



ODISHA'S Super 34

ACCELERATED THE CREATION OF FAECAL
SLUDGE TREATMENT PLANTS



INTRODUCTION

Liquid waste management is at the heart of the development of a state's sanitation services. Seeping out of households, toilets, commercial and industrial sites, it impacts critical dimensions of urban planning, public health, quality of life, and environmental sustainability.

This handbook dives deep into Odisha's journey with human waste management through the efficient construction of Septage Treatment Plants (SeTPs). SeTPs treat faecal waste and prevent pathogens in liquid waste from entering water bodies. It traces Odisha's pre-existing sanitation context, strategic mechanisms for the 'Super 34' project which constructed 34 FSTPs in 100 days, its implementation, solutions devised to address obstacles, and key takeaways for the replication of this initiative. It offers learning, best practices and insights to document and enable future.

Effective human waste management and preventing contamination of water bodies and soil helps in biodiversity conservation and maintaining overall ecological balance. Efficient

liquid waste management promotes clean water, reliable sanitation, and contributes to sustainable development and social well-being.

Over the years, Odisha's progress has seen focused and strategic sanitation efforts from the state, diverse partners, and the broader community. In 2015, the state had 1 operational STP which accounted for only 2% of urban faecal sludge. This changed drastically in 2021, when a host of institutional changes, strong resolve in the government and proactive support from service providers came together to transform Odisha's sanitation landscape. In 4 months, 34 SeTPs were constructed, earning the title 'Super 34.' This initiative was a culmination of the state's bold vision and systematic approach to achieving comprehensive sanitation coverage over the years. It marks the first instance - not just in Odisha but also in the entire country - with such rapid scaling of Faecal Sludge and Septage Management (FSSM) infrastructure.

ARCHITECTS OF TRANSFORMATION

State and local government along with parastatal organisations, departments and agencies, all came together to play a key role in activating different components of the mission.

1. State Organisations



i. The Housing and Urban Development Department (H&UDD), Government of Odisha

The H&UDD was tasked with the execution of the Odisha Urban Sanitation Strategy, with support and implementation of Urban Local Bodies and related governmental departments. Their approval, budgeting, and strategy enabled a project of such an enormous scale to proceed.



ii. State Pollution Control Board

The SPCB ensured thorough documentation, consideration, and permissions to allow the infrastructural project to move forward in adherence to compliances.



iii. Technical Support (TSU)

EY as Odisha TSU is supporting the government in implementing FSSM since 2016. They have supported in collaborating with various government wings and departments, ensuring strategic implementation and expedited timelines for Super 34.



2. Parastatal Organisations



i. Odisha Water Supply and Sewerage Board (OWSSB)

The OWSSB floated tenders, monitored progress, provided technical supervision and financial support throughout the entire process.



ii. State Level Septage Cell, OWSSB

Embedded in the OWSSB, this cell scoped out the land for its viability and prepared Detailed Project Reports (DPRs) for each SeTP. It prepared the process designs, and the development of blueprints, plant layout, construction drawings and estimates for construction.



iii. Water Corporation of Odisha (WATCO)

WATCO is entrusted with water supply and sewerage services in specific cities in tandem with municipal bodies. They supervised construction of two SeTPs out of Super 34.



iv. Urban Local Body (ULB)

SeTPs are housed within the geographical jurisdiction of its respective ULB. ULBs represent decentralized forms of governance and their officials spearheaded each stage of the construction process within their land.



v. Executive Officers (EOs)

EOs, present at the helm of particular ULBs, provided clear, well-designated areas of land for construction, liaised with the team of operators on ground, and processed applications for electricity supply, work orders, and contracts.



vi. Engineers

Municipal Engineers and Juniors Engineers oversaw the execution of construction work, preparation of bills, payments, and assurance that tasks are completed in their respective jurisdiction.

Housing & Urban Development Department too special efforts to strengthen capabilities and enlighten multiple stakeholders, underlining the urgency of septage management. For instance, sessions were conducted for Executive Engineers of PHEO (Public Health Engineering Organisation), Municipal Engineers, and Junior Engineers of ULBs to familiarise them with the

FSSM concept. Further, special sessions oriented the Technical Support Unit (TSU) to their roles. Finally, EOs and engineers of ULBs and PHEO benefited from capacity building sessions and exposure visits conducted twice. These processes empowered each stakeholder to fulfil their role with precision and ownership through the journey.

DECONSTRUCTING THE JOURNEY

In 2017, the Housing & Urban Development Department (H&UDD) of the state initiated an Urban Sanitation Strategy, in alignment with various state and national policies. The goal was clear: to create a sanitation landscape that was community-driven, accessible to all, and safe for both end users and professionals. This has served as the big-picture goal guiding the state's sanitation decisions. In September 2018, Odisha embarked on a mission to bolster its Faecal Sludge and Septage Management (FSSM) infrastructure across all 114 ULBs. This was catalysed by support and approval from the Hon'ble Chief Minister. The Odisha Water Supply and Sewerage Board (OWSSB) was entrusted to lead this effort by activating ULBs and planning land arrangements across the state for the construction of SeTPs.

These SeTPs, similar to their predecessors, were designed to implement a decentralised wastewater system (DEWATS), lauded for its cost-effectiveness and suitability for operation by semi-skilled personnel. Moreover, the integration of landscaping into the design transformed these facilities into welcoming public spaces, elevating community acceptance and engagement with septage treatment plants.

To expedite construction, the state zealously adopted a mission-oriented approach, with the State Level Septage Cell (SLSC) playing a pivotal role through rigorous monitoring mechanisms. Next, the following steps were activated to drive movement on the project:

1 LAND ORGANISATION



EOs of various ULBs identified viable land in clusters across their areas. This was facilitated by metrics and checklists of feasibility that were standardised across the state to ease

decision-making. Chosen land was then inspected by OWSSB Engineers, construction was authorised, and detailed reports were maintained of the identification process.

Fig. Meeting with EOs, ULB personnel and contractors



2 TENDERING



DPRs were prepared and shared on the H&UDD website, where staggered online tendering took place. This tendering process was devised to ensure multiple bidders were given opportunity to assess their resources and needs, and accordingly bid for tenders. It gave organisers on the back-end time to consider – through different phases – how best to distribute and match offers. This led to an accessible, well-thought-out experience for both stakeholders, and enabled later stages to proceed without hiccups of mis-tendering.

After the OWSSB's evaluative committee opened the bidding process, eligible and cost-effective

bidders were given contracts. These bidders deputed agencies who would be responsible for the execution of these tasks, and ULBs handed over their designated land to them following the issue of work orders. Frequent meetings, capacity building efforts, as well as interdepartmental coordination ensured that the work was kicked off with clarity, capability, and efficiency. The state embraced technology-driven project monitoring tools introduced by the TSU. This tool facilitated the transparent display of construction progress, streamlining operations, and generating automated dashboards for real-time on-ground project monitoring.

3 CONSTRUCTION



By 2020, the state had meticulously laid the foundation for construction, following a planned phased strategy. A series of projects, like garbage removal, soil testing, and surveying were taken up to ensure compliance with relevant

guidelines and sustainability measures. Required approvals were given by the OWSSB on the technical drawings so that construction would be efficient and fast-tracked.

4 COMMISSIONING PHASE



The TSU, ULB engineers, and OWSSB engineers monitored the day-to-day progress and activities of the construction.

The TSU's innovative cluster-lead approach involved senior team members overseeing designated clusters based on geographical proximity. These cluster leads conducted regular site visits, thereby ensuring timely, high-quality construction. Their findings were recorded in a weekly progress tracker, and shared on a WhatsApp group. They employed WhatsApp for regular updates, creating the 'SeTP Mgt Odisha Group' comprising all stakeholders, including senior officials like the Additional Chief Secretary. This platform enabled real-time monitoring of site construction progress, with stakeholders providing regular photos and weekly reports of

the physical progress tracker. Deadlines were assessed and revised where required. Checklists were developed with the guidance from OWSSB to maintain high standards of technical efficacy.



CHALLENGES, INSIGHTS, AND ACTIONABLE TAKEAWAYS

The Super 34 initiative confronted both technical and administrative obstacles in its early stages. However, these challenges offered valuable early lessons, prompting timely course corrections. Some challenges became apparent quickly, such as highly populated areas lacking sanitation infrastructure for treatment of faecal sludge, and the need to develop the facilities in the ULBs. These early diagnoses were helpful in illuminating that long-term change would have to be both technical and institutional – neither governance nor infrastructure alone could sustain safe sanitation systems.

A simultaneous, thoughtful series of changes was required.

Below are the key challenges encountered, how they were tackled, and subsequent best practices for replication. From weekly status updates via WhatsApp, to planned capacity building, Super 34 was a standout success in sanitation service delivery. They form a handbook from on-ground insights and planning frameworks for states to consider when engaging in scaling up of sanitation services for efficiency and optimal use of resources.

A LAND IDENTIFICATION AND SELECTION ISSUES



Effective land identification for septage treatment plants posed a multi-faceted challenge due to stringent environmental requirements and standards.

- Locating suitable land parcels for construction often entailed complex administrative procedures, requiring ULBs to apply for land with the Tehsildar, resulting in delays
- Chosen sites frequently failed to meet environmental criteria, such as being prone to flooding or waterlogging, being near water sources and inhabited areas or lacking proper accessibility
- Inadequate access to a stable electrical supply further complicated the construction process

Fig. Visit by OWSSB officials to SeTP sites



HOW IT WAS HANDLED:

Efficient Land Identification and Allocation

1. **Pre-Tender Land Identification:** Prior to tendering, ULBs identified suitable land, that was jointly verified with OWSSB for suitability.
2. **Timely Delegation:** Clear timelines and decentralised responsibilities to Tehsil offices within ULBs expedited the process.
3. **Legal Procedures:** Robust legal proceedings ensured proper land delineation, making it construction ready.
4. **Community Engagement:** Recognising the importance of community cooperation, communities were sensitised about the

necessity and benefits of SeTPs. Embracing transparency, communication channels expanded to include non-government stakeholders, notably contractors. This shift improved visibility into external parties' activities, enhanced accountability, and streamlined grievance resolution.

5. **Co-Locating SeTP Sites with SWM:** Co-locating Septage Treatment Plant (SeTP) sites with Solid Waste Management (SWM) facilities expedited land identification, reduced community resistance, and ensured access to amenities like electricity, thereby reducing resource costs.

B BIDDING PROCESS DELAYS



The management of the bidding process encountered delays due to a combination of factors:

- Awarding multiple projects to a single agency resulted in resource allocation challenges, leading to substantial construction delays at various sites
- The requirement of hard copy submissions of bids during the pandemic was difficult to continue, and hence created bottlenecks.

This affected the timelines for financial and technical bid evaluations

- Some project packages initially failed to comply with Public Works Department (PWD) guidelines, necessitating adjustments by the OWSSB Technical Cell.
- Discrepancies in agency turnover statements surfaced during bid opening meetings, triggering disputes from external finance officers

HOW IT WAS HANDLED:

Standardised Operating Procedures and Strategic Delegation:

1. **Uniformity:** Implementing standardised processes helped maintain consistency in specifications and facilitated regular checks and monitoring

2. **Division of Responsibilities:** Delegating day-to-day responsibilities that required immediate responses or proximity to local officials at ULBs, focusing on supervision, planning, and technical design by higher administrative bodies solved for administrative concerns





CHALLENGES IN AWARDING CONTRACTS AND PAYMENT



Striving for technical excellence led to one agency winning multiple bids, resulting in:

- A single agency's dispersal of technical and non-technical resources leading to varying construction progress rates across sites
- Delayed site handover and Work Order hold-ups hindered agency operations
- Lumpsum contracts and timeline pressures occasionally left contractors uncertain about project execution, contributing to delays
- Further complications in payments were linked to local, inconsistent payment discretion, inconsistent documentation for contractors, and discrepancies in estimates from contractors.

HOW IT WAS HANDLED:

1. Monitoring Mechanisms and Accelerated Payments

The TSU was entrusted with establishing a rigorous monitoring system to:

- i. Enhance Visibility: Ensure clear visibility of construction milestones on contractors' behalf.
- ii. Coordinate Efforts: Coordinate across all levels to expedite payments of Running Account (RA) bills, reducing payment timelines from 30-45 days to 7-10 days.

2. Robust Contract Agreements

Contract agreements between contractors and the ULB incorporated provisions simplifying billing process and recording in

the measurement books avoiding delays in payment. Turnover of agencies must be accounted for beforehand in the bid process.

3. Guideline Issuance

Guidelines were issued to expedite payments to executing agencies based on payment break up as per agreement conditions and to deal with deviation from the scope of works.

4. Review Meeting Vigilance

Timely payment of construction bills was guaranteed during review meetings, with any deviations escalated in official WhatsApp groups, incentivising contractors to accelerate their work.



TECHNICAL CHALLENGES IN CONSTRUCTION



Due to the technical nature of the task of implementation, several technical challenges cropped up over the course of the construction and ideation period. These included:

- Unique site characteristics such as topography and soil conditions made standardised design impractical. Many drawings lacked ULB-specific tailoring, relying on existing SeTP structures, causing delays.
- Inconsistent attention to the crucial aspects of structures layout impacted design, causing project delays.
- Poor Initial Topographical Surveys that were inadequate jeopardised construction and caused extra costs and delays.
- Sub-standard materials due to a lack of quality checks and non-compliance with standards during trials wasted time and resources.



HOW IT WAS HANDLED:

1. Geotechnical survey

Soil testing along with total station survey were mandatory for each SeTP site for approval of SeTP layout and construction drawings before commencement of construction.

2. Adherence to Material Standards

To ensure construction quality, rigorous tests were conducted on materials and standards were strictly followed.

3. Mandated Structure Compliance

Construction of structures strictly adhered to approved designs and drawings, with executing agencies conducting quality checks in government labs.

4. Procurement Preparation

Procurement of pumps and valves commenced 2-3 months prior to trial runs to facilitate timely setup. To prevent delays, it was deemed vital to identify and empanel multiple vendors in advance, reducing over reliance on a single vendor for multiple

components. List of approved manufacturer lists along with technical specs were provided by OWSSB.

5. Quality Assurance and Control

Quality checklists, jointly prepared by TSU and the Septage cell, OWSSB were diligently followed by TSU District Coordinators at all sites. Proper curing was implemented for concrete structures.

6. Construction Activity Tracking

Efforts were made to ensure regular updates to the construction master sheet, enabling real-time monitoring of construction progress.

Thus, when developing a strategy to implement infrastructure on scale, heeding these details and learning from the processes as they panned out can better equip replication of valuable FSSM technology.

CONCLUSION

The construction of the “Super 34” was not without its hurdles, including delays exacerbated by the global COVID-19 pandemic. Nonetheless, the state government and its affiliated bodies demonstrated exceptional agility by promptly identifying issues and devising innovative strategies to surmount them. This relentless pursuit enabled the swift construction of the 34 SeTPs, advancing them to the trial phase within an impressively brief timeframe.

These advancements have poised the state to witness a significant reduction in the discharge of untreated faecal waste in the environment. Throughout its journey, the state has judiciously employed a two-pronged approach, encompassing both infrastructural enhancements and institutional reforms, thereby fortifying its strategic framework. The success of Odisha’s Super 34 initiative not only

reinforces the expansion of FSSM infrastructure within the state but also provides invaluable lessons for other governments aiming to attain similar sanitation objectives through a phased approach.

The success of project Super 34 lies in its simultaneous implementation across 34 ULBs in 21 districts through its mission mode approach. This efficient completion within four months resulted from strong project management and stakeholder coordination.

Odisha’s Super 34 construction reflects the state’s collaborative and multi-stakeholder approach to sanitation. Through strategic collaboration, rigorous monitoring, prioritisation, and incentivisation, the state successfully delivered critical FSSM infrastructure within set timelines.



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