

FROM PRIVATE-SECTOR PROOF TO GOVERNMENT ADOPTION:

Building a scalable model for decentralised sanitary waste management in India

A Case Study of E-Waste Social and Municipal Engagement in India

September, 2026

From private-sector proof to government adoption

Sanitary waste such as used sanitary pads, diapers and other contaminated hygiene products can become part of mixed municipal waste streams, creating repeated handling points for sanitation workers and making it difficult to ensure that the waste reaches appropriate treatment.

E-Waste Social has demonstrated its decentralised sanitary-waste treatment solution through private-sector deployments. The next phase of its journey is to translate this experience into a scalable municipal model for government adoption. Through engagement with municipal waste systems in Mumbai and Bengaluru, the company studied how sanitary waste moves through public systems, identified operational gaps and explored how its proven treatment technology could be integrated into municipal infrastructure.

The research has helped shape a potential model for municipal adoption, combining source segregation, dedicated collection, decentralised treatment and traceability.

Importantly, this is a pathway towards adoption rather than a completed city-wide deployment.



Why now?

India's Solid Waste Management Rules, 2026, are strengthening requirements around source segregation, dedicated handling and processing, and digital tracking of waste flows. E-Waste Social's next phase is to help municipalities translate these requirements into an operational, decentralised sanitary-waste management system.

At A Glance



Project

Decentralised Sanitary Waste Management



Research Period

May 2025 - August 2025



Public Sector Partner

Mumbai & Bengaluru municipal systems



Private Sector Partner

E-Waste Social Pvt. Ltd.



Region

India



Supporting Partner

Rentokil Initial Hygiene India Pvt. Ltd.

The Problem

Sanitary waste can become part of a mixed waste stream, creating repeated points of handling and exposure for sanitation workers.

Used sanitary pads, diapers and other hygiene products present a particular challenge within municipal waste management. Once mixed with other waste, they can be difficult to identify and separate, while their handling can create additional occupational and environmental risks.

Within municipal waste systems, sanitary waste may become mixed with dry or organic waste during collection and subsequent handling. From there, it can move through sorting and material recovery facilities, transportation networks and disposal sites, creating multiple points at which workers may need to identify, separate or otherwise interact with it.

The challenge doesn't end at collection. Once sanitary waste enters the broader municipal waste stream, it becomes increasingly difficult to ensure that it remains contained and reaches dedicated treatment. The research highlighted that sanitary waste can move through several stages of the waste system before its final destination, creating repeated opportunities for handling and making traceability more difficult.

GENERATION → COLLECTION → SORTING → TRANSPORTATION → DISPOSAL

At each stage, sanitary waste can become mixed, handled or redirected; making safe, dedicated treatment more difficult to achieve.

The Solution



**SEGREGATE
& CONTAIN**

Keep sanitary waste separate at source



**COLLECT
SEPARATELY**

Create a dedicated waste pathway



**TREAT
LOCALLY**

Decentralise sanitary-waste treatment



**MONITOR
THE STREAM**

Track waste from collection to treatment

E-Waste Social's approach goes beyond the treatment of sanitary waste at the end of the waste chain. The company proposes an integrated system in which sanitary waste is identified and kept separate from other waste streams from the point where it is generated through to its final treatment.

The model combines **source segregation, dedicated containment, collection, transportation, decentralised treatment and monitoring.**

At the point of generation, sanitary waste would be placed in **dedicated red bags or bins**, allowing it to remain identifiable rather than entering the mixed municipal waste stream. For smaller generators such as households and smaller facilities, E-Waste Social proposes dedicated bins with scheduled collection, while larger generators such as hospitals and corporates could manage segregation and collection within their own premises.

From there, the waste would move through a **dedicated collection and transportation pathway**, reducing the need for workers to identify and separate sanitary waste later in the municipal system. This is an important part of the proposed model because E-Waste Social's research found that sanitary waste can otherwise move through collection, sorting, treatment and disposal systems, creating repeated points of worker interaction.

The final component is **decentralised treatment**. Rather than relying exclusively on a single centralised treatment facility, E-Waste Social proposes smaller treatment units located closer to where sanitary waste is generated. The intention is to reduce the movement of bulky sanitary waste and create a more localised treatment pathway.

Within this framework, E-Waste Social proposes **pyrolysis-based treatment**. The company originally developed its pyrolysis technology for biomedical waste during COVID-19 and subsequently adapted it for sanitary waste as demand for treating masks, gloves and PPE declined. The adaptation required further modification because sanitary waste has a high volume relative to its weight and behaves differently from other waste streams. The company's engagement in Mumbai also explored the potential of pyrolysis as an alternative to conventional incineration, including differences such as lower odour during operation.

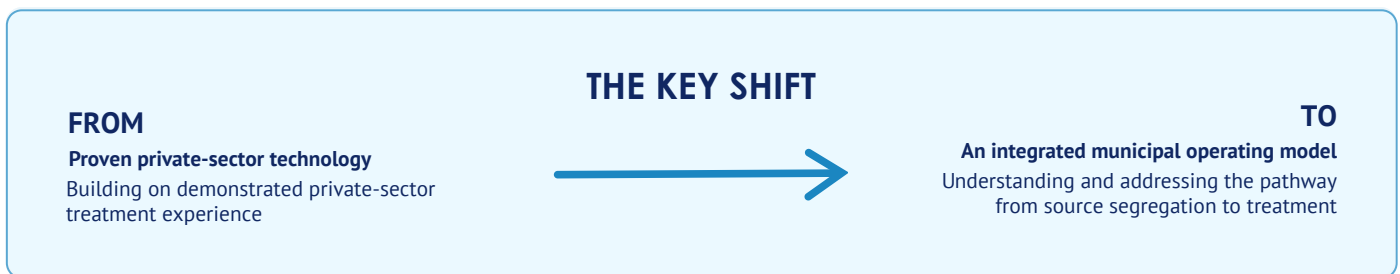
Project Journey

Building on its experience with decentralised sanitary-waste treatment through private-sector deployments, E-Waste Social engaged with municipal waste systems in Mumbai and Bengaluru to understand what would be required to translate its treatment solution into a viable municipal operating model. Rather than focusing on treatment alone, the engagement examined the full sanitary-waste journey, from generation and source segregation through collection, transportation and mixing with other waste, to eventual treatment or disposal.

This helped E-Waste Social identify gaps in the existing system and understand that providing treatment capacity alone would not address the problem if sanitary waste did not reach the appropriate facility.

Implementation Journey

The engagement built on E-Waste Social's private-sector treatment experience and progressed through five stages, from understanding the municipal waste pathway and identifying system gaps to developing an integrated approach and exploring potential government adoption.



1 PRIVATE-SECTOR VALIDATION

Building on demonstrated treatment experience

E-Waste Social's existing private-sector deployments established experience with decentralised sanitary-waste treatment.

2 UNDERSTAND

Mapping the municipal waste pathway

Assessed how sanitary waste is generated, collected, transported, sorted and ultimately treated or disposed of across the two municipal contexts.

3 IDENTIFY

Finding system-level gaps

Identified inconsistent source segregation, multiple worker interaction points and limitations in relying solely on centralised treatment.

4 DESIGN & ENGAGE

Developing an integrated municipal approach

Used these findings to develop and explore an end-to-end model linking source segregation, dedicated containment, collection, transportation, decentralised treatment and monitoring, and considered what would be required for implementation within municipal systems.

5 GOVERNMENT ADOPTION PATHWAY

Testing the model through a municipal pilot

Proposed a municipal pilot to test the full chain and assess collection, transportation, staffing, treatment capacity, maintenance and monitoring.

WHERE THIS LEAVES THE PROJECT:

The engagement has established an evidence base for potential municipal adoption. A defined pilot and further operational validation would be the next steps towards implementation.

Success Factors

The research highlighted that effective sanitary waste management requires more than treatment technology. A viable model needs to address the full waste pathway, from segregation and collection to treatment, while remaining operationally feasible within government systems.

1 SOURCE SEGREGATION

Keeping sanitary waste separate at the point of generation helps prevent it from entering mixed waste streams and reduces downstream handling.

2 DEDICATED COLLECTION & TRANSPORT

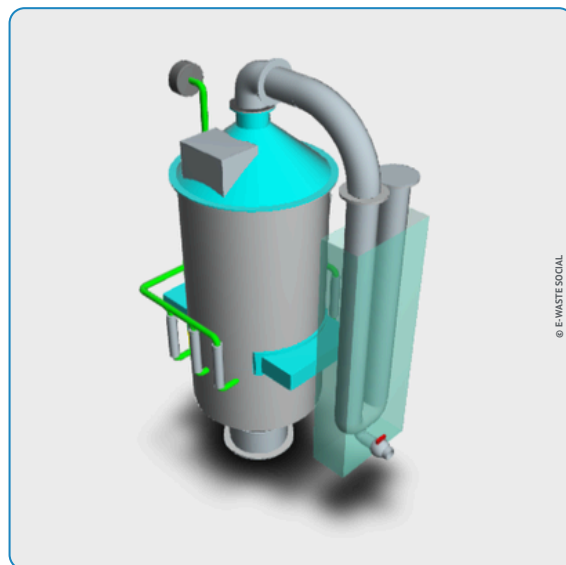
A separate, controlled collection pathway helps ensure that sanitary waste remains segregated through transportation and reaches the appropriate treatment facility.

3 OPERATIONAL OWNERSHIP

Treatment technology needs to be supported by clear processes for operation, maintenance, staffing, monitoring and compliance.

4 GOVERNMENT ALIGNMENT

For municipal adoption, the model needs to fit existing systems, responsibilities, economics and regulatory requirements supported by evidence from a real-world pilot.



Potential impact of the proposed model



FEWER TOUCH-POINTS

Reducing unnecessary human handling of sanitary waste



BETTER SEGREGATION

Keeping sanitary waste separate from mixed waste streams



DECENTRALISED TREATMENT

Reducing unnecessary human handling of sanitary waste



GREATER TRACEABILITY

Improving visibility across collection, treatment and residuals

The research points to an integrated approach to sanitary-waste management, linking source segregation, dedicated collection, controlled transportation and decentralised treatment. The proposed model aims to reduce unnecessary human contact with sanitary waste while improving control and traceability. The next step is to test its technical, operational, environmental and economic viability through a defined municipal pilot.

“Our biggest learning was that technology alone does not drive adoption. In the municipal system, a solution has to work within procurement, regulatory and operational realities. We learned that building the plant is only the beginning; having the right operating model is what makes the technology work at scale.”

Iram Maimuna |
Founder, E-Waste Social



Learnings

The engagement highlighted that moving a sanitation innovation towards government adoption requires more than proving that the technology works. It requires understanding the wider system, building evidence and designing for the realities of municipal operations.



Learning 1 - Technology alone isn't enough

Sanitary-waste management cannot be addressed through treatment infrastructure alone. The research highlighted the importance of looking at the full waste pathway, from source segregation and dedicated collection through transportation, treatment and monitoring, and how these elements need to work together.



Learning 2 - Municipal research can bridge private-sector validation and government adoption

For an SME introducing a sanitation solution, understanding how that solution fits within existing municipal systems can provide an important bridge to government engagement. By examining how sanitary waste moves through existing systems and identifying operational gaps, E-Waste Social was able to build an evidence base for conversations around how its approach could potentially be adopted.



Learning 3 - The operating model matters as much as the technology

The experience highlighted that infrastructure alone does not guarantee sustained use. Collection arrangements, staffing, maintenance, monitoring and operational responsibility all need to be considered when introducing a new model within existing municipal systems.



Learning 4 - Design for adoption from the start

Moving towards a municipal pilot will require attention to operational viability, treatment capacity, financing and regulatory approvals. E-Waste Social also identified the value of developing a more compact unit for municipal settings and engaging potential CSR partners earlier to support future deployment.

Conclusion

E-Waste Social's experience demonstrates how an SME can build on private-sector validation to explore a pathway towards government adoption.

The engagement in Mumbai and Bengaluru helped the company understand gaps in existing sanitary-waste management systems and translate those learnings into a more integrated municipal model linking source segregation, dedicated collection, decentralised treatment and operational monitoring.

The engagement has therefore created an evidence base and a potential pathway for future deployment, rather than representing a completed municipal implementation. The next step is to test the proposed model through a defined municipal pilot, assess its operational and economic viability, and use the resulting evidence to determine its potential for wider adoption.

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