WHAT WASTEPICKERS (have to) WASTE

Kashtakari Panchayat 2025

Acknowledgements

We extend our sincere gratitude to ITC Limited and SWaCH for their steadfast support, and to the waste pickers of Pune, whose dedication, hard work, and enthusiasm about innovation have been pivotal to the success of the unique Multi-Layered Plastic (MLP) collection model that forms the focus of this paper. We are also grateful for the invaluable inputs from the waste picker organizations - Hasiru Dala, Aakar, Avani, Stree Mukti Sanghatana, and EcoSattva. Additionally, we acknowledge the insightful contributions from Deluxe Recycling, 21st Century Polymers, and Sampurnearth Environment Solutions, which have greatly enriched this paper.

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This paper presents a city-scale, long-term, sustainable, working model for MLP collection and recycling. It analyses the limitations of the current EPR framework through insights from waste picker organisations and recyclers, and offers targeted recommendations to make EPR policies more inclusive and better equipped to handle the complexities of MLP waste.

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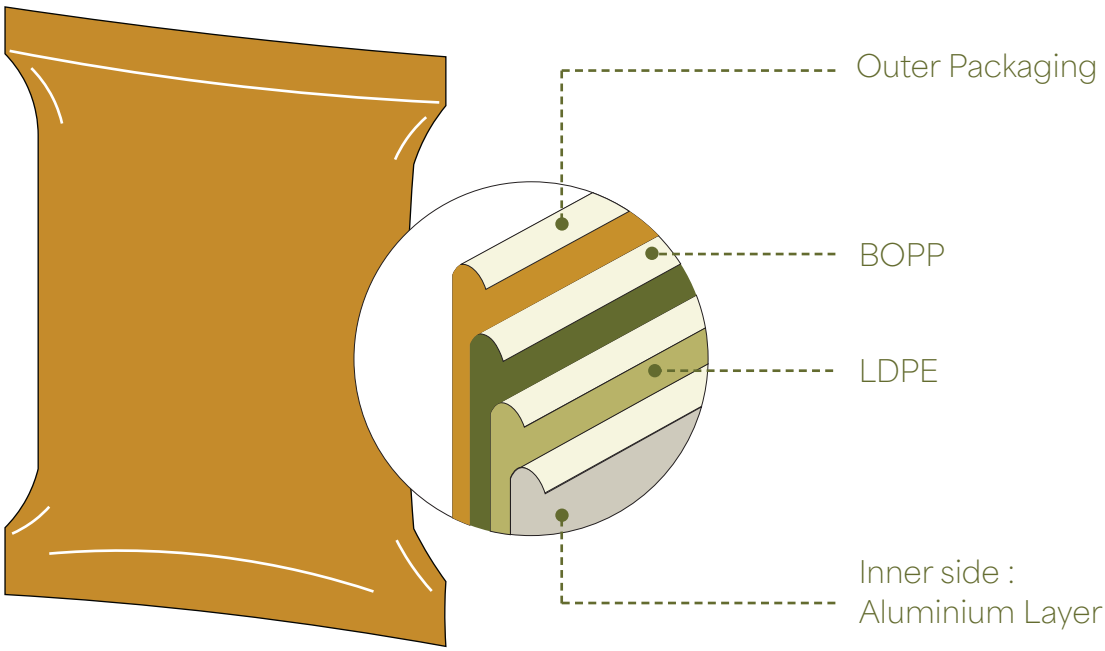
Introduction

Multi Layered Plastics (MLP)

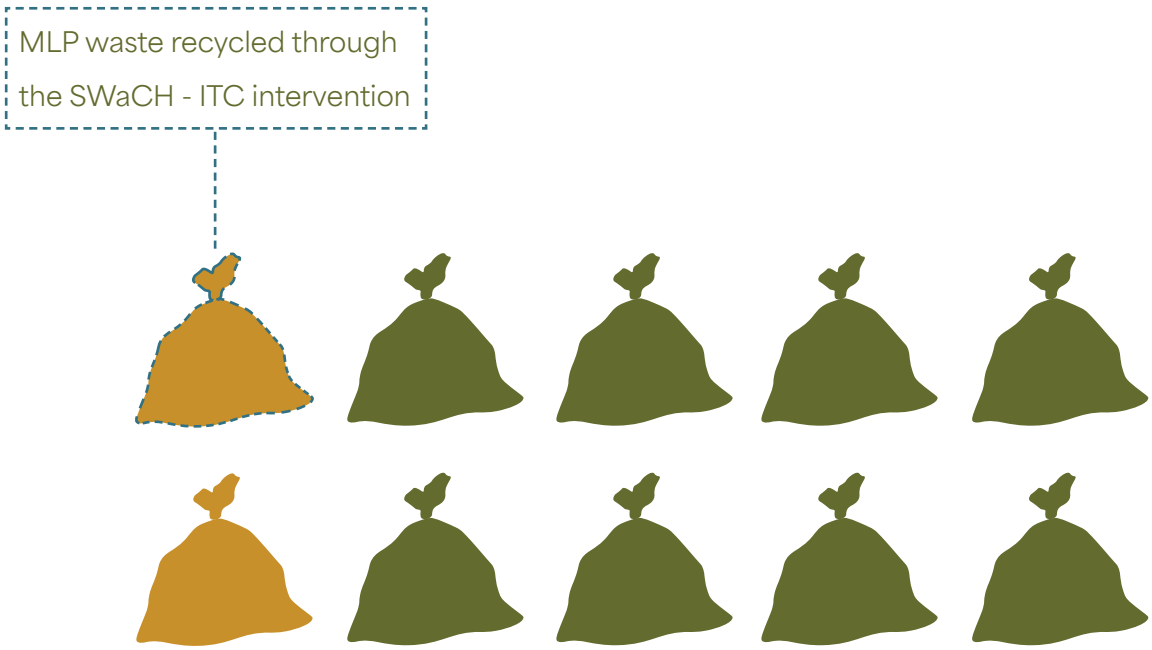
MLP refers to a very light, voluminous packaging material which combines layers of multiple plastic polymers along with a layer of metal or paper, sometimes both.

It is used extensively by the FMCG Industry for packaging a vast variety of goods, thanks to its extremely high utility, low cost, ability to withstand light exposure as well as fluctuations in temperature, and extend shelf life. Recycling MLP is technologically complex and prohibitively expensive. It has very low recoverability rates and is thus resource intensive. Its light and voluminous nature makes it more cumbersome and expensive to collect, store, and transport compared to other recyclable materials. Nearly 70% of MLP is used for food packaging, resulting in high levels of contamination which further complicate collection, storage,[1] and recycling.



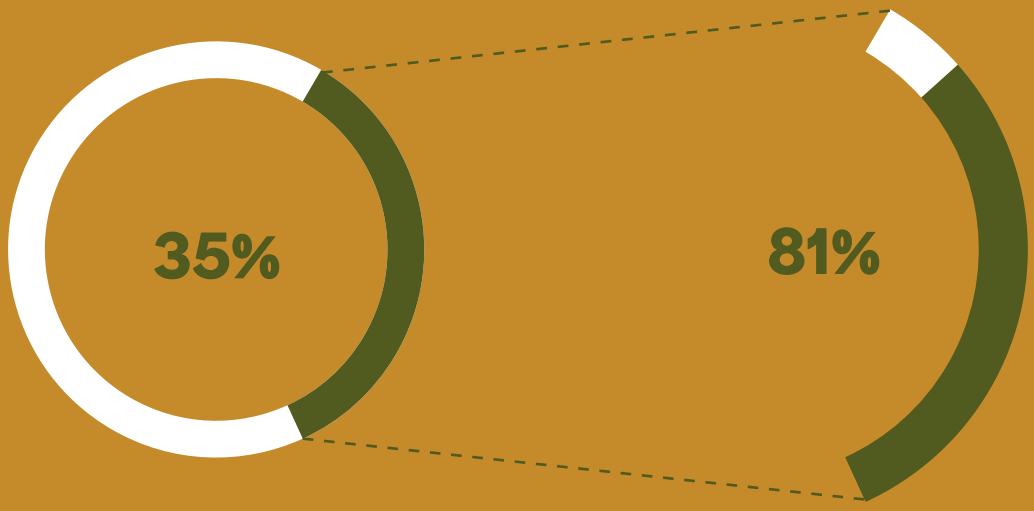
Layers in Multi Layered Plastics

[1] Unwrapped, 2021



Percentage of MLP Waste Recycled in Pune

Yet, its use by the FMCG industry only seems to be growing. Its rising prevalence is seen in the sheer magnitude of this material in any city's dry waste. The 2021 Pan-India Brand Audit revealed that 35% of all plastic waste is MLP- a staggering 3.29 million tonnes each year, of which, more than 81% is used in packaging of branded products. The aforementioned issues with MLP have significantly burdened India's waste management and recycling industry, which has struggled to keep up with the material.



Percentage of MLP in Plastic Waste

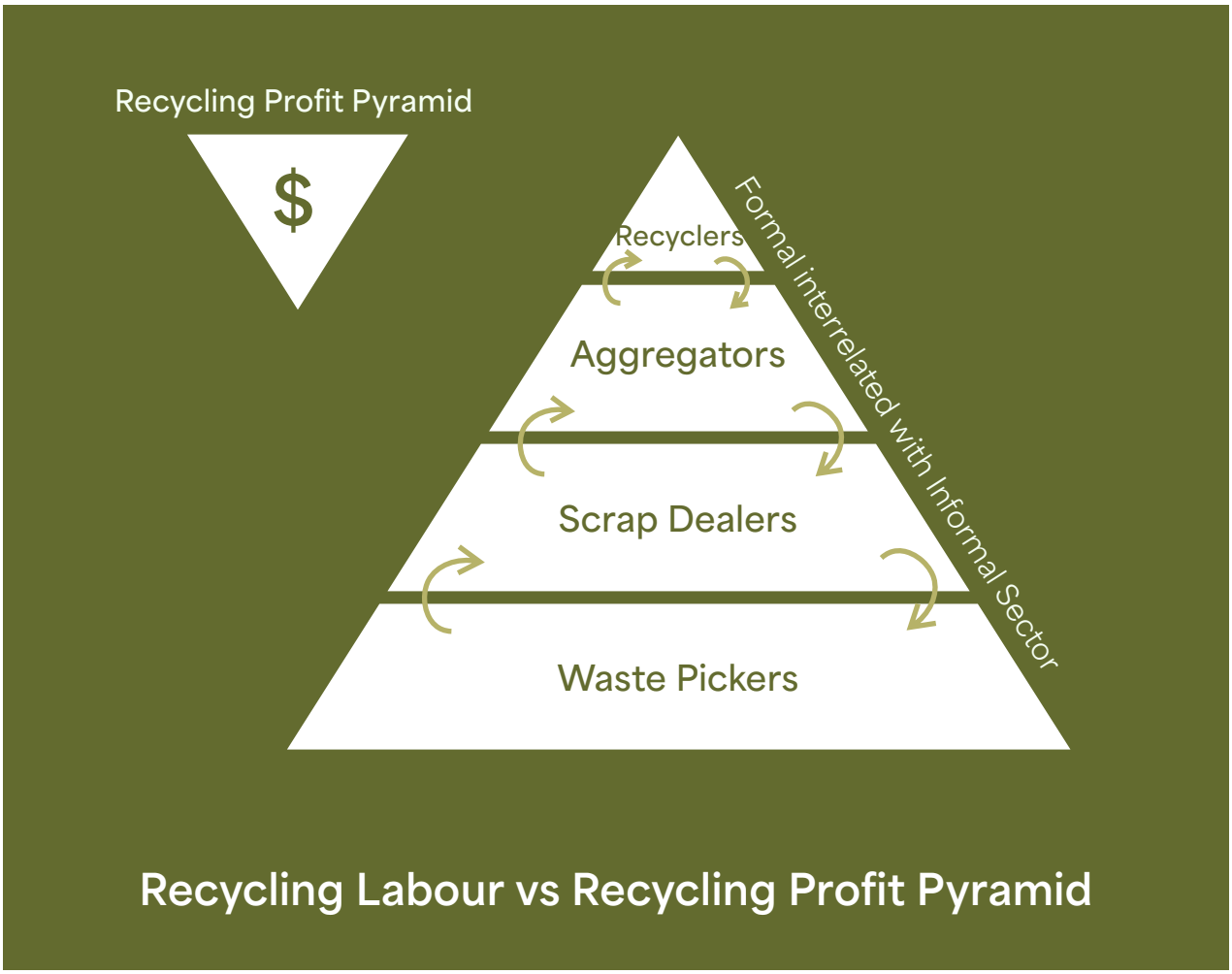
Percentage of MLP used in Packaging of Branded Products

Merely 18% of the 14.7MT of MLP waste generated in Pune daily is recycled, with the SWaCH-ITC intervention responsible for 10%.[2] There is negligible market demand for the material, resulting in very low prices, creating deadlocks across the recycling logistics chain. Waste pickers and scrap shop keepers, who form the backbone of India's recycling industry, are forced to deprioritize MLP collection in favour of higher-value plastics like PET, HDPE, and LDPE. The only feasible, scalable solution would be to place the onus of recycling MLP on its producers. This is what the Extended Producer Responsibility policy was supposed to do.

[2] What We Waste, 2022

Waste Pickers and India's Recycling Economy

India recycles 60% of its plastic waste (a level higher than most European countries), largely through the informal sector, according to the Ministry of Housing & Urban Affairs.[3] The recycling value chain comprises several tiers - waste pickers recover recyclables from discarded waste, sort these by material type and sell them to scrap dealers dealing in multiple materials, who sell it to aggregators or pre-processors specialising in a few materials, who in turn sell it to further specialised apex recyclers. For any material to be recycled, the recycled product needs to generate enough value to build and sustain a viable supply chain.



Recycling Labour vs Recycling Profit Pyramid

[3] Plastic Waste Management: issues, solutions & case studies, MoHUA, March 2019

Waste pickers are both the most numerous and the most marginalized group within the chain. There are estimated to be 5 million waste pickers in India[4] and along with itinerant waste buyers, they comprise 76 percent of the workers in the recycling market.[5] Waste picking is the foundation of this sector, as it offers a barrier-free livelihood opportunity for the most vulnerable. In cities where waste pickers are recognised and integrated into waste collection and recycling systems, their lives and livelihoods improve significantly, and the impact of their work becomes more visible. Pune, where waste pickers have been acknowledged as key contributors and are integrated within waste management - boasts of a 37% recycling rate for post-consumer plastic waste, three times higher than the national average of 10-12%.

Scrap dealers, aggregators and recyclers operate for the most part within the informal sector, on slim margins, and are unable to internalise the full costs of compliance. They fall along a continuum of varying degrees of formalisation - while some recyclers may be compliant on taxation, they may not be on effluent treatment, or labour laws. Formal enterprises for high value materials like PET are more common, while lower value materials such as flexible plastics are recycled largely by the informal sector. Most of these businesses are run by men, many of whom hail from minority communities.

[4] Alliance of Indian Waste Pickers

[5] http://www.swachcoop.com/pdf/ILO%20Study.pdf

Extended Producer Responsibility

Packaged as a response to the escalating challenge of plastic waste management, the Government of India introduced EPR under the Plastic Waste Management (PWM) Rules of 2016, requiring plastic producers to take accountability for the end-of-life management of their products. The primary objective of EPR was to shift the responsibility for waste disposal from municipal systems to the companies that produce and distribute plastic products, thereby encouraging more recycling, sustainable packaging choices and supporting the recycling sector.[6] Under EPR Rules, plastic packaging waste falls into a few broad categories (Table 01). Producers, Importers and Brand Owners of plastic (PIBOs, henceforth 'plastic producers') are obligated to recycle a certain proportion of each of the plastic categories they introduce into the market every year. The mandated recycling targets for each category increase slightly year on year, and stabilize at 80% for rigids and 60% for flexible and multi-layered plastics. Plastic Waste Processors (PWPs i.e. recyclers and end- of- life technology operators) generate certificates for the quantum of waste they handle. Plastic producers and Plastic processors register on the EPR portal of the Central Pollution Control Board, and engage with each other to trade recycling and EOL certificates.

Despite assertions of the informal sector's contribution to recycling, India's EPR policy completely ignores waste pickers, scrap shops, and the informal recycling industry. The official notification fails to even mention these actors.

Instead it focuses on material recovery facilities (MRFs) and voluntary drop-off for waste collection, bypassing the existing informal supply chains. Pathways to formalise the actors in this sector, or channelise benefits and social protection to these workers are conspicuously absent.

[6] OECD (2016), Extended Producer Responsibility: Updated Guidance for Efficient Waste Management, OECD Publishing, Paris, https://doi.org/1 0.1787/9789264256385-en.

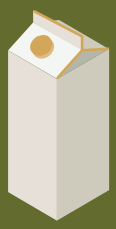
Category	Recycling Requirement		
Category I : Rigid Plastic Packaging	2024 – 25 2025 – 26 2026 – 27 2027 – 28	50% 60% 70% 80%	
Category II : Flexible Plastic packaging (single or multilayer with different types of plastic	2024 – 25 2025 – 26 2026 – 27 2027 – 28	30% 40% 50% 60%	
Category III : Multi Layered packaging (atleast one layer of plastic and one of another material)	2024 – 25 2025 – 26 2026 – 27 2027 – 28	30% 40% 50% 60%	
Category IV : Plastic sheets and carry bags used for packaging made from compostable plastics	2024 – 25 2025 – 26 2026 – 27 2027 – 28	50% 60% 70% 80%	

Table 01

By ignoring the largest players within the recycling sector in the country, EPR falters at its very first step. It further compounds the problem by covering only packaging plastics, thereby fragmenting well established, efficient waste value chains and creating parallel economies.

MLP, in particular, poses significant challenges for waste management. Without structural changes such as improved EPR policies, higher market incentives, and advances in recycling technology, the prevalence of MLP in the waste stream will continue to overwhelm municipal systems and burden the environment.

PUNE : The SWaCH - ITC Model

Background and Evolution

Pune's MLP collection model is a pioneering example of a voluntary initiative established through a partnership between SWaCH, a waste picker led cooperative, and ITC Ltd, one of India's largest FMCG conglomerates.

SWaCH runs a decentralised door to door waste collection system servicing more than 950,000 households. Each morning, over 3850 waste pickers collect source segregated dry and wet waste from households, separating recyclables along the way. Waste pickers earn from user fees ($1 per month) collected from each household they service, and from the sale of recyclables (rigid plastics, high value flexible plastics, paper, cardboard, metal, etc) to scrap shops.

On average, a SWaCH waste picker collects waste from 200 houses, works 3-5 hours a day[7] and earns ₹ 17-22,000[8] ($236-296) each month.

200 Houses

3-5 Hours

₹ 17-22,000

The SWaCH-ITC model, integrates waste pickers directly into the collection and preprocessing of MLP and offers an inclusive approach to EPR. It is supported by an innovative financing tool - Viability Gap Funding, with ITC taking on the responsibility of covering the cost towards this.

[7] On days when municipal secondary collection vehicles are delayed or do not arrive, working hours extend with no additional compensation.

[8] Earnings of individual waste pickers vary based on the actual recovery of user fees from citizens, and based on the quantum of recyclable scrap retrieved for sale.

Viability Gap Funding (VGF)

The costs of purchasing, aggregating, sorting, pre-processing and transporting MLP are far higher than recyclers are willing or able to pay - creating a system that is not viable. This loss, i.e. the viability gap, is borne by ITC. It is calculated as the difference between the current total costs incurred to run the system, and the revenue generated from the sale of MLP to recyclers. Currently, the viability gap is poised at ₹16/kg (₹18-20/kg after GST) and has remained in the range of ₹14-17/kg for the most part since the commencement of the project. While operations are largely stabilised, the biggest shifts in the viability gap are due to fluctuations in the market rates for MLP and flexible plastics.

In the words of Ankit Gupta, General Manager Sustainability, ITC Ltd,

"The intent was to establish a viable business model for MLP collection and recycling, with the goal of replicating its success in other cities. Pune was particularly appealing due to its robust door-step waste collection system, where waste pickers recover high-quality recyclables from the doorstep with minimal scope for contamination. Pune's proximity to a known MLP recycler, Shakti Plastics, was an additional advantage.[9]"

Designed to address the 'worst-first', the model targets a material currently outside the recycling chain, by expanding the capacity of the existing recycling sector.

Since 2019, over 4,000 MT of MLP in Pune have been sourced from waste pickers and diverted into mechanical recycling.

Each waste picker earns approximately ₹750 ($8.74) per month from the sale of MLP alone. In the process, Pune's taxpayers have benefitted to the tune of approximately ₹3.5 million (~$42,000) annually in reduced transportation costs.

While it is a voluntary CSR initiative, and does not contribute to ITC's EPR obligations, this collaboration demonstrates the potential for using EPR based funding to address difficult-to-recycle plastics while creating direct economic benefits for waste pickers.

[9] Shakti Plastics stopped buying MLP from Pune in February 2020.

Operations

This model is designed as a system with structured logistics to optimize MLP collection. It bypasses some of the typical issues with MLP collection, by embedding itself within the SWaCH doorstep waste collection system. Each morning, a fleet of tempo trucks travels across twelve 'pockets' in Pune to purchase MLP directly from waste pickers at ₹5/kg [10] ($0.06/kg) from their designated feeder points.[11] Since waste pickers recover MLP from source-segregated dry waste each day, the MLP is clean and relatively free of contamination. This is the unique selling point, and it allows the MLP to be channelled for purposes beyond end-of-life processing. The purchased material is transported to two satellite sheds in the city where it is temporarily stored before it makes its way to a sorting and baling centre (SBC). Here, 25 workers (typically erstwhile female waste pickers) sort and bale it prior to dispatch to recyclers. The tiered logistics allow for efficient collection, storage, and transfer of MLP. Currently, over 110 MT of MLP is sourced from over 750 waste pickers each month, and sent for mechanical recycling.[12]

MLP Waste being Baled

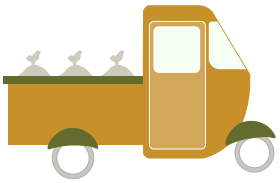
[10] The price per kg paid to waste pickers has increased over the five year stretch of the project from ₹2.5/kg in Jan 2019, to ₹4/kg in October 2019 to ₹5/kg in June 2024. These hikes have been necessary to incentivise waste pickers to invest the time to collect and sort MLP.

[11] Attempts to purchase the material from scrap shops did not work out due to the aforementioned storage issues associated with MLP. It did not work for waste pickers either as they lack storage spaces as well. Daily collection thus remained the only viable option.

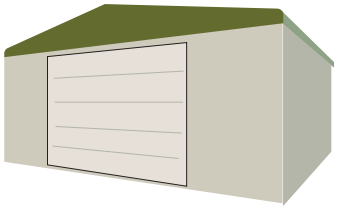
[12] On average, there is a 9% moisture loss and a 5-7% rejection rate due to the presence of non MLP materials, organic contamination, and other scrap, which need to be discarded.

Process of MLP Waste Collection

MLP Purchased from
Waste Pickers

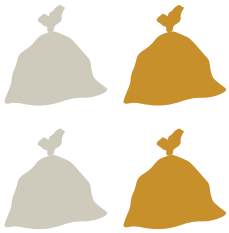


MLP Transported
in Tempos

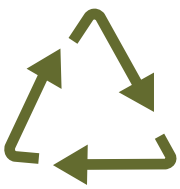


MLP Temporarily Stored
in Satellite Sheds

MLP Transported to
Sorting and Baling Centre



MLP Sorted and Baled



MLP Sent to Recyclers for
Making Boards and Granules

Cost Breakdown (Per Kilogram of MLP)

The total cost of collecting, transporting, and recycling MLP is ₹19.8/kg. The average sale price from recyclers is ₹4.0/kg, leaving a net cost of ₹15.8/kg (80% of total costs) borne by ITC.

Cost Breakdown

Category	Cost (₹/kg)	Cost ($/kg)	Percentage
1. Purchase	5	0.06	29.1%
2. Feeder to satellite shed	3.6	0.04	20.9%
3. Satellite shed to SBC	1.6	0.02	9.3%
4. SBC Costs (Salaries, rent, power)	5	0.06	29.1%
5. Management and Administration	2	0.02	11.6%
6. Total Cost	17.2	0.2	11.6%
7. Total Cost factoring moisture loss	19.8	0.25	

Table 02

Forward Linkages

To date, 4200 tonnes[14] of MLP from Pune have been sent for processing, with 79 percent going towards mechanical recycling- extrusion or pressing into plastic boards. Throughout the five years of the project's operation, the dearth of consistent buyers for the material has been a constant bottleneck. While recyclers pressing MLP into boards are not able to accept larger volumes, extrusion has had a mixed success - with some recyclers showing regular demand, and others facing frequent breakdowns, technical issues and volatile markets for their products. End-of-life processing plants, (plastic-to-fuel, pyrolysis), have performed the worst.[15]

Pur-O-fuel, a pyrolysis plant in the heart of the city, backed with free municipal land and CSR funds, processed MLP for less than 3 months.[16] The plant, with an installed capacity of 4 tonnes per day, processed only 47 tonnes of MLP over its operation period, utilizing less than a tenth of its capacity. SWaCH was its sole supplier. The plant faced operational and technical challenges, including frequent shutdowns, which left a significant portion of the MLP unprocessed.

It eventually changed ownership and later ceased operations. Notably, it remains the only processor that has not completed payments to SWaCH.

[14] October 2024 to February 2025

[15] https://timesofindia.indiatimes.com/city/pune/civic-bodys-plastic-to-fuel-plant-begins-operations/articleshow/71071593.cms

[16] https://timesofindia.indiatimes.com/city/pune/civic-bodys-plastic-to-fuel-plant-begins-operations/articleshow/71071593.cms

The situation was particularly aggravated between August 2019 and March 2020, when the market was highly unstable, and there was virtually no demand for MLP. The price fluctuated wildly, ranging from a negative ₹0.50 (approximately -$0.006 where the project had to pay to send material to an RDF plant) to ₹8 (approximately $0.10) per kilogram. Following the launch of EPR regulations and post-COVID recovery, the market began to stabilize. By 2021, MLP prices from recyclers averaged around ₹4 (approximately $0.05) per kilogram. However, there have been no more than three recyclers sourcing MLP from Pune, at any given time. The reliance on a limited number of recyclers makes the system very vulnerable especially since shut-downs of recycling operations are fairly common. This also impedes smooth cash flow and creates a dependence on individual recyclers.

[17] A large quantum of packaging material that a layperson may identify as MLP is included under flexible plastics i.e. Category II plastics.

[18] Atin Biswas, Siddharth Ghanshyam Singh and Shrotik Bose, 2024, A Deep Dive into India's Centralised Portal on Extended Producer Responsibility (EPR) for Plastic Packaging, Centre for Science and Environment, New Delhi.

In an effort to strengthen forward linkages, the CPCB EPR portal was closely studied, and every Category II and III recycler listed in Maharashtra, Gujarat, Madhya Pradesh, and Goa was contacted. The results were disappointing. Of the 171 recyclers reached, only 10 were engaged in MLP recycling, and merely 6 of them accepted post-consumer MLP. None of the recyclers contacted were in a position to source material from SWaCH. This starkly highlights the limited capacity and infrastructure currently available for MLP recycling. A worrying trend of non-responsiveness emerged, with 25 recyclers unforthcoming despite multiple outreach attempts and 77 inactive contact numbers. These findings suggest an inflated list of recyclers, including numerous inactive companies listed without proper verification. This aligns with findings from the Centre for Science and Environment, which reports that the recycling capacity for Category II plastics[17] (at 3.7 million tonnes) is 29% lower than the recycling targets for the same (at 4.7 million tonnes).[18] CSE also notes that the recycling capacity is dwarfed by the total amount of flexible plastics being brought into the market (five times the quoted capacity at 15.8 million tonnes). This highlights a major gap between claimed and actual processing, raising concerns about India's EPR system and the insufficient infrastructure for post-consumer MLP recycling.

Impact

The SWaCH ITC model has proven transformative for waste pickers, providing them valuable, additional income from a hitherto worthless material. While ₹5/ kg ($0.06/kg) seems modest at first glance, for high earning waste pickers who systematically retrieve all the MLP they can access - the impact has been substantial.

Baby Bansode, Maina Thombre, and Vijaya Sontakke collect an impressive 40kg of MLP each daily, generating an additional income of ₹200 ($2.41) per day. This translates to approximately ₹6000 ($72.29) monthly – a significant boost to their household income.

Daily MLP Waste Collected

Monthly Additional Income

The benefits extend across all earning levels among waste pickers. With an average SWaCH member earning ₹17-22,000 ($236-296) monthly through user fees and recyclables, even those collecting just 5kg per day earn an additional ₹750 ($9.04) monthly. This 4-5% increase in total monthly income, while seemingly small, makes a meaningful difference to their financial security. Moreover, the stable pricing of MLP serves as a hedge against volatile recyclable markets, enhancing household financial resilience.

750+

Wastepickers per Month

4200 MT

MLP Collected/ Recycled till Date

Scalability

So far, the project has only reached a fifth of the 3850 SWaCH waste pickers and has generated 26 full-time jobs at the SBC.[19] The system currently manages 110MT MLP per month – 25% of Pune's total generation, of 441MT. Recycling all the MLP generated in Pune, would cost upwards of ₹9,00,00,000 per annum[20], requiring continued and burgeoning support from ITC. Over and above, the expansion of collection, transportation, and aggregation will require committed institutional support from the city to allow the system infrastructure (intermediate storage space) to increase commensurately. The two satellite sheds provided by the PMC, will need to be complemented by newer sheds in various corners of the city to integrate waste pickers in those areas to sell MLP, as well as reduce primary collection costs.

A far more efficient system would involve scrap dealers purchasing MLP directly from waste pickers at the same rates currently provided. This can reduce the logistic and financial burden of separate collection and transportation. However this needs a policy mandate and buy-in from the sector. Since the project's inception, only 3 of the 50 scrap dealers reached out to, agreed to buy MLP. But they too stopped due to space constraints and material contamination issues. Currently, only the cooperative scrap stores run by SWaCH waste pickers buy MLP from waste pickers.

[19] Sorters and balers, mostly women and erstwhile waste pickers.

[20] Waste generation data from What We Waste (2022).

Replicability

The replicability of the SWaCH-ITC model in other cities and urban areas, also needs to be assessed. This system leverages Pune's waste management ecosystem, a well-organised cooperative of waste pickers, and voluntary financial support by ITC. While these are hyper specific conditions, the core principles can be extended and adopted to other city contexts. This includes resource-oriented handling, introduction of a floor price, inclusion of waste pickers and scrap dealers, and viability gap funding. Attempts in other cities for MLP collection have had limited success The biggest hurdles to replication are the scarcity of MLP recyclers, and absence of a reasonable floor price for purchase from waste pickers and scrap dealers. It is therefore important to understand and gauge the perspectives of both waste pickers and recyclers on MLP.

Waste Picker Organisation Perspective

Most municipalities in India have privatised waste collection through private contractors who deliver the collected, contaminated waste to MRFs or dumping grounds. The Waste Picker Organisation (WPOs) which were interviewed included Avani, Hasiru Dala, Stree Mukti Sanghatana, Aakar and EcoSattva. These interviews provided important context on the working conditions of waste pickers and MLP recycling economies in an array of cities like Kolhapur, Bengaluru, Mumbai, Indore, and Sambhaji Nagar. A common issue noted by all the WPOs was the absence of incentives for waste pickers to collect MLP- especially where waste is not segregated at source. Most organisations have piloted MLP collection programs in the past. While these efforts have occasionally managed MLP collection, the low rate and lack of sustained market demand have made them difficult to sustain. There was a consensus among the WPOs that if a reliable market were established with an adequate floor price–typically around ₹5-6 per kg–waste pickers would consider adding MLP to their daily recyclable collection. However, even such a system would likely exclude itinerant waste pickers.

Nalini Shekhar from Hasiru Dala, based in Bengaluru, explained

"A price of ₹6/kg can work if MLP is sourced from centres (MRFs) linked to doorstep waste collection. For picking from the streets, even a rate of ₹12/kg may not be enough."

Necessary Conditions for Success:

- **Segregated Waste**
- **Adequate Floor Space**
- **Access to Recyclers**

Most municipalities in India have privatised waste collection through private contractors who deliver the collected, contaminated waste to MRFs or dumping grounds. The WPOs which were interviewed concluded that scrap shops were the preferred point of trade after collection, with all WPOs echoing that the separate logistics for MLP collection would not be viable. Price, however, remained an issue. Gauri Mirashi from EcoSattva suggests that a viable market price can be determined by comparing MLP with other low value recyclables. She pegs this at a little above the current rate for 'mixed panni' (mixed flexible plastic) which is around ₹8/kg. "But the problem is at what price do you buy it from the scrap shops. And once you factor in the distance from the recyclers, it further adds to the costs." Gauri estimates this price as ₹15/kg. In Madhya Pradesh, the NGO Sarthak has been paying waste pickers ₹3/kg, but echoing other WPOs, estimates that purchasing from scrap shops would have to be at ₹8.5/kg to ensure waste pickers can get at least ₹5/kg (accounting for a ₹2/kg margin and ₹1.5/kg transport cost).

Finding reliable recyclers has been the biggest challenge wherever MLP collection pilots have been done. Recyclers are not well distributed across the country, and are clustered in certain regions. Nalini Shekar puts it succinctly "We have no recyclers (near Bangalore). We received a rate of ₹0.5/kg from board manufacturers which was simply not sustainable". In Nagpur, Kolhapur, Satara and Sangli, MLP has no market value and is sent by municipalities to cement plants for free. In Mumbai, AAKAR sends MLP to the landfill in municipal trucks. Even where there are recyclers, the recycling capacity is not large enough to absorb all the MLP generated.

Imtiyaz Ali, director of Sarthak, explains

"We manage 37 MRFs across Madhya Pradesh. From bigger cities, MLP goes to cement plants, and in smaller cities it is mostly used for road construction. A small quantity is sent for MLP sheet making. The rest, which is not handled by us, goes straight to the dump."

Recycler Perspective

MLP recyclers process it into lumps (used as additives in the production of water pipes), boards resembling plywood, or granules (used as raw material). A large number of recyclers working with MLP are informal or semi-formal. For this report, three large formal recyclers were interviewed: Deluxe Recycling (Gujarat), 21st Century Polymers (Delhi), and Sampurnearth (Goa and Maharashtra). Deluxe Recycling handles around 1,200 MT of MLP per month, while 21st Century Polymers processes 300 MT per month, and Sampurnearth manages 200 MT per month. They provided valuable insight into the challenges and opportunities within MLP recycling, highlighting critical barriers such as contamination, high operational costs, and limited market incentives, while underscoring the need for technological advancements, better EPR implementation, and direct sourcing mechanisms to improve material quality and economic feasibility.

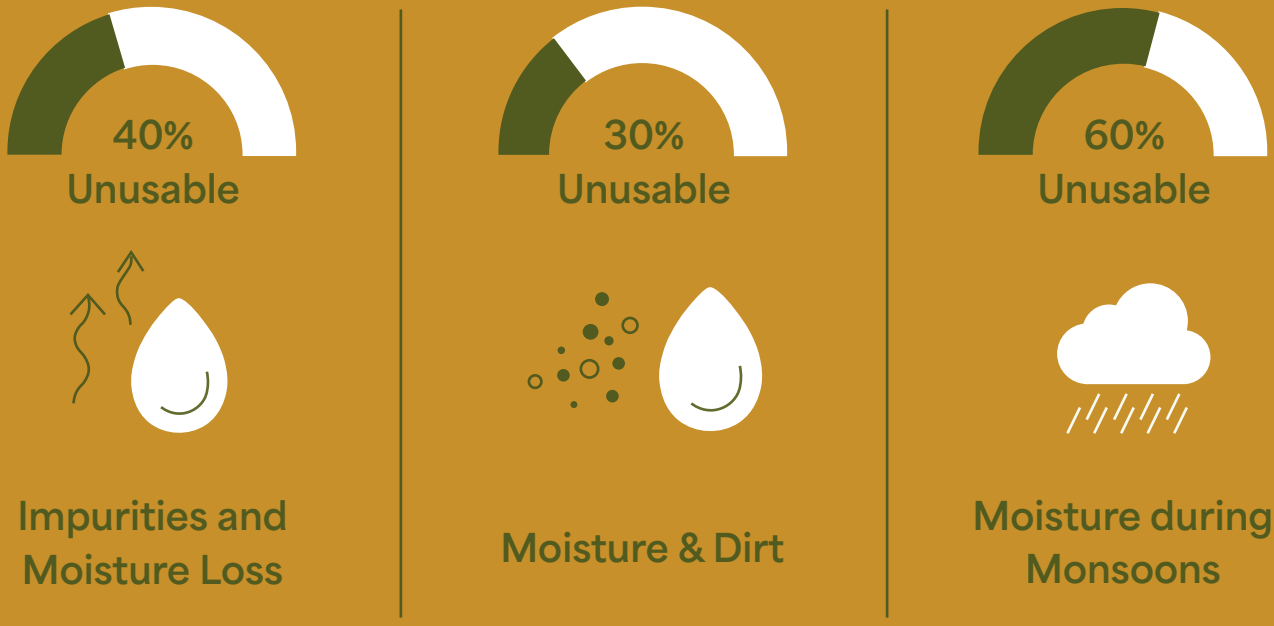
Both Sampurnaearth and 21st Century Polymers emphasize that without significant market demand or sufficient financial support from EPR certificates, the financials of MLP recycling do not add up.

Ashish Shah, CEO of Deluxe Recycling, provides a practical benchmark:

"MLP board recycling becomes profitable only when costs including transportation, are below ₹4 per kilogram."

Similarly, Debartha Banerjee from Sampurnearth highlights the cost of cleaning and handling post-consumer MLP often exceeds the revenue generated from recycled outputs. With current EPR certificate prices for Category III plastics ranging between ₹1-2 per kilogram, the incentives fall far short of making MLP recycling a viable option. Rajesh Pahwa of 21st Century Polymers argues that EPR certificate values "need to be at least ₹10 per kilogram" to effectively promote large-scale recycling.

Contamination remains a major hurdle for MLP recyclers. Deluxe reports that approximately 40% of their incoming material, most sourced from MRFs, remains unusable due to impurities and moisture loss. All three recyclers note the high costs and operational burden associated with cleaning post-consumer MLP, particularly when sourced from municipal facilities. Sampurnaearth generally limits cleaning to a single extrusion cycle to manage costs, but even so, moisture and dirt lead to material losses ranging from 15 to 30%. During the monsoon months, Sampurnaearth reports losses of up to 60% due to moisture. Deluxe has optimised some cleaning processes and notes that direct sourcing from waste pickers yields better-quality material than that from MRFs, which tend to treat MLP as low-priority RDF.



Percentage of Unusable MLP due to Contamination

Technological advancements in MLP recycling have been limited, with only a few recyclers investing to improve processing efficiency. 21st CE Polymers has developed proprietary technologies to enhance granulation and reduce polymer losses, allowing for higher-quality output, though the initial costs of setup are substantial. Rajesh Pahwa, posits the lack of R&D investments in the sector as a key reason behind the inability of recyclers to process MLP consistently. But the outlook is not all that pessimistic. Ashish Shah, believes that there is a lot of potential in the MLP recycling industry.

Policy

The relative success of the SWaCH-ITC model in addressing the challenge of MLP waste in Pune, in a sustainable and inclusive way, stems from a rare alignment of factors: organised waste pickers managing segregated waste, a guaranteed floor price ensuring stable income through corporate financial backing, and municipal support. Together, these elements have transformed MLP from a low-value, hard-to-recycle material into a valuable resource. This synergy demonstrates the potential of collaborative approaches in deriving value from materials traditionally considered waste. It also speaks to the inability of India's current EPR policy to create similar self-sustaining systems for managing difficult-to-recycle materials.

The current EPR framework fails to provide adequate financial incentives, mandate the inclusion of waste pickers, or hold producers accountable for the end-of-life management of their products. EPR must bridge these gaps through fair compensation, infrastructure development, and stronger partnerships between producers, waste pickers, and recyclers. Systemic challenges such as insufficient incentives, inadequate floor prices, and limited recycling infrastructure will require significant policy reforms and sustained financial support.

Solid Waste Management Rules, 2016

Plastic Waste Management Rules, 2016

Extended Producer Responsibility Guidelines, 2022

Promoting Recycling, Not Burning

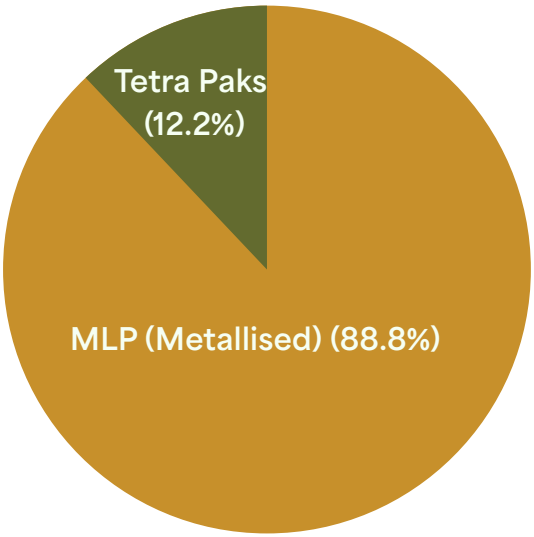
Recycling is a better application than co-processing both for the environment and the economy. Yet, the mandate to recycle MLP has been diluted by the 2024 Amendment to the PWM Rules. In the few years since EPR has been in effect, MLP has been shifted from Category III to Category II. The India Plastics Pact reports that barriers used in MLP include PET, PVC/PVDC, silicon oxide and PET, and metallized PET. The more familiar metallised barrier layer used mostly for food packaging, is termed as vapour deposited aluminium [21] and is not considered a "separate" layer since it is chemically enmeshed with the polymer. Thus, while multi-layered, it is not multi-material, and does not fit under the ambit of Category III (which per the definition includes packaging material that is multi-layered and multi-material).

Under Category II, MLP is now lumped with clear, transparent plastic bags, bubble wrap, and thick colour plastic bags. This reclassification allows producers to meet their obligations by recycling high-value plastics, effectively bypassing the harder-to-recycle MLP. Chips packets, biscuits wrappers, and similar MLP packaging make up a large portion of plastic waste (20-55% in Pune[22]) and are the hardest to recycle within Category II plastics. Even at the peak recycling target of 60% for Category II, a company exclusively producing chips packets can meet its entire EPR obligation without recycling a single packet of chips. Within their earlier categorisation regime, a company producing chips would have to actually recycle MLP or TetraPak to fulfil their obligations - a push which prompted several recyclers in the country to begin working on solutions for MLP. With the recategorization, there is no incentive to recycle MLP, leading to a shrinking recycling capacity and a reduction in market prices.[23]

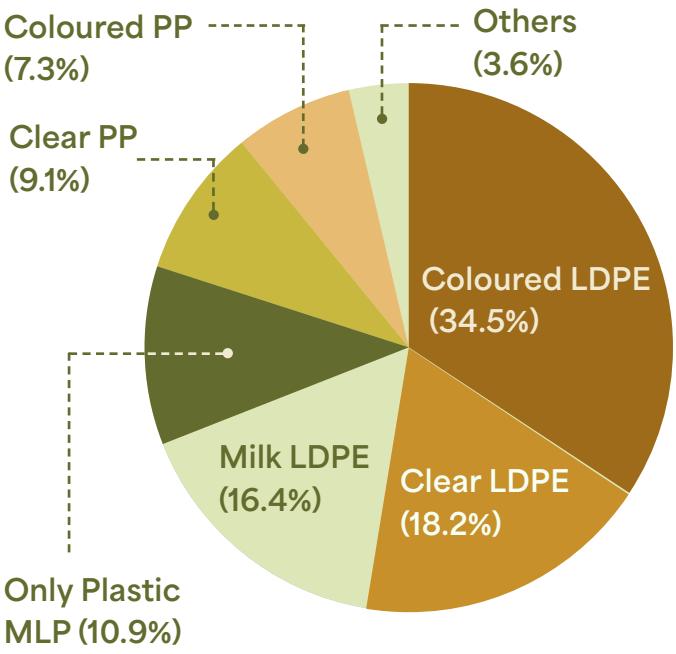
This has also affected the quality of the material. MLP recyclers, who source (or are forced to source) most of their MLP from MRFs, are now facing the brunt of this. Ashish Shah from Deluxe Recycling argues “until this ‘dilution’ is addressed, MRFs will treat MLP as RDF (refuse derived fuel). They’re only incentivized to extract LD, HM, and PP.” As the quality of the material goes down, recycling it becomes harder. This can have a calamitous impact on the MLP recycling industry, where recyclers are already few and far between.

Plastic Waste Pre-Recategorisation :

Category III Plastics :

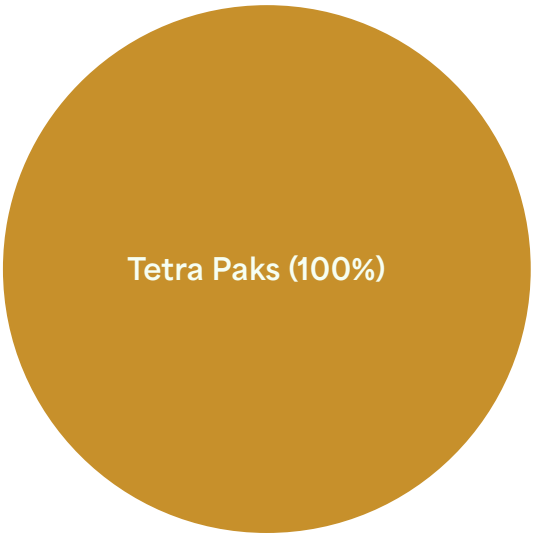


Category II Plastics :

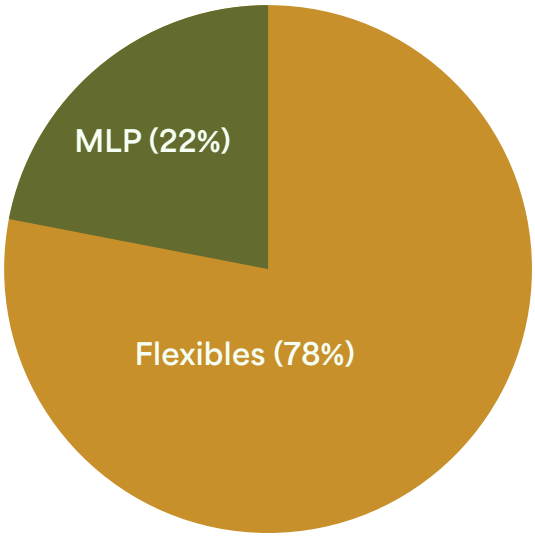


Plastic Waste Post-Recategorisation :

Category III Plastics :



Category II Plastics :



[21] India Plastics Pact, 2024, "Design for recycling guidance for films and flexible packaging"

[22] Data from SWaCH Pune

[23] Stakeholder interviews with recyclers

The Cost of EPR Certificates

EPR can, and should be, an instrument to mandate plastic producers to cover the viability gap funding to ensure the recycling of MLP. However, the current costs of EPR certificates are determined not by the viability gap required, but by the willingness of producers to pay, and indicate the clear preference for EOL over recycling. The cost of EPR credits for Category II range from ₹750 to 1,500 per tonne ($9.00-18.00), and ₹1,000 to 1,500 per tonne ($12.00-18.00) for Category III, which is but a small fraction of the full costs of collection and recycling.

Category	Cost of EPR Credits per tonne	
Category II : Flexible Plastic packaging (single or multilayer with different types of plastic)	₹750 - 1500	$9.00- 18.00
Category III : Multi Layered packaging (atleast one layer of plastic and one of another material)	₹1000 - 1500	$12.00- 18.00

Table 03

This reclassification also has a role to play in the low certificate prices. By allowing brands to meet their targets by recycling the more facile non-MLP flexible plastics, the policy has in fact, reduced the demand for mechanical MLP recycling, further depressing Category II and III prices. Ashish Shah explains, "With a separate category, MLP (EPR certificates) could easily be valued at ₹5-6/kg (approximately $0.06-0.07)." This misclassification significantly undermines the potential of MLP recycling, both economically and operationally. The EPR certificates should reflect the total cost borne by the system from collection to recycling. Instead, under the current configuration they have made the viability gap funding option all but impossible.

Exclusion of Waste Pickers

There is no mandate within EPR to source material from waste pickers, scrap dealers or aggregators, or pass on any benefit to them. This is an injustice to the workers who have historically internalised the costs of handling and recycling plastic waste, whilst facing disproportionately higher health issues. A policy to strengthen and promote recycling must include provisions to protect the workers within, and ensure both improvement in work conditions and fair compensation across the recycling value chain.

EPR should mandate materials to be sourced from existing value chains, and prescribe floor prices for material purchase after factoring in material properties, density, contamination, total volume generated, and ease of handling. Models such as voluntary drop off points and deposit return systems have failed to take off at any noteworthy scale. Even if they do, they will fragment the value chain, create separate systems for each material, and siphon materials out of the recycling chain. Such models should be discouraged. The cost of EPR credits should also include a mechanism to fund welfare schemes for waste workers given their high exposure to plastics.

Recommendations

Specific changes within the EPR framework can offer a mechanism to not only enable recycling, but also shift away from MLP towards more circular materials.

- MLP (e.g. chips and biscuit packets) should be classified under flexibles with a distinct subcategory for plastic-only MLP, reflecting its unique material properties and recycling challenges.

- MLP should have dedicated and ambitious recycling targets, and the amount of permissible EOL should be minimised.

- EPR should mandate a floor price for purchase of MLP at the first point i.e. purchase from the waste picker, to ensure that the benefits are realised equitably across the value chain.

- An additional cess should be imposed for each EPR credit that contributes to social welfare schemes for registered waste pickers and waste workers.