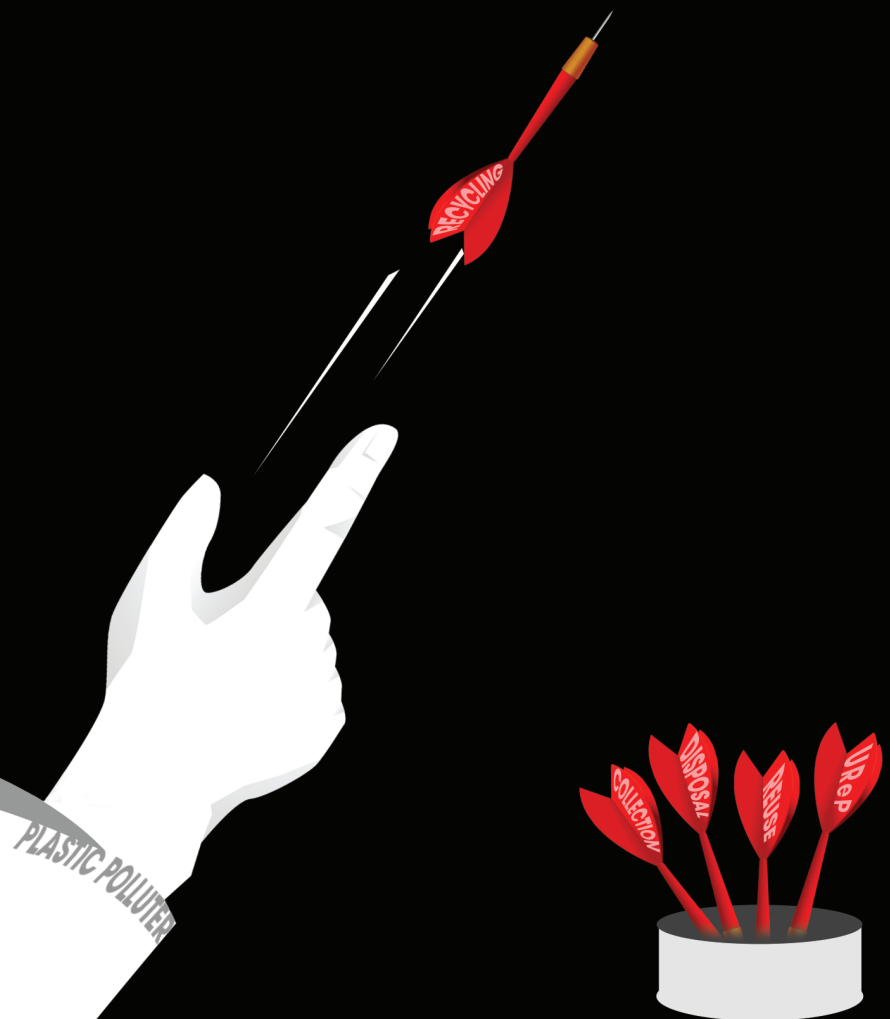
UNPACKING EPR FOR PLASTIC PACKAGING IN INDIA

Navigating Challenges and Unlocking Opportunities



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Navigating Challenges and Unlocking Opportunities

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THE HISTORY AND EVOLUTION OF EXTENDED PRODUCER RESPONSIBILITY (EPR)

The amount of plastic waste produced globally is set to triple, with less than 20 per cent of it being recycled by 2060

In the face of this looming crisis, EPR has emerged as a globally recognized policy principle. A robust EPR system not only promotes recycling but also drives design changes and transition to reuse and reduction of plastics

The Packaging Ordinance in Germany, implemented in 1991, is often cited as one of the earliest and most influential examples of EPR. This legislation required producers to take responsibility for the entire life cycle of their packaging, including its collection and recycling

As India's economy expands, consumerism is driving an increasing demand for materials—a phenomenon observed in nearly all market-driven economies. Global assessments conducted by the World Bank indicate that the world generated 2.01 billion tonne of waste in 2016, and under a business-as-usual scenario, this figure is expected to escalate to 3.40 billion tonne by 2050.[1] One material that has seen exponential growth in consumption is plastics, an increase of 180 times was observed between 1950 and 2018.[2] A recent report suggests that the amount of plastic waste produced globally is set to triple, with less than 20 per cent of it being recycled by 2060.[3] In the absence of effective policy interventions, material usage will continue to rise, with insufficient emphasis on recycling or reintegrating these materials into the economy.

In the face of this looming crisis, Extended Producer Responsibility (EPR) has emerged as a globally recognized policy principle. The concept of EPR was first introduced by Thomas Lindquist, a Swedish professor, in a report for the Swedish Ministry of the Environment in 1990.[4] Lindquist defined EPR as a policy principle that holds producers accountable for the entire lifecycle of their products, particularly during the take-back, recycling, and final disposal phases. A robust EPR system not only promotes recycling but also has the potential to drive design changes and transition to reuse and reduction of plastics. EPR serves as a deterrent by increasing the costs associated with using certain problematic materials, particularly for businesses. This approach encourages companies to rethink their material choices and prioritize more sustainable alternatives. The key idea is to motivate producers to design products that are environmentally friendly, by making them responsible for the post-consumer phase of the product.

Extended Producer Responsibility (EPR) was introduced and implemented in the early 1990s. Specifically, the Packaging Ordinance in Germany, implemented in 1991, is often cited as one of the earliest and most influential examples of EPR.[5] This legislation

required producers to take responsibility for the entire life cycle of their packaging, including its collection and recycling.

1.1 WHAT IS EPR?

EPR stands for the responsibility a producer holds for the environmentally sound management of the product until the end of its life.

According to a research paper by Thomas Lindquist, Extended Producer Responsibility is implemented through **administrative, economic and informative instruments**. The composition of these instruments determines the precise form of the Extended Producer Responsibility.

According to the Organization for Economic Cooperation and Development (OECD), EPR is an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle.

EPR guidelines, 2022 have been notified by the Ministry of Environment Forest and Climate Change, Government of India. EPR means the responsibility of a producer for the environmentally sound management of the product until the end of its life.

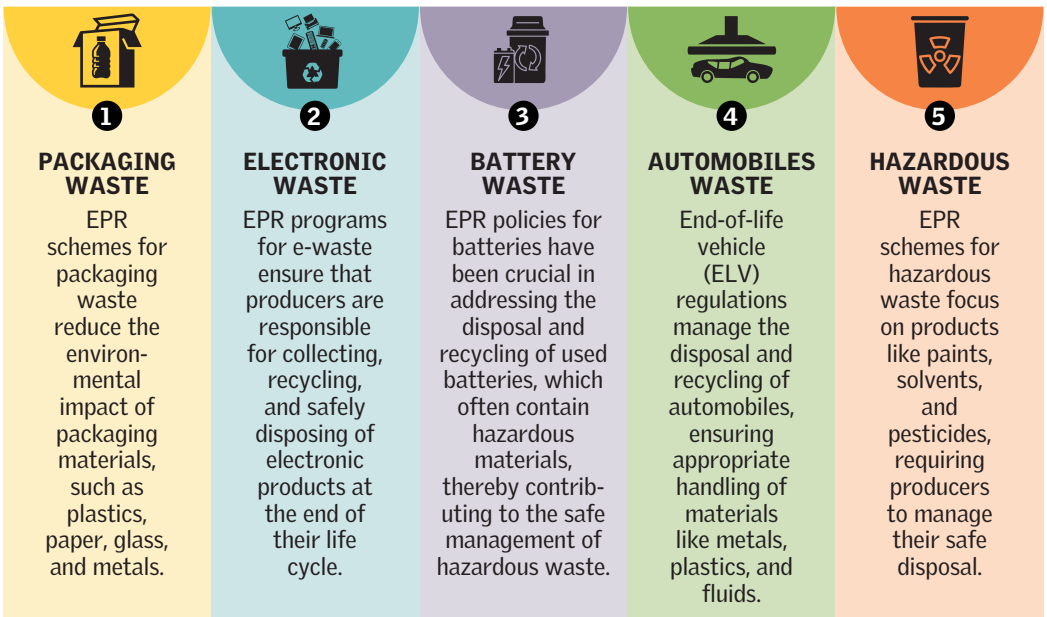
1.2 WASTE STREAMS COVERED UNDER EPR MECHANISMS

EPR systems across the globe cover various streams of waste

The World Bank (as of 2014) recorded a total of 106 EPR policies across waste streams.[6] In India, as of 2024, the Ministry of Environment, Forests, and Climate Change has introduced EPR policy guidelines for several streams of waste: e-waste, battery waste, tire waste, used oil waste, and plastic packaging waste.

EPR for plastic packaging exists in more than 72 countries worldwide.[7] **This report focuses solely on plastic packaging waste through policy interventions like EPR.**

Figure 1: Types of waste streams under EPR policy guidelines



1.3 THE OBJECTIVES OF EPR

The philosophy of Extended Producer Responsibility (EPR) for plastic packaging rests on the principle that producers are responsible for the entire lifecycle of the products they manufacture and place on any market, including their end-of-life management. This approach seeks to transfer the environmental responsibility from municipalities and consumers to producers. By holding producers accountable for collecting and recycling their waste, it incentivizes them to design more sustainable products and packaging.

The critical elements of the philosophy of EPR are as follows:

1. Producer responsibility: Producers, including manufacturers, importers, and brand owners, are held accountable for the collection, recycling, and disposal of their plastic packaging waste. This responsibility extends from the design phase through to the post-consumer stage.

2. Waste minimization: EPR encourages producers to minimize waste generation by designing products that are more durable, reusable, refillable, and recyclable. Waste minimization may include reducing the material used in packaging without compromising the material's recyclability.

3. Economic incentives: By placing the financial responsibility on producers, EPR creates economic incentives for companies to innovate and adopt more sustainable practices. Producers are motivated to reduce costs associated with waste management by improving product design and utilizing recyclable materials.

4. Lifecycle approach: EPR promotes a holistic view of product lifecycles, considering the environmental impacts of raw material extraction through production, use, and disposal. This approach aims to reduce products' overall environmental footprint.

5. Polluter pays principle: EPR aligns with the polluter pays principle, which states that those who generate profits from producing plastic pollution (waste) are responsible for managing its impacts. The polluter pays principle ensures that externalizing pollution costs to society, Governments or the environment is not compensated.

6. Collaboration and partnerships: EPR schemes often involve collaboration between producers, governments, waste management companies, and consumers. Effective implementation requires coordinated efforts to establish collection systems, recycling infrastructure, and public awareness campaigns.

7. Regulatory framework: Governments play a pivotal role in establishing and enforcing EPR regulations. These regulations define producers' responsibilities, set recycling targets, and provide guidelines for reporting and compliance, underscoring

the crucial role of policy decisions in shaping our environmental future.

8. Transparency and accountability: EPR systems demand producers to report on their waste management efforts and outcomes, ensuring transparency, accountability, and the system's effectiveness through continuous monitoring and evaluation.

2

EXTENDED PRODUCER RESPONSIBILITY FOR PLASTIC PACKAGING IN INDIA

The 'polluters' identified in the plastic waste management value chain are producers, importers, brand owners, and manufacturers (PIBOs).

The Central Pollution Control Board (CPCB) launched the Centralized Extended Producers Responsibility Portal for Plastic Packaging in April 2022. The portal is a central repository of information regarding all the stakeholders involved in the plastic waste management value chain.

CPCB processes the applications of all producers, importers, brand owners, and manufacturers operating in more than 2 states/UTs. Meanwhile, the SPCBs and the Pollution Control Committees (PCCs) process the applications of all PWPs in their states and UTs, respectively.

The Ministry of Environment, Forest, and Climate Change notified the Extended Producer Guidelines for plastic packaging vide Plastic Waste Management (Amendment) Rules on 16 February, 2022. The guidelines stipulate mandatory targets for collection, recycling, end-of-life disposal, as well as use of recycled content, and (selective) reuse by brand owners of plastic packaging introduced in the Indian market. These guidelines were amended four times in July 2022, April 2023, October 2023, and March 2024. The EPR regime in India, although notified in 2022, will be implemented in phases till fiscal year 2027–28.

The Central Pollution Control Board (CPCB), the technical and enforcement wing of the Ministry of Environment, Forest, and Climate Change, also launched the Centralized Extended Producers Responsibility Portal for Plastic Packaging, on 5 April, 2022. This portal is a central repository of information regarding all the stakeholders involved in the plastic waste management value chain.

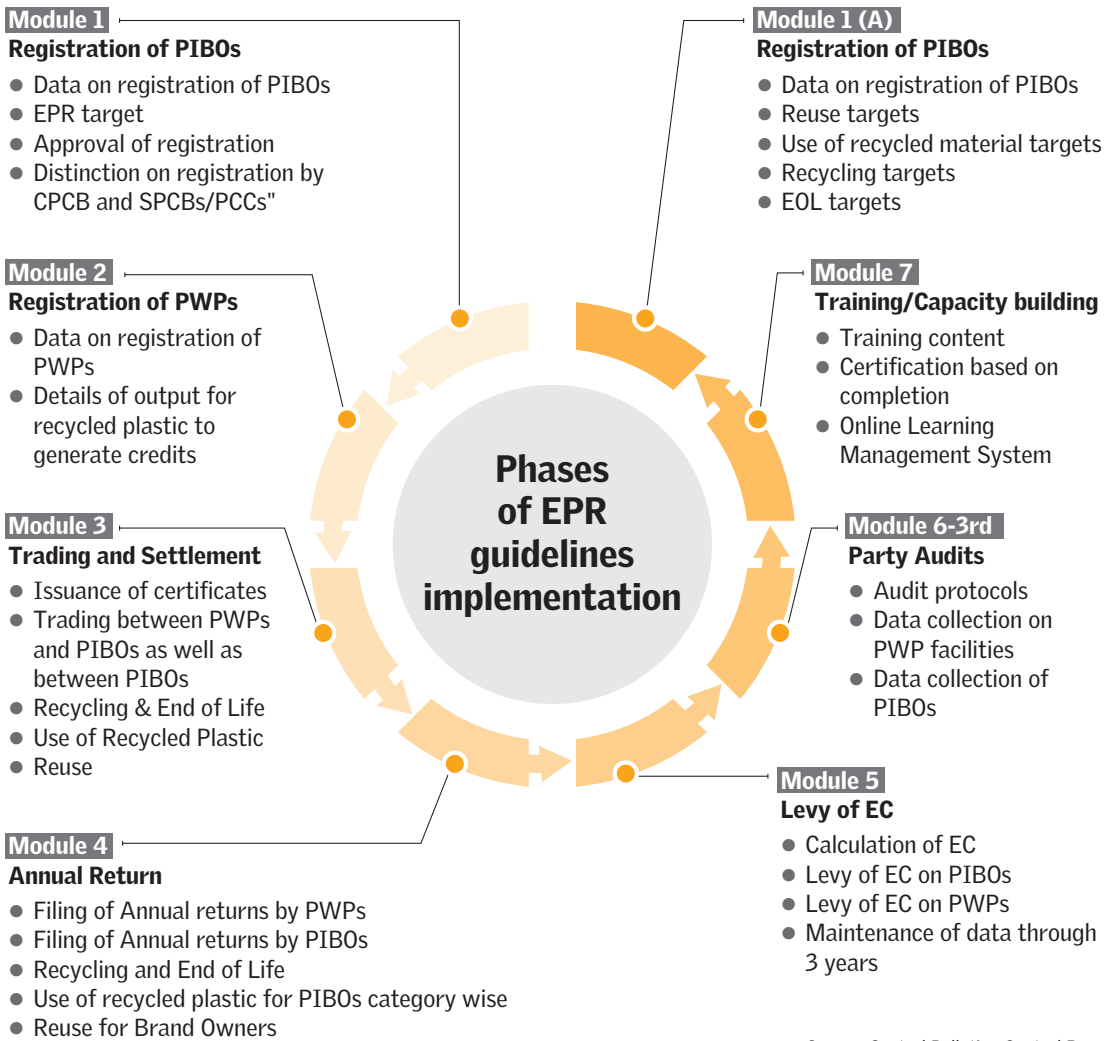
The implementation of EPR for plastic packaging was laid out in modules, the following modules were put in place. All the modules are activated, barring Module 1A *(see Figure 2: Phases of EPR guidelines implementation)*

2.1 KEY STAKEHOLDERS IN THE EPR FOR PLASTIC PACKAGING

POLLUTERS

The EPR regime in India is to be complied with by a group of entities who have their products packaged in plastic in the Indian market. These entities are the *polluters* in reference to the *polluter pays* principle. They have to comply with the EPR guidelines through registration and fulfilment of various kinds of targets assigned to them by the CPCB.

The polluters in the EPR regime are called PIBOs and include producers, importers, brand owners, and manufacturers.



Source: Central Pollution Control Board

PRODUCERS

They are engaged in manufacturing plastic packaging, including intermediate materials. Producers include entities involved in contract production for brand owners. This also includes contract manufacturers and producers like convertors who work with brands to develop various kinds of packaging material.

IMPORTERS

They import plastic packaging or any commodity packaged in plastic packaging for commercial purposes. Importers include importing raw materials such as resins and pellets and converting them to plastic packaging.

Brand owners sell commodities packaged in plastic under a registered brand label or trademark.

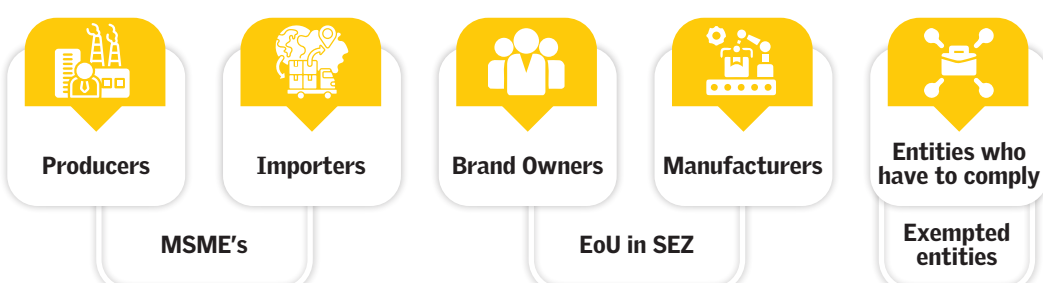
Manufacturers produce plastic raw materials in pellets, powder, paste, or other forms.

In the latest (2024) amendment to the EPR guidelines, the MoEFCC clarified that while **micro, small, and medium enterprises (MSMEs)** are required to register on the centralized portal for plastic packaging, they are exempt from fulfilling the EPR liabilities associated with plastic packaging. Instead, the responsibility for meeting the EPR targets will rest with the manufacturers supplying raw materials to the MSME sector. Additionally, **export-oriented units operating in Special Economic Zones** that use plastic packaging for export purposes are exempt from complying with these guidelines. *(See Figure 3: Entities included and exempted under the EPR guidelines)*

All stakeholders, except those exempted, are responsible for meeting EPR targets, with the entity selling the product alongside its plastic packaging in the Indian market bearing the primary responsibility. While more than 35,000 PIBOs have registered on the portal as of 14 August, 2024, most of the compliance rests with the brand owners since they introduced most of the plastic packaging to the Indian market.

It should be noted that all the entities involved in the collection and channelization of plastic waste to recyclers and processors are excluded from the EPR. There is no mention of waste pickers, scrap dealers or aggregators who make plastic recycling possible in the

Figure 3: Entities included and exempted under the EPR guidelines



Source: Central Pollution Control Board

country. The absence of such key stakeholders from the guidelines also means that there are no safeguards for them in the system. Additionally, the guidelines do not specify the role of producer responsibility organizations (PROs) or Waste Management Agencies (WMAs)—most of the PIBOs rely on such stakeholders to meet compliance.

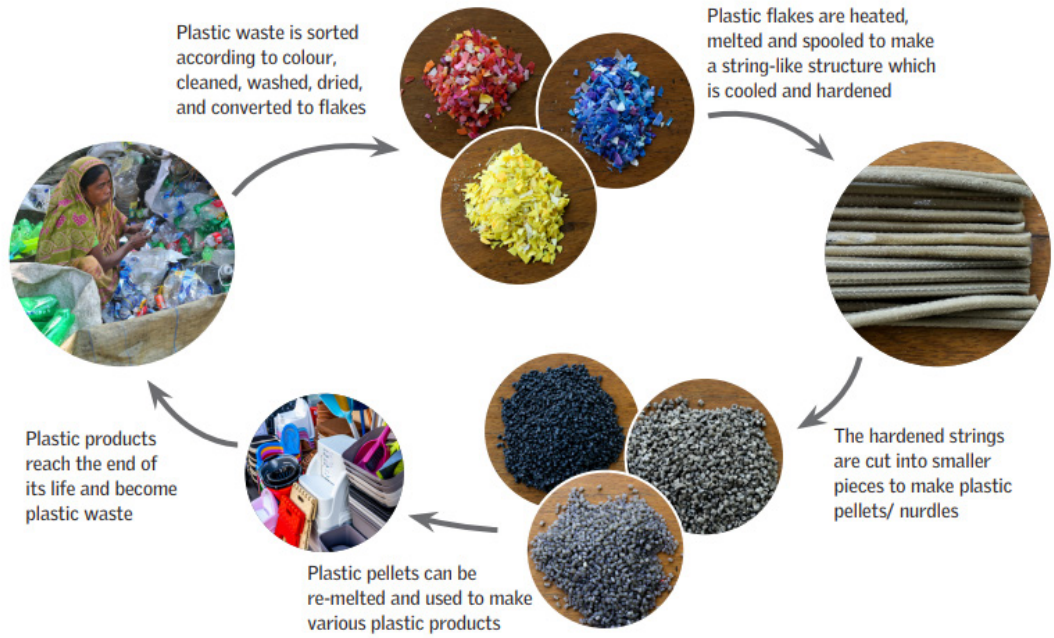
Plastic waste processors (PWPs): Plastic waste processors (PWPs) are at the other end of the EPR system for plastic packaging. The EPR regime has given the PWPs the authority to generate EPR certificates for recycling and end-of-life disposal. Trading and transferring these certificates to polluters is at the core of the Indian EPR system. **Generating one EPR certificate requires a PWP to process one tonne of packaging plastic waste.** Polluters (PIBOs) must purchase EPR certificates for recycling and end-of-life disposal from the PWPs, which act as proof of compliance for activities such as collection, recycling, and disposal.

The EPR regime recognizes various kinds of plastic waste processors (PWPs). These are as follows:

Plastic waste recyclers: These players are involved in mechanical recycling, which involves shredding, washing, drying, melting, and extruding plastic waste to make recycled plastic pellets or products made from recycled plastics *(see Figure 4: Unit operations involved in the process of mechanical recycling)*. Mechanical recycling involves huge labour costs since sorting is done according to polymer as well as colour of the polymer.[8] The more streamlined the sorting output, the more price competitive is the waste in the market. As per the EPR guidelines for plastic packaging, only recyclers who manufacture pellets/products from plastic waste can generate *recycling certificates*.

End-of-life plastic processors: These players dispose plastic packaging at the end of its life through incineration and thermal-based technologies such as waste-to-energy plants and co-processing technologies. End of life disposal also includes

Figure 4: Unit operations involved in the process of mechanical recycling



Source: CSE 2022

nascent low-scale technologies like waste to oil and roadmaking. **All the end-of-life applications can generate end of life disposal certificates only, which should not be confused with recycling certificates**.

Liability distribution on polluters

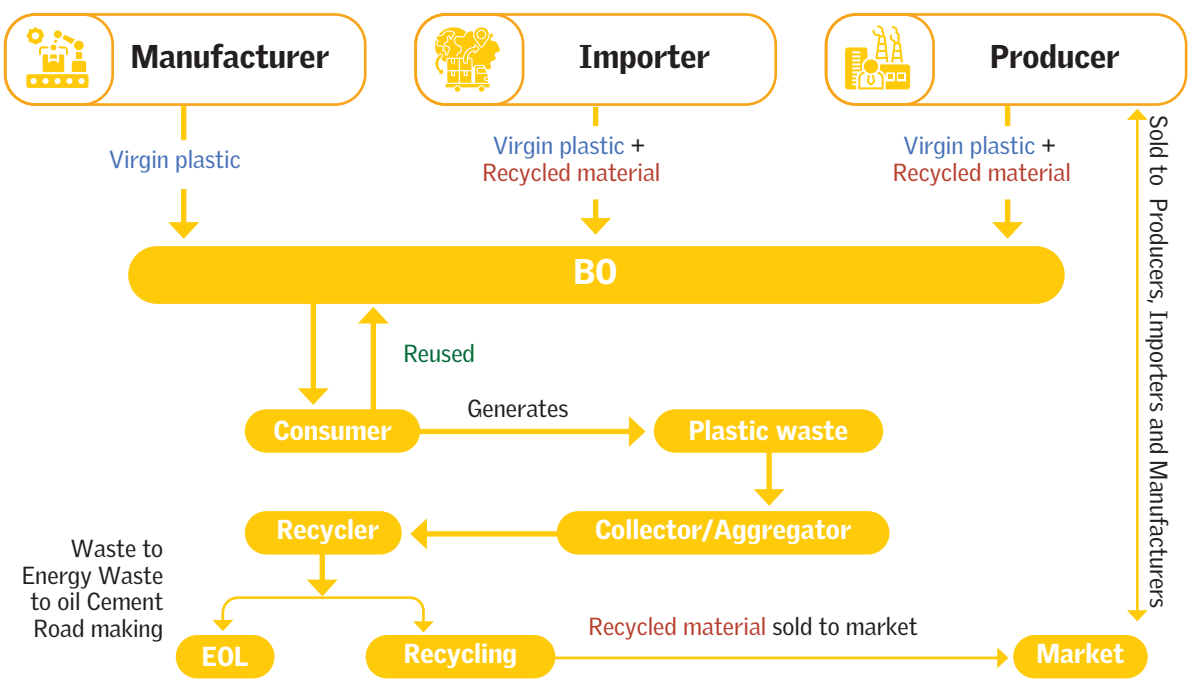
The polluter who introduces plastic packaging in the Indian market is liable for complying with the targets mandated by the EPR guidelines for plastic packaging. For instance, if a brand owner procures plastic for packaging from a producer and places it in the Indian market, they will have to comply with the amount of plastic packaging procured and introduced in the market.

If the producer produces plastic packaging and introduces it to the Indian market, then they become liable for complying with the EPR targets mandated in the guidelines.

Similarly, if an importer imports plastic packaging and passes it on to a brand owner—who then places it on the Indian market—the brand owner becomes liable for adhering to the EPR targets. However, if the importer imports products packaged in plastic packaging and places them directly on the market, they have to comply with the targets mentioned in the EPR guidelines. *(see Figure 5: The material flow and interaction between stakeholders in the EPR ecosystem for plastic packaging.)*

When a manufacturer passes on virgin plastics used for packaging purposes to a producer or a brand owner, they pass on the EPR compliance liability to the respective polluter. However, if the manufacturer passes on virgin plastic to micro, small, and medium enterprises (MSMEs), they have to comply with the EPR mandates since MSMEs are exempted from the mandate.

Figure 5: The material flow and interaction between stakeholders in the EPR ecosystem for plastic packaging



Source: Central Pollution Control Board

Table 1: Registration fee for PIBOs

Packaging plastic waste generation slab (TPA)	Proposed processing fee (INR)
<1000	10,000
1000-10000	20,000
>10000	50,000

Table 2: Registration fee for PWPs

Plastic processing capacity slab (TPA)	Proposed processing fee (INR)
<200	5,000
200-2000	20,000
>2000	50,000

Source: Central Pollution Control Board

This arrangement of resting the liability with the polluter who has placed the product on the Indian market prevents any possibility of double accounting. It ensures that the EPR targets do not exceed the amount of plastic packaging placed on the Indian market.

This arrangement applies to post-consumer plastic packaging. **Pre-consumer plastic packaging** is also covered under the EPR, and the polluter, who generated it at their manufacturing/production facility, is liable for its EPR compliance.

The PIBOs and PWPs must pay a one-time fee to register on the centralized portal developed by the Central Pollution Control Board (CPCB) *(see Table 1: Registration fee for PIBOs and Table 2: Registration fee for PWPs).*

REGULATORS

Regulators play a crucial role in the EPR ecosystem. The regime mandates polluters' registration on the EPR portal. The information polluters provide helps assign them EPR targets for collection, minimum recycling, use of recycled content, and reuse as appropriate. The regulators also play a critical role in verifying the data that polluters enter while applying to register on the centralized portal.

There are two types of regulators: **central regulator at the highest level** and **state/Union Territory-level regulators**.

The Central Pollution Control Board processes the applications of all producers, importers, brand owners, and manufacturers operating in more than two states/UTs. Meanwhile, the State Pollution Control Boards (SPCBs) and the Pollution Control Committees (PCCs) process the applications of all PWPs in their states and UTs, respectively. Moreover, any PIBO that places its packaging plastic in less than two states has to seek approval from the relevant SPCBs and PCCs.

The Central Pollution Control Board is the official watchdog of the EPR regime in India and is also responsible for implementing the notified guidelines. The central and state regulators are responsible for conducting physical verification (PV) at the premises of Plastic Waste Processors (PWPs) to verify and validate the information PWPs provide when registering on the portal, especially related to plastic waste processing capacities. This PV process is conducted jointly by the Regional Directorate (RD) of CPCB and the relevant SPCB/PCC, and has to be completed within a period of 30 days from the registration.

State-level regulators are also responsible for verifying and assigning a **conversion factor** to every PWP registered on the centralized portal during their physical verification visit. In simple terms, the conversion factor determines the ratio of EPR certificates a processing facility can generate based on the amount of plastic waste input compared to the amount of output (such as recyclate, oil, or energy) from the system.

The conversion factor varies by processing technique. For example:

- In waste-to-energy plants, it is determined by boiler efficiency.
- For waste-to-oil plants, it is based on the energy required to produce a ton of oil.
- In cement co-processing plants, it is defined by the energy used to produce one ton of clinker.

Once the process of physical verification is complete, the PWPs can generate and transfer certificates to PIBOs.

The guidelines for EPR also task the Central Pollution Control Board (CPCB) to conduct audits via a third-party auditor. CPCB has empaneled 106 auditors from IITs, NITs and CSIRs. So far initial audits for six entities have been done and action has been taken against defaulters. Audit for 71 plastic waste processors (PWPs) is in progress as per updates by CPCB from May 2024.[9]

The **criteria for third-party audits** is based on the number of certificates being generated. Currently, only recycling and end-of-life certificates are being issued, so all audits are centred around PWPs. Once PIBOs begin claiming certificates for the use of recycled content, the audit process will also include assessments of polluters.

2.2 PLASTIC CATEGORIES IN THE EPR FOR PLASTIC PACKAGING

The EPR guidelines categorize plastic into five different categories:

Category I: Rigid plastic packaging

Category II: Flexible plastic packaging, single-layer or multilayer (more than one layer with different types of plastic), plastic sheets or similar, and covers made of plastic sheets, carry bags, plastic sachets, or pouches.

Category III: Multilayered plastic packaging (at least one layer of plastic and at least one layer of material other than plastic).

Category IV: Plastic sheet or the likes of it used for packaging, as well as carry bags and commodities made of compostable plastics.

Category V: Plastic sheet or the likes of it used for packaging, as well as carry bags and commodities made of biodegradable plastics.

It should be duly noted that while the EPR is specifically limited to plastic packaging, Category IV and V are exceptions, since carry bags and commodities made from such categories of plastics also fall under the scope of EPR for plastic packaging.

2.3 NUANCES OF EPR IMPLEMENTATION FOR PLASTIC PACKAGING

Polluter neutral: Neutrality allows the polluter to collect and direct plastic packaging for recycling or end-of-life disposal, regardless of whether the packaging was placed on the Indian market by another PIBO or if that PIBO has registered on the centralized portal. For instance, Coca-Cola can collect back PET bottles put on the Indian market by any other brand owner such as Pepsico, Bisleri, etc.

Plastic category-specific: PIBOs have to restrict their collection and recycling activities specifically to the category of plastic packaging that they put out in the market. For instance, EPR targets for collecting multilayered plastic (Category III) cannot be met by collecting rigid plastic packaging (Category I) or flexible plastic packaging (Category II); the same applies to the other plastic packaging categories.

Geography agnostic: PIBOs can purchase recycling/EoL certificates from PWPs operating in any state and UTs and do not have to restrict themselves to the states where they place their products in plastic packaging.

2.4 TARGETS IN THE EPR GUIDELINES FOR PLASTIC PACKAGING

The EPR regime specifies targets for activities in the plastic waste management value chain with specific timelines *(see Table 3: Activities and timelines for implementation of EPR guidelines)*. These activities and timelines are as follows:

The targets are introduced in a staggered manner, with collection targets kicking in from fiscal year 2021–22, recycling targets, and

Table 3: Activities and timelines for implementation of EPR guidelines

Type of activity	Target timeline	Targets defined till (after this, targets stabilize)
Collection targets	2021–22	2023–24
Recycling (mechanical) targets	2024–25	2027–28
Limited use of end-of-life disposal options like co-processing, waste-to-energy, waste-to-oil, and road making.	2024–25	2027–28
Use of recycled content	2025–26	2028–29
Reuse (only for brand owners introducing containers between 0.9 L/kg and 4.9L/kg)	2025–26	2028–29

Source: Central Pollution Control Board

EOL disposal caps coming in effect from fiscal year 2024–25. The use of recycled content is mandated from fiscal year 2025–26, as are the targets for reuse for brand owners.

COLLECTION (EPR) TARGETS

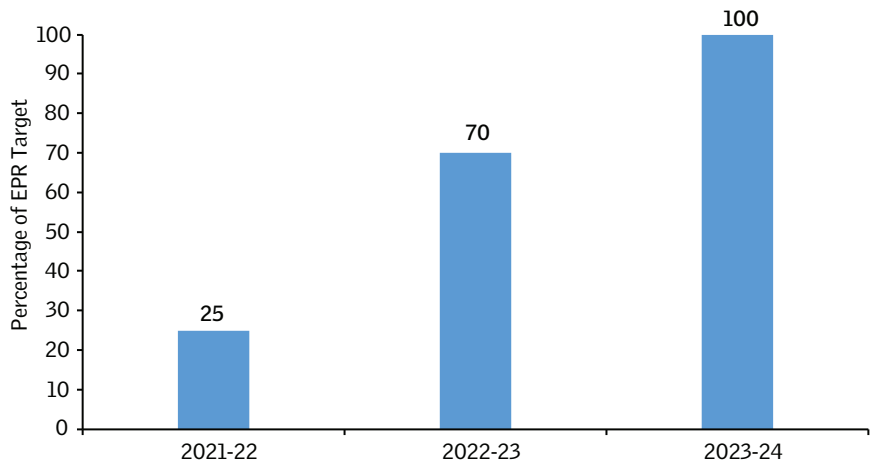
The collection targets, also referred to as EPR targets, kick in from fiscal year 2021–22 at a modest 25 per cent and steeply increase to 100 per cent until 2023–24. This means that from fiscal year 2023–24, PIBOs must retrieve all the plastic packaging they put in the Indian market. Collection targets, like every other type of targets, are category specific *(see Graph 1: Collection targets)*

Collection targets are assigned to PIBOs when they register on the CPCB portal based on the information PIBOs provide. EPR targets (Q) are calculated as:

The average weight of virgin plastic packaging material (category-wise) sold in the last two financial years (A) + the average quantity of pre-consumer plastic packaging waste in the last two financial years (B) – the annual quantities supplied to other entities (C) who have registered on the EPR portal, and are not exempted from the EPR guidelines.

Q (in metric tonnes) = [(A + B) – C]

Graph 1: Collection targets



Source: Central Pollution Control Board

RECYCLING TARGETS

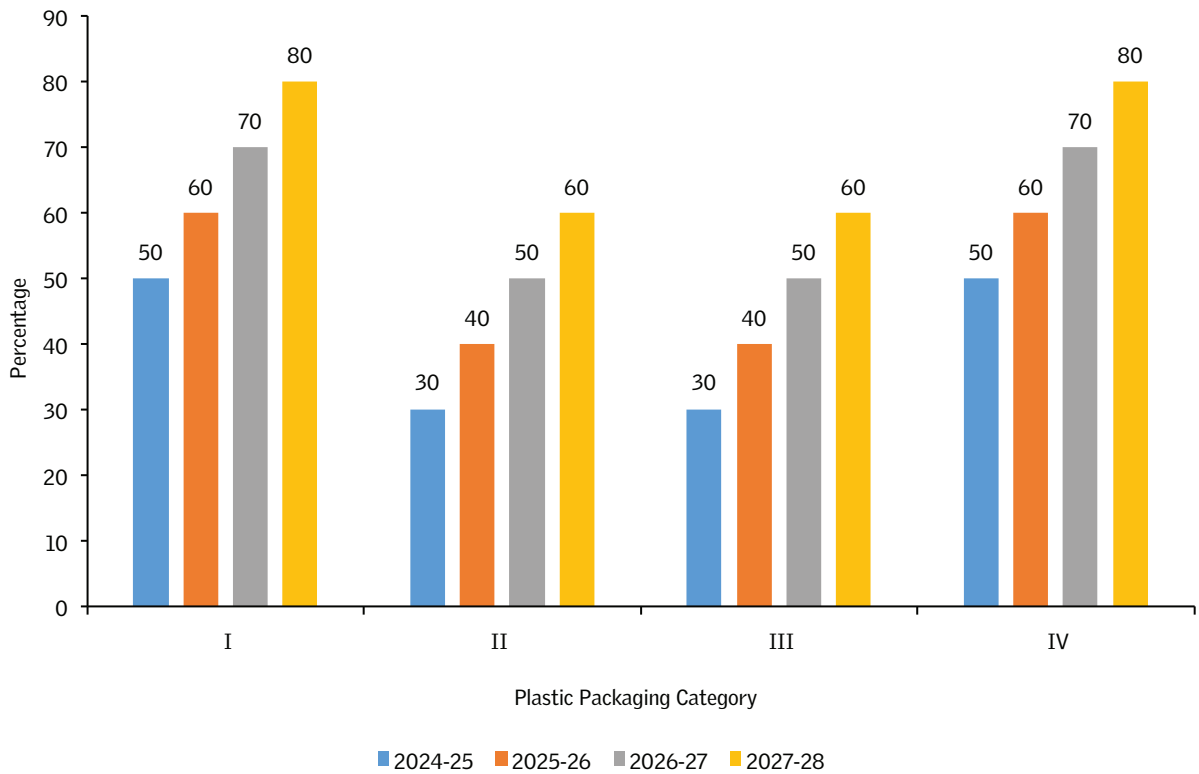
Recycling targets are plastic category-specific and have come into force in the fiscal year 2024–25. The recycling targets for rigid and compostable plastic are the most stringent, at 50 per cent. The recycling targets for flexible and multilayered plastic packaging start at 30 per cent from 2024–25. The recycling targets rise by 10 per cent for each category of plastic until the 2027–28. At the end of the rise, the targets will be pegged at 80 per cent for rigid and compostable plastic packaging and 60 per cent for flexible and multilayered packaging. The targets will stabilize after 2027–28 (*see Graph 2: Recycling targets*)

Although biodegradable plastic has been introduced as a category in the EPR regime, the guidelines do not specify targets for recycling biodegradable plastic packaging. It is believed that the targets for biodegradable plastics are similar to those of compostable plastics.

USE OF RECYCLED CONTENT

The mandate for using recycled plastic content (UReP) in plastic packaging will kick in from 2025–26. This target is related explicitly to the procurement and use of recycled plastics to make

Graph 2: Recycling targets



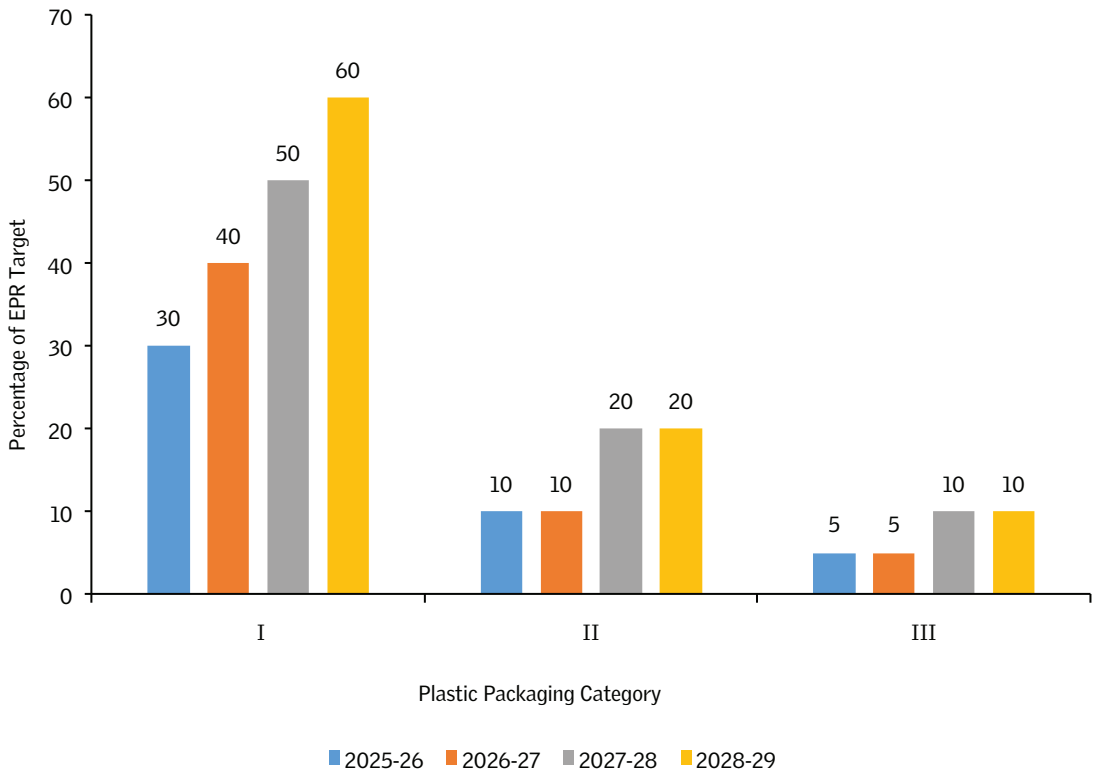
Source: Central Pollution Control Board

new plastic packaging. Although recycled plastic will have to be procured through recyclers, only PIBOs can generate the UReP certificates, which will have to be traded between PIBOs.

So far, FSSAI has only allowed the use of recycled PET (rPET) in food contact applications.[10] Other polymers like HDPE, LDPE, PP, etc., that are highly used for food packaging applications, are not authorized to be used as per the Indian norms.

The recycled plastic procurement target for rigid plastics is 30 per cent, with a 10 per cent increase every year, reaching 60 per cent by fiscal year 2028–29. For flexible plastics, recycled content starts at 10 per cent and will reach 20 per cent by the fiscal year 2028–29. For multilayered plastics, recycled content starts at 5 per cent and will peak at 10 per cent in 2028–29 (*see Graph 3: Targets for use of recycled content*). The EPR guidelines do not

Graph 3: Targets for use of recycled content



Source: Central Pollution Control Board

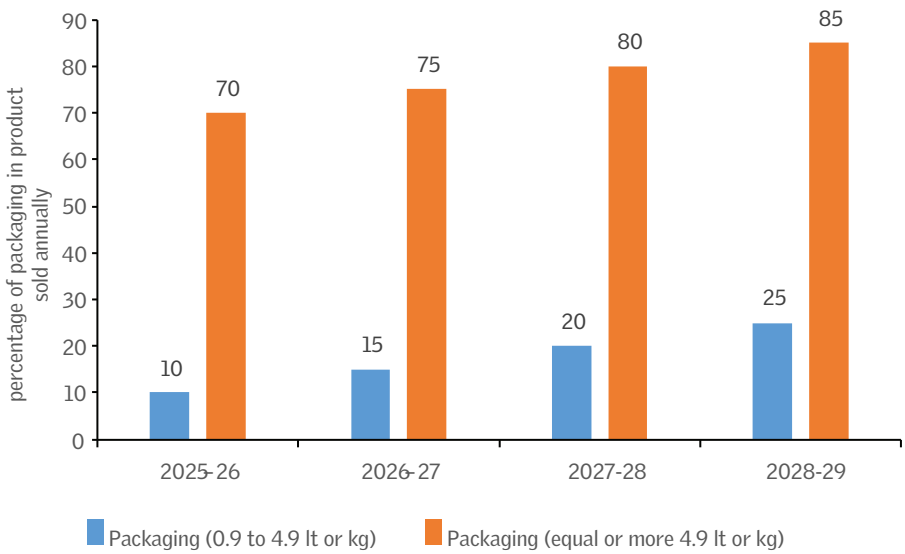
specify **a methodology to verify the use of recycled content** in plastic packaging, which continues to pose a huge challenge in the implementation, especially for validation of claims.

The targets for using recycled content do not apply to compostable and biodegradable plastics. This is because the output of processing compostable and biodegradable plastic is compost, water, carbon dioxide and other inorganic compounds which cannot be incorporated back into the plastic packaging.

TARGETS FOR REUSE

Reuse targets only apply to brand owners and are strictly limited to rigid plastic packaging. Reusing rigid plastic packaging for food grade applications is also subject to regulation by the Food Safety and Standards Authority of India (FSSAI).

Graph 4: Targets for reuse by brand owners



Source: Central Pollution Control Board

Container volume is the basis for reuse targets. The implementation of reuse targets will begin in the 2025–26 fiscal year. For containers with holding capacity of more than 0.9 liters/kg but less than 4.9 liters/kg, the initial reuse target will be set at 10 per cent, increasing by 5 per cent each year until it reaches 25 per cent in 2028–29. For containers exceeding 4.9 liters/kg, the starting reuse target will be 70 per cent, also increasing by 5 per cent annually, ultimately reaching 85 per cent in the 2028–29 fiscal year *(see Graph 4: Targets for reuse by brand owners).*

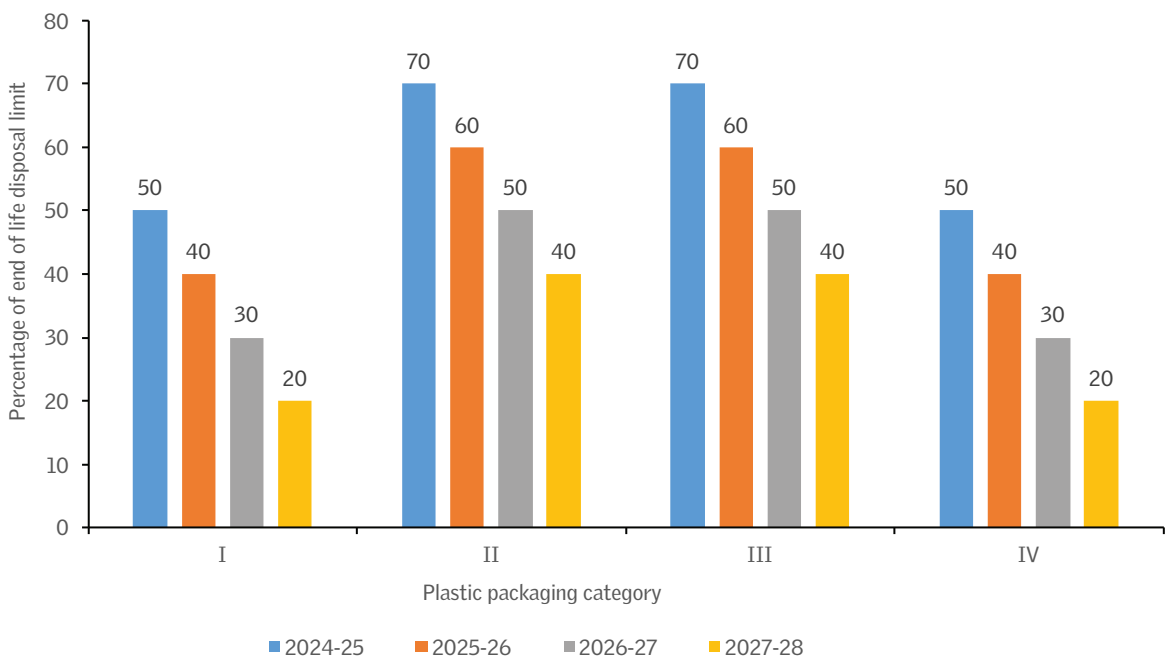
CAP ON PROCESSING PLASTIC WASTE THROUGH END-OF-LIFE DISPOSAL TECHNIQUES

Processors, such as waste-to-energy, waste-to-oil, and cement co-processors, must register as end-of-life service providers. According to the Indian Standards, 'Plastics—Recovery and Recycling of Plastic Waste Guidelines,' end-of-life plastic waste processors are entities that do not make finished products or pellets from plastic waste, but their operation can replace natural resources such as coal, energy, bitumen, and oil.[11]

The Plastic Waste Management Rules of 2016 mandated the use of plastic waste as a co-fuel in cement industries, leading to an increase in the thermal substitution rate for alternative fuels in cement plants over recent years. However, since there was no mandate for recycling established at that time, this regulation contradicted fundamental waste management principles. The law also mandates that plastic waste be used to make roads, and certificates can be generated when plastic waste is used for this "alternate use".

The Plastic Waste Management Rules, 2016, have upheld the principle of waste hierarchy through the notification and implementation of EPR guidelines in 2022. This is because earlier, mechanical recycling and end-of-life (EoL) processing options like waste-to-energy and co-processing were all considered recycling. However, the EPR regime has set a clear distinction between the

Graph 5: Mandated decline of end-of-life processing techniques for plastic processing



Source: Central Pollution Control Board

recycling certificates that can be issued by mechanical recyclers and the EoL certificates that EoL plastic waste processors can issue.

PIBOs are responsible for collecting back 100 per cent of the plastic packaging they put in the market as per clause 9.1 of the Plastic Waste Management Rules, 2016, amended in 2022. However, the recycling targets are always lower than the collection targets. So, what happens to the excess plastic packaging waste that is collected but not recycled? The EPR guidelines provide an option to use end-of-life disposal techniques like waste-to-energy, waste-to-oil, roadmaking, and the use of co-processing plants to ensure that the plastic packaging waste collected by the PIBOs is not mismanaged *(see Graph 5: Mandated decline of end-of-life processing techniques for plastic processing).*

Over the years, the amount of plastic waste PIBOs can channel for end-of-life disposal will depreciate until 2027–28.

3

STAKEHOLDER ENGAGEMENT IN THE EPR ECOSYSTEM FOR PLASTIC PACKAGING

The first step to compliance involves registering on the centralized CPCB portal developed by CPCB. CPCB also direct the PWPs to register themselves for verification of recycling/processing capacity and on ground operations.

Plastic waste makes its way through transfer stations and scrap shops to formal material recovery facilities or (semi/in)-formal small and large aggregators of plastic waste.

Producer Responsibility Organizations (PROs) and Waste Management Agencies (WMA's) are third-party agencies that help "polluters" comply with the EPR guidelines.

The schematic below describes the three significant flows, and the engagement and interactions between various stakeholders involved in the EPR ecosystem *(see Figure 7: Engagement and interaction of stakeholders in EPR implementation)*. These flows are as follows:

FLOW OF DIRECTION AND RULES BY THE AUTHORITIES

The EPR guidelines direct the PIBOs and manufacturers, including the MSMEs to comply. The first compliance step involves registering on the centralized portal developed by CPCB. They also provide the PWPs with directions, including end-of-life solution providers like waste-to-energy and waste- to-oil plants to register on the same portal. 2,623 brand owners, 4,423 producers, 34,531 importers, and 2,494 plastic waste processors have registered themselves on the portal as on 19 August, 2024 (*see Figure 6: Application summary of PIBOs and PWPs on the centralized EPR portal*).

Figure 6: Application summary of PIBOs and PWPs on the centralized EPR portal (as on 19 August, 2024)

Source: Centralized EPR portal for plastic packaging, CPCB

FLOW OF WASTE MATERIALS, PARTICULARLY PLASTICS

- Once the user of plastic packaging disposes off the plastic waste, it can take multiple routes before it reaches the PWP who processes the plastic packaging. This includes, informal collectors, formal collectors, including city governments and the concessionaires at the level of local government. The plastic waste makes its way through transfer stations and scrap shops to formal material recovery facilities or semi-formal or informal small and large aggregators of plastic waste. From here, the plastic waste is sold to recyclers; the formal recyclers who are registered on the centralized portal recycle the plastic waste and generate recycling certificates which can be transferred to the PIBOs and serve as proof of recycling. In many cases, the plastic packaging waste also reaches the dumpsites/ landfills in Indian cities where biomining operators recover the combustible fraction and channel it.

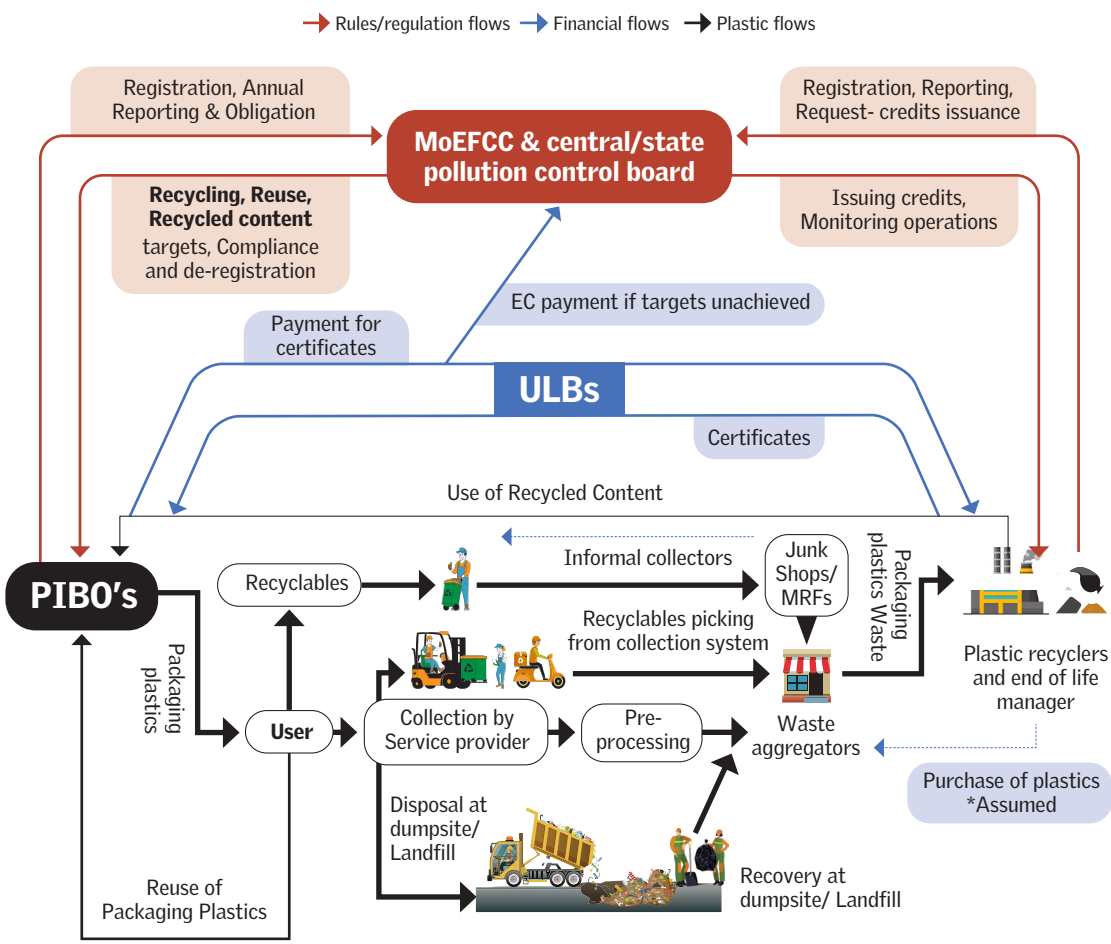
- The EOL disposal plants like cement co-processing plants, waste to energy, waste to oil plants, etc. generate the EOL disposal certificates that can be traded with the PIBOs as a proof of disposal of all the plastic they put on the Indian market.

Flow of finances in the formal and informal ecosystem of plastic waste management

- The EPR implementation in India is *market driven*. Although the policy views the transaction between the PIBO and the PWP as the sole transaction, plastic waste actually goes through several intermediary stages before reaching a formal recycler. The informal and formal collectors are compensated by the aggregator to whom they sell the plastic waste, while the aggregator receives payment from the recycler, who uses the waste as raw material for their plant. The price of plastic waste fluctuates like any other commodity, and the informal market operates based on these varying costs. However, the compensation received by informal players is significantly lower than the market value of plastic waste at its final

destination (the recycling facility). Price increases for plastic waste are reflected in payments to informal players only when the market stabilizes at a certain cost. In contrast, cost reductions are readily passed on to this sector that makes collection of plastic waste and thus recycling possible.

Figure 7: Engagement and interaction of stakeholders in EPR implementation



Source: GIZ India

URBAN LOCAL BODIES AND EPR FOR PLASTIC PACKAGING:

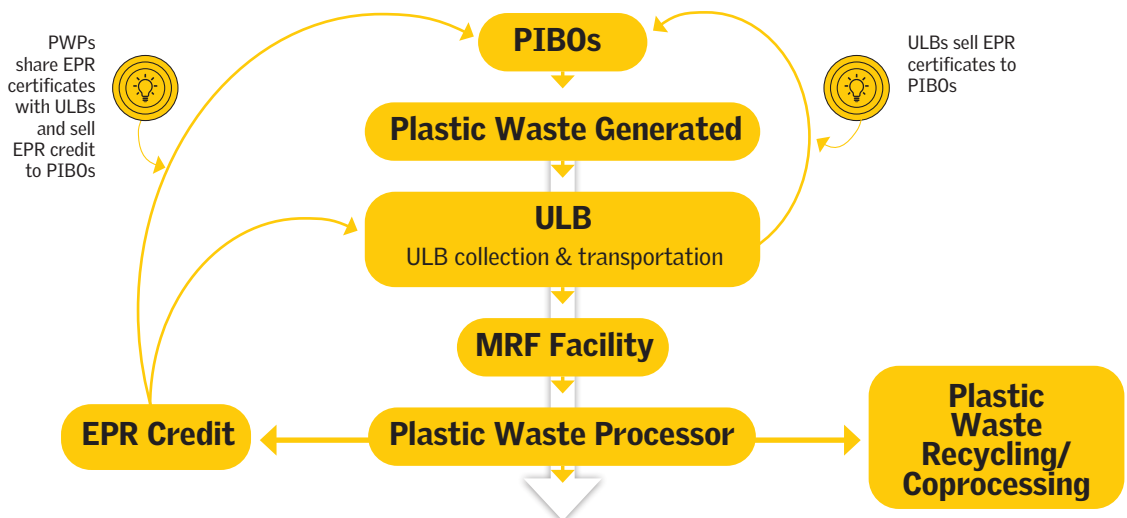
Urban Local Bodies (ULBs) spend a considerable share of their sanitation and waste management funds in segregation, collection, and transport of plastic waste. By leveraging the EPR guidelines, they can enhance their operations and generate revenue from plastic waste management activities.

Mechanism 1

ULBs can lease out a piece of land in their jurisdiction and invite recyclers and other plastic waste processors to manage and oversee operations. The plastic waste processor has to invest in machinery, human-power, and other operational aspects. They have to register with the relevant state pollution control board and file an application on the centralized EPR portal. Once the certificates are generated, a part of it, has to be shared by the PWP with the ULB. This has to be done ideally on the basis of a Memorandum of Understanding (MoU) between both the parties.

Mechanism 2

ULBs can start their own operations after registering with the relevant SPCB/PCC and filing an application on the centralized portal. Once the operation starts, the ULB can generate EPR certificates and transfer it to PIBOs through the centralized portal.



Source: Himachal Pradesh State Pollution Control Board

4

PRODUCER RESPONSIBILITY ORGANIZATIONS (PROs) AND THEIR ROLE IN THE EPR REGIME

Producer Responsibility Organizations (PROs) and Waste Management Agencies (WMAs) are third-party agencies that help 'polluters' comply with the EPR guidelines.

The latest EPR guidelines do not define or mention PROs and their role in the Indian EPR ecosystem. However, PIBO's and PWPs fall back on PROs to fulfill their EPR liabilities and comply to the notified guidelines.

The combination of cost competition among recyclers, the lack of regulation for PROs, and the negotiating power of polluters is driving EPR certificate prices to their lowest point. PIBOs pay only 10 per cent of the cost of management to procure certificates for problematic fractions of plastic waste.

Producer Responsibility Organizations (PROs) and Waste Management Agencies (WMAs) are third-party agencies that help polluters comply with the Extended Producer Responsibility (EPR) guidelines. The terminologies of PROs and WMAs are used interchangeably in the EPR ecosystem. The current EPR regime does not recognize or acknowledge PROs in the plastic value chain.

The plastic waste supply chain primarily includes collecting and transporting segregated plastic waste that can be recycled or disposed of through end-of-life applications. PROs or waste management agencies may source waste from various sources such as city governments, private and government-owned material recovery facilities, or a network of informal workers and aggregators.

Producer Responsibility Organizations (PROs) handle various elements of EPR compliance for PIBOs. Initially, under the Plastic Waste Management Rules, 2016, PROs were required to register with the Central Pollution Control Board (CPCB). However, in 2019, the CPCB issued a notice stating that PROs are no longer required to register with them to operate.[12]

The latest EPR guidelines do not define or mention PROs and their role in the Indian EPR ecosystem. However, PIBOs and PWPs fall back on PROs to fulfill their EPR liabilities and comply to the notified guidelines. The role of the PROs in the current EPR scheme is following:

- Assist PIBOs and PWPs in registering on the EPR portal
- Assist PIBOs and PWPs in filing annual returns on the EPR portal
- Link PIBOs and PWPs to exchange/trade certificates

CSE interacted with several PROs to understand the modalities of engagement between the PIBOs and PROs.

It was found that most of the PROs service brands owners in the fast-moving consumer goods (FMCG), automobile, petrochemical, paint, and pharmaceutical sector. A PRO stated that they handle Category II and Category I plastics in the highest quantum, followed by Category III. The EPR portal also indicates that Category II and I plastics are more widely circulated than Category III, IV, and V.

Their services primarily involve providing documentation and compliance support to the PIBOs. Depending on the level of engagement, a Memorandum of Understanding (MoU) is signed between the parties, outlining the financial terms. The financial terms are affected by several factors:

- The number of manufacturing units to be serviced
- Geography-specific/agnostic approach demanded by the PIBO
- Extent of support requested, such as registration, invoice management, and annual filings on the EPR portal

Several PROs have noted that the **demand for on-the-ground actions**—such as collecting, sorting, storing, and channeling plastic waste for recycling—**has diminished**, as compliance can be achieved simply by purchasing EPR certificates. There are several issues that the PRO's flagged which they think are driving the cost of EPR certificates for plastic packaging downwards:

- Increased number of entities operating as PROs due to the space being unregulated. This creates a higher number of options for the PIBOs to consider when finalizing an EPR compliance partner.
- PIBOs, particularly brand owners, have transitioned to a request-for-quotation system with PWPs for trading and procurement of EPR certificates.
- The intense cost competitiveness among recyclers and the (over)flow of (fake and fraudulent) certificates has driven the prices for these certificates down significantly.

Waste management companies and PROs have established collection systems through extensive ground networking, enabling them to build an inventory of various categories of plastic

waste. As a result, brands can directly contact them to obtain EPR credits. With the rise of EPR certificates, brands are increasingly seeking to acquire these certificates directly instead of taking on the responsibility of collecting plastic waste. This shift is seen as **diminishing the accountability and liability of PIBOs**, allowing them to comply by simply purchasing EPR certificates. Consequently, the responsibility has shifted to PWPs for generating credits, but they lack the leverage to demand a fair price for the credits produced.

A few PROs that CSE spoke with aim to formalize the value chain for collecting, sorting, and storing waste. However, formalization comes at a cost. As one of the PRO representatives noted, the brands have limited interest in understanding and acknowledging the contribution of entities or individuals who make plastic waste collection possible, especially when financial contributions are involved. It was also noted that the current method of achieving compliance by merely exchanging credits has reduced the significance of other stakeholders in the value chain.

In 2018, one of the PROs and five notable brands in the country formed a consortium and decided to launch a pilot project to prove that MLP waste could be collected and channelized for processing. This was a part of a narrative building exercise to prove to the authorities that the material is not problematic. With financial support from the brands in the consortium, the pilot project was implemented with CPCB's permission. The project disposed of 450 tonnes of MLP waste in cement plants through end of life processing. As per a verbal discussion with the lead implementing agency, it was found that even though the material was channeled to EoL and not recycling the price for the disposal of MLP waste (only collection and transportation from source to processing site) worked out to Rs 12–15/kg based on the proximity of the site to a cement co-processing plant. The pilot project demonstrated that the supply and processing of MLP plastics are feasible when ground-based work is properly financed and workers are well incentivized.

SWaCH plus supported by ITC Limited and in association with Pune Municipal Corporation, has collected over 4200 tonnes of MLP (between 2019 and 2024) and diverted it away from dumpsites and cement plants.[13] Designed as an Extended Producer Responsibility Initiative, the model demonstrates how brand owners can directly work with a collective of waste pickers to create market value for recovering and processing a difficult-to-recycle material. Due to the physical properties and heterogeneous mixture of materials in multilayered plastic sachets, the quality of output, and therefore the cost recovery from processing/ recycling, is very limited, barely covering the cost of compensation to waste pickers, transportation, aggregation, sorting and baling. ITC covers the viability gap of the operations, allowing this initiative to continue at break-even costs. The costs for managing MLP plastic waste (excluding doorstep collection and recycling cost) was calculated at Rs 16.6/kg.[14]

However, certificates for MLP (category III) are being procured at roughly about 10 per cent of the actual cost of managing plastic waste. The current approach of complying by merely buying certificates fails to take into account the cost involved with managing the problematic plastics like MLPs.

The EPR guidelines in India undermine the *polluter pays* principle, as they allow polluters to influence the pricing of EPR certificates. PWPs that quote higher prices for these certificates often find that their offerings go unselected, while lower-priced certificates are quickly acquired. Since the third-party audits have started only recently some PWPs have already issued large volumes of fraudulent certificates, selling them at significantly low prices to various PIBOs. This practice has disrupted the market by artificially lowering certificate prices and reducing the willingness of PIBOs to pay fair rates for legitimate certificates.

5

TYPES OF PLASTIC PROCESSORS AND EPR CERTIFICATES

Following the March 2024 amendment, Multi-layered plastic used for packaging FMCG products like chips, biscuits and smaller formats like sachets have been reclassified into category II (flexible) plastics.

In total 12 different kind of certificates can be generated and transferred. Selected entities (PIBOs and PWPS) are authorized to generate different kinds of certificates.

With the emergence of EPR credits, there is a growing demand from brands to acquire credits directly rather than taking responsibility for collecting plastic waste from the ground.

Recycling and processing plastic waste can be done by channeling it to plastic waste processors (PWPs). Different methods have been assigned codes depending on the type of facility owned by the processor *(see Figure 8: Process codes assigned to plastic processing techniques)*.

The certificates can be generated for all the activities mandated under the EPR guidelines, like recycling, EoL disposal, use of recycled plastic and reuse. In total, 12 different kinds of certificates can be generated and transferred. The different categories of Certificates that can be generated include the following:

(i) Cat I (recycling)
(ii) Cat II (recycling)
(iii) Cat III (recycling)
(iv) Cat I (end of life)
(v) Cat II (end of life)
(vi) Cat III (end of life)
(vii) Cat IV (EoL)
(viii) Cat I (use of recycled plastic- (UReP)

Figure 8: Process codes assigned to plastic processing techniques

Waste into pellets/chips
R1- Recycling of rigid plastic
R2- Recycling of flexible plastic
R3- Recyling of multilayered plastic

Waste to products
R4- Recyling of Rigid plastic
R5- Recycling of flexible plastic
R6- Recycling of multilayer plastic

Waste for industrial composting
C1- Processing of compostable plastic

Waste to energy
E1-E2-E-3 End-of-life disposal through waste to energy plants

E4- End of life disposal through waste to oil units

Source: CPCB

(ix) Cat II (UReP)
(x) Cat III (UReP)
(xi) Cat I Reuse (0.9–4.9 L)
(xii) Cat II Reuse (> 4.9 L)

In addition, PIBOs can generate EoL certificates (Cat I/II/Cat III) if they have provided plastic waste for Road construction based on self-declaration. As per conversations with experts, it was found that the certificates of roadmaking have to be claimed based on a format prescribed by CPCB.

Organization Letter Head

Annexure-I

Certificate for Road Making issued by the Construction Authority

This is to certify that M/s. *(PIBOs Name & Address)* with EPR Registration No... .....has provided plastic waste for utilization in construction of Road at Village -..., Distt.-..., State - ..... The Construction of road has been completed on date ..... The details of the same are given below:

Qty. Plastic Utilized (Tons)	Cat-I : Cat-II : Cat-III:
Total Length (M) of Road	
Total Width (M) of Road	
Total Depth (M) of Road	
Total Quantity of Bitumen used (T/m3)	
GPS location	Latitude: Longitude:
Cost of the Project	

The above mentioned details have been verified by the technical professionals of our department/authority during the site inspection dated -------.

(Signature)
Name
Designation

Source: CPCB

5.1 WHO GENERATES THE CERTIFICATES?

Certificates can be generated by the two key stakeholders in the EPR regime, PIBOs and PWPs. *(see Table 4: Certificate generation by various stakeholders)*

When this report was written, the mandates for recycling and end-of-life (including roadmaking) were in force. The mandates

Table 4: Certificate generation by various stakeholders

Sr. no.	Stakeholder	Type of EPR certificate generated
1	PWP (Recycler)	Recycling (Cat I, II, III)
2	Industrial composting	Composting (Cat IV)
3	PWP (Cement Co-processor)	EoL (Cat I, II, III, IV)
4	PWP (Waste to Energy)	EoL (Cat I, II, III, IV)
5	PWP (Waste to Oil)	EoL (Cat I, II, III)
6	Producer	UReP (Cat I, II, III), EoL (Road making) (Cat I, II, III)
7	Brand owner	UReP (Cat I, II, III) EoL (Road making) (Cat I, II, III) Reuse (Cat I (>4.9 L)) Reuse (Cat I (0.9 to 4.9 L))
8	Importers	EoL (Roadmaking) (Cat I, II, III)

Source: CPCB

for using recycled content and reuse will kick in from the fiscal year 2025–26.

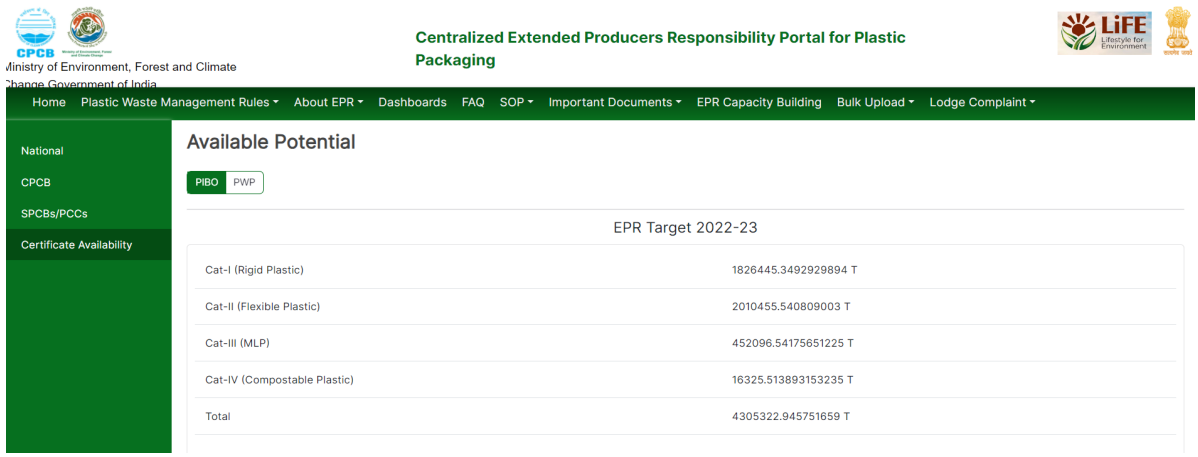
Many plastic waste management value chain players, such as MRF operators, waste aggregators, informal collectors etc., cannot generate certificates. However, they can negotiate with the entities generating the certificates in return for their contributions. For example, an MRF operator can negotiate with the plastic waste recycler/processor to share the credits they generate over and above the financial exchange for the raw materials supplied by them.

5.2 EPR CERTIFICATES

As per the information on the centralized EPR portal, the PIBOs were assigned a target to collect back 4.3 million metrics tonne of packaging plastic waste from the Indian market as on 20 August, 2024 *(see Figure 9: Category-wise EPR targets assigned to PIBOs for fiscal year 2022–23).*

The PIBOs have not only managed to collect back an equivalent amount of plastic packaging waste from the Indian market, but they have gone a step further and already started buying certificates from the registered PWPs—transferring the certificates against their names much before the mandate for recycling came

Figure 9: Category wise EPR targets assigned to PIBOs for fiscal year 2022-23



Source: Centralized EPR portal for plastic packaging, CPCB

into force. The targets for recycling only came into force in 2024–25; the collection/EPR target during this time was 100 per cent of the plastic packaging introduced in the Indian market.

According to the EPR portal (accessed on 5 August, 2024), EPR certificates equivalent to 7.274 million tonne of plastic waste have already been generated. Of this, 5.561 million tonne worth of certificates have already been transferred to PIBOs by the registered PWPs. About 1.704 million tonne of certificates are yet to be traded (*see Table 5: Availability of various kinds of certificates on the Centralized EPR portal*).

Table 5: Availability of various kinds of certificates on the centralized EPR portal

Certificate type	EPR generated (total) (in tonne)	EPR Certificates (transferred) (in tonne)	EPR Certificates (available) (in tonne)
Cat I (recycling)	22,97,324	19,08,611	3,86,914
Cat II (recycling)	15,93,776	13,78,498	2,11,443
Cat III (recycling)	20,1392	1,75,057	25,169
Cat IV (recycling)	1,265	1,219	46
Cat I (EOL)	2,15,854	1,08,884	1,06,907
Cat II (EOL)	17,95,385	13,52,171	4,43,142
Cat III (EOL)	11,66,064	6,35,306	5,30,741
Cat IV (EOL)	2,562	2,052	510
Total	72,73,622	55,61,798	17,04,872

Source: Centralized EPR portal for plastic packaging, CPCB as on 5 August 2024

It should be noted that while the guidance document mentions Cat IV (EoL) as a certificate, the centralized portal mentions Cat IV (recycling) as a certificate. This discrepancy needs to be corrected for the guidance document and the portal to synchronize the information about the types of certificates that PWPs can generate.

According to the portal data, 56 per cent of the total certificates generated were from recycling (including Cat IV recycling), while 44 per cent was generated through EoL disposal techniques. Also, almost 85 per cent of the certificates generated through recycling have been transferred, while about 66 per cent of the certificates generated through EoL disposal were transferred to PIBOs.

5.3 HOW MUCH DO EPR CERTIFICATES COST IN THE INDIAN MARKET?

The research team at CSE interacted with several stakeholders in the plastic waste management value chain, including brand owners, producer responsibility organizations (PRO), recyclers, cement co-processors, and waste-to-energy plant operators. It was found that the polluters such as producers, importers and brand owners (PIBOs) invited the plastic waste processors (PWPs) to communicate their certificate requirements and, in turn, bought certificates from the PWPs who could supply certificates at the lowest possible rates (*see Table 6: Estimated price for EPR certificates*).

PIBO's compliance with EPR for plastic packaging is determined largely by two cost heads:

1. **Compliance cost for EPR portal**: This process can be handled internally by utilizing personnel from within the organization or outsourced to a PRO, which manages these tasks on their behalf. This includes registration, invoice management, and annual report filing.

2. **Proof of EPR compliance**: This can be done by buying EPR certificates from registered recyclers and end-of-life PWPs to prove that relevant certificates have been procured for an

Table 6: Estimated price for EPR certificates

Plastic category	Price (INR per tonne)	Price (per kg)
Category I (Rigid)	500-750	0.5- 0.75
Category II (Flexible)	750-1,500	0.75- 1.0
Category III (MLP)	1,000-1,500	1.25

Source: CSE, 2024, based on interactions with several stakeholders

equivalent amount of plastic waste that was placed on the market, and for the relevant category of plastic waste.

The rates for portal compliance vary between Rs 0.5 to 1/kg of plastic waste that was put out on the Indian market. Certificate rates vary across different categories of plastic waste, as gathered from discussions with various stakeholders in the plastic waste and EPR ecosystem.

The total cost for compliance of EPR for plastic packaging for PIBO's varies between Rs 1–2.2/kg of plastic waste.

Until the last financial year, the rates for recycling certificates and end-of-life (EoL) disposal certificates did not show significant variation. This was because the mandates for recycling were not in force, and EPR compliance could be met either by recycling or by disposal. However, this year, the cost of the recycling certificates is expected to rise due to the mandate for recycling and the clear distinction between the two kinds of certificates.

The industry termed the approach of holding polluters accountable for the plastic packaging they put on the Indian market a "market-driven" approach. However, it was reduced to a "race to the bottom," with PWPs quoting lower prices for transferring certificates to the PIBOs.

IMPACT OF MARKET DYNAMICS ON RECYCLING CERTIFICATE COSTS

The cost of certificates for rigid plastics is the lowest, as these materials are easily collected and directed for recycling, driven

by strong market demand for materials like PET, HDPE, and PP. The established market for rigid plastics contributes to their lower certificate costs. Flexible plastics are difficult to collect since they are low in mass and high in volume. Moreover, the recyclability of flexible plastics depends on various factors such as contamination levels, moisture content, types of ink used and the material itself. Hence, they are priced slightly higher than rigid plastics. MLP is the most difficult to collect and recycle; hence, the cost for the certificates for MLP was the highest. Additionally, there is a dearth of recyclers who are recycling MLP, thus affecting the supply of certificates for this category.

PROTECTING PROBLEMATIC PLASTICS THROUGH UNFAVORABLE POLICY MODIFICATIONS.

Through discussions with various stakeholders, it was observed that multilayered plastic used for packaging fast-moving goods such as chips, biscuits, and smaller formats like sachets have been reclassified into Category II plastics. This reclassification has led to a significant increase in the volume of plastic in Category II even though the market remains saturated with multilayered packaging. The transition occurred following the March 2024 amendment to the EPR guidelines, which removed the phrase **'metallized layer'** from the definition of multilayered plastic (MLP).

Earlier, polluters would have been forced to recycle 30 per cent of MLP and tetrapak, which means that there would have had to be a systemic investment in collecting, aggregating, and recycling MLP. Now, with MLP shifted into Category 2, the types of materials within this category have increased, without a higher recycling mandate, i.e., the mandate for Category 2 can be fulfilled without having to recycle MLP at all.

An industry representative informed the CSE research team that manufacturers have shifted to using spray-coated aluminum instead of aluminum films, meaning that the packaging no longer technically falls under the MLP category. While this shift demonstrates the industry's capacity for adaptation, it starkly fails

to prioritize recycling or improve the recyclability of problematic plastic packaging. This negligence not only undermines environmental progress but also perpetuates the cycle of waste.

The cost of EOL for MLP is significantly lower than that of recycling. Recycling would need to sort and clean (or source in such a manner that it ensures high purity) which will cost much more than just collecting and shipping it to a cement plant. Since sending the waste to cement plants is so cheap, it will not impact the status quo and PIBOs will easily absorb the cost of MLP EOL while continuing to produce an inherently heterogenous and difficult-to-recycle material without any accountability.

This also highlights the successful lobbying that polluters are capable of doing with policymakers. In 2018, the amendment to the Plastic Waste Management Rules made the phasing out MLP toothless. Now, with the shifting of this category into a much broader category, it has allowed its use without much accountability for recycling this problematic material.

Stakeholders also pointed out that plastic waste processors have been given a higher power since they are the only authorized players to generate recycling and EoL certificates. While most of the work of segregation, collection, and channelization is done by local governments, informal workers, PROs, and waste management agencies who do not have any direct control over the certificates and are not involved in the final exchange of certificates. The meager certificate rates were only possible because of the malpractices practiced by the PWPs which were later released and reported by CPCB in its audit.

HIMACHAL PRADESH HIGH COURT SETS PRECEDENCE OF PRIORITIZING LOCAL RECYCLING CAPACITY AND STATE-LEVEL PWPs

In 2018, Suleman along with advocate Deven Khanna, filed a case in the High Court of Himachal Pradesh. The case was primarily about the mismanagement and dumping of waste, including plastic waste, near his residence. Initially, the local Government (Baddi, Barotiwala, Nalagarh Development Authority BBNDA) was asked to submit a status report regarding the waste management in the vicinity. This was then escalated to the other local governments in Himachal Pradesh.

It was only after the EPR guidelines were notified and the Central Pollution Control Board was summoned that the case was steered towards the implementation of EPR in the state. It was found that most of the PWPs that have registered with the Himachal Pradesh State Pollution Control Board (HPSPCB) were not receiving plastic waste and hence were underutilized. Most of the waste that was collected was channelized to PWPs from other states. As a result, the PWPs in Himachal could not generate EPR certificates.

On 23 March 2024, the Himachal Pradesh High Court issued directions for stricter implementation of the EPR in the State:[15]

- All non-registered entities directed to register.
- Registered PIBOs are directed to channel plastic waste to registered PWPs that are underutilized.
- Preference should be given to PWPs operating in the states rather than transporting

the waste to other states.

- PWPs are to submit details of the quantity of plastic waste that has been processed to HPSPCB on a quarterly basis.
- All PIBOs have been directed to submit details of plastic waste generated and also directed to collaborate with Urban Local Bodies and Gram Panchayats to effectively collect, segregate and process plastic waste.
- Waste management agencies (Producer Responsibility Organizations) have been directed to submit the following:
  - List of PIBOs they are working for
  - Details of plastic waste collection
  - Details of plastic waste disposal
- PWPs have been directed to tie up with Urban Local Bodies and waste management agencies and start the generation of EPR certificates.
- Rural Development department have been directed to provide details of the Gram Panchayats where plastic waste management units are being established.
- ULBs have been directed to create login credentials with support from HPSPCB and CPCB.
- Regional officers from HPSPCB are to submit progress reports on a fortnightly basis for compliance.

Additionally, PIBOs operating in multiple states, including Himachal Pradesh, are required to submit sales data with a state-wise breakdown. The CPCB has been tasked with ensuring that brand owners provide details of plastic packaging sold in Himachal Pradesh to guarantee compliance within the state.

6

CPCB INITIATIVES TO STREAMLINE EPR IMPLEMENTATION

CPCB introduced the Environmental compensation (EC) guidance which attempts to streamline the EPR guideline implementation in India.

According to latest reports by CPCB, compliance status of only 25 per cent of the PIBOs and around 60 per cent of the PWPs is disclosed, with the compliance status of the remaining stakeholders being unclear.

While EPR is based on the principle of polluter pays- none of the polluter's names who procured fradulent certificates was made public- nor was any action taken against them by the regulatory authorities.

The CPCB has taken several steps to streamline the implementation of EPR. This includes notifying Environmental Compensation (EC) for non-compliance and revising it, identifying and finalizing third-party auditors for on-ground verification of PWPs, reforming the EPR guidelines by making amends as and when needed, and levying EC on the stakeholders who did not comply with the EPR guidelines.

Some of the findings of the initiatives by CPCB are discussed in the following section.

6.1 CPCB AUDITS OF PWPS REVEAL MASSIVE GAPS IN THE EPR IMPLEMENTATION

The Central Pollution Control Board (CPCB) rolled out its third party audits last year. PWPs were audited based on the number of certificates they generated and transferred to PIBOs. Third-party audits currently are, and in the future will be, limited to the entities generating and transferring the certificates. In the first tranche that audited 6 PWPs, it was found that 3 PWPs had not only generated but also transferred a significant number of fraudulent certificates to the PIBOs (*see Table 7: Recyclers and the quantum of fraudulent certificates they generated and transferred*). The discrepancies

Table 7: Recyclers and the quantum of fraudulent certificates they generated and transferred

Relevant authority	Name of PWP (recycler)	Claimed processing capacity (As per CTO/ CTE) (TPA)	Actual processing capacity (As per the TPA audit) (TPA)	Certificates generated	Certificates transferred
Gujarat State Pollution Control Board	M/s Asha Recyclean Pvt. Ltd	12,000	518	11,400	11,400
Maharashtra State Pollution Control Board	Shakti Plastics	2,88,000	17,760	2,74,000	2,68,000
Maharashtra State Pollution Control Board	Technova Recycling India Pvt. Ltd.	97,200	4,700	97,200	95,200
Karnataka State Pollution Control Board	Enviro Recyclean Pvt. Ltd.	3,50,000	0 (Plant failed to operate during trial run to assess processing capacity)	35,00,00	3,48,500

Source: CPCB and SPCB reports

were found in three states: Gujarat, Maharashtra and Karnataka. In the second tranche of third-party audits, one more recycler from Maharashtra was found violating the certification scheme for plastic packaging under the EPR. The summary of the violations can be found in the table below.

The cumulative recycling capacity of the four fraudulent recyclers was 23,000 tonnes per annum. The cumulative recycling capacity of the four fradulent recyclers was close to 23,000 tonnes per annum. However, they generated over 7 lakh cerificates which is more than 31 times their recycling capacity. Notably, all the four companies are linked to the Poddar Group.

The types of fraud that the companies were found to be indulging in were as following:

- The recycling plant had a capacity of X tonnes per annum, but it claimed to recycle 10X tonnes of plastic packaging waste and transferred the fraudulent certificates to PIBOs at extremely low prices.

- The recycling plant did not have any equipment, machinery, or workers at the recycling facility, but still claimed to be recycling plastics. The fraudulent certificates were generated and transferred to PIBOs, who bought them at extremely low prices.

PWPs that violated EPR guidelines for plastic packaging issued 6 lakh fraudulent certificates to PIBOs (equivalent to recycling 600 million Kgs of plastic packaging waste). The CPCB has imposed an environmental compensation of Rs 5,000/tonne on each of these PWPs, and at least one PWP has received a show-cause notice.

What stands out in all of these cases is the accountability of the PIBOs. While EPR is based on the principle of polluter pays, none of the polluter's names who procured these certificates was made public nor was any action taken against them by the regulatory authorities. Thus, the accountability of implementing the EPR

has been reduced to a single stakeholder—the PWPs—without any liability on the PIBOs who are responsible for the plastic pollution.

6.2 ENVIRONMENTAL COMPENSATION (EC) FOR NON-COMPLIANCE OF PWM RULES, 2016

The Central Pollution Control Board (CPCB) in September 2022 notified the Guidelines for Assessment of Environmental Compensation to be levied for Violation of Plastic Waste Management Rules, 2016. The guidelines provide a framework for assessing the Environmental Compensation (EC) of the stakeholders who are mandated to comply with the EPR guidelines for collection, recycling, use of recycled content, and reuse of plastic packaging. The documents also provide guidance on the EC for violation of single-use plastic ban notification by the Ministry of Environment, Forest, and Climate Change (MoEFCC).

HOW WAS THE EC FOR EPR (PLASTIC PACKAGING) CALCULATED?

The documents consider the cost of collection and transportation, material recovery facility and RDF facility to arrive at the cost for managing one tonne of plastic waste. The cost for collection and transportation is pegged at Rs 2,000/tonne, while the cost for setting up an MRF is calculated as Rs 150/ tonne. The cost for setting up RDF facility and operating it works out to Rs 1770/tonne. This adds up to Rs 3,920/tonne which is rounded off to Rs 4,000/tonne. The document further explains that since the cost of managing plastic waste is a shared responsibility of the local governments and the PIBOs, this cost is split between the two parties. The amount that polluters (PIBOs) must pay is calculated at 2.5 times the established cost of Rs 2,000/tonne. Thus, the EC for non-compliance of plastic waste management is calculated at the rate of Rs 5000/tonne for all the stakeholders across the value chain.

In August 2024, the CPCB revised the Environmental Compensation document to define the EC charges for different categories of packaging plastics (*see Table 8: Revised EC for EPR non-compliance*). The revised EC rates acknowledge that "Collection

& Transportation cost varies for different category of Plastic Packaging Waste, being higher for the flexible / Multilayer Plastic (MLP packaging)." However, the processing cost is kept constant for all the categories of plastic packaging at Rs 2,500/tonne of plastic waste.

The table below illustrates the way the revised EC has been calculated.

Table 8: Revised EC for EPR non-compliance

Category of plastic packaging	Generation factor ratio (A)	Availability factor ratio at disposal point (B)	Collection factor (C=A/B)	EC factor (D=1/C)	EC for Collection and transportation (Calculated at EC value at 2000 for C&T)	Total EC
Cat I	5	1	5	0.2	400	2,900
Cat II	8	10	0.8	1.25	2,500	5,000
Cat III	2	5.5	0.37	2.7	5,400	7,900

Source: CPCB

The revised EC is calculated based on the generation factor and the availability factor at the disposal point. As per information shared by CPCB, the generation ratio for Category I, Category II, and Category III plastic is 5:8:2. This means that generation is the highest for Category II, followed by Category I and finally, Category III. The availability factor of plastic waste at disposal sites is calculated as 1:10:5.5.[16] This means that the probability of Category III ending up in disposal sites due to non-collection, low value, and difficult recyclability is the highest, and the same is the lowest for Category I.

TYPES OF VIOLATIONS LISTED IN THE EC GUIDELINES

There are several types of violations that the document identifies and defines the EC amount for each of the violations. These violations are as follows:

- Shortfalls in EPR targets
  - Recycling
  - End of life recycling

Table 9: EC range for local governments

Violator	Minimum population	Maximum population	Minimum EC (Rs per annum)	Maximum EC (Rs per annum)
Village Panchayat	1,000		5,000	50,000
	5,000	99,999	50,000	2 Cr
Cities and towns	1,00,000	9,99,999	5 lakh	10 Cr
	>10,00,000		50 lakh	1000 Cr

Table 10: EC range for PIBOs and PWPs

Violator	Minimum capacity (TPA)	Maximum capacity (TPA)	Minimum EC (Rs per annum)	Maximum EC (Rs per annum)
PIBOs and PWPS	50	100,000	5 lakh	200 Cr
Manufacturer	60,000	45,00,000	2 Cr	500 Cr

  - Mandated use of recycled plastic
  - Reuse of plastic (Cat I)
- Annual returns not filed
- Misreporting the quantity of plastic packaging placed on the market and use of recycled plastics
- Misreporting the quantity of plastic procured and EPR certificate generated
- Submission of false information
- Non-registration on the portal
- Non-compliance of conditions stipulated in the certificate of registration issued by the EPR portal
- Non-compliance of environmental norms
- EC charges against delay in EC deposition

The guidelines also provide a minimum and maximum EC for local governments, PIBOs and PWPs (*see Table 9: EC range for local governments and Table 10: EC range for PIBOs and PWPs*).

6.3 CPCB'S INCOMPLETE COMPLIANCE REPORTING

On August 19, 2024, the CPCB notified all PIBOs and PWPs that had violated EPR guidelines and imposed Environmental Compensation (EC) for non-compliance. The EC was levied on PWPs and PIBOs for

failing to submit their Annual Reports despite multiple extensions. Additionally, PIBOs were penalized for shortfalls in meeting their EPR targets. According to letters issued by the CPCB, a total of 9,129 PIBOs[17] and 546 PWPs[18] have submitted their Annual Reports through the centralized portal.

ACTION ON PIBOS

A show-cause notice has been issued to 1,197 PIBOs for not meeting their EPR targets, with these PIBOs collectively responsible for managing 117,402.88 tonne of plastic waste. The most significant shortfall occurred in Category II plastics, where nearly 59 per cent of PIBOs fell short of their targets, followed by a 32.5 per cent shortfall in Category I plastics. Among the PIBOs, producers accounted for the largest share of the shortfall, making up 46 per cent of the total.

EC has also been imposed on 291 PIBOs for failing to submit their Annual Reports. Among these, importers represented the largest share at 51.5 per cent, followed by producers at 35 per cent. Once again, Category II plastics had the highest non-compliance rate, with more than two-thirds of the plastic introduced into the Indian market falling into this category.

A total Environmental Compensation (EC) of Rs 56.86 crores has been imposed on the PIBOs. As of August 14, 2024, 41,544 PIBOs had registered on the portal, but the figures provided by the CPCB account for only 10,617 of them. This suggests that the CPCB has disclosed information on just 25 per cent of all registered PIBOs, leaving the compliance status of the remaining 75 per cent unaddressed.

ACTION ON PWPS

Regarding PWPs, the CPCB letter indicates that 996 PWPs from 25 States/UTs have failed to submit their annual returns, resulting in a cumulative EC of Rs 2.5 crores. Similar to the situation with PIBOs, the CPCB has provided information on the status of only 1,542 PWPs. As of August 14, 2024, there are 2,499 registered PWPs,

meaning that the compliance status of only 61.7 per cent of PWPs has been disclosed, leaving the status of the remaining 38.3 per cent unknown.

In terms of PWPs that were issued EC notices, 64.5 per cent of the total processing capacity was held by cement co-processing plants, followed by waste-to-energy plants at 12.46 per cent. The recycling of Category I plastics into pellets and products accounted for 11.86 per cent, while Category II recycling into pellets and products constituted 10.10 per cent. Category III plastics had a minimal processing capacity of 0.76 per cent, and compostable plastics held only 0.05 per cent.

It was further observed that for cement co-processing plants and waste-to-oil plants, the quantity of plastic waste reported as processed significantly exceeded their actual processing capacity. Specifically, co-processing units processed over 23 times their cumulative capacity, while waste-to-oil plants handled more than 10 times their cumulative capacity.

CHALLENGES IN THE CURRENT EPR REGIME

Providing clear guidance to implementing stakeholders is crucial for successfully implementing the EPR scheme and ensuring the accountability of PIBOs.

As PIBOs prepare to claim Use of Recycled Plastic (UReP) certificates from the next fiscal year (2025–26), the lack of a scientific method to verify recycled plastic use remains a significant challenge.

EPR systems worldwide are based on the *polluter pays* principle. While the Indian EPR regime claims to uphold this principle, it also allows polluters to determine the price they pay to recyclers or other processors.

The EPR guidelines are aimed at addressing the issue of plastic packaging with the help of 5 year road map. With the CPCB's monitoring efforts which began late last year, PIBOs and PWPs are taking the guidelines more seriously. Despite the government's efforts to develop and notify these guidelines, several major challenges have arisen that have either been partially addressed or need to be clarified by the CPCB or MoEFCC.

Providing clear guidance for implementing stakeholders is crucial for successfully implementing the EPR scheme and ensuring the accountability of PIBOs. Addressing this promptly is also essential to avoid significant system setbacks.

The total number of PIBOs are unknown. As of August 14, 2024, a total of 41,544 PIBOs have registered on the EPR portal for plastic packaging. However, due to the absence of a clear denominator, it remains unclear how many PIBOs are yet to register. Compiling a comprehensive list of all PIBOs, including those exempted and operating under the MSME category and export-oriented SEZs is essential. This will help us assess the contribution of various sectors/ polluters to plastic packaging and enable us to make necessary adjustments as EPR implementation progresses in the coming years.

• HIGH NUMBER OF IMPORTERS OPERATE WITHOUT BEING MONITORED/ REGULATED

Approximately 83 per cent of the registered PIBOs are importers (as of August 14, 2024). This means that the plastic packaging is produced in another country and brought to India solely for consumption, typically becoming waste in less than a year.[19]

It is crucial to understand the connections between Special Economic Zones (SEZ) units manufacturing plastic pellets/ packaging, exempt from EPR guidelines, and the importers who introduce these products or packaging into the Indian market. While SEZ units benefit from tax exemptions when their products are sold internationally[20], they do not receive these exemptions

when the products are placed on the Indian market[21]. This situation could shift the tax burden onto a third party, ultimately impacting local governments that rely primarily on public funds.

- ## DISTINGUISHING BETWEEN PACKAGING AND NON-PACKAGING PLASTIC WASTE

Packaging plastics account for 43-59 per cent of the total plastic waste generated in the country.[22] While Extended Producer Responsibility (EPR) for plastic packaging applies strictly to plastic packaging waste. Notably, Category 1 plastics like shampoo bottles are recycled along with buckets, crates, chairs and drums. Not only is it impractical for recyclers to handle these materials separately, it is also impossible to ascertain from pellets how much of the input plastic was packaging. Certificates are being issued for the processing and recycling of non-packaging plastic waste, leading to an oversupply of certificates, thus affecting the demand for them.

The CPCB, has clarified that only plastic recyclers handling plastic packaging waste must register on the portal. Plastic Waste Processors (PWPs) dealing with packaging and non-packaging plastic waste must report only the numbers for packaging plastic waste. However, it has been observed that mechanical recyclers who produce recycled pellets and products have limited control over receiving only packaging plastic waste. Likewise, end-of-life disposal options such as co-processing and waste-to-energy have no control over the source or type of plastic they process. The physical verification conducted jointly by CPCB and SPCB, which allows PWPs to start generating certificates, needs to address this issue adequately.

- ## UNCLEAR CATEGORIES FAIL TO ADDRESS PROBLEMATIC PLASTIC PACKAGING FORMATS

The EPR guidelines classify plastic packaging into five categories: rigid, flexible, multilayered, compostable, and biodegradable. Since the targets are specific to each category, it is crucial to accurately determine which type of plastic packaging falls into which

category. However, interactions with various stakeholders reveal that producers, importers, and brand owners (PIBOs) inconsistently categorize the same plastic packaging product. The majority of the stakeholders register PET bottles under Cat I. However, as many as 75 PWPs have registered under Cat II but continue to process PET, while others register the same product under Category II. This inconsistency highlights the need for more explicit categorization guidelines and streamlined practices to ensure accurate reporting and compliance.

Additionally, multilayered plastic packaging for items such as chips and biscuits has been reclassified from Category III to Category II. This change occurred despite the Category III definition explicitly stating that it includes packaging with layers made from materials other than plastics. These multilayered materials typically have a metalized layer to improve their barrier properties.

In March 2024, the MoEFCC revised the definition of multilayered packaging by removing the term 'metalized layers.' As a result, multilayered plastics have been reclassified into Category II, which includes products with multiple plastic layers. However, the definition still specifies that any material other than plastic should fall under Category III. At present, only Tetrapacks are classified under Category III. Such policy-level interventions can delay or even prevent companies from being held accountable, leading to inaction and exacerbating the problem of problematic and non-recyclable plastics. The recent amendment only adds to the existing confusion and complicates the process of compliance and implementation.

Consequently, many PIBOs have begun listing their multilayered plastics, such as those used for chips and biscuits, under Category II. Conversely, a few PIBOs continue to classify the same packaging under Category III. While the targets for Categories II and III are similar, and the processing, and recycling targets are similar as EPR implementation progresses, this discrepancy in categorization indicates a need for clearer guidelines and consistent application.

The shift of chips and biscuits packaging from Category 2 to Category 3 will eliminate the need for PIBOs to take responsibility for recycling MLPs. This change increases the quantum and varieties of plastics included in Category 2, while keeping the EPR targets constant. It will therefore be possible for all PIBOs to comply with EPR targets by only recycling single layered flexible plastics - and sending all MLPs to cement plants. This will make the continued production of MLP cheap, without any burden to improve its recyclability.

• ADDRESSING GAPS IN CONVERSION FACTOR

The conversion factor, introduced in February 2023 through a guidance document,[23] has yet to be defined in the EPR guidelines notification. This factor is crucial for calculating the output of processing techniques. In any processing method, the conversion factor is always less than one. It is entered into the EPR portal by Plastic Waste Processors (PWPs) and is verified by the Regional Officer of the relevant State Pollution Control Board during physical inspections.

However, during interactions with a cement co-processor, it was found that both PWPs and State Pollution Control Boards (SPCBs) still need to receive adequate training on the importance of the conversion factor. It was reported that during physical verifications by SPCB Regional Officers, the conversion factor is often determined through visual inspection. For instance, if an officer estimates that plastic waste (packaging and non-packaging) constitutes 75 per cent of the overall Solid Combustible Fuel (SCF) or Refuse-Derived Fuel (RDF) received by a cement plant, the plant's conversion factor is set at 0.75. Thus, the processing unit can generate ¾ certificate for every tonne of plastic waste processed.

The conversion factor is crucial for preventing the overproduction of certificates. However, this issue often goes unreported due to a lack of clarity and insufficient attention during physical verifications and third-party audits. The conversion factor must be adequately considered when determining the potential for

certificate generation. It is critical to note that conversion factor cannot be verified post-facto, as the input materials are burned both during mechanical recycling as well as end of life disposal options.

• TAILORING EPR APPROACHES TO GEOGRAPHIC REALITIES

The EPR for plastic packaging is designed to be geography-agnostic, which may work for PIBOs placing plastic-packaged products nationwide and registered with the CPCB. However, this approach may not be suitable for PIBOs registered at the state level. Currently, state-registered PIBOs can obtain certificates from any PWP across the country to meet their liabilities and comply with EPR guidelines. Authorities should recognize that the cost of managing plastic waste varies by geography, particularly in the nine Himalayan states where collection and transportation costs are higher due to the challenging terrain. PIBOs benefiting from sales in these difficult areas should also bear the responsibility for collecting and recycling the plastic waste generated. Permitting the procurement of certificates from PWPs in other states diminishes the appeal of PWPs operating within the region. As a result, these local PWPs struggle to sell their certificates or are forced to sell them at a sub-market price, affecting profit margins that are not aligned with the *polluter pays* principle.

• PRICING ISSUES, COST FACTORS, CERTIFICATE AUTHENTICITY AND SYSTEM INTEGRITY

EPR systems worldwide are based on the "polluter pays" principle. While the Indian EPR regime claims to uphold this principle, it also allows polluters to determine the price they pay to recyclers or other processors. Currently, EPR certificate prices are very low and are primarily set by PIBOs, who solicit quotations from PWPs for selling recycling certificates.

In our discussions with stakeholders such as PWPs and Waste Management Associations (WMAs), we found that several WMAs

have attempted to calculate the cost of recycling. This cost generally encompasses everything from door-to-door collection to processing. The price ranges from Rs 8 to Rs 16.6 (based on plastic category) per kilogram of plastic waste, with almost all of it translating to system losses for waste managers like city governments and waste picker organizations. Factors significantly impacting these costs include the geographical location of waste collection, the distance to the recycling or processing facility, state labor laws affecting minimum wages, electricity tariffs in each state, and the type of fuel used along with any associated state duties.

• CONSERVATIVE AND DEREALIZED EC CALCULATIONS

The Environmental Compensation document was updated to a second version in August 2024. This document has regulated the cost of EPR certificates at 30 to 100 per cent of the EC value (category-wise). The document also states that the prices for the EC will be revisited every six months. This is a welcome move.

The EC document makes some assumptions that may not align with the country's on-ground waste management systems. For starters, it does not consider the mixed waste stream that is collected and transported, thus reducing the amount of plastic and increasing the cost. It also assumes that Material Recovery Facilities (MRF's) are operating at profits, which is not a reality for most of the MRFs in the country, thus defeating the 'waste to wealth' mantra. Lastly, it completely ignores the purchase cost from waste pickers, scrap dealers and aggregators. The document expressly encourage diverting materials away from the existing (informal) recycling sector and into MRFs- which mostly cater to cement plants in the country.

• WILLFUL DISREGARD AND FRAUD BY KEY STAKEHOLDERS

Following the latest revision of the PWM Rules, 2016 as amended in March 2024, the Ministry of Environment, Forest and Climate

Change has made it clear that PIBOs can demonstrate compliance simply by presenting recycling certificates. This approach needs to be revised, especially considering that, in the first phase of audits, three out of six PWPs collectively sold 600,000 fraudulent certificates. This highlights the minimal real-world impact of the Indian EPR regime on plastic waste management.

In light of recent fraud cases uncovered during CPCB audits, the certificate generation potential of PWPs has come under serious scrutiny. As some PWPs engage in these malpractices, certificates are being traded at unreasonably low rates, making it increasingly difficult for legitimate PWPs—those genuinely processing and recycling plastic waste—to survive in the EPR market.

Moreover, almost all cement co-processing plants and a handful of waste to oil plants have generated EoL certificates that are way beyond their capacity- however, no action has been taken on these PWP's, as yet.

The current reliance on paper-based compliance needs to be reformed.

- **LOW ACCOUNTABILITY OF POLLUTERS**

The recent certificate generation scam has led to significant fines for the PWPs involved in creating counterfeit certificates, totaling Rs 355 crores collectively. Despite this, authorities have neither taken action nor disclosed the names of the PIBOs who acquired these fraudulent certificates and falsely demonstrated compliance with the EPR for plastic packaging on the centralized portal. The EPR portal is equipped to capture such information when certificates are exchanged between registered entities, as each registered entity is assigned a unique company ID that facilitates identification on the platform. Nevertheless, the identity of the polluters remains undisclosed and corrective action is yet to be taken against them.

NO VERIFICATION MECHANISMS FOR CURRENT AND FUTURE TARGETS OF PIBOs

The CPCB has yet to establish a robust system for verifying the plastic quantities that polluters claim to introduce into the market. This is a key element of the EPR for plastic packaging, affecting the required quantities, categories, and processing capacities nationwide. While the EPR portal collects details like GST numbers and invoices, it is unclear if these are used to verify PIBOs' self-declared figures.

Currently, the CPCB primarily focuses on verifying entities that generate certificates, with the possibility of audits of PIBOs after April 2025, when they are expected to report the use of recycled plastic in their products. This approach neglects the critical issue of tracking the source of plastic waste from PIBOs. As PIBOs prepare to claim Use of Recycled Plastic (UReP) certificates from the next fiscal year (2025–26), the lack of a scientific method to verify recycled plastic use remains a significant challenge. The prevalent mass balance method relies on tracking recycled plastic procurement but does not ensure it is used in the final product. Reports have shown that major FMCG companies worldwide often fail to meet their commitments to use recycled content, making the verification of such claims even more challenging as India's recycling markets evolve.

- ## LACK OF AWARENESS ABOUT THE EPR GUIDELINES

Local governments, such as Urban Local Bodies (ULBs) and Gram Panchayats, along with the informal sector, play a crucial role in collecting, storing, and channeling plastic waste to recycling and processing facilities. However, they are largely unaware of the EPR guidelines. A CSE survey of 15 local governments showed that over 87 per cent of ULBs manage plastic waste collection, yet more than 60 per cent are either slightly familiar or entirely unfamiliar with EPR guidelines. Additionally, 62.5 per cent reported not receiving formal training or guidance from central or state regulators. Over half were unaware of the EPR portal or had never received login

credentials. Even though the CPCB has mechanisms allowing ULBs to generate and transfer certificates, 75 per cent of respondents were unsure or unaware that they could transfer certificates to PIBOs, with nearly all respondents reporting that they had not earned any certificates under the EPR regime.

While the core activities of plastic waste management piggyback on local governments and the informal sector, the law lacks a structural space for them to benefit from it.

- ## NO RECOGNITION OF THE "REAL" PLASTIC WASTE MANAGERS

One of the main drawback of the EPR system is that only the apex player in the recycling chain is considered to be a relevant stakeholder in this case the PWP. But in reality, plastic waste travels through many hands and many systems to reach the recycler. Some parts of these systems like waste collection, work of waste pickers, social protection of waste pickers and waste workers either make no revenue or run because marginalized workers are forced to work without compensation or protection. Unfortuantely, the EPR regime fails to acknowledge this, and creates no pathway for the rest of the waste collection and aggregation system to receive trickled-down benefits. The waste pickers have not found a mention in the EPR guidelines, despite government documents addressing their efforts for (plastic) waste management in India.

8

RECOMMENDATIONS

Since EPR as a policy measure is still in its nascent stage; there will be scope of improvisations which should revolve around ‘regular monitoring’ of the registered entities and the market dynamics.

Baseline cost studies for plastic waste management help establish a benchmark for fair pricing of recycling certificates and prevent undervaluation in the market.

Product standardization plays a critical role in improving the recyclability of plastic waste by ensuring that packaging materials and designs are uniform, which simplifies the recycling process.

- ## GRADUALLY ONBOARD ALL PIBOS THROUGH A SNOWBALL EFFECT

One way to create a comprehensive list of PIBOs is by tracking the procurement of plastic packaging from unregistered PIBOs, as the details of such transactions are manually entered by the PIBOs sourcing plastic packaging from these unregistered entities. This snowball mechanism would enable outreach to unregistered PIBOs and help onboard as many PIBOs as possible across the value chain.

In its letter dated March 6, 2024,[24] the CPCB requested that the Department of Industries and other relevant state authorities in each state provide a list of units involved in the production of plastic packaging. However, there has been no update on the responses from these authorities since.

To onboard MSME and SEZ players, similar directives should be issued to the Ministry of Micro, Small, and Medium Enterprises and the Department of Commerce under the Ministry of Commerce and Industry to provide a comprehensive list of units involved in the production of plastic packaging. Additionally, all exempted units should be required to share their sales invoices to ensure that these entities are identified and properly onboarded.

To ensure transparency, SEZ manufacturing units are required to provide detailed information about their international trade activities. Specifically, all units engaged in the production and trade of plastic packaging, including products that can be converted into plastic packaging, must submit a comprehensive list of all overseas entities they conduct trade with. This list should be shared with the CPCB and the MoEFCC on a quarterly basis.

- ## CONDUCTING WASTE QUANTIFICATION AND COMPOSITIONAL SURVEY

To accurately determine the amount of packaging waste, rigorous waste characterization and quantification should be conducted at the sources supplying plastic waste to Plastic Waste Processors

(PWPs), including Materials Recovery Facilities (MRFs), local governments, and both formal and informal aggregators. Clause 13.4 of Schedule II of the PWM Rules, 2016 mandates that such characterization exercises be carried out every six months. However, this requirement has not been seriously addressed by manufacturing units or state-level facilities.

To improve compliance, all PWPs should be directed to perform characterization exercises for each batch of waste processed. The CPCB should create a standardized template for recording the quantity and characteristics of processed waste. This documentation should be reviewed during physical verifications and third-party audits to ensure adherence. Facilities failing to provide this information should be subject to enforcement actions under the **Environmental Compensation (EC)** for generating surplus certificates beyond the EPR scope for plastic packaging. Emphasizing accurate quantification and physical characterization is crucial to ensure that certificates are issued solely within the scope of the EPR for plastic packaging.

- ## DIS-INCENTIVIZING USE OF PROBLEMATIC FORMATS OF PLASTIC PACKAGING

It is crucial to re-categorize multilayered plastics under Category III to highlight the massive scale at which these problematic formats are used in the packaging sector. Classifying them under Category II shifts the focus and blame to flexible plastics for which recycling and processing techniques have advanced considerably over the past decade. In contrast, multilayered plastic packaging with metalized layers and MLP cartons (aseptic packaging material) present ongoing challenges with limited processing options and recycling capabilities, undermining efforts to establish a circular economy.

A recent CPCB study reveals that around 20–25 per cent of the plastic packaging used in cities is multilayered.[25] However, the centralized EPR portal pegs this data at around 10 per cent.[26] The centralized portal for plastic packaging needs to correct this

discrepancy that results from flawed categorization criteria, which unintentionally favors problematic formats that contravene the principles of a circular economy.

To address this issue, the MoEFCC and CPCB should establish clear identification criteria to assist PIBOs and other stakeholders in accurately identifying and disclosing the category of plastic they introduce to the Indian market. This can be achieved by developing an inventory on the EPR portal that automatically assigns a plastic packaging category when packaging products are entered.

Such a system will help eliminate confusion regarding plastic categories and ensure comprehensive data recording. This will also provide valuable insights for decision-making as we continue to implement the EPR policy.

- **DEFINING AND VALIDATING THE CONVERSION FACTOR**

First and foremost, the term 'conversion factor' should be clearly defined in the existing guidelines. Second, physical verifications conducted by the SPCB and CPCB should ensure that the processing plant's claimed conversion factor is accurate by cross-verifying it with the actual amount of waste received and processed. This will help monitor the certificates generated by the PWPs. Additionally, freezing a PWP's conversion factor upon completion of the physical verification on the portal should be considered to maintain transparency in certificate generation potential.

- **PRIORITIZING LOCAL CERTIFICATION**

Certificates generated by PWPs operating within a state should be prioritized for PIBOs introducing plastic packaging in that state or UT. This approach ensures that PIBOs contribute financially in proportion to the waste management activities such as collection, transportation, and processing in their operational region. It also promotes local processing and certificate generation at reasonable rates. Additionally, this strategy helps control the pricing of recycling certificates, preventing a race to the bottom.

The Himachal Pradesh High Court case has already set a precedence to ensure and encourage the channelization of plastic waste and offtake of EPR certificates from local players before plastic waste is transported to a different state.

• ESTABLISHING FAIR EPR PRICING

Although market forces can largely drive the EPR system, authorities must commision a baseline cost study to determine the actual expenses involved in recycling plastic waste after it is collected from the doorstep of the waste generator. This study should ensure that all Plastic Waste Processors (PWPs) are genuinely involved in plastic waste collection and recycling, rather than merely generating certificates without engaging in real recycling activities.

Such a cost study will help establish a benchmark for fair pricing of recycling certificates and prevent undervaluation in the market. Additionally, it will ensure that plastic waste is being effectively collected and recycled rather than just being reported for certification purposes.

• REVISING COMPLIANCE MANDATES

Clause 14 of Schedule II of the Plastic Waste Management Rules, 2016 outlines that PIBOs *may* develop segregation infrastructure and other implementation mechanisms, such as collection points and MRFs. This clause should be revised to **mandate** PIBOs actively engage in activities that enhance the overall collection and recycling system. The costs associated with developing these systems and purchasing certificates will serve as a deterrent for PIBOs to invest in improving the packaging design, considering the end-of-life and exploring alternate materials.

• INVALIDATE FAKE EPR CERTIFICATES

The CPCB (Central Pollution Control Board) has a critical role in ensuring transparency and accountability in the enforcement of environmental regulations, particularly with respect to the Extended Producer Responsibility (EPR) for plastic packaging.

Withholding the names of the PIBOs (Producers, Importers, and Brand Owners) who received these fraudulent certificates undermines the integrity of the regulatory process and allows polluters to escape public scrutiny.

It is essential to disclose the identities of all PIBOs involved in acquiring these fake certificates. Such transparency would not only deter others from engaging in similar fraudulent activities but also reinforce the credibility of the EPR compliance system. Furthermore, immediate steps must be taken to ensure that these counterfeit certificates are invalidated and do not count towards compliance on the EPR portal. This action is necessary to maintain the trust and effectiveness of the regulatory framework designed to manage plastic waste and protect the environment.

- ## INCLUDE THE INFORMAL SECTOR IN EPR GUIDELINES

India's informal recycling sector plays a critical role in managing plastic waste but requires formal recognition and support to enhance its effectiveness. Mechanisms to prioritize the inclusion of waste pickers, scrap dealers, and aggregators within the EPR framework should be included. The EPR guidelines should also support the transition of the informal recycling economy into a formal one, not by providing jobs but by creating space for the sector and giving it a seat at the table. This should start by acknowledging this sector's presence and contribution to the plastic waste management value chain by the EPR guidelines for plastic packaging.

Investment in formalising and integrating the informal recycling sector into mainstream waste management is needed. This should include economic incentives for the informal sector to participate in formal EPR systems, coupled with financial and technical support.

- ## STEER THE POLLUTERS TOWARDS PRODUCT (DESIGN) STANDARDIZATION

Product standardization plays a critical role in improving the recyclability of plastic waste by ensuring that packaging materials and designs are uniform, which simplifies the recycling process. This approach encourages the use of materials that are easier to recycle and reduces the variety of plastics used, thus lowering the complexity of waste management systems. This can be done by several ways, like simplification of material types, harmonized labelling, modular and reusable packaging, all of which have been tried in several countries as a part of their EPR programmes.

In some instances, it was observed that the industry came together and regulated itself by laying down strict design specifications to avoid extremely high EC costs, ensuring high collection, and recycling.

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In the face of the looming plastic waste crisis, Extended Producer Responsibility (EPR) has emerged as a globally recognized policy principle. This legislation requires producers to take responsibility for their packaging, including its collection and recycling.

A robust EPR system not only promotes recycling but also has the potential to drive design changes and transition to reuse and reduction of plastics. EPR has been defined as a policy principle that holds producers accountable for the entire lifecycle of their products, particularly for the take-back, recycling, and final disposal. The key idea is to motivate producers to design products that are environmentally friendly, by making them responsible for the post-consumer phase of the product.

CSE has sought to understand the dynamics of established stakeholders involved in EPR to clarify the governing realities of evolving plastic waste management rules in one of the world's most diverse countries. This report interrogates what is really happening in the EPR ecosystem—are polluters being genuinely held accountable for their actions, or is EPR being used to simply shift the burden of responsibility from the polluters?

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