Impact Assessment Report

Multi Layered Plastic Waste Recycling

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1. Project Background and Overview

ITC Limited is committed to advancing circularity and effective waste management practices, aligning with national priorities, including the Swachh Bharat Mission, to foster a cleaner and more sustainable environment. The company adopts a comprehensive approach to the circular economy, focusing on the entire waste value chain. ITC continuously strives to minimise waste generation, enhance recyclability, optimise packaging, and develop sustainable alternatives to plastic waste

As part of its Solid Waste Management (SWM) programme, ITC collaborates with urban local bodies (ULBs) to establish decentralised urban waste management systems. The company provides training and support to these ULBs, helping to create garbage-free cities by implementing decentralised systems and encouraging households to contribute towards the cost of waste management. ITC also plays an active role in monitoring these systems to ensure their effectiveness

SWaCH is the implementing partner for the Multi-Layered Plastic Recycling programme in Pune. The organisation aims to engage an entrepreneurial workforce of waste pickers in an efficient, responsive, and accountable organisation, and collaborate with the municipal solid waste management (SWM) system to transform the MLP Waste situation in Pune.[1]

The SWaCH initiative, implemented as part of an 'Extended Producer Responsibility' programme, demonstrates the successful collaboration between ITC Limited and a collective of informal waste pickers, SWaCH. This partnership aims to create economic value by recovering and processing materials that are difficult to recycle, such as Multi Layered Plastic (MLP).

Supported by ITC Limited and in collaboration with the Pune Municipal Corporation (PMC), SWaCH has helped collect over 1,000 metric tonnes of multi-layered plastics, diverting them from landfills and cement plants. This initiative has not only led to a significant increase in the income of waste pickers but also led to the reduction of CO2 emissions.

A total of 150 MT of MLP waste, sorted and bailed, was sent to the Recycler in the year 2022-2023. This directly contributes to **reducing landfill waste, promoting circular economy practices, and supporting environmental sustainability**. In 2021, SWaCH has **diverted 60 MT of waste per day, away from landfills**, ensuring **80-85% of Pune's waste is recycled or processed,** which has led to **annual greenhouse gas (GHG) emission savings of approximately 50,000 tonnes of CO_2**.[2]

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[1] https://swachcoop.com/about/
[2] https://centreforpublicimpact.org/public-impact-fundamentals/waste-management-cooperative-pune-india/

1.1 Programme's Alignment with Sustainable Development Goals

Figure 1: Alignment with SDG's

1.2 Programme's Alignment with ESG Reporting Framework

Principle 6 — Zero waste to landfill strategies, plastic neutrality, composting, and recycling programmes reduce environmental impact, landfill waste, and plastic pollutioncircular economy

Principle 8 — Empowering waste pickers, SHGs, and informal sector workersproviding training, financial inclusion, and better working conditionssustainable livelihoods

Figure 2: Alignment with ESG Framework

1.3 Programme's Alignment with National Policies/Schemes

Swachh Bharat Mission (SBM)

Plastic Waste Management (PWM) Rules, 2022

Figure 3: Alignment with National Policies

2. Objective and Scope of Work

The primary objective of this assessment undertaken by CSRBOX is to evaluate the success of the programmes in terms of implementation, coverage, and achievement of intended outcomes and impacts. The findings below will also help in informed decision-making in terms of effective programme implementation

Assess the extent to which the initiative has facilitated 100% source segregation and minimised landfill disposal.

Garner feedback and responses –qualitative – from various stakeholders associated with the project about the performance and the processes involved

Document impactful human-interest stories among the end beneficiaries of the project

Provide suggestions/recommendations, if any, based on the study-related findings.

Gather information on experiences and challenges faced, if any, by the partner NGO during the implementation of the project and suggest mitigating pathways for future

Figure 4: Assessment Objectives

3. Research Methodology

This impact assessment of the Multi-Layer Plastic (MLP) recycling initiative in Pune City employs a **qualitative research approach** to explore stakeholder experiences, perceptions, and insights. The study aims to understand the social, operational, and environmental implications of MLP recycling practices from the perspective of those directly involved in the process.

3.1. Research Design

A **qualitative, exploratory design** was adopted to gather in-depth, contextual information. Given the complexity and evolving nature of MLP waste management, this approach allowed for a richer understanding of stakeholder experiences and the initiative's practical impacts on the ground.

3.2. Data Collection Methods

The study used the following qualitative methods:

- **Semi-structured Interviews**: Conducted with individual stakeholders from each group to gain detailed narratives about their roles, challenges, and perceptions of the recycling process.
- **Focus Group Discussions (FGDs)**: Organised primarily with waste collectors to capture shared experiences and collective views.
- **Field Observations**: On-site observations were conducted at key operational points to understand workflows, stakeholder interactions, and contextual factors influencing MLP handling.

4. Sampling

A two-pronged approach to data collection and review was chosen for the assessment. The secondary data was obtained through a literature review, while the primary data was collected from qualitative data collection methods. This methodology enabled us to gather valuable insights related to the impact from a holistic, 360-degree perspective that includes all pertinent stakeholders necessary for the study.

As per data shared by the implementing partner, SWaCH, approximately 500 waste collectors and 7 truck drivers are currently engaged across 12 wards in Pune city where MLP collection is operational. To ensure representation across different levels of MLP generation, three wards were selected as sample sites:

- Bibvewadi (644,471 kgs – High MLP generation)
- Wanowrie-Ramtekdi (96,769 kgs – Low MLP generation)
- Kashtachi Kamai-Katraj (286,449 kgs – Medium MLP generation)

These sites formed the basis for conducting FGDs with waste collectors, where 4–5 individuals could be mobilised at a time considering their availability and willingness to participate during working hours.

4.1 Qualitative Sampling

The sampling plan for qualitative surveys, i.e. Focused Group Discussion and In-Depth Interview (IDI), includes the key stakeholders who were directly involved in the implementation of the project. The qualitative study assessed the impact of Multi-Layered Plastic Recycling in Pune, Maharashtra.

The sample was designed considering both representation and practical feasibility. Participation was voluntary, and limited availability during working hours was a key constraint as many waste workers needed to coordinate their schedules around MLP collection and subsequent private waste collection duties.

Distribution of the sample for qualitative interviews in Pune:

Table 1: Distribution of Sample

Stakeholders	Qualitative Tool	No. of Interactions
Waste Collectors	FGD	3 (Group of 3-5 individuals per discussion)
Employees of Sorting & Baling Centre	FGD	1 (Group of 3-5 individuals per discussion)
Truck Drivers	IDI	3 (3 individuals per discussion)
Implementing partner	IDI	1
Total		8 interactions (approximately 16 individuals)

5. Key Findings of the Impact Assessment

Achievement of Objectives

- **Effective formalisation** of waste workers into a sustainable recycling system.

- **Providing Waste workers, Truck drivers and Employees of the Sorting and Baling Centre with gainful employment opportunities.**

5.1 Stakeholder-wise findings

5.1.1 Waste Collectors

Waste collectors are the backbone of Pune's waste management system and have been pivotal in the success of the Multi-Layered Plastic (MLP) Recycling Project. Traditionally informal and excluded from municipal systems, they were brought into the fold through the efforts of SWaCH and KKPKP. The project empowered them with training, equipment, and formal recognition, enabling them to contribute actively to waste segregation at source and the recovery of low-value MLP waste. Their inclusion has led to improved income, safer working conditions, and a more dignified livelihood.

Effectiveness

- Waste collectors were trained to **identify, segregate, and collect MLP waste**, significantly increasing the volume of recyclable plastics recovered.

- Their formal integration into the system via ID cards and municipal collaboration resulted in improved access to social benefits and consistent work.

- Achieved the programme's goal of **empowering informal workers** by bringing them into the formal waste management chain, while also promoting source segregation at the household level.

Efficiency

- Use of **safety equipment** (masks, gloves, boots) reduced health risks, leading to higher work efficiency and fewer days off.

- **On-the-spot segregation** of mixed waste during collection minimised the need for secondary sorting, saving time and reducing contamination.

- MLP collected is sold directly at feeder points, avoiding the need for middlemen or additional processing, which lowers transaction and handling costs.

Impact

- MLP sales provided an **additional monthly income of INR 1,000–1,500**, which helps cover household needs such as groceries, school fees, or health expenses.

- Formalisation and consistent engagement enhanced the **social dignity and status** of waste pickers, especially women.

- Training and work autonomy helped build **confidence and decision-making capacity**, transforming the role from marginal labour to empowered contributor.

- Waste collectors primarily earn their livelihood through private waste collection services in residential societies, with income levels depending on the number of households they cover. On average, this generates about INR 10,000 per month, forming the core of their monthly earnings. In addition to this, they receive a consistent supplementary income from collecting Multi-Layered Plastics (MLP), which contributes approximately INR 1,000–INR 1,500 per month amounting to roughly 10% on top of their total income. A further, irregular source of income comes from the sale of scrap

Sustainability

- The project created a **stable, recurring income source** from materials previously seen as valueless.

- Their continued participation is ensured through economic incentives, training, and the alignment of environmental goals with personal financial gain.

5.1.2. Truck Drivers

Truck and tempo drivers, many of whom are relatives of waste pickers—serve as vendors and logistical operators in the MLP waste supply chain. They collect MLP directly from waste collectors at feeder points, transport it to satellite sheds, and ensure smooth movement of waste to processing centres. The project formalised their role, provided income security, and optimised logistics, making them essential players in the efficient functioning of the recycling ecosystem.

Effectiveness

- Established a structured, transparent mechanism for collecting and transporting MLP from 500+ waste pickers.

- Maintained **accurate records** of waste quantity, picker details, and compensation, which were validated with signatures or thumb impressions.

- Ensured timely transportation of waste, avoiding accumulation and maintaining flow to the sorting and baling centres.

Efficiency

- Each vehicle carried **a minimum of 300 kg per trip**, with **two trips a day**, leading to high vehicle utilisation and minimal idle time.

- Performance-based compensation (per trip) promoted timely service and continuous waste movement, reducing operational delays.

- Consolidated feeder point system and defined routes reduced fuel costs and logistical complexity.

Impact

- Average monthly income between **INR 25,000–40,000**, offering financial security and social upliftment to previously marginalised individuals.

- Allowed flexibility for drivers to engage in additional income-generating activities during off-hours, improving household stability.

- Provided recognition and stability in an otherwise informal and volatile job environment.

Sustainability

- Performance-based model ensures high productivity and job continuity.

- Drivers' consistent role in the logistics chain helps sustain material flow, supporting both livelihoods and environmental goals.

- The model encourages long-term engagement by linking compensation directly with efficiency and reliability.

5.1.3. Sorting & Baling Centre Employees

Located in Uruli Devachi, the sorting and baling centre is staffed by sorters, bailers, and a manager responsible for processing MLP waste into compact, transportable bales. This team ensures that difficult-to-recycle materials are effectively handled and sent to recyclers. The centre formalised employment for these workers improved their income stability, and introduced them to machinery operation and workplace safety practices, transforming low-skilled, informal work into dignified, structured employment.

Effectiveness

- Employed **28 sorters and 6 bailers**, all trained to operate equipment for handling MLP waste.

- In 2022–2023, the centre sorted and baled **150 MT of MLP**, ensuring high volumes of waste were processed and diverted from landfills.

Efficiency

- Conveyor belts and balers allowed for faster, safer handling of MLP compared to manual sorting, reducing injury risk and fatigue.

- Machinery enabled **greater material compression**, lowering transportation costs and storage needs.

- The structured workflow ensured **minimal downtime**, with defined roles and responsibilities for each team member.

Impact

- Provided a **fixed monthly income**, ~~of INR 14,000,~~ ensuring financial predictability for workers.

- Access to formal work improved their social standing and reduced economic vulnerability.

- Skills gained (machine operation, waste sorting, safety training) increased long-term employability and stability

Sustainability

- Formal job structure and regular pay contribute to worker retention.

- Technical skills and workplace protections build long-term capacity for sustainable recycling operations.

- Contribution to environmental goals (diverting MLP from landfills) reinforces the value of the job and promotes systemic integration.

6. Recommendations

Table 2: Recommendations

Sl. No.	Current Situation	Recommendation
1	**Frequency of MLP Waste Collection:** The waste pickers, after collecting and segregating waste from MLP waste, have no space to store the MLP waste until the waste collection vehicle arrives. In most cases, it takes more than a day, which leads to the degradation of the quality of the MLP waste and pest infestation. This affects the quality of the MLP waste from a selling point of view.	**Establish Temporary Storage Facilities:** Solution: Establish "collection hubs," or special, clean, and safe temporary storage facilities, at strategic points so waste pickers may hold MLP waste until it is transported. To avoid contamination and maintain quality, these hubs can be outfitted with appropriate ventilation and pest control techniques.
2	**Operational Efficiency of the Machines Employed at the Sorting and Bailing Centre:** As observed on the field, the sorting machine at the Sorting baling centre wasn't connected to the electrical supply point. In such cases, it puts an extra burden on the employees to sort the waste manually, which is more time-consuming. Making sure the machines are functional is a big part of managing waste efficiently.	**Reliable Power Supply for Sorting and Baling Machines:** Solution: Make sure that the sorting and baling machine is correctly connected to a dependable power source. This calls for regular maintenance and ensuring the equipment is always operational prior to each shift. Additionally, the centre should have an uninterrupted source of power supply or a power backup in case of unforeseen power cuts.

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