Novotný et al. 2018; Singh, 2007). However, providing financial support for maintenance and using local masons to carry out repairs may encourage sustained toilet use (Orgill-Meyer et al. 2019).

These issues are further compounded in urban areas, where sanitation infrastructure is limited and often fails to meet basic standards of maintenance. This is due to a lack of institutional oversight owing to limited financial and human resources (Sridhar and Reddy 2010; Armand et al. 2020; Bharat et al. 2020).

The engagement of collectives in livelihood opportunities has the potential to improve socioeconomic conditions, increase labor force participation among both women and men, improve access to credit, and build capacities and skills among poor populations – enabling them to establish gainful and sustainable livelihoods. It is also ideal in the efficient delivery of convergent schemes, including social safety nets (Kochar et al. 2020; Brody et al. 2016; Desai and Joshi 2013; Reddy and Manak 2005; Kumar et al. 2019; Barooah et al. 2020; Vutukuru et al. 2017).

The SBM – DAY-NULM convergence guidelines were issued in 2018 to cater to the needs of both programs; while SBM needed skilled operators to manage sanitation systems, NULM was keen to explore alternate livelihood opportunities for its communities (Baradi et al. 2021). Thus, to leverage and support each other, MoHUA introduced the SBM – DAY-NULM guidelines.

1.4 Learning questions

In order to develop an understanding of sanitation livelihoods work and its determinants, we undertook a stakeholder mapping, and reviewed published and grey literature including state TSU project reports and documents on sanitation models, training modules, memorandum of understanding between urban local bodies and urban collectives on roles, payment mechanisms and composition of these groups, if available, and standard operating procedure and contract documents (Annexure 2) of sanitation enterprises across the value chain.

We reviewed policies and guidelines at both national and state levels, including the 2018 SBM-DAY NULM guidelines and the National FSSM guidelines, which detail the implementation framework for the model under MoHUA. These guidelines outline activities in the sanitation value chain that offer potential livelihood opportunity for women, transgender people, PwD, and members of other vulnerable groups.

We also reviewed state government guidelines such as GARIMA (Odisha), the Tamil Nadu Urban Sanitation Support Program framework, the Tamil Nadu Sanitation Strategy guidelines, technical briefs developed by the Tamil Nadu Urban Sanitation Support Program, documents from the Telangana Pattana Pragathi Program and Mission for Elimination of Poverty in Municipal Areas (MEPMA), the SBM (Urban) gender-responsive guidelines, and Swachh Sarvekshan reports. A detailed list of policies and guidelines reviewed for this study is presented in Annexure 3. Thus, following the literature review and discussions with the Bill & Melinda Gates Foundation and TSU partners, we refined

the learning questions as follows:

1. What is the current status of implementation of the SBM – DAY-NULM framework involving urban collectives in sanitation enterprises in the three identified states?
2. Do the urban collectives have the requisite knowledge and skills (financial, business, technical capacities) to perform sanitation work and the agency to negotiate contracts and payments with ULBs according to the convergence framework?
3. What are the experiences of these urban collectives in delivering sanitation services?
4. What is the demand for these services and the perception of the community towards sanitation livelihoods work carried out by urban collectives?
5. To ensure sustained performance of successful models, what program and institutional level changes and mechanisms are needed?

1.5 Learning framework

We organized the learning questions into thematic domains to detail, refine, and map the questions to relevant stakeholders. The questions were aggregated into a learning framework, and two key conceptual frameworks were used to categorize them into thematic domains. The first framework, based on implementation research by Peters and colleagues (2013), helps us to systematically identify and document the implementation process, including barriers and facilitators, and factors affecting implementation and take-up of the intervention.

Given the nature of the sanitation enterprises, the study would be incomplete without delving into how participation affects social norms regarding gender roles and responsibilities. We have incorporated the gender analysis framework developed by Jhpiego (2016) to categorize the learning questions around key domains such as access to assets, beliefs and perceptions, participation and practices, and institutional laws and policies.

The learning framework explores the following themes: (1) appropriateness (perceived fit or relevance of the intervention); (2) feasibility (extent to which an intervention can be carried out in a particular setting); (3) fidelity (degree to which implementation is in line with design and intent, which includes identifying barriers and facilitators that inhibit or enable participation in an intervention, or gains to be achieved from such participation); (4) acceptability and adoption (perception among stakeholders that an intervention is agreeable and the intention, and the initial action to employ a new intervention); and (5) sustainability (the extent to which an intervention is maintained).

This framework served as a conceptual map for planning data collection and later organizing the study findings and lessons. An overview of reviewed frameworks is presented in Annexure 4. Table 3, below, provides a snapshot of the themes, subthemes, and areas of inquiry.

Table 3: Sanitation-linked livelihoods: learning framework

Themes	Meaning	Subthemes	Areas of Inquiry
Appropriateness and feasibility	The extent to which the collective-led sanitation enterprise can be successfully carried out within a given context	Program and policy guidelines	Scope of sanitation enterprise in the state sanitation strategy Convergence framework (NULM and SBM-Urban) Sanitation livelihoods options promoted in the district/state Other competing interventions References to gender
		Sanitation ecosystem	Sanitation livelihoods stakeholders Models of sanitation livelihoods
		Socio-cultural factors	Profile of members Inclusiveness in composition of urban collectives Perceived risks and vulnerability Gender norms
		Urban collective model	Governance structure of urban collectives Roles and responsibilities of members Financial literacy and management skills
		Sanitation-linked livelihoods model	Incentives (monetary, non-monetary) Urban collective's preparedness Support mechanisms and care to ensure safety, health, and well-being Enterprise promotion and marketing strategies Recruitment strategies Management and funding
		Implementation strategies	Registration process Available financial mechanisms Power dynamics among members and between ULBs and urban collectives Representation of women in decision-making Training and monitoring
Fidelity	The degree to which the implementation of the collective-led sanitation enterprise is in line with its design and intent. Includes identifying the barriers and facilitators that enable or inhibit the engagement of collectives in sanitation enterprise.	O&M	Implementation strategies and experiences Implications of contextual factors such as COVID-19
		Revenue and income	Implementation cost Monthly revenue earned Profit made per month Payment timelines

Themes	Meaning	Subthemes	Areas of Inquiry
Acceptability and adoption	The perception among stakeholders that the collective-led sanitation enterprise is satisfactory, and the intention to uptake the intervention amongst different stakeholders	Satisfaction with and uptake of intervention	<p>Urban collective's ecosystem environment (political, social)</p> <p>Perceptions of members of sanitation livelihoods</p> <p>Community and user perspective on services and enterprise models</p> <p>Childcare facilities</p> <p>Gender norms (GBV, discriminatory practices)</p> <p>Social norms (perception of others, perceptions of members)</p> <p>Demand for services (of lack thereof)</p> <p>Infrastructure (adequate/ Inadequate)</p> <p>Other attractive employment opportunities or enterprise models for collectives</p> <p>Traditional practices and existing established systems in the community</p> <p>Fidelity of implementation (contracting, operationalization, and management)</p>
Sustainability	The extent to which the collective-led sanitation enterprise can continue to be implemented over a period for long-term impact and potential scale-up	Sustainability without TSU support	<p>Ecosystem actor capacity and willingness</p> <p>Institutional strength of urban collectives and its comparative advantage over private services</p> <p>Gender sensitivity in service provision (respect and care for members)</p> <p>Normative changes in favor of sanitation enterprises</p> <p>Comparative advantage over other services</p> <p>Response to services received</p> <p>Innovations on ensuring financial and human resource sustainability</p> <p>Financial mechanisms in place</p> <p>Feedback received and response to it</p> <p>Service fees and comparison with other similar services in the community</p>
		Financial sustainability	<p>Reinvestments, if any</p> <p>Profile and proportion of the target population benefiting from the enterprise</p> <p>Innovative, profitable sanitation models</p>

2. Data collection methods

2.1 Tools development

Based on the study objectives and the learning framework, semi-structured interview guides were prepared for different respondents. These respondents were identified through conversations with the state TSUs. Respondents included implementers, beneficiaries, and different actors in the sanitation value chain in each state. Interview and focus groups discussion (FGD) guides (Annexure 5) were prepared through an in-depth literature review of academic articles, newspaper articles and reports, and government reports, policy, and guideline documents.

To refine the tools, inputs were obtained through discussions with TSUs and implementing organizations working in the field of sanitation and FSSM in Odisha, Tamil Nadu, and Telangana. A CT/PT checklist was also developed by Administrative Staff College of India (ASCI) (Annexure 6) to note observations in all three states. The data collection tools were first developed in English and then translated into Tamil, Telugu, and Odia, and back again into English to ensure accuracy. The tools were piloted in one city within each state.

2.2 Training

An online orientation for field researchers was organized, followed by a three-day workshop held at the 3ie office in New Delhi. A fieldwork guideline was developed by the 3ie team, which described in detail the protocol to be followed in the field by researchers, including COVID-19-appropriate behavior. The field researchers were provided with the interview and FGD guides, audio devices for recording interactions, and a report template in which they were asked to record their observations and field insights after completing the fieldwork.

2.3 Study location and participant recruitment

Respondents from the select stakeholder categories (identified through the stakeholder mapping exercise) were selected through purposive sampling and a snowballing technique, based on their role in the sanitation livelihoods value chain and key areas of enquiry of the learning study. A list of respondents was created by the researcher in each state with the help of the TSU field team.

The TSU members used their rapport with respondents to facilitate conversations between them and the field researcher. However, if during the fieldwork the field researcher felt the need to interview members not mentioned in the list, they would discuss it with the TSU member and the 3ie team; if there was consensus, they would include these names in the interview list. We followed a saturation approach to understand the sanitation livelihood models in-depth and capture diverse perspectives.

Interviews were conducted with the following categories of respondents:

- ULB officials in Odisha, Tamil Nadu, and Telangana
- Members of urban collectives including women members participating in sanitation enterprises, women not participating in sanitation enterprises, transgender people, and other collectives

- Members of federated structures that include members of area-level federations (ALFs), city-level federations, and town-level federations
- Spouses of urban collective members
- Community gatekeepers and influential people in the community
- Community members who use the services, including adolescent girls, women, gatekeepers, spouses and family members of collective members
- Other service providers (e.g. private)
- TSU members
- Representatives from resource organizations supporting sanitation work

Our objective sample for each city in Tamil Nadu and Telangana was 50 interviews and FGDs. However, in Odisha, we decided to conduct 60 interviews and FGDs for each city, since the study included research of CT/PT as well as FSTP and SWM models. Each interview or discussion was approximately 45 to 60 minutes, depending on the availability of interviewees. However, in most places, the number of interviews was slightly less than the target, as sample saturation was achieved earlier.

2.4 Data collection process

We conducted in-depth interviews (IDIs) and FGDs with various respondents (as mentioned above), while adhering to COVID-19 safety protocols (face masks, sanitizer, maintaining adequate physical distancing, and adhering to 3ie's travel guidelines for staff and consultants during and in the post-COVID era) (Annexure 7).

FGDs were conducted with 5–6 members in order to abide by COVID-19 protocols and ensure insightful discussion. Before conducting each interview, the purpose of research was explained, and informed consent was obtained from the respondents. All data were captured in handwritten notes, and interviews were recorded on a voice recorder after obtaining informed consent from the respondents; these were later transcribed verbatim in order to describe and analyze the content of the interviews and discussions. Observations made during transect walks, household interviews, and toilet observations were noted for analysis. All data were de-identified and kept confidential. The detailed fieldwork protocol is provided in Annexure 8.

2.5 Challenges during fieldwork

This research was conducted during the COVID-19 pandemic. This posed challenges in conducting fieldwork – particularly qualitative fieldwork, which requires face to face interaction with respondents to build rapport and perform observations that are an intrinsic part of the research process. This study faced several challenges, including two waves of COVID-19 (May 2021 and January 2022), with lockdowns imposed across many parts of the country, including study sites. This impeded travel and gaining permission to conduct research. The health of many team members was also affected during the pandemic.

These factors caused delays in implementation of the research. Other challenges included a cyclone and incessant flooding in states and locations where fieldwork was to be conducted. ULB elections in Tamil Nadu and Odisha also caused delays in the research process. To mitigate these circumstances, the research team considered online data collection using phone and web applications. However, this proved difficult as many

respondents belonged to marginalized communities where access to telephone and internet is a challenge.

These challenges, and the strategies deployed to continue the research process, offer learning opportunities for conducting research in unprecedented times. To ensure the well-being of both field researchers and respondents, the COVID-19 situation was closely monitored, and fieldwork was undertaken intermittently and during the time window with fewest possible risks. Researchers were provided with masks and sanitizer for themselves as well as the respondent. Interviews were conducted in the open air with proper physical distancing.

However, these circumstances delayed the research process and led to a high attrition of field consultants. An important lesson gained from this was the importance of not only building resilience in research methods, but also preparing the research and project team for impending delays and determining how to effectively use the time (Rahman 2021). It can be useful to restrict in-person interviews to those respondents without access to telephone or internet. Other respondents such as TSU members and members of research organizations can be interviewed through online platforms to reduce researchers' time in the field, and to speed up the research process.

2.6 Analysis

This study has adapted the framework analysis methods to analyze qualitative data (Gale et al. 2013). This method was found suitable as it is systematic, allows one to recognize commonalities and differences in qualitative data, and helps to identify relationships between different parts of the data. The coding framework used to analyze the data was created in line with the learning framework. Interview transcripts from all three states were piloted on the coding framework in NVivo® to finalize the subcodes.

The qualitative data analysis proceeded in four steps, outlined below:

Step 1: Transcription: Audio recordings of the interviews and FGDs were transcribed verbatim by a transcriber.

Step 2: Familiarization: Field notes with the researcher's observations and reflections, along with the transcripts, were used in the familiarization process. Researchers were asked to submit a report after every field visit in which they noted their observations, key learnings, and reflections from the field.

Step 3: Coding and indexing A coding framework was created based on the learning questions and tools designed. Interview transcripts from across the three states were piloted to see if the coding framework is congruent to capture the insights generated from the field. Based on these pilots and subsequent discussions, the coding framework was further refined and finalized. The team was provided with training to code the interview transcripts in NVivo® using the framework (Annexure 9).

Step 4: Interpreting: Original field notes, observations, and computer files were used to explore emergent ideas and concepts. Discussions were held with data collectors and supervisors to identify data characteristics, mapping connections between various categories to explore relationships. Preliminary presentations were made to TSUs across

the three states to share insights generated from the field and our interpretation of the data. This helped to clarify gaps in the research process, especially from an implementer's perspective.

2.7 Ethics

Ethical approval for all components of the research was obtained from the Catalyst Foundation Institutional Ethics Committee (Annexure 10). Study participants provided informed verbal consent prior to any data collection. The consent used during the verbal consent is provided in Annexure 11. All participants (18 years and above) were informed about the purpose of the study and were provided information on the study in the local language (i.e., Tamil, Odia, and Telugu).

Participants in Telangana were incentivized with an amount of Rs.300 per interview or FGD based on the TSU partner's recommendation. Participants were informed that all records and data will be kept confidential and that no identifiers will be shared with anyone. All members of the research team completed training in research ethics.

3. Results

In this section, we present state-specific results and insights from the learning study on sanitation-linked livelihoods. These insights are organized into subsections according to the learning framework categories, which present the perspectives and views of key stakeholders. We begin by providing an overview of the sanitation context in cities, including the stakeholder ecosystem and models of sanitation enterprises.

In the subsections on findings, we present respondent characteristics followed by insights on appropriateness, where we provide data on member profiles, the contracting process, capacity-building efforts, and monitoring mechanisms. In the subsection on appropriateness and feasibility, we discuss the processes of contracting, training, and monitoring sanitation facilities.

Under fidelity, we present the challenges and facilitators to O&M, implications and challenges due to COVID-19, and revenue and income of sanitation facilities. Under acceptance and adoption, we present provider and community perspectives on the perceived value of sanitation work, its likely impact on people's lives, and challenges faced in delivering services. This is followed by lessons on the sustainability of collective-led sanitation enterprises. All findings are consolidated to draw inferences regarding potential sustainability of sanitation work in the respective states.

3.1 Odisha

3.1.1 Background

Over the years, the Odisha government has promoted the engagement of urban collectives – including SHGs comprising women, transgender people, PwD, and other vulnerable communities from marginalized sections of society – to take up sanitation livelihoods. This effort seeks to promote income generation in resource-poor urban settings, and also to encourage gender inclusion in livelihoods enterprises. In order to engage and motivate households to adopt good sanitation practices and greater community ownership, the government continues to integrate its efforts with a vast

network of grassroot-level and community-based organizations established under the NULM and the National Urban Health Mission.

In 2016, Odisha's Housing and Urban Development Department (the nodal department for urban sanitation) initiated efforts to decentralize FSSM, as a centralized sewer network would involve high capital investment and O&M costs. In 2018, following a national FSSM workshop held in Bhubaneswar, six septage treatment plants (SeTPs) were inaugurated on a pilot basis in six cities of the state: Berhampur, Bhubaneswar, Dhenkanal, Puri, Rourkela, and Sambalpur. This was followed by the commissioning of SeTPs in 2019 in four more cities.

With the rapid expansion of SeTPs, it became imperative that this new infrastructure was well-managed and efficiently run. ULBs were constrained by a limited availability of suitable private agencies to run and manage their infrastructure. They adopted a low-technology model for sanitation infrastructure built in Odisha, whereby maintenance and upkeep could potentially be outsourced to semi-skilled workers without the need for technical resources.

As Odisha already had a pool of 35,000 urban collectives of women under the Mission Shakti program,¹⁴ after deliberations the Odisha Housing and Urban Development Department transferred the task to SHGs. Considerations for this transfer included cost-optimization, the opportunity to address gender disparity, and the objective of making infrastructure O&M sustainable in the long term (Ernst & Young 2020). Since 2018, women's SHGs in Berhampur have been engaged in building sanitary toilets for safe containment of fecal waste, promoting mechanized emptying of septic tanks, O&M of SeTPs, and reuse of treated sludge.

In Odisha, urban collectives are involved in facilitating the construction of toilets, CT/PT O&M, operation of FSTPs and SeTPs, municipal SWM, and community engagement for improved and sustained sanitation practices and provision of sanitary products through micro-outlets. As aforementioned, unlike Telangana and Tamil Nadu, in Odisha three sanitation models were explored as a part of this study: SWM, FSTPs, SeTPs and CT/PTs.

In response to the uncertainty of livelihoods among the urban poor due to the COVID-19 pandemic, the Odisha government launched an urban public works initiative –the Urban Wage Employment Initiative – in April 2020 across the 114 ULBs. Its aim was to create speedy and mass employment opportunities for urban poor populations, including informal and migrant laborers, rendered unemployed and vulnerable in the face of the pandemic.

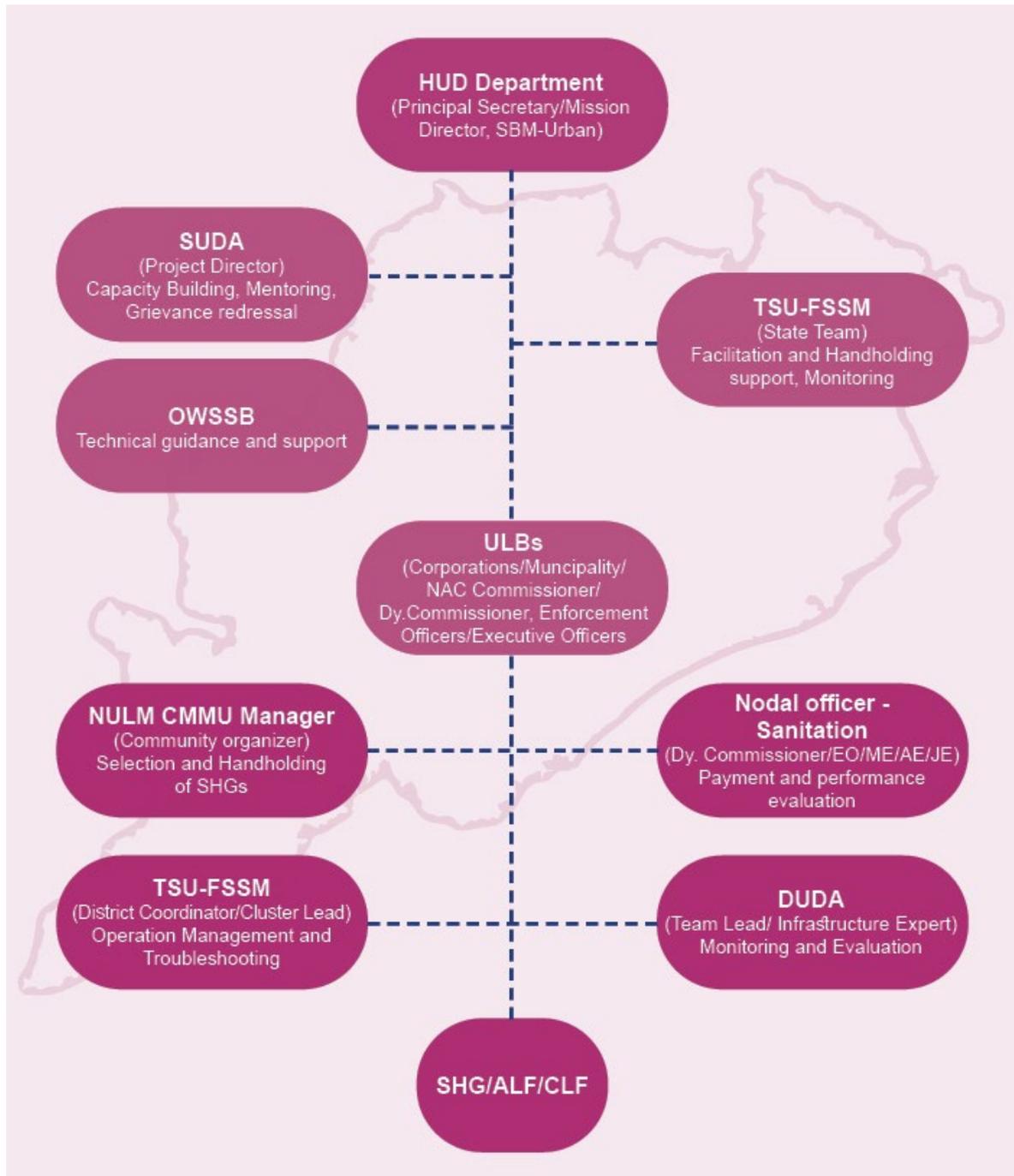
This program was converted into a state-sponsored scheme called Mukhya Mantri Karma Tatpara Abhiyan, which not only aims to provide sustainable livelihood opportunities including sanitation to the urban poor, but also aims to maintain ecological, sustainable,

¹⁴ Mission Shakti is the self-help mission to empower women by encouraging women's SHGs to take up various socioeconomic activities, which was launched in the state on 8 March 2001 on the eve of International Women's Day. Mission Shakti has the clear objective of empowering women through gainful activities by providing credit and market linkages. Empowering women through women's SHGs under Mission Shakti is a flagship program of the government. More information is available at: <<https://missionshakti.odisha.gov.in/about-us/about-department>>.

and climate-resilient community assets, which are critical to ensure inclusive and equitable development.

In September 2020, the state government launched GARIMA, a scheme aiming to secure the safety and dignity of core sanitation workers dealing with fecal matter in toilets, septic tanks, sewers, and FSTPs. A key focus of this scheme is to facilitate and regulate safe working conditions, social security benefits, and other measures for sanitation workers and their dependents.

Figure 2: Sanitation ecosystem in Odisha



3.1.2 Sanitation ecosystem

The sanitation ecosystem in Odisha includes government departments, TSUs led by development partners, non-governmental agencies, resource organizations (Ernst & Young and Urban Management Centre, Asia), ULBs, and urban collectives (Figure 2).

3.1.3 Sanitation enterprise models

In the past decade, Odisha has launched several government initiatives and schemes which leverage the involvement of urban collectives to strengthen the sanitation value chain, and in turn provide empowerment and income generation opportunities to marginalized and vulnerable communities. Below is an overview of the sanitation enterprise models that have evolved in Odisha in the last few years.

Fecal sludge and septage management (FSSM)

Odisha pioneered the country's work around fecal sludge management, which entails the storage, collection, transport, treatment, and safe end use or disposal of fecal sludge. By scaling up this effort, opportunities were created to engage community-based organizations across the fecal sludge management value chain. In 2015, the enterprise was initiated with consideration of the ease of construction, low capital cost, and low-skill maintenance required. Fecal sludge management in Odisha spans the value chain, focusing on infrastructure strengthening, demand-generation through capacity building, formulation and implementation of regulations, monitoring and evaluation systems, strengthening delivery of services, and ensuring financial sustainability.

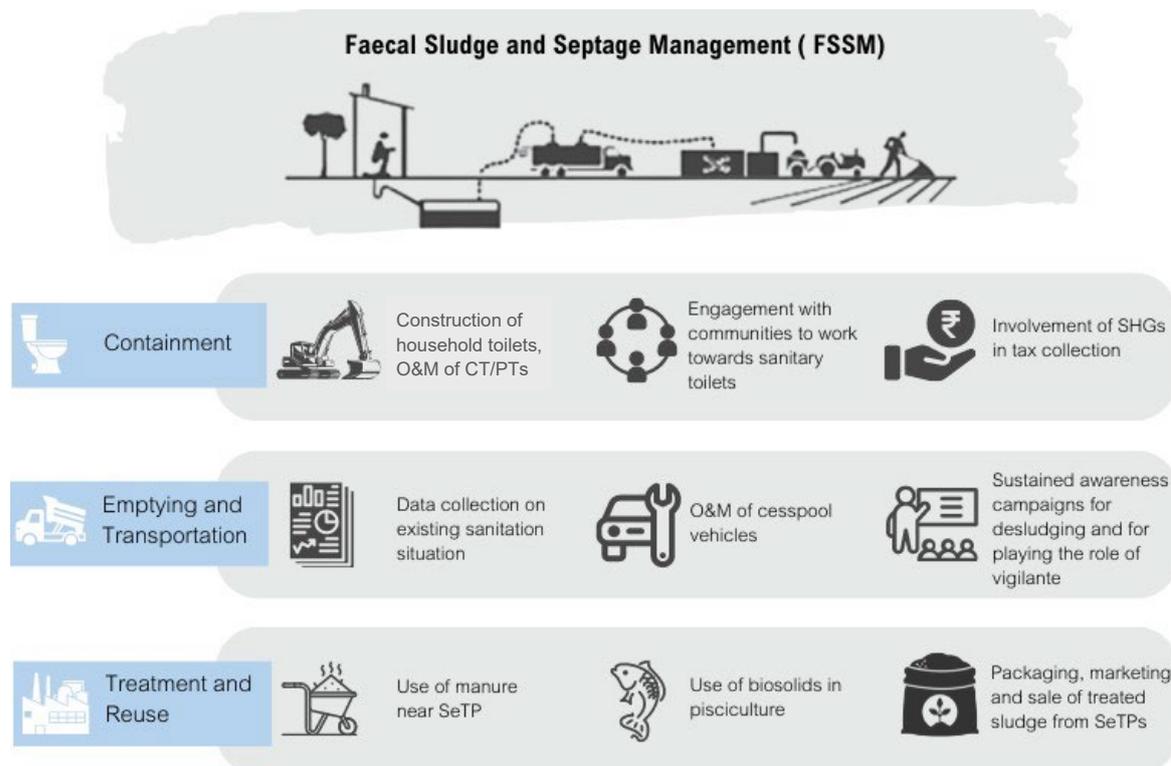
The Housing and Urban Development Department engages urban collectives in sanitation work across ULBs in the state. As a first in India, FSTP O&M was transferred to collectives of women and transgender people and their federations in ten cities of Odisha. This engagement disrupts stereotypes around women's involvement in handling physical and mechanical work at treatment plants.

To empower sanitary workers in Bhadrak and Cuttack districts, the state TSU has engaged male sanitary workers to provide mechanized desludging services in the towns and their adjoining areas. In Berhampur, women-led collectives are involved in demand-generation for mechanized desludging, which has resulted in improved desludging practices among communities and households.

Safaimitras (sanitation workers) engaged in sanitation livelihoods in Berhampur Municipal Corporation (BMC) were provided with loans under the Scheme for Rehabilitation of Manual Scavengers. Under this scheme, ULBs provided seven years of work assurance letters to potential *safaimitras* to procure equipment and vehicles required for mechanized cleaning.

Odisha has achieved full FSSM coverage of its urban population (i.e., one FSTP per ULB). As of 2021, Odisha had 57 fully operational SeTPs and 61 in various stages of construction (Singh 2021). The O&M of these facilities determines their performance, and thus has an impact on the sanitation value chain. The Odisha government has developed a standard operating procedure on O&M-related activities to facilitate routine and oversee critical tasks of the fecal sludge treatment infrastructure.

Figure 3: Fecal sludge and septage management process



Source: Ernst & Young 2020

Community toilets and public toilets

In Odisha, CT/PTs are managed by collectives (contracted by ULBs) as well as private agencies (through the public-private partnership model). Community toilets are managed by SHGs in their respective wards, and cater to the community in the vicinity of the toilet. Public toilets, or toilets-cum-bath complexes, are usually constructed by the municipal corporation, and O&M is outsourced to a private organization such as Sulabh Sauchalay (Sulabh International). The former does not charge user fees, while the latter charges a nominal fee.

Municipal solid waste management

The government of Odisha has mandated ULBs to manage municipal solid waste efficiently in order to provide better sanitation services including hygienic conditions, a better environment, and improved economic prosperity. As part of this effort, ULBs engage *swachh sathis* (*sanitation workers*) at the community level for door to door waste collection and segregation. Engaging *sathis* aims to create awareness among communities and other key stakeholders in the sanitation ecosystem. Table 4 represents the different sanitation models in Odisha.

Table 4: Sanitation models in Berhampur and Dhenkanal

Model	Management type	O&M	Revenue/income	Usage fee
Community toilet / public toilet	Managed by collectives	Collective members or sanitation workers hired by the collective	The ULB pays Rs.1,000–1,500 per seat per month as compensation to the collective	Free use
FSTP	Managed by ALF and assigned to SHG members	Collective members supervised by executive members of ALF	The ULB pays cost of human resources (Rs.8,000 per worker per month)	NA
SWM wealth center (MCC and MRF)	Managed by ALF and assigned to SHG members	Collective members supervised by executive members of ALF	The ULB pays cost of human resources (Rs.8,000 per worker per month)	NA
Community toilet / public toilet	Public-private partnership – private-contractor managed	Caretaker and cleaner deployed by contractor	Revenue is generated through collection of user fees	Pay per use

Note: MCC and MRF = micro composting centers and material recovery facilities.

3.1.4 Overview of cities

Berhampur

Berhampur lies in the district of Ganjam, Odisha, and has a population of nearly 400,000 people (Chandramouli *et al* 2011). Historically, the city does not have an underground sewer system, and toilets are connected to septic tanks. Many families in Berhampur, including those living in slums, did not have access to toilets, and it was estimated that over 25 per cent of the city’s population resorted to open defecation, which affected the population’s hygiene and sanitation (Ernst & Young 2020).

As previously mentioned, in 2018, following a national FSSM workshop held in Bhubaneswar, SeTPs were inaugurated on a pilot basis in six major cities of the state, including one in Berhampur. In the absence of suitable private operators for the O&M of sanitation infrastructures, the ULB in Berhampur made a ground-breaking move toward women’s empowerment and inclusive sanitation by handing over SeTP O&M to SHGs in the state.

In Berhampur, community toilets are located in residential spaces and managed by collectives. Public toilets, however, are placed in strategic, high footfall public places like bus stops, railway stations, and parks, and are managed by Sulabh International under the public-private partnership model.

Dhenkanal

Sanitation activities in Dhenkanal were historically managed by the ULB through various small contractual workers, daily wage laborers, and small private vehicle operators. These groups included men from marginalized socioeconomic groups traditionally engaged in these occupations.

The town had no proper infrastructure for waste collection and treatment. Residents dumped solid waste generated in a municipality into a designated area, or sometimes in open or empty spaces and drains. This waste was occasionally collected by the ULB-contracted vehicle operator (with no specific frequency). Liquid waste (septage) was usually collected by small private operators and dumped into pits outside of town, which made the surrounding land and underground water system vulnerable to contamination.

Since the end of 2018 and the beginning of 2019, this system has been disrupted by combined efforts of various private and public organizations. This pioneering effort, alongside policies of the urban municipality, has led women to take charge of the O&M of waste collection and processing centers (wealth centers), SeTPs, and CT/PT infrastructure. In addition, they charge user fees and perform daily collection of dry and wet waste from the community.

Dhenkanal has three basic sanitation-linked hardware models. First, wealth centers comprise the material recovery facility and micro composting centers that deal with the city's SWM. Second, the FSTP deals with the fecal sludge from the city and some neighboring *panchayats* (councils). And third, CT/PT facilities are managed by collectives; none are managed by private operators in Dhenkanal, and the ULB has been running these facilities since the beginning.

Table 5 below provides a comparison of types of collectives managing the facilities, socioeconomic distribution of groups, and income across different models in Dhenkanal.

Table 5: Comparison of the three sanitation models in Dhenkanal

	Solid waste management	Septage management	CT/PT
Managing group	ALF/SHGs	ALF-contracted SHG	Men's groups (three in number)
Caste-wise distribution of the groups	Mixed-caste group, people from all castes involved	Mixed-caste group, people from all caste involved	Cleaners of the toilets are usually from lower castes and scheduled castes or Mehtar communities. Collectives who take up the work have members from various castes
Socioeconomic distribution of the groups	Mixed-caste group, some members are below the poverty line, while some are from middle class	Mixed-caste group, some members are below the poverty line, some are from middle class	All members are below the poverty line; they must carry out multiple low-skilled (and usually hereditary) work, such as sweeping, for sustenance
Income within the group	As per contract. Plant workers: Rs.8,000; battery-operated vehicle drivers and <i>swachh sathis</i> Rs.6,000	As per contract	Rs.1,000–1,500 per toilet seat provided by the ULB; this includes routine O&M cost

	Solid waste management	Septage management	CT/PT
Social capital	Some members constitute the ALF, strong social capital	Some members constitute the ALF, strong social capital	Members belong to Mehtar caste
Stigmatization due to work	Some stigmatization felt by members, especially if they are higher caste and work in solid waste segregation work in the plants	Some stigmatization felt by members	Hereditary work, accustomed to stigma if it exists
Satisfaction at work	Trained and accustomed to the work, want an increase in wages and other facilities such as insurance	Trained and accustomed to the work, want an increase in wages and other facilities such as insurance	Had payment issues regularly, not very satisfied with lower wages and delayed payments
Relationship with ULB	Good; attend regular meetings, interact with ULB often	Good; attend regular meetings, interact with ULB often	Good, members attend meetings with ULB regularly and interact with officials often

3.1.5 Sample

We conducted IDIs, FGDs, and unstructured observations with respondents listed in Table 6.

Table 6: Data collection in Odisha

Respondent	Data collection method	Dhenkanal	Berhampur
Sanitation collective member	IDI	12	12
Sanitation collective member	FGD	8	7
Non-sanitation collective member	FGD	2	5
ULB officials	IDI	7	4
TSU members	IDI	6	2
Spouse of collective member	IDI	6	6
Office bearers in sanitation collective	IDI	8	9
Community gatekeepers	IDI	3	2
CT/PT observations	Checklist observation	4	20
Total		56	67

3.1.6 Findings

Appropriateness and feasibility

Contracting

The study found that the most common factors seen to engage collectives in sanitation-related activities was proximity to sanitation enterprises and inclination of collective members to undertake work – although contracts stipulated certain measures such as organizational capacity, financial management capacity, and entrepreneurial skills. At the end of 2018, ULBs in Odisha began engaging community-based organizations in O&M of SeTPs and community toilets.

Contracts are usually issued for one year and renewed on an annual basis, based on the performance of the collective in their O&M of the sanitation facilities. As far as community

toilets are concerned, one SHG in Berhampur is usually in charge of managing one or two. The contract for the area's lone SeTP is with the cluster-level federation. Key criteria for contracting sanitation facilities to the collectives are as follows:

- Organizational capacity: Measure of the ability to function collectively in an organized and systematic manner.
- Financial management: Proficiency in financial management and knowledge on savings and credit.
- Active involvement: The way in which workers function in groups, discuss issues of common interest, work toward a cause, and the extent to which they are aware of social issues. It is expected that SHGs have moved beyond savings and lending and are actively engaged in social and development activities.
- Entrepreneurial activities: Members' entrepreneurial skills, experience, and activities. They should fulfil certain essential criteria such as ability to formulate business development plans and establish market linkages.
- Networking within communities/ULBs: Evidence of a strong network within the community and with formal institutions like municipalities, corporations, It is also desirable for SHGs to have a clear mission and vision for their activities.

Despite this selection criteria, many respondents explained that collective members who lived in close proximity to the sanitation facility were given preference. This is an important criterion, as women generally feel less safe when travelling long distances from their home for work. They asserted that safety and dignity should not exist solely inside the work premises, but also in travelling to and from the workplace.

Interestingly, this is an area of concern not only for members of the collective, but also for their families, including husbands. Other than proximity, the principals of *panchasutra* also applied (parameters on group functionality such as regular meetings, regular savings, regular interloaning; timely repayment of loans, and maintenance of financial records).

Furthermore, during the initial days of the sanitation-linked livelihoods program in Dhenkanal, its focus was on the inclusion of women's groups. However, within a couple of years, and after the women's collectives attained maturity, the ULB has been focused on inclusion of marginalized and vulnerable groups (in addition to women's collectives) such as the waste picker groups, leprosy-affected communities, transgender people, and PwD.

Following sustained efforts of the ULB and TSU (Urban Management Centre), some members of the waste pickers group and transgender people joined sanitation enterprises. Efforts are underway to include more members of these two groups and to make a breakthrough in the leprosy community, whereas avenues of engagement among disabled people is being thought through by the ULBs and TSU.

I have been talking to the leprosy society for four months now; it is interesting how they are responding, I hope soon we will see at least 2–3 members of their group join the wealth center in next 1–2 months. – Community influencer engaged by the ULB to work with leprosy affected persons, Dhenkanal

Training

Regular trainings in key areas and refresher trainings in Berhampur and Dhenkanal have ensured that collective members are able to undertake tasks independently. However,

there was high demand for more training – both from SHG members and some ULB staff, as they perceive some skill gaps. Provisions for further training after a training needs assessment should be implemented.

The TSU partner and the ULB provide training to collective members and *swachh saathis* on the maintenance of facilities – including cleaning schedules and materials, types of personal protective equipment (PPE) kits and their usage, timings of the facility, payment methods, and documentation and recordkeeping required for processing payments. The drivers of FSTP trucks are also trained in driving for 15 days in Odiya, with a focus on audio-visual and hands-on training. The modules are developed by the TSU, and the training duration is usually between 15–30 days.

Collective members who manage FSTPs receive initial training as well as refresher training on new techniques in O&M, and bookkeeping and record maintenance is provided every six months. Towards the end of the training, participants manage the plant for almost a week to ten days, and are assessed on their performance. After completion, there is a complete hand-over process from ULB to the collective.

Training was also provided on the newly launched SUJOG® app (Sustainable Urban Services in a Jiffy)¹⁵ by the Odisha government. The app was developed by the state's Housing and Urban Development Department with the aim of providing e-services across ULBs in the state.

Demand-specific trainings are also provided to collectives. As the TSU partner from Ernst & Young said, “When they expressed their needs that they need to be trained on aspects of tax filing, record keeping, etcetera, we provided that. One of our achievements is that our SHGs bring their bills, file their requisition, reimbursement claims done by themselves, pay electricity bills by themselves. Even they are filing income tax. So, this independence we consider our achievement.” Urban Management Centre (Asia) also said that they plan to train collective members across the sanitation value chain to open livelihood opportunities.

It was observed that collective members were not fully aware of key training topics, who provided the training, and the duration of training. While some members reported the training duration as 15 days, others reported it as 1–3 months. Some also indicated an interest in receiving training on innovative enterprise, along with supply and demand-side market linkages.

In Dhenkanal, a positive learning environment prevails at the ULB, where officials such as the municipal engineer, sanitation head, sanitation inspectors, and community mobilizers are readily available to collective members whenever required. This positive learning environment is also strongly supported by TSUs such as Urban Management Centre and Ernst & Young. Materials and logistics are made available by the ULB whenever needed. The ULB is supportive of collective members if they face any logistical challenges in carrying out their duties. For example, some are given bicycles as they have difficulty commuting from their homes, which are far from the wealth centers.

¹⁵ <https://sujog.odisha.gov.in/home>

Monitoring

Monitoring mechanisms are quite robust in both Berhampur and Dhenkanal. Monitoring is performed through various mechanisms and forums such as field visits, meetings, and WhatsApp® groups.

In Berhampur, the city-level federation representative mentioned that after transferring a plant to the collective, it was imperative to closely monitor the operational activities as per standards to identify any initial problems. This activity was performed jointly by the ULB and Housing and Urban Development Department representatives, TSU members, and the NULM program team. Bi-monthly review meetings were regularly organized to ensure proper functioning of the SeTP and for redressal of urban collectives' concerns.

In Dhenkanal, the municipality has made it mandatory to conduct a monthly meeting (usually held on the twentieth of each month) including all stakeholders involved in sanitation livelihood activities within the town. Participants include all relevant ULB officials and staff accountable to the municipal corporation, including the executive officer (EO), sanitation head, municipality engineer, community mobilizers, sanitation inspectors, brand ambassadors, relevant collective members and leaders, and ward corporators (elected representatives of the ward). The meeting provides an important forum to discuss, debate and improve upon activities under the sanitation-linked livelihood initiative. It is also viewed as a regular monitoring, evaluation, and grievance-redressal platform.

Apart from the formal arrangements within the meeting, regular field visits are carried out by ULB officials, especially sanitation inspectors, community mobilizers and the municipality engineer, who monitor the O&M of the facilities.

Fidelity

Operations and maintenance

While regular O&M is carried out by the collectives, and their processes are largely streamlined, challenges occur with regard to major repairs which rely on ULBs and are usually met with bureaucratic delays. CT/PTs are managed by women's collective-led groups. Generally, they manage O&M of CT/PTs in their vicinity (ward). Although the ULB carries out major repairs and helps in major maintenance expenditures (such as a pump failure), the day to day operations and small expenses of maintenance are managed by the collective members themselves. The groups found it financially difficult to do this on a regular basis.

...what should we do, this public toilet is in our ward, and we have to maintain it for our people, though don't know till when we could be able to continue it, let's see...
– Collective member and *swachh sathi* of her ward, Berhampur

In the wealth centers, a formal mechanism for machinery maintenance is yet to be established. This has led to distress and increased work burden among *swachh karmis* (sanitation workers). The ULB has plans to outsource the repair and maintenance of machinery work to the local industrial training Institutes. However, this plan is yet to materialize.

In the sanitation-enterprise infrastructure models (wealth centers and FSTPs), there are clear roles and responsibilities for every associated community member. As such, the roles, responsibilities, duty stations, and duty timings of various groups (battery-operated

vehicle drivers, plant workers, *swachh karmis*, *swachh sathis*, plant operators, cesspool drivers, ALFs, SHGs) have been clearly laid out. This has resulted in clarity among collective members and has also helped them in building their confidence, thereby resulting in fewer conflicts or differences between members.

At the wealth center, all the solid waste collected is segregated and processed. Various machines installed at the wealth centers help collective members to carry out their activities smoothly and safely. However, a proper repair and maintenance system is yet to be established for these machines. Repair work after a breakdown takes a lot of time and therefore poses a challenge at the workplace for collective members.

Revenue and income

Most members engaged in sanitation work valued the regular source of income, especially during the COVID-19 lockdown. While all expenses related to the plant are covered by the ULB, consumables for O&M of the plant are provided by the ULB on a monthly basis to various collectives.

The Odisha Mission's Shakti program provides financial inclusion and access to institutional credit to urban collectives, including transgender-led collectives, in order to promote sustainable livelihoods. These groups have been managing SeTPs since 2020. In each ULB, the selected urban collective and/or federation is trained and provided with service contracts.

Most respondents involved with SeTP in Berhampur agreed that sanitation work has provided them with a stable source of income. The workers from the plant in Berhampur receive a regular salary of Rs.8,000 per month.

We got this opportunity from Berhampur Municipal Corporation. Before these women used to work in shops or work as domestic help where they did not have much independence. Sanitation work is very professional. They work on as per schedule and get pay every month on time. – Sanitation worker, Berhampur

A few respondents reported that during COVID-19, family members lost their jobs; therefore sanitation work offered them a stable source of income in a time of need.

We get salary on a regular basis. Even during the COVID period, the plant was functional, and we were getting paid the full amount...The sanitation work in the plant started two years back, my husband died one year ago. After my husband's death, I started working in the plant because I realized that the earnings I am having from the groups will not be sufficient for my family. So, I decided to work in the plant. This work has been a God's gift for me as I am able to live with dignity and gain income. – SeTP worker, Berhampur

Some of the members of urban collectives who oversee O&M of the community toilet at Berhampur reported that they do not earn an income from it. These urban collectives have hired a sweeper to clean the toilet regularly, and a caretaker whose job is to supervise the cleaner, maintain the toilet every day, and keep a count of the users.

According to the members, the cleaner and the caretaker are paid Rs.6,000 every month. The toilet has seven seats and therefore the group is paid Rs.10,500 per month by the

BMC (Rs.1,500 per seat). After payment to the caretaker and cleaner and procurement of cleaning agents like phenyl, sanitizer, and soap, there is hardly any income for the members every month. Their motivation to engage in sanitation work was altruistic.

We used to stay at home being a lady and then we formed a group where 10 people got together and then we got work and by doing that work we're doing social service. – SHG Member, Berhampur.

In Dhenkanal, the collective members who have been selected, trained, and engaged in various sanitation-linked livelihood activities receive a monthly honorarium of Rs.6,000 per month. For example, the *swachh sathis* and *swachh karmis* who are engaged in either the plants (wealth centers, FSTPs) or the wards (e.g. battery-operated vehicle drivers) universally receive Rs.6,000. Apart from this, collective members' have ease of access to various government schemes through the ULB and the district administration. Also, ALFs with SHG members are eligible for an annual share of 10 per cent of the income generated through the sale of plant-processed products.

In recent times, members have demanded that the monthly honorarium is raised, and the ULB has promised to increase it to Rs.8,000 soon. However, implementation is yet to happen. Additionally, members have demanded other benefits such as health insurance coverage and retirement benefits. Collective members are currently covered under the state government's Biju Swasthya Kalyan Yojana health scheme, but the TSU and the ULB are working towards covering collective members in a more comprehensive health insurance scheme. Income from sanitation activities for the collective members is contributing to overall household income.

My kids now go to the DAV school; earlier they used to manage in a government school. All thanks to my wife and the municipality. – Spouse of a collective member who works as a *swachh sathi*, Dhenkanal

Payment-related issues

ULB payments to some members managing a community toilet were delayed, which proved to be a challenge.

Earlier they used to give us our payment in between the first to fifth of every month. Then it moved to the tenth of every month. Now they give the amount sometime on the fifteenth or seventeenth of every month – Member, maintenance of community toilet, Dhenkanal.

However, it was encouraging to note that there has been an active effort on the part of the ULB and TSUs to address payment delays. According to TSU staff, the payment files of the SHGs initially went through many ULB officials and payments were delayed for months. Recently, as per a circular issued by the Odisha government, an autopayment process has been established to pay salaries to all collectives on the seventh of each month (Annexure 12).

In the case of the lone SeTP in Berhampur, workers explained that they have always received their salaries on time every month, even during the pandemic.

Health and labor rights

Some of the members engaged in sanitation work expressed the need for paid leave, health insurance (as sanitation is a hazardous profession), and a provident fund as important employee benefits. One SeTP worker in Dhenkanal explained, “Sir we do not have any benefits. We came here as laborers, do our work and that’s it. We are not getting any benefits or any money. None of those facilities from the government.”

According to a *swachh sathi*, “Not just us, neither the sanitation workers nor *swachh sathi*, has a day off. Those who are into sanitation, no one has a day off.”

During the pandemic, members engaged in sanitation said their work was not affected due to a huge demand for sanitation services. BMC officials also trained members on COVID-19 safety protocols; in turn, members became actively engaged in awareness-generation in their families and communities. BMC also engaged members in non-sanitation work:

COVID has a good impact on SHGs. The only people doing work during COVID were SHG members and sanitation workers. The BMC had given them trolleys, weighing machines, onions, and potato bags to sell from door to door. –
Community gatekeeper, Berhampur

Members who are responsible for SeTP O&M in Berhampur reported that COVID-19 affected everyone mentally or physically, but since the demand for sanitation and cleanliness increased during this time, their plant was open and they worked regularly and received salary on time: “COVID-19 definitely affected everyone but since the plant was operational, we could earn some money and manage during those days.”

Acceptability and adoption

Over the last few years, there has been wide acceptance of sanitation programs among the people of Berhampur and Dhenkanal. This was confirmed by BMC obtaining the 2021 Swachh Survekshan Award for Innovation and Best Practices. This positive ranking of the corporation was the result of the introduction of a decentralized SWM system, the establishment of the SeTP, the involvement of Mission Shakti women’s SHGs throughout the entire sanitation value chain, the provision of more human resources, a focus on awareness and behavior change, and capacity building of various stakeholders.

Like their counterparts in state administrative headquarters, the political and administrative leadership of Berhampur has consistently advocated to engage women’s collectives in the sanitation value chain. Senior officials and staff at the ULB level, as well as TSU members, have fostered a learning environment willing to provide handholding support for any query collectives may have. One collective member mentioned that the hierarchical boundaries of seniority and designation do not exist in daily interactions with ULB officials.

Nodal officers and sanitation experts are always available to address SHGs’ day to day concerns and issues. The collective member also mentioned nominating a representative from among the SHG members as plant manager to communicate with the nodal officer and other stakeholders. According to one SeTP worker, they receive support and encouragement from all levels of ULB staff – from municipal commissioners at the apex to community organizers and sanitation inspectors at the ground level.

This type of continuous engagement initially set the stage to foster confidence and buy-in from the collectives, paving the way for efficient plant management. A plant worker from Berhampur explained:

After joining the group, all the issues that we have faced were discussed openly with BMC officials. The discussions are participatory, and we don't have pressure from anybody, whatever comes to us we express freely.

In Dhenkanal, wide acceptance for sanitation work was seen among the larger community and family members. The work has gained prominence and respect particularly due to the steady source of income it provided during the COVID-19 lockdown and subsequent loss of livelihood opportunities.

My wife works in the FSTP and comes back and cooks in the house. Sometimes I feel a little uncomfortable thinking about the work she has been doing using the same hands, but I refrain from saying anything. After all, the sanitation work has been a source of steady income and is essential to sustain the household expenses. – Spouse of a collective member

Empowerment of collective members

It was observed that the confidence and self-esteem of collective members increased, thereby increasing willingness to take up more activities outside their homes. A majority of collective members are the first women in their families to take up work outside the home. Although they had initial hesitations when first starting work with the ULB, they are now willing to take up more work and activities if given the opportunity.

Seeing them work and gain more financial stability has encouraged other women from their localities to follow in their footsteps and join sanitation enterprises. This work has boosted the political careers of some collective members, as they join political parties and aspire to become corporators in future. Furthermore, engagement in sanitation enterprises has strengthened SHG and ALF networks. This has resulted in women SHG members taking on social issues and conflicts in their neighborhood and solving them collectively.

Members reported increased out of pocket expenses spent on themselves (predominantly increased frequency of eating out, and personal purchases such as sarees) and their households (children's education, healthcare, clothing). This can be attributed to the fact that women involved in sanitation-linked livelihood enterprises have first-hand ownership of their income.

Acceptance by the community and family

Increasingly, workers have witnessed recognition from their communities, and support and respect from their families, in both Berhampur and Dhenkanal. All caretakers interviewed for the process study reported that despite initial concerns from their family members about engaging in O&M of sanitation enterprises, perceptions have changed gradually, and now the family members encourage them to go out and work.

Initially my neighbors and family members did not like the work we are doing and said that we were not going to a good place to work. We explained to them that we use gloves, masks, and boots to work. Also, we clean ourselves completely after we come back from work. So, there is no harm in working on sanitation. Now

family members encourage [us] to go out and work in sanitation. – Urban collective member, Dhenkanal

Some members recounted compliments received from their neighbors and community members when they learned they are working with BMC. Their income, when complemented with other earnings (social security, honorarium from government), is perceived to be sufficient for expenses related to children's education, acquiring items of sustenance, and covering household expenses.

In certain cases, work performed by collective members has influenced other community members:

When the male members of the community realized that the women are doing good work and getting appreciation, they have joined hands. Instead of complaining, they have started using toilets. We are implementing a health survey of the families and it shows number of families using the toilets have increased in our community. – Community gatekeeper, Berhampur

However, the occupation is not seen as aspirational for children of sanitation workers. They see it as a respectable and stable vocation to integrate themselves into the larger community, and most of their income goes to children's education. Collective members are unsure about their children taking up their roles in sanitation enterprises in the future. However, some collective members want their spouses to engage in similar work with the ULB. Family members of so-called upper caste women generally disapprove of their work in sanitation and see it as temporary until they fulfill their targets (e.g. marriage of a son or daughter, or a child's education).

Many collective members also face discrimination within their extended families. They sometimes face opposition and criticism from distant family members such as in-laws, uncles, and cousins, even though their husbands might still be supportive of their work with the sanitation enterprise. This sometimes creates undue mental harassment for collective members.

Caste and gender

Many respondents said that when they initially started work, there were stigmas and apprehension associated with sanitation work. However, stigmatization in terms of caste was not reported. For example, the O&M of many CT/PTs are managed by a mix of general caste or upper caste women, even though they are not directly engaged in cleaning or maintaining the toilets. The fact that general caste women are willing to engage in the field of sanitation speaks volumes of the achievement of this program in terms of surmounting age-old discrimination and biases.

Additionally, sanitation work is viewed by many in the community as similar to any other respectable profession. The use of masks, PPE kits, and protective waterproof shoes by members engaged in sanitation work has helped to positively change perceptions of communities who earlier associated sanitation with filth and dirt.

The program has been very successful in giving voice and agency to women and enhancing their status both inside and outside the home. One respondent from Dhenkanal explained, "I was in my mother's house when I joined this work and later, I told my husband about it. But he did not oppose my decision."

My earning was not that well before. This job gave me better financial status and also a scope to spread awareness on sanitation among people. – Sanitation collective member, Berhampur

However, women's household responsibilities have remained unchanged, even though their parents or husbands lend a helping hand. Though husbands try to help with household work, most is still carried out by the women themselves. This, in turn, increases the burden of managing two daily activities (inside and outside the home), thereby taking a toll on their sleep and relaxation times.

After I go back home, I see if there is any cleaning to do, if kids have created some mess, I clear that up. Then I teach the kids and after that I take up the kitchen responsibility, that is to clean the kitchen after cooking. There is too much work at home as well. – Sanitation collective member, Dhenkanal

The notion of women leaving their homes and working in sanitation is still not acceptable to many people; most of those who reject women's collective-led enterprises are their own distant family members. There were few instances in Dhenkanal where women have eventually dropped out of sanitation work as they couldn't handle the associated psychological pressure.

Some sanitation enterprise work is also still not acceptable to members of the upper castes. Sanitation-linked livelihood work such as maintenance of CT/PTs and segregation of solid waste at the wealth centers is not acceptable to families of collective members who have caste bias. Although they continue to work in these facilities, they are also looking for other job opportunities.

In Dhenkanal, while SWM workers belonged to different castes, FSTP and CT/PT workers, who deal with fecal sludge, were mostly from scheduled castes, further reinforcing traditional caste norms of purity and pollution. This barrier has not yet been overcome.

Information and awareness campaigns

Dhenkanal has created an innovative forum with influential members of the community to address grievances pertaining to sanitation work. The Dhenkanal ULB has created a group of 20 individuals who are among the prominent members of the town. These people include lawyers, retired civil servants, senior doctors, and professors. They are known as the brand ambassador of the sanitation-led livelihood programs in the town, and act as a bridge between the general public and the ULB and women's collectives. They are required to attend a monthly meeting at the ULB to discuss issues, grievances, and solutions with ULB officials and the urban collectives. This model of brand ambassadorship has been an important element to bringing about a positive mindset among the general masses towards the women's collectives.

Berhampur has a citizen-connect program wherein the ULB invites influential people from the city to discuss suggestions and generate awareness and demand for collective-run sanitation facilities across solid and liquid waste management.

Sustainability

Unlike other states, Odisha launched its collective-led sanitation enterprises recently, but it has made strides due to strong political will towards effective implementation of the initiative. To ensure sustainable long-term outcomes of the sanitation enterprises,

mentoring resources and awareness-building strategies are needed. There is also a need to address socioeconomic, cultural, and gender barriers through community engagement approaches. The regular capacity needs of urban collectives, especially in key topics across the sanitation value chain, must be addressed. Further, to make the SWM and FSTP models financially sustainable, various products can be made from waste. With adequate marketing and branding, including use of social media, these enterprises can be made financially viable.

Figure 4: Case study: battery-operated vehicle driver, FSTP Dhenkanal

“Earlier, in my past profession, I faced abuse from random persons almost every day, but now they address me as “didi” or sometimes even as “madam,” it makes me feel worthy of myself.”

This is how the battery-operated vehicle driver describes her new job. The driver, 27 years of age, and a mother of a six-year-old son, has been working as a rag-picker ever since she dropped out of school when she was eight years old. She lives with her in-laws, parents, husband, and son in a hut made of scraped plastic sheets and cardboard in a locality next to the Dhenkanal railway station.

Her parents and in-laws are above 60, but they still work as rag-pickers most days; other days, they survive on alms. Her husband engages in rag-picking as well. She describes rag-picking as “back breaking work, which is weather-dependent and is marred by various types of infections and dealing with middlemen like in the case of scrap dealers. General people think that a rag-picker is an opportunist thief. This work lacks basic human dignity.”

A few months back, with the help of social organizations like Urban Management Centre, and after initial hesitation, some women formed an SHG in their *basti* (slum); through this, she was offered the job of battery-operated vehicle driver in municipality ward no-2.

Since June 2021, she has been an integral part of the Dhenkanal municipality’s SWM program. Every morning at six, she goes to the municipality office, then drives her vehicle to her ward, collects waste, deposits the collection in the micro composting center/material recovery facility run by another group of women, and is home by lunchtime. She now has a fixed income of Rs.6,000 every month in return for 6–7 hours of work every morning. She wears her safety kits while at work and feels elated at how the women’s groups are treated by the ULB and the public. She said, “Now I am working in a clean environment, and I get paid double the amount with half of [the] time being devoted than what it was when I was a rag-picker. I can now spend a lot of time with my son.”

Of late, she has become a role model in her *basti*, and more women now intend to become associated with the SWM program of the Dhenkanal ULB. “The demand to work as a battery-operated vehicle driver is increasing; soon the municipality will have to conduct elections for this post. I am lucky that I joined early,” she laughs.

3.1.7 Key findings

- Collectives that ran sanitation enterprises had stable income even during the COVID-19 lockdown. In CT/PTs, income is lower than other sanitation facilities such as FSTPs and SWM wealth centers.
- In CT/PTs, payment delays occur due to bureaucratic procedures at the ULB.

- The women collective members involved in FSTP reported an increase in agency and confidence. In the case of transgender people, association with government work (through SWM plants) helped them to gain recognition and respect from the community, and acceptance from family members.
- There is demand for health insurance and retirement benefits amongst collective members, despite the presence of Biju Swasthya Kalyan Yojana, which provides universal health coverage to economically marginalized people.
- Training collectives across the sanitation value chain will increase the number of livelihood opportunities across the value chain.
- *Swachh sathis* engage in both service delivery and demand generation for the uptake of sanitation facilities, which ensures sustainable usage of sanitation facilities.
- The inefficient processing and disposal of e-waste and hazardous waste is increasing the operational cost of SWM wealth centers.
- While SWM workers belonged to different castes, workers in FSTPs and CT/PTs were mostly from scheduled castes.
- The appointment of prominent local citizens as brand ambassadors of collective-led sanitation enterprises by Dhenkanal ULB helps to embed the program within community structures for effective information awareness and dissemination.

3.2 Telangana

3.2.1 Background

In September 2020, the Telangana government undertook the Pattana Pragathi (Urban Development) program for the all-round development of urban areas in the state. Pattana Pragathi finds its roots in the Indian government's 2017 guidelines convergence of the National Urban Health Mission, SBM, and NULM to develop a holistic environment covering health, sanitation, and livelihoods.¹ As part of the program, the state government undertook infrastructure development and urban beautification initiatives including the development of nurseries, crematoriums, parks, gyms, playgrounds, and integrated markets, alongside construction and maintenance of public toilets and municipal SWM.

Sanitation is the program's primary component. The construction and maintenance of public toilets also falls under the larger campaign to achieve ODF status for various cities. The campaign for ODF began under the union government's annual survey of cleanliness, hygiene, and sanitation in villages, cities, and towns across India – the Swachh Survekshan. In Telangana, ULBs have actively involved women's collectives in this campaign.

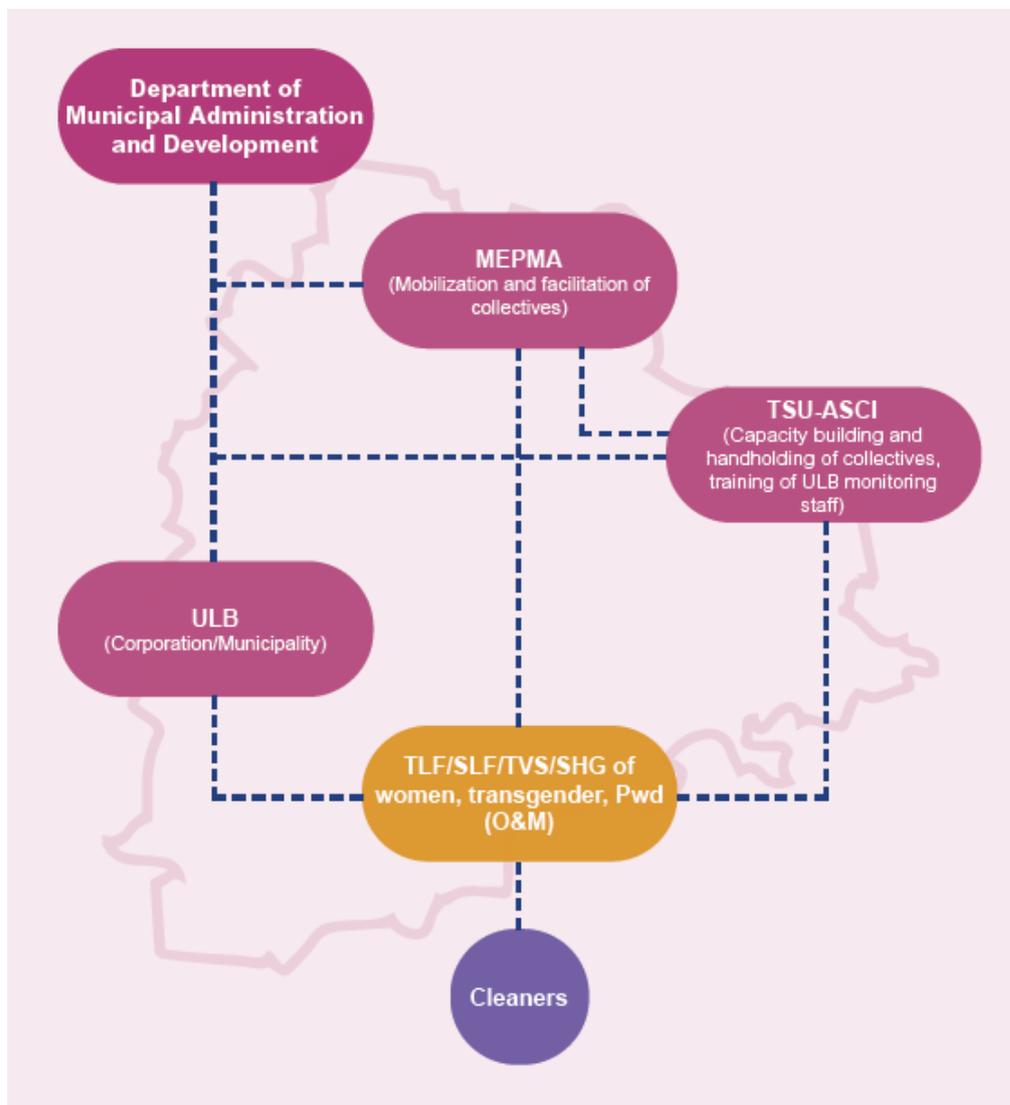
Taking it further, as part of the Pattana Pragathi, the Telangana government engaged slum-level federations (SLFs), town-level federations, town *vikalangula samakyas* (SHGs comprising PwD), and local SHGs with good credit management abilities for CT/PT O&M in ULBs.² Besides awareness of sanitation and public hygiene, the program's key objectives were to ensure increased women's representation and participation as entrepreneurs in sanitation, as well as in the delivery of sanitation facilities. After the guidelines of the SBM-NULM convergence were announced by the Indian government in 2018, MEPMA played a pivotal role in the implementation of the initiative in the state of Telangana.

3.2.2 Sanitation ecosystem

MEPMA is an integral part of the Department of Municipal Administration and Urban Development. MEPMA functions as part of the ULB in every city across the state, organizing underprivileged women into SHGs and training them on savings and credit mechanisms, with occasional training for entrepreneurial and better livelihood opportunities. Since 2015, MEPMA and SBM have the same director, which makes the convergence seamless.

In August 2020, MEPMA entered into an agreement with ASCI to provide technical support for three years for gender integration in urban Telangana, as well as training to office bearers in the SLF, members of MEPMA, and ULB staff. The focus of the study in Telangana was the O&M of CT/PTs in Warangal and Nizamabad. In Telangana, 250 contracts have been issued across 50 cities for the O&M of CT/PTs. ASCI provided recommendations for the selection of the cities. The selection criteria were primarily based on the scale of the model and heterogeneity among the groups engaged in sanitation work.

Figure 5: Sanitation livelihoods ecosystem in Telangana



Note: TLF = town-level federation; TVS = town vikalangula samakya.

Sanitation enterprise models

The following table discusses the different types of sanitation enterprise models in Telangana.

Table 7: Sanitation models in Telangana

Model	Management type	Operation and maintenance	Revenue	Usage fee
Community toilet / public toilet	Pattana Pragathi - collective managed	Collective members or sanitation workers hired by the collective	The ULB paid Rs.2,500 per seat per month as compensation to the collective	Free use
SHE toilet (public toilets exclusively for women) *	Pattana Pragathi - collective managed	Collective members or sanitation workers hired by the collective	The ULB paid Rs.2,500 per seat per month as compensation to the collective	Free use
Mobile toilet (toilet on wheels, bus redesigned into bio-toilet. The back of the bus is used for sale of sanitation products produced by collectives) *	Maintained by the ULB	Driver hired by the ULB	Driver's salary paid by the ULB. Profits generated through the sale of sanitation products is retained by the collective	Free use
Loo café (public toilet with added space for commercial use) *	Pattana Pragathi - collective managed	Collective member	No compensation is paid by the ULB to the collective. Revenue is generated through the sale of food and articles at the café.	Free use
Community toilet / public toilet	Public-private partnership - private contractor-managed	Caretaker and cleaner deployed by contractor	Revenue is generated through collection of user fees	Pay per use

*SHE toilets, loo cafes and mobile toilets are novel facilities and fewer in number as compared to CT/PTs.

3.2.3 Overview of cities

Warangal

Warangal is the second largest city in Telangana with a population of around ten *lakhs* (1 million). The Greater Warangal Municipal Corporation has been the leading ULB in Telangana since the Swachh Survekshan awards were first announced in 2017. The city ranked twenty-eighth in the country in 2017 and thirty-first in 2018, also achieving the ODF, ODF+ and ODF++ status in the consecutive years.

In July 2020, the urban collectives began managing CT/PTs, and by mid-2021 the Greater Warangal Municipal Corporation distributed over 140 contracts across 74 SLFs and SHGs in Warangal. The municipality criterion is one public toilet for a population of 1,000, or every 500 meters in the city. The Corporation is close to saturation. There are few crowded public areas with requests for public toilets but identifying land for construction of these facilities has been a challenge.

In Warangal, these SHGs are heterogenous. They comprise women, transgender people, and disabled members. While women's SHGs were composed of ten members, the transgender and disabled collectives could comprise up to five members. The Municipal Corporation is the first ULB in the state to initiate measures to integrate collectives of transgender people and PwD into the mainstream and provide them with livelihood opportunities.

Nizamabad

Unlike Warangal, Nizamabad is a smaller city, both in terms of population and size. Nizamabad has a population of close to four *lakh* (400,000) with 42 public toilets – 26 of them constructed and run under the Pattana Pragathi program and 16 run by private operators. Nizamabad also has only public toilets (no community toilets), with 26 contracts assigned to two SLFs for O&M on an annual basis. The groups are largely homogenous, comprising women. The two SLFs with O&M contracts also has members from the Mehtar community, which has traditionally been associated with sanitation work, including manual scavenging, in the region.

3.2.4 Sample size

We conducted IDIs, FGDs, and unstructured observations, as detailed in the table below.

Table 8: Data collection in Telangana

Respondent	Data collection method	Number
Sanitation collective member	IDI & FGD	24
Non-sanitation collective member	IDI & FGD	05
Private operators	IDI	04
ULB officials	IDI	11
TSU members	IDI	02
Spouse of collective member	IDI	12
Office bearers in sanitation collective	IDI	05
Community gatekeepers	IDI	06
CT/PT observations	Checklist observation	20
Total		89

Every SHG has two representatives, formally called executive committee members, who are generally referred to as the first leader and the second leader. They are chosen through unanimous voting by members of the SHG, and are usually entrepreneurial members with some basic education and training in bookkeeping. The two executive members represent the SHG at the SLF level. From among these members, five office bearers and one resource person are chosen.

The role of the resource person is important, as she/he acts as bridge between SHGs, the SLF, and the ULB. They register the newly formed SHGs or urban collectives, help train new members and are responsible for bookkeeping. They are paid an honorarium of Rs.4,000 by the ULB. In the case of Warangal's sanitation-linked livelihood project, most CT/PT contracts are given to collectives entrusted with the resource persons. Due to their outreach in the field, they act as community influencers.

3.2.5 Findings

Appropriateness and feasibility

Contracting

Although the contracting guidelines are uniform across the ULBs, every ULB has adopted a unique procedure in executing the contract depending on the local context. Since July 2020, the ULBs have handed over sanitation facilities to urban collectives for O&M under the Pattana Pragathi program. The contract is usually for one year and renewed on an annual basis based on the performance of the collective in O&M of the facility. In

Warangal, the contracts were made with SLFs rather than SHGs, as it is easier to coordinate and regularly monitor the facilities through a smaller cohort of SLF leaders. The SLFs further identified SHGs interested in taking up facility O&M. One SLF managed 2–3 facilities, and one SHG managed a single facility. The key criteria for contracting sanitation facilities to the collectives were as follows:

- Proximity of the SLF/SHG to sanitation facility; and
- Good credit-management ability of the SLF.

The commissioner and director of municipal administration has instituted guidelines with the aim of increasing participation of women in sanitation and public health, and providing them with stable livelihoods. Due to the traditional attitudes of aversion and disgust associated with sanitation and scavenging work, the ULBs have adopted their own method of executing the project. MEPMA passes information on new livelihood opportunities through the monthly town-level federation meetings, which then pass the information to SLFs, who pass it on to SHGs.

Community organizers from MEPMA and resource persons from the collectives play a key role in educating and engaging the collective members. The ULB prioritized the SLFs/SHGs in proximity of the CT/PTs to take up maintenance contracts. If an SHG in a particular location was not prioritized in receiving the contract for the sanitation facility, it could also lead to conflict.

If we allocate a facility in one particular area to [an] SHG from another area, that would yield in conflict. So, we called for area meetings before we made allocation. If a group from the same area comes forward, it will be well and good. The local leaders and corporators would readily accept. It would be conflict otherwise. To avoid such conflicts, we involve the corporator, sanitary inspector and *jawans* in the decision-making. – ASCI (TSU) official

Although the guidelines suggest the dynamics mentioned above, many factors worked in consonance regarding allocation of contracts. It was reported that in the beginning, not many SHGs or members came forward to take up contracts in both Warangal and Nizamabad. In Nizamabad, for instance, no collective initially came forward and showed interest in the sanitation opportunities. Thus, the contracts were given to those who showed an inclination to do the work. However, over time this has changed due to stigma attached to the vocation of sanitation.

In Warangal, some collectives with members from both lower and upper castes are now willing to engage in sanitation work, which was not the case in Nizamabad. Nizamabad has a significant Mehtar community who organized themselves into a registered society. Through the president of the Mehtar Society, the community has claimed the right to sanitation work and requested the ULB and the commissioner to give them such opportunities.

Through discussions with the ULB, the president of the Mehtar Society took responsibility of maintaining these facilities on behalf of the SLFs. Since Mehtar women were also part of the SLFs and SHGs, this took care of compliance with the commissioner and director of municipal administration guidelines. However, men in their families worked as caretakers, and women were mostly confined as cleaners of the facility. These caretakers or the cleaners in Nizamabad were also not always aware of the guidelines detailed in the contract.

In a similar fashion, the Mehtar unions in Warangal requested contracts and the ULB accommodated them by allocating some to Mehtar women's collectives.

Not everyone came forward in the beginning. We gave contracts to whoever came forward first. Seeing them, others have come forward. We didn't have any competitive selection process. If there is CT/PT facility in a neighborhood, we asked the interested groups in the area to come forward. Whoever came forward was awarded the contract. We have not experienced any kind of competition among the groups so far. We just gave contracts to whoever has shown interest. Because these groups have seen the other groups making and earning out of this, we have more groups showing interest in taking up the work now. There are new facilities being constructed and we are hopeful to give these to them. – MEPMA official

Training

Warangal had a robust training mechanism as compared to Nizamabad due to the active presence of the TSU partner (ASCI) and scrutiny of the political administration. ASCI provides training to collectives on maintenance of the facilities (including cleaning schedules and materials used for cleaning, types of PPE kits and their usage, timings of the facility, payment methods, documentation and recordkeeping required for processing payments), and to ULB staff on monitoring of the sanitation facilities.

ASCI has conducted two rounds of online training for all contracted collectives across the state. Unlike Nizamabad, in Warangal ASCI has also conducted offline training and provided handholding support to the collectives. This can also be attributed to the political will of the administration, as Warangal is one of the fastest-growing cities in Telangana, and constantly under the scrutiny of both the political administration and the media. In Nizamabad, most collectives' members had been associated with sanitation work historically, and thus did not feel the need to be trained. They only attended the online training provided by ASCI on collective-led sanitation enterprises across ULBs in Telangana.

Monitoring

The ULB-appointed sanitation inspector visits the sanitation facility twice a week. One inspector covers approximately three wards. The *jawans* visit the toilet for monitoring every day, taking pictures of different parts of the facility and uploading them on the Pattana Pragathi Toilet Monitoring System mobile app, which was developed by a private agency for the government of Telangana. ASCI was part of the process.

The application is used across all ULBs in the state and has proven useful in regular monitoring of the facilities, which in turn has had an impact on their upkeep, especially in Warangal. The stakeholders – including caretakers, ULB officials, and TSU members – use WhatsApp® as leveraging technology for faster communication and grievance redressal.

The weekly citizens grievance redressal meeting with the ULB commissioner provides a platform for citizens (users) to raise grievances related to sanitation facilities. The commissioner and director of municipal administration also reviews this every week.

To keep a record of sanitation facilities, six recordkeeping books are maintained by the caretaker and checked by the sanitary inspectors and *jawans* during their visits. These record:

- Salaries
- Incurred expenditure (record of who gets paid by the ULB, and the total savings)
- Attendance, tracking number of people using the facility on a daily basis
- Attendance, tracking men and women using the facility
- Attendance, tracking people who use the facility occasionally
- Utilities like brooms and cleaners

Although the app is used across all ULBs (and thus in both Warangal and Nizamabad), the monitoring system is more robust in Warangal due to the vibrant presence of the TSU. In Nizamabad, the monitoring mechanism was different; since the toilets were managed by the Mehtar community, the community leader (who also had a good rapport with the ULB officials) oversaw the maintenance and work of the toilet facilities. He would monitor them and help with logistics and management. Although the *jawan* is also supposed to visit the facilities everyday here, like in Warangal, it is not always the case, as monitoring is undertaken by the community leader.

Fidelity

Operations and maintenance

While the collectives have secured the contracts, facility O&M is mostly managed by an individual caretaker. In Warangal, resource persons (in the case of women's collectives), office bearers, and executive committee members (in the case of transgender and PwD collectives) are the caretakers. While caretakers from transgender and PwD collectives clean the facilities themselves, caretakers from women's collectives mostly hired cleaners (usually from scheduled caste communities) to clean the facility. In Nizamabad, members from the Mehtar community (scheduled caste, a socioeconomically vulnerable group) worked as both caretakers and cleaners on behalf of the collectives.

Most facilities were open during the COVID-19 lockdown, and the caretakers and cleaners regularly cleaned and maintained the facilities. In Warangal, the record books of PwD and transgender collectives were better maintained than those of women's collectives, as the former were mostly present at the facility during the day and were able to record footfall and hygiene. In Nizamabad, the books were mostly maintained by the Mehtar community leader, who acted as a proxy caretaker for the collectives.

Revenue and income

Table 9: Revenue and income from sanitation enterprises in Telangana

Revenue	Expenditure on cleaning	Maintenance and repairs	Income
Rs.2,500 per month per seat (A facility can have 2–4 seats)	Rs.250–500 per month per seat (payment for cleaner and cleaning materials)	Minor repairs: Less than Rs.1,000 per month per facility covered by urban collectives Major repairs: More than Rs.1,000 per month per facility covered by ULB (Minor repairs include fixing doors, latches, wash basins, light bulbs, purchasing buckets and mugs. Major repairs include borewell, water pump, plumbing, and electrical repairs)	Rs.1,000–1,500 per month per seat

Income generated from the sanitation enterprise is perceived to be of significant support in managing household expenses, although not sufficient in meeting their entire household needs. When combined with other government benefits including pensions for PwD, an honorarium from the government (for resource persons of women's collectives), the caretaker can earn additional income.

Unlike women who were previously employed and have other sources of income, members of vulnerable groups (such as transgender people and PwD) have found that this has provided a first of its kind stable employment opportunity. For transgender people, this livelihood opportunity was especially relevant since COVID-19 disrupted their regular sources of income completely.

Most caretakers, however, expressed that the monthly payment per seat from the ULB is insufficient, and delayed for 3–6 months due to bureaucratic procedures. ULB officials, however, reported that the monthly payment of Rs.2,500 per seat is high considering the scalability of the initiative. There are recurring expenses for damages, repairs, and individuals stealing items (e.g. soaps, buckets, mirrors) from the facilities. Although the ULB pays for major repairs, reimbursements are delayed, and the caretaker needs to initially bear this expense out of their pocket. In Nizamabad, since the contracts for toilets were given in bulk to a limited number of SLFs, the resource person and cleaning staff ended up earning a substantial income.

Payment-related issues

ULB payments to the CT/PT operators were significantly delayed in both Warangal and Nizamabad, which proved to be a challenge. Around 50 per cent of respondents reported that payments were not made on time. A member from the non-sanitation collective said that the delay in payments is sometimes detrimental to people engaging in sanitation work. There is everyday dependence on money coming from the livelihood they are engaged in.

It can certainly be bettered. If the government pays us in time, we can work better and work with more enthusiasm. When the bills and payments are delayed for three to four months it makes things difficult for us also. We cannot delay the payments for the caretakers. – Office bearer in sanitation collective, Warangal

A few respondents in Warangal also complained that the salary was insufficient for the work they do. While the ULB takes care of major expenditures, small repairs within the facility, like broken lights and doorknobs are dealt with by the collective. Cleaning materials are also bought by collective members. This expenditure leaves them with a little savings.

Health and labor rights

Some members in both Nizamabad and Warangal engaged in sanitation work expressed the need for paid leave, health insurance, and a provident fund as important employee benefits. There is currently no formal provision for sick leave or leave during festivals. Apart from an increase in incentives and payments, leave was an important demand. During COVID-19, the ULB provided sanitation workers with gloves, sanitizer, and PPE kits. However, some reported that during the pandemic, they were apprehensive for the safety of their family, especially children, since they were going out every day to clean and maintain the facilities. But they needed the money, and if they took leave, their salary would be cut. Thus, they continued to work despite the fear.

Provider well-being

The ULBs placed importance on the well-being of sanitation workers, and provided them with proper safety gear, equipment, and caretaker boxes for their safety and security. Caretakers and cleaners were considered frontline workers and received free vaccinations from the ULBs. They were also provided with PPE kits, gloves, and masks by the ULB in Warangal. In Nizamabad, the local community leader provided PPE kits, gloves, and masks to sanitation workers using his own resources. If the sanitation workers did not have proper gear or safety material, it reflected badly on the city's Swachh Sarvekshan ratings.

A caretaker box is a small container room, integral to the design of the CT/PT facilities. It is supposed to work as a shelter in hard weather conditions. For the facilities located on the highway and other harsh conditions, a caretaker's stay at the facility becomes difficult. The box provides safety and privacy them, especially women. They find it convenient to sit inside and undertake bookkeeping work. Although the caretaker box ideally should be available across CT/PTs, it was found in only some facilities in Warangal. In Nizamabad, there was no presence of caretaker box in any of the CT/PTs.

Figure 6: Example of a caretaker box (right)



Operational and implementation challenges

Caretakers faced several operational and implementation challenges in both Warangal and Nizamabad, including damage of property and stigma associated with public toilets. The location of the CT/PT also made a difference: facilities next to a busy area or slums had higher usage, which also led to several operational and infrastructural challenges.

My CT is located near the YSR slum area, and the usage is more. Despite repeated cleaning it gets dirty or there are regular damages because of more usage. It is easier to maintain the CT/PTs which are more remotely located. This has been my experience so far. – Sanitation collective member, Warangal

In the case of the loo café in Warangal, the model suffered from stigma attached to public toilets, as users hesitated to buy the drinks and eateries next to it. COVID-19 impacted the function of loo café next to an engineering institute, which was shut due to an impending lockdown, which in turn impacted sales at the café.

As of my personal experience, people will not be interested to have any tea or coffee or any other eatery item to consume just outside the toilet, even this loo café is a failure. And when men are drinking tea outside the toilet, women might feel uncomfortable using that toilet. As of my experience, it is not a feasible idea to run another business in front of the toilet. – Community gatekeeper near the loo café, Warangal

Figure 7: Loo café in Warangal



Private facilities versus collective-led service provision

In Warangal it was reported that the collective-led CT/PTs were better maintained compared to private facilities. Data from the CT/PT checklist used to observe these facilities indicated the same. The Pattana Pragathi Toilet Monitoring System app data revealed that the performance of the collective-managed toilet is on par with private ones. Some caretakers also reported that private toilets are usually located in busy locations like bus stands since the focus is to earn maximum revenue. The collective-run facilities are usually located in places like residential locations, where private facilities are unavailable. In Nizamabad, private facilities are better-maintained compared to CT/PTs. This may be because unlike Warangal, no caretaker stays at the facility to oversee usage. The cleaner comes twice a day, cleans the facility, and leaves.

Some private operators expressed their resentment towards the collective-led CT/PT model. They said that the presence of these CT/PTs had significantly reduced their profit margins, since the public preferred to use the free toilets. Another private operator reported that since their caste (Mehtars) had been traditionally involved in sanitation work, it is not fair that other groups through these collectives are being engaged in this work.

There should be a rule that this work should be done by my caste only, no others should interfere in it. Since we can't do other works, we prefer to clean the toilets and no other caste people or women collective should do this work. – Private operator

Acceptability and adoption

Acceptance by ULB and TSU members

Most collective members in both Warangal and Nizamabad reported good working relationships with members of the ULB, MEPMA, and the TSU. Members also said that apart from monthly meetings, they regularly interact with officials from the ULB and MEPMA and discuss any issues with sanitation facilities with them. None of the collective members in both cities reported any incident of misbehavior or reprimand from ULB officials, or discrimination of any kind, as long as their work and behavior were up to the mark.

The respectful attitude of the authorities towards the sanitation workers proved to be an incentive for them to undertake the work. During COVID-19, their interaction with ULB officials was frequent, as collective members also helped with distribution of ration kits and sanitation kits in Warangal. The role of the TSU can be attributed to this, since they undertook sensitization training with ULB officials regarding interaction with sanitation workers.

Acceptance by the community and family

Recognition from the community and support from families were reported by caretakers, especially in Warangal. The transgender and PwD collectives and Mehtar community members (cleaners) valued the opportunity more than women's collectives. Similar to respondents in Dhenkanal, they reported that the resulting income, when added to other earnings (social security and honorarium from government), is perceived to be sufficient for expenses related to children's education, acquiring items of sustenance and covering household expenses.

Increased confidence and a sense of personal fulfilment was observed amongst the caretakers. Members of the Mehtar community, who are involved in cleaning these facilities both in Warangal and Nizamabad, feel that this work has improved their working conditions. They have access to gloves, PPE kits, and cleaning equipment to do the job, which makes it easier for them than it was before. They see it as a respectable and stable vocation to integrate them into society. However, the occupation is not seen as aspirational for children.

Employment opportunity

Many respondents said that sanitation work offered a stable source of income and livelihood, especially during COVID-19, when some reported that they or their family members lost their jobs. It also led to a change in people's attitudes towards work in sanitation, which was initially confined to people of certain castes and communities.

Although the cleaning work is still performed by Mehtars, members from upper castes are also engaged in sanitation work as caretakers and resource persons. In Nizamabad, cleaners of toilet facilities earned a substantial amount of money. The Mehtar community continued to work as cleaners in sanitation facilities due to caste barriers in the region; however, when cleaning private or domestic facilities, they would earn between Rs.2,000–6,000 and when cleaning public toilets they earned between Rs.10,000–16,000. This is because, unlike Warangal, hired cleaners were given multiple (3–4) facilities to clean, with greater income the more they cleaned.

A few members reported that the work in sanitation facilities offered avenues for other employment opportunities for them and their family members. A caretaker explained that the location of the toilet was important; for example, one resource person planted vegetables and flowers near an open area next to the toilet, another husband and wife worked in the toilet in shifts, and they would sell vegetables and fruits outside. One of the toilets was located near the church, so the caretaker would sell pots and flowers outside the facility. Some cleaners leveraged the toilets in order to gain access to customers who wanted toilets cleaned in their homes. They would leave their numbers so that the customers could get in touch with them.

Awareness and behavior change

Initially, uptake of sanitation facilities was a challenge; however, this was soon overcome through increased awareness and interaction by the TSUs, especially in Warangal. An increase in the number of public toilets has led to a decrease in open defecation. Women reported that the construction of public toilets at several locations has made it convenient for them to use. Since fees are not charged in these facilities, it also makes them accessible for the general and poor public, who are unable to pay user fees (e.g. people from the villages, construction workers, migrants); they are also useful for women, as they do not always have access to money to be able to pay.

In Warangal, the TSUs also engaged in behavior change communication to enhance uptake of CT/PTs by the public. This was done by distributing pamphlets and making people aware of the health repercussions of not having access to toilets. Swachh Bharat autos, which are used to collect household waste, were installed with microphones to convey the public health benefits of using CT/PTs.

National and international events like world toilet day and global hand washing day were celebrated and used as media for spreading awareness on the use of CT/PTs. They also honored sanitation champions by awarding them with a shield and certificate. All these measures were useful means of increasing awareness about sanitation.

Another challenge that TSU and ULB members initially faced was uptake of sanitation work by the collectives. There was resistance from the groups due to the stigma attached to the sanitation work.

It was very difficult for us to convince people. Because toilet cleaning and toilet maintenance is seen as an ugly area. – TSU representative

Caste and Gender

Many respondents said that although stigmatization has reduced, caste bias still exists. For instance, in Nizamabad, only Mehtars worked as caretakers and cleaners in CT/PTs.

Even in the case of Warangal, a significant majority of cleaners continue to come from only scheduled caste communities, especially the Mehtar community. People continue to refer to Mehtars using degrading slurs.

In Warangal, it was observed that while collective members from upper-caste backgrounds are caretakers, only a small number of non-scheduled castes were cleaners. Some spouses and family members of collective members from upper-caste backgrounds have expressed that they agreed to the said member's engagement in sanitation only because the member was not directly cleaning the facility, but instead had a provision to hire help. This shows continued stigmatization associated with sanitation work.

What kind of work is this? Is this the only work we have to do? There are other kinds of work also. Is it necessary that if I'm a Mehtar I have to do only this work? There are all sorts of other works. It is not necessary that Mehtars have to do only a scavenger's work for a life. – Woman cleaner, Mehtar community in Nizamabad

While SHGs and collective activity have rendered agency to women, they continue to face objections from family members. Most women reported that while husbands and other family members help a little at home, women's household responsibilities remain the same as before. In Nizamabad, women could only travel to clean the facilities only when accompanied by a male family member and were expected to wear a veil.

Sustainability

MEPMA has played a key role in convening a robust network of collectives, and in advocating for sustainable livelihoods among collectives at the town, city, and state levels. However, there are variations in the maturity and success of the collective-led sanitation model across cities. It is observed that the proactiveness of the ULB and the vibrant presence of the TSU are key determinants of this. With support from the state government, the ULB in Warangal pioneered the implementation of the NULM-SBM convergence guidelines.

In addition, the energetic presence of the TSU, particularly through capacity building of collectives and implementing effective monitoring mechanisms, further strengthened the program. Thus, it is important for the ULB to take the initiative in prioritizing and implementing state government guidelines to engage collectives of vulnerable groups in sanitation enterprises. It is also useful to promote the presence of the TSU across cities as an entity providing handholding and capacity building for collectives to manage sanitation facilities, particularly during the initial months. It is important to help the collectives with subcontracting procedures, group dynamics, bookkeeping, and business. The sanitation enterprises can eventually become independent and sustainable.

3.2.6 Case study: transgender CT/PT caretaker in Warangal

The caretaker who cleans and maintains the community toilet at the slum near Shyampet, JP Nagar, is a thirty-six-year-old transgender person. In 2004 she, born as a male, ran away from her home near Warangal to Delhi, and underwent sex reassignment surgery. Recalling her days in Delhi and Warangal before she joined the Mass Society (the transgender association), she explains that she relied on begging in trains and at traffic junctions for survival. She said nobody offered her a job even if she approached, and she was forced to beg.

Through the initiative of the previous municipal commissioner, she was entrusted to clean and maintain the community toilet at JP Nagar. Recalling her past, she says, “Earlier I used to earn Rs.20,000–30,000 in a month. But there was no dignity in it. People would hate us, scold us, and the police would harass us. If we were caught in the train the police would levy hefty fines.”

On 19 November, 2020, the ULB recognized her as a champion of sanitation work for her maintenance of the community toilet. Earlier, another woman maintained the facility, but the community was not satisfied with her work. Though the new caretaker initially faced opposition from community members, it soon changed; they now welcome her into their homes, offer food, and appreciate her work. They are highly satisfied with her work and express their confidence in her abilities in maintaining the facility.

She feels that the newfound acceptance by her family and the community is because of her work at the facility. Since this intervention was implemented by the government, there has been increased validation also. She says sanitation work has helped her break stereotypes about transgender people, earn respect, and make a dignified living.

3.2.7 Key findings

- Sanitation enterprises provide a stable source of income for collective members. Collectives that ran sanitation enterprises had stable incomes even during the COVID-19 lockdown.
- Traditionally, sanitation work has been performed by people from marginalized communities. Despite better working conditions, some caste-based perceptions have been reinforced. In Nizamabad, the facilities are staffed by Mehtar community members, and in Warangal, cleaning is outsourced to members of scheduled castes.
- Transgender groups and PwD see the work as relatively aspirational, as compared to women.
- The contracting process followed by ULBs is not uniform. Factors like good credit, management ability, proximity of the collective to a facility, and acquaintance with the ULB influence the contracts. The former two factors were visible in Warangal, while the latter was seen in Nizamabad.
- A separate caretaker box provides a seating space to rest during long shifts. It was seen as a job incentive by several CT/PT caretakers.
- Payment delays occur due to complex bureaucratic procedures at the ULBs.
- The cleaning and repair costs are increasing due to improper usage and recurring incidents of damage caused by users, and the increased price of cleaning materials.

3.3 Tamil Nadu

3.3.1 Background

To address the persistent challenge of open defecation and poor sanitation, several government-led and non-governmental initiatives were implemented in Tamil Nadu. It was one of the few states to develop an underground sewerage system that was financed through a combination of user charges, loans, and government grants to manage its O&M. Under the erstwhile Jawaharlal Nehru National Urban Renewal Mission (2005), and through the involvement of ULBs and SHGs (urban collectives), improvements were made in the SWM services by establishing waste processing and disposal facilities.

An Integrated Urban Development Mission was developed for corporations, municipalities, and town *panchayats* to supplement available funds to improve the standards of basic infrastructure including sewerage, sanitation, and waste management. Similar to the rest of the country, the sanitation program in Tamil Nadu has seen a shift in focus from infrastructure development to promoting toilet use, and more recently to O&M of sanitation facilities for sustained use.

The Tamil Nadu Corporation for Development of Women launched Mahalir Thittam in 2012, with an aim to address women's empowerment and poverty alleviation. Under this effort, women's SHGs were formed, and entrepreneurial and vocational skills were provided to improve their income generation, facilitate social integration, and inculcate cooperation and self-reliance.

Several groups formed under this scheme took over livelihoods and income-generation work. This included work in sanitation, as during that time toilet construction was being facilitated in communities by national and state governments and supported by non-governmental partners. Several such groups continue to engage in sanitation work in numerous urban and peri-urban settlements. These efforts continue to be supported by private institutions and non-governmental partners who have invested in the formation of these collectives, their technical capacity building, and management.

More recently, under the SBM – DAY-NULM convergence framework, urban collectives have been organized and provided with training on sanitation enterprises, through which the collectives provide onsite sanitation products and services to communities and individual households in low-income populations.

Tiruchirappalli and Coimbatore have demonstrated the implementation of sanitation enterprise models; therefore, learnings from these cities present interesting insights for mid-course corrections, if any, and the development of strategic measures to sustain these efforts. In both cities, due to past national and state government initiatives, there is improved coverage of private and shared sanitation, including CT/PTs, pay-and-use toilets, and integrated sanitary complexes. In urban areas, these facilities are under the jurisdiction of the Tamil Nadu City Corporation.

In Tamil Nadu, we gathered insights on the O&M of CT/PTs led by urban collectives or their members. In both cities, we consulted state technical-support partner, Indian Institute of Human Settlement (IIHS), to identify and sample respondents for this study.

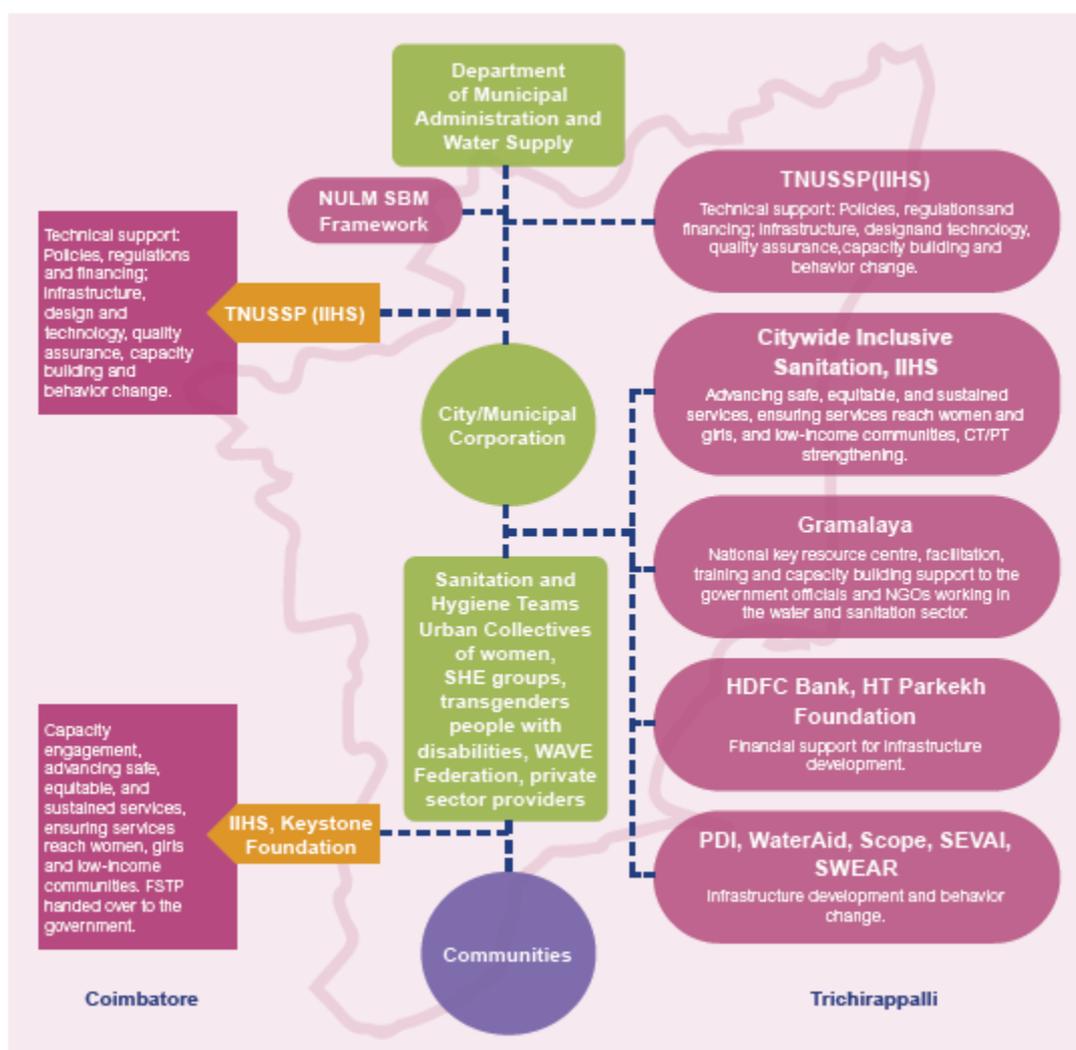
3.3.2 Sanitation ecosystem

Both cities present a vibrant sanitation ecosystem, which comprises stakeholders (both individuals and institutions) involved in policy decision-making, implementation, technical capacity-strengthening, funding, and communications (Figure 2). In Tiruchirappalli, Gramalaya provided technical and soft skills training to sanitation workers – including honey suckers, septic tank cleaners, masons (to ensure optimal construction of toilets), caretakers, and de-sludgers – and oriented them on how to use safety gear and PPE.

With support from Harpic's corporate social responsibility initiative, Gramalaya has started the World Toilet College to provide training to sanitation workers, so as to improve their future employability. In Coimbatore, Keystone Foundation and IIHS have led capacity strengthening efforts and have provided the ULB with management support of the FSTP and CT/PTs.

Similarly, several non-governmental organizations played a key role in improving opportunities and infrastructure in both cities. WaterAid, Water Partners International, a sister concern of Water Aid, World Vision, Arghyam, and Gramalaya facilitated toilet construction in the communities. They also supported the capacity strengthening of community-based organizations. IIHS, through the Tamil Nadu Urban Sanitation Support Program and the city-wide inclusive sanitation approach, is focusing on fecal sludge management and inclusive sanitation. Under the corporate social responsibility initiative, private foundations such as the HT Parekh Foundation, HFDC Bank, and HDB Financial Services renovated toilets in Tiruchirappalli.

Figure 8: Sanitation ecosystem in Tamil Nadu



3.3.3 Sanitation enterprise models

We found six types of arrangements to deliver sanitation work in the two cities (Table 10).

Since several individuals who were part of defunct SHGs are already providing sanitation services, the SBM – DAY-NULM framework-led model is practiced by a limited set of groups; however, we found a larger number of individuals (independently or as part of an urban collective) participating in delivery of sanitation services. Individuals and members in these groups earn a living from services rendered, and in addition are eligible to obtain loans and make monthly savings of Rs.200 each.

The user fees for services ranged between Rs.1–5 per toilet use, Rs.600–1,200 for desludging, and Rs.150–200 for cleaning per day. In both Tiruchirappalli and Coimbatore, no contracts were issued. This is because in the former, collectives had been engaged in sanitation activities for the past twenty years. In the latter, sanitation facilities were being managed by the town *panchayats* rather than collectives.

Table 10: Sanitation models in Tamil Nadu

Tiruchirappalli						
Management type	<i>ULB-managed</i>	<i>UC is managed under the guidance of CBO/NGO</i>	<i>Managed through informal agreements</i>	<i>Private contractor-managed</i>	<i>Individuals involved in sanitation work as part of UC</i>	<i>Individual sanitation workers</i>
O&M	ULB-employed sanitary worker is responsible for cleaning	UC members rotate to act as managers and appoint a cleaner	Functions identical to UC model with oversight from elected representatives and social leaders	Caretaker and cleaner deployed by contract or	On-demand services toilet maintenance, cleaning, desludging	On-demand services toilet maintenance, cleaning, desludging
Usage fee	Free use	Mostly pay per use	Mostly pay per use	Pay per use	Pay per service	Pay per service
Coimbatore						
Management type	Town <i>panchayat</i> -managed NULM Group	FSTP managed by town <i>panchayat</i>	Town <i>panchayat</i> sanitation works	<i>Private contractor-managed</i>		<i>Individual sanitation workers</i>
O&M	Town <i>panchayat</i> -employed non-permanent sanitation workers group manages 11 CT/PTs	Town <i>panchayat</i> -employed sanitation workers manage operations	Regular services related to garbage collection, disposal, and cleanliness	NA	NA	Daily wage by the ULB
Usage fee	Free use		Free service			Free service

Note: UC = urban collective; CBO = community-based organization.

3.3.4 Overview of cities

Tiruchirappalli

Tiruchirappalli has a population of close to 10 *lakh* (1 million) and is the fourth largest corporation in the state of Tamil Nadu. It has been ranked among the top few cities with improved sanitation since 2010, and was certified as an ODF city in 2018. Tiruchirappalli has 65 wards (i.e., administrative units under the town *panchayat*).

The urban collectives In Tiruchirappalli, formed under the SBM – DAY-NULM framework, are functional for up to eight months. These groups, around 50 in number, are considered a special category, and have been provided with identity cards by the state labor department that allow members to access bank loans and other eligible benefits. There is another set of urban collectives in which sanitation workers work individually rather than as business enterprises.

Under the SBM –DAY-NULM framework, eight groups have received sanitation enterprise loans and each have 5–10 members involved in managing community toilets. In the

remaining groups, some members may be involved in sanitation work. In addition, within these groups, members are involved in internal lending, savings, and bank linkages for starting individual or group enterprises. Some groups have reportedly disintegrated, as they were unable to secure loans or the community refused to pay user fees, and therefore they did not see the enterprise as a viable model.

Previously, under the Mahalir Thittam initiative, bankers were oriented on the SHG model to ensure disbursement of loans to members. SHGs comprised groups involved in savings and credit and income-generation activities with up to 12 members. However, under the SBM –DAY-NULM guidelines framework, since sanitation members are considered a special category, there is no cap on the minimum number of members required to form a group, and groups may include PwD, transgender people, and other vulnerable groups. However, banks are yet to be oriented on these groups.

In Tiruchirappalli, women representatives from urban collectives were organized into Sanitation and Hygiene Education (SHE) teams, which were provided with training on the management of these toilets by Gramalaya, a non-governmental organization involved in water management and sanitation promotion in Tamil Nadu. These teams were coalesced under an all-women forum, the Women's Action for Village Empowerment (WAVE) federation. This was undertaken in Tiruchirappalli in 2004. These teams pay a monthly subscription of up to Rs.100 to be part of the federation.

As part of this membership, training was provided on strengthening the urban collectives' functions, such as accounts, billing systems, and protocols for maintaining a community toilet. Currently, there are around 203 SHE teams linked to the WAVE federation. IIHS has developed guidelines for WAVE to screen and engage urban collectives in the federation. IIHS helps to provide trainings on sanitation to the collectives by designing curricula and capacitating partner organizations to provide training on the ground. So far, in Tiruchirappalli, more than 3,000 sanitation workers have been trained on fecal sludge treatment, desludging, O&M of community toilets, and management of sanitation facilities.

In Tiruchirappalli, the communities comprise mixed caste groups, and due to migration of people from different parts of the country, it is often difficult to maintain a caste distinction.

Coimbatore

Coimbatore is one of India's major metropolitan cities and the second largest city of Tamil Nadu. It is administered by the Coimbatore Municipal Corporation and is the administrative capital of Coimbatore District. The city is divided into four zones, namely north, south, east and west, for administrative purposes. These zones are in turn divided into 72 wards, with 18 wards under the jurisdiction of each zone. Coimbatore in many ways resembles a rural setting, with spread-out communities and vast land. The communities predominantly belong to backward classes.

Under the Tamil Nadu Urban Sanitation Support Program, the Keystone Foundation, with support from IIHS, is supporting urban collectives to implement urban sanitation efforts in Periyanaickenpalayam and Narasimhanaickenpalayam town *panchayats*. Under this effort, an FSTP was set up in Periyanaickenpalayam, and 13 CT/PTs are managed in the two town *panchayats*. There are around 60 sanitation workers in the town *panchayat* and one urban collective. These sanitation workers are paid by the ULB as daily wage

workers. They are capacitated by the Keystone Foundation, and the collective formation in Coimbatore was facilitated by both IIHS and the Keystone Foundation.

3.3.5 Sample

Members of the urban collectives include women aged 25–60 years and comprise those who are poor, single, widowed, abandoned by their children, daughters-in-law of older members, transgender people, and PwD. They represent all castes, though a majority belong to the scheduled caste/scheduled tribe, backward communities, and most backward communities.

Table 11: Data collection in Tamil Nadu

Respondent	Data collection method	Number
Sanitation collective member	IDI & FGD	26
Caretaker/cleaner	IDI	05
ULB officials	IDI	03
TSU members/resource partner	IDI	04
Spouse of collective member	IDI	08
Office bearers in sanitation collective	IDI	07
Community gatekeepers	IDI	03
CT/PT observations	Checklist	06
Total		62

3.3.6 Findings

Appropriateness and feasibility

Contracting

In Tiruchirappalli, a memorandum of understanding was signed between the Tiruchirappalli City Corporation and the WAVE Federation as an undertaking for engaging in sanitation livelihoods work. The memorandum specifies the roles and conditions of engagement, including having an account in a nationalized bank, maintaining income and expenses of the group, maintenance of sanitation facilities and cleanliness up to 500 meters surrounding the CT/PT, creating public awareness, and proper maintenance of toilets so that the Tiruchirappalli City Corporation does not receive complaints. Should the city corporation require the groups to hand over the facility, this must be done within a specified time.

In Coimbatore, around 60 sanitation workers are paid a monthly salary by the town *panchayat*. A group of non-permanent sanitation workers was formed under the SBM – DAY-NULM framework; however, there is no formal contract between the urban collective and the town *panchayat*. These non-permanent sanitation workers are paid wages daily (around Rs.400 per day) and are only paid for the days they work.

Training

In both Tiruchirappalli and Coimbatore, emphasis was on menstrual hygiene management, apart from bookkeeping and maintenance of sanitation facilities. In Tiruchirappalli, training has been provided to urban collectives for several years, due to the continued presence of Gramalaya and other organizations. Even now, with the help of IIHS, members are trained in areas such as sanitation, desludging, and menstrual hygiene management. Collectives in Tiruchirappalli had also been provided with training on bookkeeping, soap making, and other skills which could offer them livelihood opportunities like jewelry making and tailoring.

With the arrival IIHS, new training modules were developed on sanitation, and training was provided to workers engaged in sanitation. During COVID-19, they were also trained on hygiene maintenance, wearing of PPE kits, and desludging norms. IIHS indicated that these workers had been engaged in sanitation work and were already trained; thus the training was not provided to large groups.

They were trained on the job in various aspects of sanitation and hygiene (e.g., the importance of handwashing, cleaning the toilets). They are also provided training on menstrual hygiene management, including usage of incinerators and proper disposal of sanitary materials, and promoting re-usable cloth menstrual pads to reduce toilet blockages (a recurrent issue). With the support of Harpic's corporate social responsibility initiative, the World Toilet College has been started in Tiruchirappalli in Tamil Nadu and in Cochin and Kannur in Kerala. The focus of these colleges is to provide training to sanitation workers, who can then be placed in jobs in hotels and hospitals. This is an interesting innovation which capacitates them and provides livelihood opportunities.

In Coimbatore, training on menstrual hygiene management is provided to urban collectives under a micro-, small- and medium-enterprises program to access information and products, make informed choices, and use and dispose of products. IIHS develops the training curriculum for sanitation workers and trains members from Keystone Foundation. These members, in turn, provide training to sanitation workers in Coimbatore.

Monitoring

In Tiruchirappalli, group leaders and elders within the group are respected and their advice is sought to resolve any issues or conflicts. Group leaders assign toilet management responsibilities. A list showing when urban collective members must do a particular job is prepared for members to ensure all have an equal opportunity to earn from the sanitation enterprise work.

Leaders also oversee repair and maintenance work, collect revenue from caretakers, deposit it in the bank, and attend meetings with the city corporation. Members maintained toilet facilities for up to a week each and earned between Rs.300–500 per day.

Some members cleaned the toilets themselves, while others engaged external cleaners who were paid between Rs.100–150 per day. The urban collective-led model of toilet O&M allowed more people to benefit from the earnings compared to the earlier model, where only select individuals benefited from the sanitation work. There seemed to be better acceptance of this method; however, it was observed that male members often expressed the desire to be part of these enterprises.

A cleaner often is responsible for cleaning multiple facilities. Therefore, community toilet caretakers often pay daily fees to cleaners for cleaning the toilets once or twice a day. Grievances related to sanitation work are addressed at the group level first. Matters that need discussion are presented during monthly meetings and are accordingly escalated to the corporation officials and the junior engineer. Acts of vandalism are often reported to the police.

In Coimbatore, since town *panchayats* oversee the maintenance of sanitation facilities, they are actively involved in monitoring it. However, the monitoring systems were observed to not be very regular in Coimbatore, with no designated officials for monitoring.

Context

Most respondents in both Tiruchirappalli and Coimbatore reported prevalent open defecation until five years ago, which changed due to the availability of sanitation facilities, both at the community and household level. Members from both cities reported submitting petitions to the collector and the corporation, with a request to construct toilets. In some wards, protests were also conducted in support of their demands. Persistent structural challenges, such as lack of space to construct a private toilet, paucity of funds for refurbishing a previously built community toilet, and increasing demand (post-SBM) for use of the limited community infrastructure call for strategic changes in program approach.

In urban areas, the slum clearance board has made it mandatory to construct toilets, hence in some communities there will be less demand for a community toilet. This provides an opportunity to explore other ideas for meeting sanitation infrastructure needs, such as desludging, waste management, and repair and maintenance work.

Our homes are very small, it is just 10x10, we have to sleep, cook and do everything inside the house, there is no space for the toilets, so we told them that we don't want the individual toilets. – Community member and CT user, Tiruchirappalli

Maintenance and repair of existing facilities remains a concern for many, since in recent times there has been less investment in upgrading sanitation facilities. Some collectives took the initiative to improve the experience of users.

The waiting area was in the gent's toilet side, there was no waiting area for the women, so the men used to drink and smoke in that space, after we took over, we did some renovations and then we decide to shift the women's toilet to this side and the men to the other. – Member of urban collective, Tiruchirappalli

Fidelity

Operations and maintenance

The O&M of sanitation facilities is performed keeping in mind the needs and demands of the community who are its primary users. In Tiruchirappalli, the timings of CT/PTs have been scheduled to meet the demand of people, especially women, to ensure their uptake of the sanitation facilities. The community toilet facilities are operational between 4am and 10pm, and the timings remain the same for men and women. The need to open toilets early came from women, who usually go early. This has increased the uptake of facilities by these women.

In a few wards, toilets were reportedly kept open at night, without the presence of a caretaker, so that people could use them in case of emergency. While the timings of operation were similar across the two cities, members reported taking short breaks during the day, during which they were replaced by their family members, including their husbands and children.

Often people reportedly argued or had a scuffle with the cleaners if asked to use the facility properly. Such issues are reported to the group leader and older members of the group or to the resource organizations present in the community. In Tiruchirappalli, caretakers have ULB officials' phone numbers to reach out to them in case any grievances need to be addressed, or if they need urgent help with repair and operations work.

In Tiruchirappalli, each group reported designated specific roles and responsibilities among its members. The group leader is responsible for assigning duties and attending meetings with the ULB, grievance redressal, and arranging for materials and resources.

Accounts are managed by a designated person in the team, who may or may not work as a caretaker, but is responsible for maintaining the bills and expense and income records. It is mandatory that at least one member from every SHE team attends the monthly meeting. Requests for repairs are then sent to the corporation after discussion in these meetings. Cleaning work is sometimes done by caretakers or by appointing an external cleaner who is paid a daily fee.

During the pandemic, an increased demand for community toilets was reported in both cities. This was because more people were staying at home and therefore the use of toilets increased. However, in some wards, the use of community toilets decreased and the demand for private toilets increased due to the fear of contracting infection from poorly maintained sanitation facilities. In response to this, urban collectives in some wards took over operations and maintenance of toilets, which were not in use or were locked as caretakers had moved out. However, several toilet cleaners and caretakers moved back to their native places, which disrupted the toilet O&M. In Coimbatore, desludging operations were often questioned by police, who required a permission letter for carrying out operations. Daily wage earners in the community were unable to pay user fees due to loss of income.

Revenue and income

While the income was reported to be a source of help for paying household expenses, it alone was insufficient to meet all the needs of the sanitation workers and their families. On average, each member could earn up to Rs.3,000–4,000 a month. For members covered under the existing government pension and social benefit schemes, this income acted as a top-up benefit.

Social events in the community were seen as opportunities to earn extra income, as usage of toilets was reported to be high during these events. User fees varied across the sanitation facilities from Rs.1–5 and was lower for residents than for visitors and passersby. Most groups reported waiving user fees for children and the elderly. In most cases, the fees were decided in consultation with the residents, the ward counsellor, and resource partners, and was later displayed on the sanitation facility notice board.

Those who feel that this income is not sufficient to meet their needs do additional jobs, some members may not be able to manage with just Rs.3,000; those members work as domestic helps, etc. Whenever it is not their turn, and they are not engaged in maintaining the toilets they will go for some daily wage work. –
Urban collective member, Tiruchirappalli

Table 12: Revenue and income of sanitation enterprises in Tamil Nadu

Income per member*	Expenditure on cleaning **	Maintenance and repairs	WAVE federation subscription	Savings per member
Rs.2,000–4,000 *7 days of work per month	Rs.150–200 per day (**products and cleaner)	Less than Rs.1,000 covered by urban collectives (such as <i>maintaining leaking taps, faulty roof, damaged doors, electricity</i>) More than Rs.1,000 covered by city corporation	Rs.50 per group/ month	Rs.200 per month

In Tiruchirappalli, each group reported savings of Rs.200 as a contributory monthly saving per member. Group members were also eligible to access group lending facilities.

Around Rs.50–100 is paid as a monthly group subscription for membership to the WAVE federation. However, skepticism was expressed by some members about the role of the federation, as they did not see any apparent benefit from being affiliated with it.

According to interviews with members of urban collectives, the actual cost of managing these enterprises may differ from the revenue generated per month. In the context of CT/PTs, the cost of cleaning (both cleaner fees and cost of bleaching agents, acids and detergent) was seen as a major expense, which was reported to be Rs.150–200 per day or even more if the usage was high.

However, most respondents reported hesitation on the part of users to pay the fees, which often led to arguments, fights, and other unpleasant experiences. In some wards, men were also reportedly jumping the wall to avoid paying fees for toilet use.

On the other hand, despite having a toilet at home, many people reportedly used the community toilet due to fear of private toilet pits and septic tanks filling up. In some toilets, people also washed their clothes or took baths. Thus, the cost of maintenance in wards varied according to the footfall per day and the use behavior of people.

In addition, due to vandalism reported in most toilets – such as breaking light points, placing cigarette butts in plastic buckets, and theft – frequent repairs were needed. The cost of minor repairs (up to Rs.1,000) was reportedly carried out by the collectives; however, large costs are met through corporation support, which often results in long waiting times. Electricity and water charges are also covered through the city corporation.

While most groups were trained to manage their accounts, one group reported engaging a male member to keep account, including depositing savings in the bank and facilitating toilet repairs. In one facility, the members kept Rs.100 aside every day to take care of anticipated repair work.

At times we will hire the cleaners associated with the corporation if not there are also some private individuals who does the cleaning, so we will hire whoever is available at that time. – Urban collective member, Tiruchirappalli

All members reported difficulty in obtaining user fees. This was reportedly due to the perception among community members that since the toilets were constructed by the corporation, urban collectives should provide services free of cost or ask the corporation for money to manage these facilities.

Men won't mind spending the money for the alcohol, but it would be so difficult to collect a monthly subscription of a Rs.100–200 per month...if we ask the SHGs,

'you agreed to clean the area, you agreed to replace the bulbs, why haven't you done that?' they will just stop maintaining the toilet. The community toilet will be abandoned, people will return to open defecation, even if we undertake the maintenance of the toilets, we cannot do it 24/7. – Sanitation official, Tiruchirappalli

In Coimbatore, the NULM-sanctioned loans of Rs.10,000 to collectives has not yet been announced to the group. Keystone Foundation feared that most groups would become money lending groups and use the loan for personal use instead of initiating enterprises. This amount has been sanctioned as an incentive to engage in sanitation enterprises, and to make them more sustainable. However, members from Keystone Foundation reported that they want the collective to know about this fund only when they have been capacitated to leverage it fruitfully. The foundation is training collective members to build their skills in setting up their own enterprise, to ensure sustainable livelihood opportunities for them.

Urban collectives expressed a perceived difficulty in accessing bank loans. Reasons included an unclear application process, lack of ideas or business models for sanitation enterprise work, fear of debt, the need to repay existing personal loans to avail the next one, and a lack of guarantors to secure. In rare cases, it was reported that plot numbers have been entered incorrectly, causing issues in sanctioning of loans that do not match government records.

Provider well-being

Most members expressed an improved sense of agency and self and/or collective efficacy. However, the majority also reported experiencing some form of harassment while delivering their services. Harassment was also felt in the form of stares from strangers, misbehavior of drunken men, and abuses. This was most commonly reported during collection of user fees or when men consumed alcohol inside the toilet facilities or in the periphery of toilet walls.

Local people will argue with us for the user fee, they will buy alcohol for Rs.100 but they will not want to pay Rs.2 for the maintenance of the toilet. They will fight with my wife. – Spouse of urban collective member, Tiruchirappalli

None of the members in Tiruchirappalli reported receiving any social security benefits as part of the sanitation enterprise engagement, except for personal leave. However, desludging operations in Coimbatore reported enrolment in the government's vehicle insurance scheme, and they were also provided with a provident fund. While safety gear was provided to all urban collective members, it was reported by respondents that not all adhered to wearing safety gear.

Respondents in both Tiruchirappalli and Coimbatore also reported that users left the toilets unclean after use, and women often did not use the incinerators for disposal of sanitary pads. Thus, it was felt that there is a need to educate people on how to use the toilet and keep it clean after use.

Acceptability and adoption

Family and community support

Most members expressed a sense of ownership and responsibility towards their community as the most compelling reason for undertaking sanitation enterprise work.

When we work as a group, we can achieve a lot of things for our locality. we can engage in a lot of social cause for our area. – Urban collective member, Tiruchirappalli

This is a service to the community, my wife is doing this as a service for our community, I told her, you don't bother about what people think, you just go ahead and do the job. – Spouse of urban collective member, Tiruchirappalli

The members reported support and cooperation from their family members, including spouses. In Tiruchirappalli, a concerted effort was made towards garnering community support through the formation of the erstwhile Association of Water, Sanitation, and Hygiene committees, now known as WASHMAN committees. These committees consist of ten men and ten women, who are involved in advocacy in the community.

The committees were initially introduced in the rural sanitation programs and later scaled to the urban sanitation programs. To date, 1,000 volunteers (250 committee volunteers in each of the four zones of Tiruchirappalli) have been trained to do advocacy for uptake of sanitation facilities.

In another ward of Tiruchirappalli, a group leader's husband helped in group formation and coordination work with the city corporation. Other members reported family support in managing the community toilets by taking turns to allow them short breaks during the day. However, women also reported that their household role had remained the same, as their families didn't want household work to be compromised. For a few, it was seen as more productive compared to "gossiping" with other women in the community.

Since the women are functioning as a group and there are 25 members in the group, so there is no stigma attached to this work. Perhaps if my wife is the only one involved it may have been different. And the members are all known to each other as well. – Spouse of urban collective member, Tiruchirappalli

In one community of Coimbatore, the intervention with sanitation workers was disrupted due to community interference and conflict between different caste groups over political matters. This made group formation difficult; despite structural initiatives such as toilet refurbishment, the sanitation enterprise work was halted.

There is political influence within that area, so since the local body is not available, there is a lot of clashes between the people, so we currently are not working with that community. – Resource organization, Coimbatore

Community engagement

Community-based organizations and influential members played a pivotal role in mobilizing the collectives to take up sanitation work, and in creating an acceptable environment for them to undertake their work. Urban collectives formed under the SBM – DAY-NULM framework were facilitated in Tiruchirappalli with support from IIHS, Gramalaya, the Society for Education Village Action, and Improvement, and in Coimbatore by IIHS and Keystone Foundation, with support from respective city corporations. Efforts were made to ensure that women joined these groups not just to obtain loans, but to also engage meaningfully in sanitation enterprise work.

Once they come to know there is money in their account, this will again become a loan taking group. So usually, they get into an SHG just to take loans. – Resource organization, Coimbatore

In some communities, women were initially reluctant to be part of sanitation livelihoods groups. However, with the support of community-based organizations and influential members, people started coming forward to form these groups.

They told us upfront that they will not be able to contribute a lot of time for the toilet maintenance because they were working elsewhere. Initially they were not so interested, because if they go and work elsewhere, they will be able to earn a better income. So, it was the housewives that took the first steps. – Urban collective leader, Tiruchirappalli

In most wards, the ward counselors (elected representatives) also facilitated the formation of these groups by mobilizing women and vulnerable groups. However, some skepticism was observed from people belonging to marginalized groups.

When we asked them to join this group for community toilet maintenance few of them asked, 'why do you only select few people, is it because we are from a particular caste?' – Urban collective leader, Coimbatore

Previously, sanitation work was carried out by individuals, including men and older women who cleaned and managed community toilets. Some toilets were exclusively managed by the city corporation, where a designated cleaner cleaned the facilities a couple of times in a week. In some wards of Coimbatore, the town *panchayat* cleaner was designated to clean the toilets, while the urban collectives maintained it.

However, in recent times, daughters-in-law of older members were mobilized by the corporation to form urban collectives. Due to popular demand, in one of the wards a urinal was converted into a community toilet with the help of a newly formed group and with the support of the city corporation. In another ward, a new community toilet was constructed with the intervention of WAVE federation and the urban collectives.

With the help of urban collectives, modifications were made to the existing infrastructure to enhance user experience and make them more inclusive. In Coimbatore, an exclusively male toilet was renovated to include toilets for men and women. In Tiruchirappalli, community members organized protests to renovate a community toilet.

Social norms

Through their engagement in urban collectives in Tiruchirappalli, a greater number of people were reported to receive the benefits, as members rotate responsibilities among themselves. This allows for wider coverage of services and greater participation of community members. To some, this signaled a shift in social norms, as now people across caste groups were engaging in sanitation, not just those who traditionally performed this role.

However, since the peri-urban communities include migrants from different parts of the state, it is often difficult to maintain caste distinctions. The caretakers and cleaners in both cities, and people working in the FSTP in Coimbatore, belonged to the backward class, schedule castes, and scheduled tribes. Therefore, the profile of community members varies across these wards, and no specific caste group is associated with sanitation work. Also, there is an observed shift in people's perceptions around engaging in sanitation work for income generation.

Women feel a superior sense of agency and collective efficacy as they see more women around them engaged in sanitation work. In one third of the groups, male members were reported to play a supportive role in functioning of the enterprise.

We engage the male members to improve the social responsibility, otherwise it may seem like there is no role for the men in this entire ecosystem. They are living in the same slum, so we are engaging them indirectly. – Resource organization, Coimbatore

Many women are very grateful because they were able to provide for their family and bring up their children with this income. So, we can definitely say that their livelihood has improved. – WAVE federation member

Some groups also reported support from male members in depositing money in the bank, coordinating large or labor-intensive repair works, coordinating with corporations on behalf of the group, and providing support to their partners involved in sanitation work.

However, sanitation work is not seen as an aspirational option for their children. One third of respondents also reported backlash and harassment from the community because of the validation their work is receiving from the wider society, and because through this work, they are connected with government functionaries.

Our own people, the other sanitation workers keep teasing us, they say 'in the afternoon they are going to wash the toilet.' They make such sarcastic comments, but we don't bother about that. – NULM sanitation workers, Coimbatore

Out of jealousy people think why should I approach her, is she such a big shot? She grew up before my eye, just because she has been able to get this toilet, has she become a big shot? – Caretaker, Tiruchirappalli

Not all the customers are the same, some will call me sister, some men will caress my hand while giving the money, some men will look at me in an odd manner... I have also beaten some men who have tried to misbehave with me, so the customers coming to my shop has reduced. – Leader, Tiruchirappalli

In Coimbatore, caste distinctions are emerging when it comes to sanitation work. One woman usually clean 7–8 toilets, and many women do not wish to be associated with sanitation work. People refer to them as the “toilet cleaning group,” and the women feel stigmatized in this process.

Employment opportunities

Most members engage in work other than sanitation activities and thus have diversified sources of income. Some members were previously part of finance groups and SHGs formed under Malahir Thittam, and more than half of respondents reported also engaging in alternative professions, including daily work at construction sites, mills, and factories; working as cleaners, domestic help, or tailors; making garlands and imitation jewelry; and preparing *idli/dosa* (steamed cake/pancake) batter. The main reason for engaging in other avenues of income generation is that the sanitation workdays are fixed every month, leaving time for other activities.

Since several members were already part of microcredit groups, they are trained in enterprise management. Members are also aware of various government benefits and schemes; however, there is a need to build their understanding of ways to enhance the scope of sanitation work and implement innovative techniques to meet demand. The urban collectives are formed under a memorandum of understanding between the city corporation and the groups.

Motives

Most workers in both Tiruchirappalli and Coimbatore viewed this work as “profile with a purpose.” This was echoed by members across the two cities, who felt a sense of pride as they were contributing to efforts towards keeping their communities clean and safe, and their work was acknowledged by residents of their respective wards. Some groups in Tiruchirappalli have extended their role to taking collective action for common causes such as ensuring water supplies, road repairs, and installing streetlights. Overall, being a part of the urban collective gave people a sense of ownership and belonging to a more secure and formal livelihood approach.

Whether it is a source of income or not our locality is clean, that is what we care about, the income and expenditure will tally, the most important aspect is that our locality is kept clean, and our children are safe. – Urban collective member

A majority in both cities felt they were doing a good job and that people appreciate them, and this was reported to be the most satisfying part of the work. Community members also expressed happiness and satisfaction with the services of urban collectives. Many members mentioned that being part of these groups has helped them learn to make decisions as a group.

I am very happy that I have developed as a leader, now I know what the issues in my area are, I have learned how the government functions and benefits available with the government. I learned how to manage the group’s finances; I have learned about the different loan assistance available with the government. – Group leader, Tiruchirappalli

A majority in both Tiruchirappalli and Coimbatore reported a sense of self-reliance due to the income from sanitation work, as they could now pay for children's education, increase their savings, become involved in community development, and access loans with low interest rates.

Being a member in the group gives you confidence to speak boldly, we can share our problems with one another, there are so many such benefits being part of the group. – Urban collective secretary, Tiruchirappalli

People say, not bad for her, she is a capable woman to be able to do all this work. – Urban collective member, Coimbatore

However, some respondents expressed a feeling of disgust with poorly used toilet facilities, and in some groups members mentioned cleaners' resistance to the job due to this. Therefore, managing cleaners remains a crucial task of the sanitation facility manager. Some members expressed hesitation in performing sanitation work as they did not think it to be a dignified job.

Sustainability

While the SBM has improved toilet infrastructure and with it, toilet use, there is still a need for continued efforts to sustain these gains. There are a number of lessons and implications for future the sustenance of sanitation-linked livelihoods programs. Participants believe that making improvements to existing infrastructure, such as adding bathing rooms to community toilets, will improve demand and help to generate greater revenue.

In some areas, sanitation work continues to be managed by the town *panchayat*, which hires sanitation workers, rather than by collectives, such as in Coimbatore. In such contexts, there is a need to emphasize the SBM – DAY-NULM convergence framework and introduce newer ideas for sanitation enterprises in order to expand the scope of services.

The government provides incentives in the form of monetary investment if collectives are formed and they engage in sanitation work. However, the Keystone Foundation wants to capacitate the collective before they receive this money, so that it can be used to invest in building an enterprise. This strategy can offer potential sustainability and also be an incentive for women to collectivize and engage in sanitation work.

Similarly, with increased demand for private toilets, the demand for community toilets reached saturation point in Tiruchirappalli. Situations like these have future implications for the type of enterprises currently being run by the collectives. Therefore, there is a need to explore the scope of services that will create demand among individuals with a private toilet, as well as CT/PTs. It is necessary to analyze costs, revenues, and profits in order to design competent business models and identify factors that differentiate performance among sanitation enterprise categories. This could be done at the federation level with support from technical support partners.

In Tiruchirappalli, there is a demarcation of public toilets managed by collectives, and those managed by private agencies. Those run by private agencies are usually located in areas with higher footfall, and therefore generate more revenue. Collectives do not have

the wherewithal to manage these public toilets. Thus, it is important that collectives are capacitated such that they can manage toilets with higher footfall. During allocation of these public toilets, ULBs should ensure that management of at least some of them is performed by collectives. This can ensure higher revenue, and in turn, the financial viability of these collectives.

3.3.7 Key findings

- Both service delivery and user uptake of sanitation facilities were improved through community-led initiatives like the Association of Water, Sanitation, and Hygiene committees.
- Trainings were provided to collectives on maintenance of sanitation facilities, and on menstrual hygiene management.
- There is a grievance redressal mechanism wherein which a monthly meeting was organized. At least one member from the SHE committee attended the meeting and noted the issues in sanitation facilities. A letter was then submitted to the ULB with details about the issues faced by collective members for redressal.
- In Tiruchirappalli, the pay per use toilet model was prevalent. However, most members reported difficulty in collecting fees from users, especially men. In Coimbatore, toilet use was free, and the cleaners were provided with daily salaries by the ULB.
- Communities and families of collective members acknowledged and supported their engagement with sanitation facilities. Collective members who managed the sanitation facilities reported an increase in their confidence, efficacy, and social capital because of association with collectives and having a source of income.

4. Discussion

All six cities in this study have distinct sanitation models, each with their own merits and demerits. The outbreak of COVID-19, and the lack of employment opportunities due to lockdown, resulted in demand and uptake of sanitation work by collective members, as it offered a source of income during a time of crisis. Many collectives and caretakers, who had initially been hesitant to engage with sanitation work due to caste stigmas, started doing so due to lack of other employment avenues.

Although cleaning work in the CT/PT continued to be outsourced to people from a scheduled caste community who traditionally engage in sanitation work, members from upper castes engaged as caretakers or resource person for these sanitation collectives. Similarly, in Odisha's SWM, people across castes engaged in the sanitation work as it offered a steady source of income.

We observed that those transgender people, PwD, and women from the most marginalized populations who engaged in sanitation work valued it more than other women's collectives. Apart from offering a steady source of income, it was also a way to reintegrate them into the society. Since it was a government intervention, it was also a source of validation for them. Few had been recognized as role models and awarded during the Swachh Sarvekshan for their good work. Thus, these groups valued and acknowledged this livelihood opportunity more than others. However, none aspired for their children to continue in this occupation; rather, they were using their income to provide better educational opportunities for their children.

Payment delays, especially for members engaged in CT/PTs, was a major challenge across all six cities. In Odisha and Telangana, a government order states that payments must be made by a certain date every month; however, in practice this is not what we observed.

One possible reason includes complicated bureaucratic processes. Paperwork is required of them, unlike FSTP or SWM plant workers whose salaries are paid by the ULB.

The CT/PT must first submit the bill, which is then cleared by the sanitary inspector and then moves to the concerned ULB official. These processes take time, and the delay is often at the inception level (i.e., by members of the collective filing the bills). In Odisha, however, the payment system for CT/PTs has been streamlined since April 2022, as reported by the TSU partner.

The issue of people causing damage to the CT/PTs has led to an increase in cost for repair work, the burden of which usually falls on collective members. The issue of people consuming alcohol and causing damage to the sanitation facility and threatening the safety and security of the caretaker within the facility was also reported. In some cases, this also resulted in their family members dissuading them from undertaking the work with sanitation collectives due to the risks it posed.

In most places, the work of cleaning sanitation facilities was outsourced to a cleaner who usually belonged to the lower caste, due to stigma attached to sanitation work. Many times, however, the cleaner was not a member of the collective. This subcontracting weakened the implementation process, as there was a lack of ownership. Also, the cleaner in most cases was not aware of the policy guidelines of the SBM – DAY-NULM convergence, or the contract through which the CT/PT sanitation program was implemented.

Training was mostly provided at the SLF level and was largely confined to office bearers. However, the work was performed by cleaners and sometimes their family members. The cleaners mostly belonged to the most marginalized communities, and this lack of awareness can be disempowering for them.

Monitoring systems must be more robust. There is a need for real-time monitoring with grievance redressal by leveraging technology to make it more effective and timebound. Also, community ownership needs to be built, which can ensure effective monitoring for sanitation.

The question of sustainability of these interventions remains a challenge for policymakers, collective members, and TSUs. The potential for SWM and FSTPs being sustainable is higher if recycled products from these plants undergo quality checks, are certified with quality assurance, and effectively marketed. However, the financial sustainability of CT/PTs on their own poses a challenge, and there is a need to explore revenue generation methods for the same.

Based on the findings and analysis of all three states and six cities, the study suggests some recommendations for better implementation of the collective-led sanitation model, while embedding the aspects of scalability and sustainability within program implementation.

4.1 Key recommendations

4.1.1 State government and ULB

Odisha

1. **Mitigating payment delays:** The state government's recent circular in April 2022 on the autopayment of salaries to all collectives managing sanitation facilities on the seventh of every month (without mandatory submission of invoices and bills) is a welcome step. A community participation cell has also been instituted, which runs like a call center and contacts collectives to ensure that timely remuneration has been made. It is important that the collectives and their members are made aware of the helpline number so that they can reach out to redress any payment-related grievances. In addition, the ULB must monitor the auto payment process closely to make it seamless.
2. **Provider well-being:** Installing a security box for the caretaker, like in Warangal, Telangana, provides an incentive for sanitation workers to stay longer hours in the facility and monitor these. It provides a safe space especially for women to sit and do bookkeeping work. A security box with proper ventilation and a baby care facility can be helpful for caretaker well-being, and should be introduced outside all CT/PTs.

PPE kits should be customized for female sanitation workers to ensure their safety and good health. The ULB can include mandatory sick leave and maternity leave for caretakers and cleaners in the contract guidelines. (Respondents reiterated the need for these benefits across the three states.) In Odisha, sanitation workers need to be made aware of existing health insurance schemes like the Biju Swasthya Kalyan Yojana. A hardship allowance under the GARIMA scheme, which is presently being provided to core sanitation workers, should be extended to those involved in CT/PT, women and transgender people in the SePT, and *swachh karmis* in SWM.

3. **Training:** *Swachh sathis* and leaders of the SeTP and SWM plants in Odisha can be capacitated to become master trainers. In all cities in Odisha, *swachh sathis* have been appointed and are doing commendable work in both service delivery and demand generation. Many of them are being rewarded for their good performance. However, they can also be used resource persons to train new potential *swachh sathis* in other districts and towns. This can help to make the program sustainable by embedding these processes within the existing system.
4. **Monitoring:** Instituting a monitoring task force comprising senior- and middle-level ULB officials for faster grievance redressal of collectives around repair work and O&M of facilities is recommended. Further, meetings can be organized where collective members and common citizens are invited to share their concerns and feedback with the task force. Such an arrangement, the brand ambassador model, has been implemented in Dhenkanal with great success, and can also be scaled up across other towns.

Additionally, when the district collector is reviewing sanitation programs in the district, the status and issues around collective-managed facilities can be an agenda point. Regular meetings with all members in the SWM and SePT plant at least once a week is required. There is also a need to institutionalize weekly or

fortnightly meetings between collectives and the ULB nodal officer to discuss any impending issues or challenges.

5. **Sustainability:** To make the SWM, CT/PT, and the FSTP model financially sustainable, it is recommended to consider using existing infrastructure for revenue generation activities. For instance, in Tamil Nadu, collectives create and sell products such as phenyl, soap, and sanitary pads, and prepare compost using FSTP by-products, among other things. Other states can consider similar set-ups. With adequate marketing and branding, including the use of social media, these enterprises can be made financially viable.

Where additional space is available, CT/PTs can also sublet the area for businesses like coaching centers and social gatherings. Products produced by collectives can be sold near CT/PTs for revenue generation. There is also an opportunity to lease wall space for advertisements. The ULB space can also be effectively used for setting up enterprises such as the loo cafés in Telangana (it is worth mentioning that the loo café model is still in a nascent stage, and its financial viability is yet to be determined).

Tamil Nadu

1. **Provider well-being:** Installing a security box for the caretaker, like in Warangal, Telangana, provides an incentive for sanitation workers to stay longer hours in the facility and monitor these. It provides a safe space, especially for women to sit and do bookkeeping work. A security box with proper ventilation and a baby care facility can be helpful for caretaker well-being, and should be introduced outside all CT/PTs. The ULB can include mandatory sick leave and maternity leave for caretakers and cleaners in the contract guidelines. The need for these benefits was reiterated during interviews with respondents across the three states.
2. **Effective grievance redressal and demand generation mechanisms:** Like the Dhenkanal ULB in Odisha, a group of influential community members can be appointed by the ULB as brand ambassadors of collective-managed sanitation facilities. They can act as a bridge between the public, the ULB, and the collectives to raise and discuss issues and grievances across stakeholders. They can also help to create awareness and facilitate buy-in from the public for collective-run sanitation facilities. These groups can also conduct social audits for improved monitoring of the facilities.
3. **Sustainability:** Collectives in Tiruchirappalli are creating and selling products such as phenyl, soap, and sanitary pads. This can be focused and promoted amongst collectives in other cities. With adequate marketing and branding, including the use of social media, these enterprises can be made financially viable. Where additional space is available, CT/PTs can also sublet the area for businesses like coaching centers and social gatherings. Products produced by collectives can be sold near CT/PTs for revenue generation.

There is also opportunity to lease wall space for advertisements. The ULB space can also be effectively used for setting up enterprises such as the loo cafés in Telangana (however it is worth mentioning that the model is in its nascent stages, and the financial viability is yet to be determined).

Telangana

1. **Mitigating payment delay:** The government can consider developing and integrating a window for uploading bills and invoices by caretakers and cleaners on the Pattana Pragathi Toilet Monitoring System app. This will facilitate timely approval of invoices by officials so that payments can be processed on time. An in-built reminder can also be built into the app for each of these procedures. A stipulated timeline for the collectives can be specified to submit their bills and invoices.
2. **Provider well-being:** Installing a security box for the caretaker, like in Warangal, Telangana, provides an incentive for sanitation workers to stay long hours in the facility and monitor these. It provides a safe space, especially for women to sit and do bookkeeping work. A security box with proper ventilation and a baby care facility can be helpful for caretaker well-being and should be introduced outside all CT/PTs. The ULB can include mandatory sick leave and maternity leave for caretakers and cleaners in the contract guidelines. The need for these benefits was reiterated during interviews with respondents across the three states.
3. **Support for repairs and maintenance:** Effective implementation of key systems are essential, such as having a ready pool of plumbers, electricians, and suppliers of low-cost cleaning materials to support collectives on repairs and maintenance as mentioned in the contract.
4. **Effective grievance redressal and demand-generation mechanisms:** Like Dhenkanal ULB in Odisha, a group of influential community members can be appointed by the ULB as brand ambassadors of collective-managed sanitation facilities. They can act as a bridge between the public, ULB, and the collectives to raise and discuss issues and grievances across stakeholders. They can also help to create awareness and facilitate buy-in from the community for collective-run sanitation facilities. These groups can also conduct social audits for improved monitoring of the facilities.
5. **Sustainability:** To make the SWM and FSTP model financially sustainable, consider using existing infrastructure for revenue-generation activities. For instance, in Warangal (Telangana), collectives are creating and selling products such as phenyl, soap, and sanitary pads. This can be promoted amongst collectives in other cities as well. With adequate marketing and branding, including the use of social media, these enterprises can be made financially viable.

Where additional space is available, CT/PTs can also sublet the area for businesses like coaching centers and social gatherings. Products produced by collectives can be sold near CT/PTs for revenue generation. Another opportunity is to lease wall space for advertisements. The ULB space can also be effectively used for setting up enterprises such as the loo cafés in Telangana (though the model is still in nascent stages, and its financial viability yet to be determined).

4.1.2 Technical support unit

1. **Contracting:** Create awareness on contracts across all signatories of the contract including collective members, caretakers, cleaners, and ULB officials. Also, developing a checklist with criteria to guide ULBs on contracting collectives is recommended. This can be adapted to account for the location and the socioeconomic and political context of each place and can include factors like

proximity of collective members' homes from sanitation facilities. This checklist should also be shared with the sanitation workers for their reference.

The contract should also mention the roles and responsibilities of collective members managing sanitation facilities. It should also inform them of onboarding and refresher trainings provided to collective members. Criteria checklists can include succinct points on what factors are looked at to engage the collectives, which can be easier for collective members to comprehend, rather than going through a long document.

2. **Robust training mechanisms:** While TSUs are actively involved in training service providers and ULB members, there are gaps. It is important to institute mechanisms to ensure that training on contracting, and O&M is provided to people who are working in sanitation facilities. For instance, due to subcontracting (particularly cleaning work in CT/PTs), TSU members never train cleaners. They are usually unaware of the contract terms and other aspects intrinsic to the work.

There should be evaluations to determine the impact and outcome of training. To embed the training system within the urban collective, a cascading model can be used by training master trainers from within the collective, whose work has been recognized and awarded. Refresher trainings should also be organized at least once a year, and members should be informed of any changes in policy guidelines or contracts. Gender sensitization trainings for ULB members and all workers across the sanitation value chain are essential for improved interaction (ASCI has taken steps in Telangana for this).

Other TSUs can leverage ASCI's training materials and further develop these modules. Cross-learning visits should be encouraged amongst TSUs to learn from and replicate these practices in different states.

3. **Behavior change:** As stealing and destruction is a major problem across CT/PTs in the three states, a robust information awareness intervention with the involvement of the community can be beneficial. The Association of Water, Sanitation, and Hygiene committees in Tamil Nadu, for example, offer a good model for engaging the community, especially men, to build support for sanitation facilities managed by women.

These community- based groups or organizations can also be used to monitor the collectives and activities which lead to damage of facilities. Social audits can be instituted for better implementation of these programs and to create a sense of ownership amongst the users. Existing sanitation subcommittees under ALF, or like in Odisha, a slum dweller association under the Jaga Mission, can be used for social audits and demand generation.

4. It is also important to make ULBs aware of the challenges that the sanitation workers face, as they are sometimes unaware and thus do not realize the urgency of help or support required.

4.1.3 The Bill & Melinda Gates Foundation

1. Document, streamline, and encourage cross-learning across TSUs through peer-networks. This can be done through workshops and exposure visits, where different TSUs share experience and learnings, so that other TSUs can assess the

feasibility of adopting the best practices of other states. Further, it is recommended that existing tools, such as the National FSSM alliance portal, are leveraged and used to discuss and disseminate these practices.

2. Based on our findings, it is observed that the sustainability plan of TSUs across states remains ambiguous. It is recommended that future investments mandate TSUs to include a robust sustainability plan, along with a pilot proposal for testing this. The sustainability plan may involve development of contingency plans by TSUs and resource partners, including an assessment of the urban collective's sense of ownership to continue sanitation livelihoods activities, community demand for and response to services, knowledge and skills of urban collectives and communities, institutional and human resource capacity of urban collectives, resilience to shocks and changes in the political and social environment, and plans to mobilize the consumable supplies that are required to implement sanitation livelihoods activities.

We conducted this learning study to understand the implementation process involved in the sanitation models, and barriers and facilitators in the process. The collective-led sanitation program offers a lucrative opportunity for both the implementers as well as providers. This study also shows that a rigorous evaluation of these models can help to understand what works and what does not work in each context. Further studies, especially those aiming to understand social impacts and costs, as well as operational challenges in implementation, can help to scale up the model in different cities in these three states, and beyond.

References

- Aiemjoy, K, Stoller, NE, Gebresillasie, S, Shiferaw, A, Tadesse, Z, Sewent, T, Ayele, B, Chanyalew, M, Aragie, S, Callahan, K, Stewart, A, Emerson, PM, Lietman, TM, Keenan, JD and Oldenburg, CE, 2017. Is using a latrine “a strange thing to do”? A mixed-methods study of sanitation preference and behaviors in rural Ethiopia. *American Journal of Tropical Medicine and Hygiene*, 96(1), pp.65–73. Available at: doi: <https://doi.org/10.4269/ajtmh.16-0541>
- Akwataghibe, N, Ogunsola, E, Popoola, O, Emeji, A and Dieleman, M, 2019. Increasing immunisation in Ogun State, Nigeria: a formative evaluation of a participatory action research intervention. 3ie Formative Evaluation Report. New Delhi: International Initiative for Impact Evaluation (3ie). Available at: doi: <https://doi.org/10.23846/TW10FE04>
- Annamalai, TR, Narayanan, S, Devkar, G, Kumar, VS, Devaraj, R, Ayyangar, A and Mahalingam, A, 2017. Incorporating the life-cycle approach into WASH policies and programmes: a systematic review. 3ie Systematic Review 35. London: International Initiative for Impact Evaluation (3ie). Available at: <https://www.3ieimpact.org/sites/default/files/2019-06/sr35-life-cycle-wash.pdf>. Accessed April 2022.
- Armand, A, Augsburg, B, Bancalari A and Trivedi B, 2020. Community toilet use in Indian slums: willingness-to-pay and the role of informational and supply side constraints, 3ie Impact Evaluation Report 113. New Delhi: International Initiative for Impact Evaluation (3ie). Available at: doi: <https://doi.org/10.23846/DPW1IE113>
- Atyang, A, 2016. *On-Going And Planned Disaster Related Resilience Programming in Uganda*. [online] Office of the Prime Minister and the United Nations Development Programme. Available at: <http://necoc-opm.go.ug/reports/16.%20Ongoing%20and%20Planned%20Disaster%20Related%20Resilience%20Programming%20in%20Uganda.pdf>. Accessed April 2022.
- Baradi, K, Malhotra, M, Rao, X, 2021. *Leverage SHGs to create livelihood in urban sanitation*. Indian Development Review. Available at: <https://idronline.org/leverage-shgs-to-create-livelihoods-in-urban-sanitation/>. Accessed April 2022.
- Barooah, B, Chinoy, SL, Bagai, A, Dubey, P, Sarkar, R, Bansal, T and Siddiqui, Z, 2020. How effective are group-based livelihoods programmes in improving the lives of poor people? A synthesis of recent evidence. 3ie Working Paper 35. New Delhi: International Initiative for Impact Evaluation (3ie). Available at: doi: <https://doi.org/10.23846/WP0035>. Accessed April 2022.
- Baxter, K, Courage, C and Caine, K, 2015. *Understanding your users: a practical guide to user research methods*. Burlington, MA: Morgan Kaufmann.

Brody, C, De Hoop, T, Vojtkova, M, Warnock, R, Dunba, M, Murthy, P and Dworkin, SL, 2016. Economic self-help group programmes for improving women's economic empowerment: a systematic review. *3ie Systematic Review* 23. London: International Initiative for Impact Evaluation (3ie). Available at: <https://www.3ieimpact.org/sites/default/files/2019-01/sr23-self-help-group-review.pdf>. Accessed April 2022.

Bharat, G, Dkhar, N, B, and Abraham, M, 2020. Aligning India's sanitation policies with the sustainable development goals (SDGs), TERI Discussion Paper. Available at: <https://www.teriin.org/sites/default/files/2020-01/aligning-Indias-sanitation-policy-with-the-SDGs.pdf>. Accessed April 2022.

Chandramouli, C. and General, R., 2011. Census of India. *Rural urban distribution of population, provisional population total*. New Delhi: Office of the Registrar General and Census Commissioner, India.

Coffey, D, Gupta, A, Hathi, P, Khurana, N, Spears, D, Srivastav, N and Vyas, S, 2014. Revealed preference for open defecation. *Economic and Political Weekly*, 49(38), pp.43–55.

Coffey, D, Gupta, A, Hathi, P, Spears, D, Srivastav, N and Vyas, S, 2015. Culture and health transition: understanding sanitation behaviour rural North India. [online] International Growth Centre. Available at: <https://www.theigc.org/wp-content/uploads/2015/04/Coffey-et-al-2015-Working-Paper-1.pdf>. Accessed April 2022.

Desai, RM and Joshi, S, 2013. Collective action and community development: evidence from self-help groups in rural India. World Bank Policy Research Working Paper 6547. Available at: <http://documents.worldbank.org/curated/en/178591468042542781/pdf/WPS6547.pdf>. Accessed April 2022.

Ernst & Young, FSSM Odisha and H&UDD, Govt. of Odisha. 2020. Partnering with local communities for sustainable sanitation: A guide on how urban Odisha engaged women and transgender SHGs to manage septage treatment plants.

Gale, N, Heath, G, Cameron, E, Rashid, S and Redwood, S, 2013. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Medical Research Methodology*, 13(117). Available at: <http://www.biomedcentral.com/1471-2288/13/117>. Accessed April 2022.

Jhpiego, 2016. *Gender analysis toolkit for health systems*. Available at: <https://gender.jhpiego.org/docs/Jhpiego-Gender-Analysis-Toolkit-for-Health-Systems.pdf>. Accessed April 2022.

Khanna, T and Das, M, 2016. Why gender matters in the solution towards safe sanitation? Reflections from rural India. *Global Public Health*, 11(10), pp.1185–1201. Available at: doi: <https://doi.org/10.1080/17441692.2015.1062905>

Kochar, A, Barooah, B, Jain, C, Singh, G, Closepet, N, Narayanan, R, Sarkar, R and Shah, R, 2020. Impact evaluation of the National Rural Livelihoods Project, 3ie Impact Evaluation Report 128. New Delhi: International Initiative for Impact Evaluation (3ie). Available at: doi: <https://doi.org/10.23846/NRLMIE128>

Kumar, N, Raghunathan, K, Arrieta, A, Jilani, A, Chakrabarti, S, Menon, P and Quisumbing, AR, 2019. Social networks, mobility, and political participation: the potential for women's self-help groups to improve access and use of public entitlement schemes in India. *World Development*, 114, pp.28–41. Available at: <https://www.sciencedirect.com/science/article/pii/S0305750X18303553>. Accessed April 2022.

Ministry of Housing and Urban Affairs (MoHUA), Government of India. *Deendaya Antyodaya Yojana – National Urban Livelihoods Mission*. Available at https://nulm.gov.in/PDF/NULM_Mission/NULM_mission_document.pdf. Accessed April 2022.

Ministry of Housing and Urban Affairs (MoHUA), Government of India, 2018. *Empowering marginalized groups – convergence between SBM and DAY-NULM*. Available at: <http://mohua.gov.in/cms/sbm--nulm-convergence-guideline.php>. Accessed April 2022.

Ministry of Housing and Urban Affairs (MoHUA), Government of India, 2020. *Swachh Survekshan Survey 2020: world's largest urban sanitation survey*.

Ministry of Urban Development (MoUD), Government of India, 2017. *National Policy on Faecal Sludge and Septage Management (FSSM)*.

Moore, G, Audrey, S, Barker, M and Bond, L, 2014. Process evaluation of complex interventions. *Decipher.Uk.Net*, 19–45; 64–75. Available at: <https://www.bmj.com/content/350/bmj.h1258>.

NITI Aayog, Government of India, January 2021. *Faecal sludge and septage management in urban areas - Service and business models*. Available at: <https://nfssmalliance.org/resources/niti-aayog-report/>. Accessed April 2022.

Novotný, J, Humňalová, H and Kolomazníková, J, 2018. The social and political construction of latrines in rural Ethiopia. *Journal of Rural Studies*, 63(July), pp.157–167. Available at: doi: <https://doi.org/10.1016/j.jrurstud.2018.08.003>

Orgill-Meyer, J, Pattanayak, SK, Chindarkar, N, Dickinson, KL, Panda, U, Rai, S, Sahoo, B, Singha, A and Jeuland, M, 2019. Long-term impact of a community-led sanitation campaign in India, 2005–2016. *Bulletin of the World Health Organization*, 97(8), pp.523–533A. Available at: doi: <https://doi.org/10.2471/BLT.18.221572>

Peters, D, Tran, N and Adam, T, 2013. *Implementation research in health: a practical guide*. Alliance for Health Policy and Systems Research and World Health Organization.

Rahman MK, Gazi MAI, Bhuiyan MA, Rahaman MA (2021) Effect of Covid-19 pandemic on tourist travel risk and management perceptions. *PLoS ONE* 16(9): e0256486. <https://doi.org/10.1371/journal.pone.0256486>

Reddy, CS and Manak, S, 2005. Self-help groups: a keystone of microfinance in India - women empowerment & social security. APMAS. Available at: <https://www.findevgateway.org/paper/2005/10/self-help-groups-keystone-microfinance-india-womenempowerment-social-security>. Accessed April 2022.

Routray, P, Schmidt, W, Boisson, S, Clasen, T and Jenkins, M, 2015. Socio-cultural and behavioural factors constraining latrine adoption in rural coastal Odisha: an exploratory qualitative study. *BMC Public Health*, 15(1). Available at: <https://bmcpublikealth.biomedcentral.com/articles/10.1186/s12889-015-2206-3>. Accessed April 2022.

Shah, A, Thathachari, J, Agarwal, R and Karamchandani, A, 2013. White paper: a market led, evidence based approach to rural sanitation. Deloitte Touche Tohmatsu India.

Singh, A, 2007. Do we really need to shift to pedestal type of latrines in India? *Indian Journal of Community Medicine*, 32(4), p.243. Available at doi: <https://doi.org/10.4103/0970-0218.37686>

Singh, M, 2021. *Operationalising citiis component II: State Partnership with Odisha*. Available at: <https://niu.in/citiis/content/operationalising-citiis-component-ii-state-partnership-odisha>. Accessed April 2022.

Sridhar, K and Reddy, A, 2010. *State of urban services India's cities*. New Delhi: Oxford University Press.

Sugden, S, 2013. The importance of understanding the market when designing pit-emptying devices. *Waterlines*, 32(3).

Swachh Bharat Mission - Urban- Dashboard 2022- Accessed in February 2022

Thys, S, Mwape, KE, Lefèvre, P, Dorny, P, Marcotty, T, Phiri, AM, Phiri, IK and Gabriël, S, 2015. Why latrines are not used: communities' perceptions and practices regarding latrines in a taenia solium endemic rural area in Eastern Zambia. *PLoS Neglected Tropical Diseases*, 9(3), pp.1–20. Available at: doi: <https://doi.org/10.1371/journal.pntd.0003570>

Vutukuru, V.K., Kak, M., Machiraju, S., Singh, P., 2017. Self-Help Women's Groups in India help change behavior around diets and toilet use to improve health. Available at <https://blogs.worldbank.org/water/self-help-women-s-groups-india-help-change-behavior-around-diets-and-toilet-use-improve-health>. Accessed April 2022.

Wankhade, K., 2015. Urban sanitation in India: key shifts in the national policy frame. *Environment and Urbanization*, 27(2), pp.555-572.

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