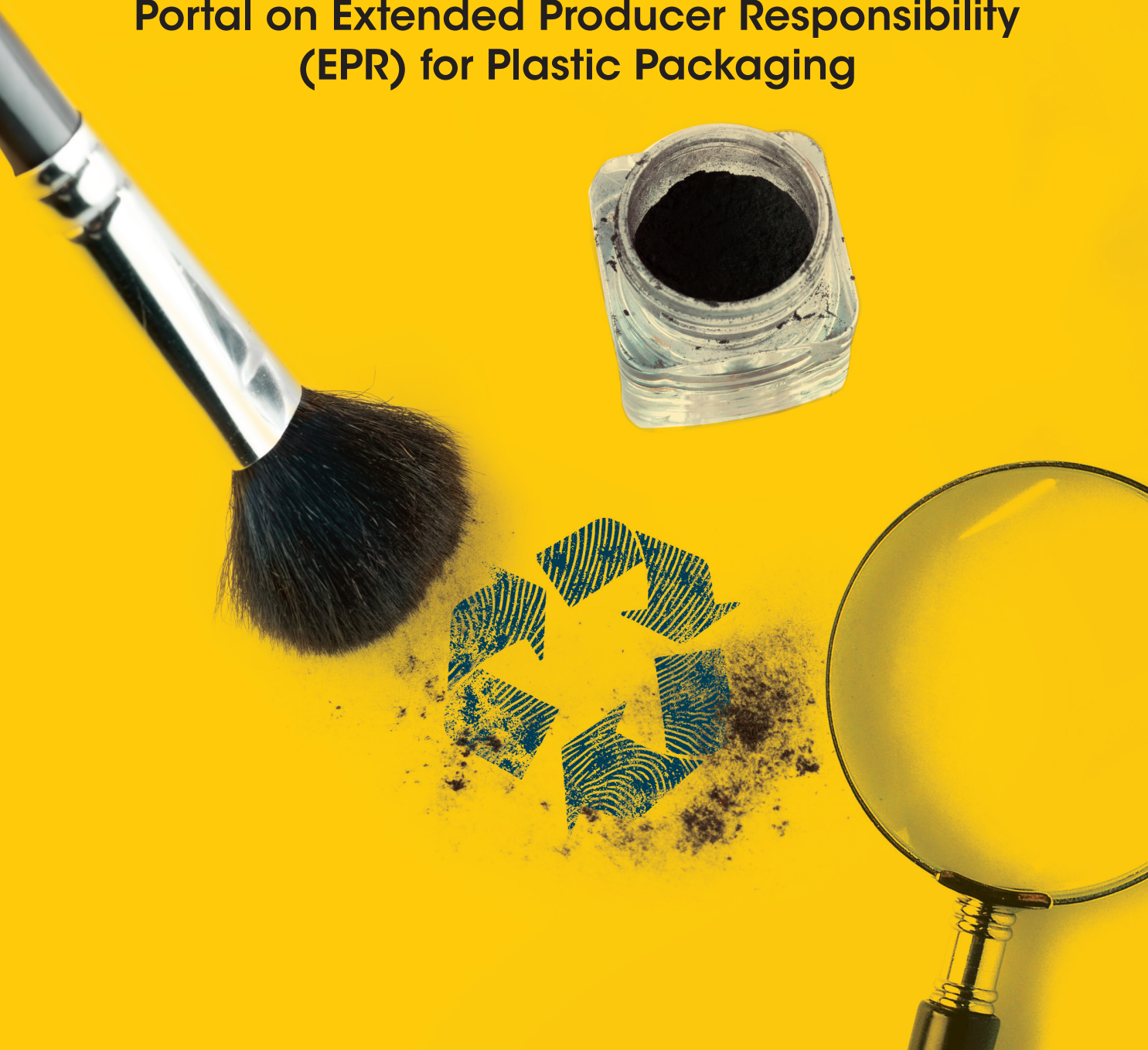
EPR PORTAL INSIGHTS

A Deep Dive into India's Centralised Portal on Extended Producer Responsibility (EPR) for Plastic Packaging



EPR PORTAL INSIGHTS

A Deep Dive into India's Centralised Portal on Extended Producer Responsibility (EPR) for Plastic Packaging

Research direction: Atin Biswas

Authors: Siddharth Ghanshyam Singh and Shrotik Bose

Editor: Souparno Banerjee

Design: Ajit Bajaj and Tarun Sehgal

Production: Rakesh Shrivastava and Gundhar Das

Norwegian Embassy
New Delhi

We are grateful to the Norwegian Ministry of Foreign Affairs for its support.

The Centre for Science and Environment is grateful to the Swedish International Development Cooperation Agency (Sida) for their institutional support.

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

Disclaimer: The analysis presented in this study is based on data retrieved from the portal as of midnight on 15th August 2024. As the portal is dynamic and continuously updates with real-time information, some figures may have changed since the data was captured for this study.

Published by
Centre for Science and Environment
41, Tughlakabad Institutional Area
New Delhi 110 062
Phone: 91-11-40616000
Fax: 91-11-29955879
E-mail: cse@cseindia.org
Website: www.cseindia.org

CONTENTS

Abbreviations used in this assessment report

CPCB	Central Pollution Control Board
CSR	Corporate Social Responsibility
EoL	End of Life
EPR	Extended Producer Responsibility
IEC	Information, Education and Communication
MoEFCC	Ministry of Environment, Forest and Climate Change
MLP	Multilayered Plastics
PWPs	Plastic Waste Processors
PCBs	Pollution Control Boards
PCCs	Pollution Control Committees
PIBOs	Producers, Importers and Brand Owners
PROs	Producer Responsibility Organisations
PROA	PRO Association
SLABs	State Level Advisory Boards
ULBs	Urban Local Bodies
WMAs	Waste Management Agencies

INTRODUCTION

The concept of Extended Producer Responsibility (EPR) found a mention for the first time in the Indian plastic policy ecosystem in the Plastic Waste Management Rules of 2016.[1] But this solitary mention did not mandate that Producers, Importers and Brand Owners (PIBOs) — should collect back or recycle plastic waste; neither did it assign any targets for collection or recycling.

The then EPR system in the country, thus, was voluntary. The amount of plastic waste collected, handled and recycled was mainly based on how much the implementing PIBOs wanted to invest in the plastic waste management system. PIBOs could be observed running campaigns and programmes for improved plastic waste management in geographies of their preference. Most of the EPR programmes were undertaken by Producer Responsibility Organisations (PROs), which were third-party agencies that helped the PIBOs collect back, channelise, and recycle plastic waste.

In June 2020, the Union Ministry of Environment, Forest and Climate Change (MoEFCC) introduced the Union Framework for Extended Producers Responsibility (under the Plastic Waste Management Rules, 2016).[2] This Framework was based on a set of guiding principles (*see Box: Guiding principles of the Union Framework for EPR*).

The Framework also informed that the MoEFCC had constituted a committee to develop a new EPR framework for managing plastic waste. The committee started its work in November 2017, meeting twice in 2017, twice in 2018, and once in 2019. The members of the committee were also taken on an exposure visit to the city of Indore in Madhya Pradesh, which had been managing its dry waste in a relatively better manner than its counterparts.

The committee made several observations on the EPR system for plastic waste management:

- **Responsibility of ULBs:** The committee emphasised that Urban Local Bodies (ULBs) should be solely responsible for waste collection and segregation. Handing over this responsibility, even partially, to Producers would be impractical and inefficient. Multiple channels for waste collection could lead to inefficiencies and disorganisation.

- **Impracticality of Producers handling waste:** If waste segregation is not done at the source, expecting Producers to implement EPR would be challenging. Segregation and collection of household waste are fundamental duties of ULBs, and shifting these responsibilities to Producers is neither desirable nor feasible.

- **Fee-based system:** The committee suggested developing a fee-based system for PIBOs. The fees would be collected into a fund dedicated to plastic waste collection, segregation, treatment and processing.

- **Flexible EPR models:** Acknowledging that a single EPR model might not work for a country as diverse as India, the committee proposed multiple models:

  Fee-based model: A centralised fund created from producers' fees.

  PRO-based model: Producer Responsibility Organisations (PROs) could manage plastic waste on behalf of producers.

  Individual responsibility: Producers could implement their own plastic waste management projects to comply with EPR.

  Plastic credit model: A credit-based system could allow producers to buy and sell credits for plastic waste recovery.

GUIDING PRINCIPLES OF THE UNION FRAMEWORK FOR EPR

1. **Brand and geography neutrality:** The Extended Producer Responsibility (EPR) Framework is applicable uniformly across all regions and brands in India, thus avoiding regional inconsistencies that could complicate implementation.

2. **Choice of EPR models:** Producers, Importers and Brand Owners (PIBOs) can adopt any EPR model (except for fee-based) to comply with their obligations.

3. **National registry and digital platform:** A single national registry will be created for all stakeholders involved in the EPR system. A digital platform will be developed to track transactions and include participants such as Producers, Recyclers and PROs, ensuring transparency and accountability.

4. **Ownership of data:** The government will own the platform and registry to protect member data and ensure confidentiality.

5. **Exclusion of awareness costs from compliance:** Spending on awareness campaigns or capacity building will not count towards fulfilling EPR obligations, except under the fee-based model. Instead, such expenditures may be allocated to Corporate Social Responsibility (CSR) budgets.

6. **Circular economy principles:** The Framework promotes the strategy of keeping plastics within the economy for as long as possible, following the waste hierarchy of Reduce, Reuse, Recycle, Recover, and Dispose.

7. **Inclusion of informal waste sector:** The EPR model emphasises on integrating waste-pickers and other informal sector players, and improving their working conditions and incomes.

8. **Minimisation of trade barriers:** The Framework's design seeks to reduce trade barriers and lower compliance costs to ensure an effective and efficient national market for recycling.

9. **Higher EPR costs for non-recyclable plastics:** Due to their low recyclability, multilayer plastics (MLP) will incur higher costs under the EPR system; this will encourage the use of more sustainable materials.

10. **Promotion of recycling and technological innovation:** The model promotes recycling through mechanical systems, alternative uses like road construction, and energy recovery from plastics; it supports innovation in waste management technologies suited to India's context.

11. **Plastic credit system:** The Framework will eventually adopt a plastic credit system to certify recycling efforts. PROs and Waste Management Agencies (WMAs) will be crucial in achieving these goals.

12. **Public-private partnerships:** The Framework encourages collaboration between local governments, private sector and civil society to create sustainable models for waste management, leveraging specialised skills and technology.

13. **Recycling targets:** National EPR targets will cover all packaging formats, including PET, MLP and HDPE. PIBOs must report progress against these targets, and state-level PCB/ULBs will monitor compliance.

14. **Monitoring and reporting:** WMAs and PROs will play key roles in segregating, collecting and recycling plastics. Reports will be submitted to pollution control boards (PCBs), and digital tools will be used to track the movement of waste through the system.

EPR MODELS THAT WERE UNDER CONSIDERATION

FEE-BASED MODEL

Under the EPR framework, the fee-based model placed the primary responsibility of collecting, segregating and disposing of plastic waste on ULBs. However, it was noted that many ULBs lack sufficient funds and the expertise to manage this efficiently, necessitating capacity-building in terms of infrastructure and skills. The basic underlying tenets of this model are as follows:

- **Supporting ULBs:** The model proposed financial support for ULBs to improve waste management systems, particularly in smaller ULBs where recycling or disposal facilities are limited. These ULBs could store plastic waste until a proper disposal method becomes available.

- **Inclusion of the informal sector:** The informal waste collection sector, including waste-pickers, recyclers and assemblers, plays a significant role in the waste management system. This model aimed to formalise and strengthen their involvement by improving their efficiency and by providing better working conditions and financial incentives.

- **Information, Education and Communication (IEC):** A crucial part of this model included IEC activities to educate the public and stakeholders on adequate waste segregation, collection and recycling.

- **Funding mechanism:** PIBOs who use plastics in packaging were expected to contribute to a centrally managed EPR corpus fund. The contribution amount was proposed to be calculated

based on the volume of plastic waste generated and the efforts required by ULBs to manage it.

- **Disbursement of funds:** Funds from the EPR corpus were proposed to be allocated to ULBs, recyclers/assemblers and for IEC activities to strengthen waste management infrastructure and operations. The distribution was to be overseen by State Level Advisory Boards (SLABs).

- **Monitoring and governance:** A central committee would monitor the overall implementation of the EPR, and registered recyclers and assemblers were required to register with ULBs and SPCBs to participate in the EPR system.

PRO MODEL AND PLASTIC CREDIT-BASED MODEL

This model blended the plastic credit mechanism with the Producer Responsibility Organisations (PROs) which were proposed to be placed in charge of monitoring the generation and off take of credits through a PRO association.

Producer Responsibility Organisations (PROs)

- **Role and registration:** PROs were to be established to take on Producers' legal and operational responsibilities for managing plastic waste.

- **Partnership with ULBs:** PROs could handle logistics, while Producers would be expected to ensure compliance with recycling targets. ULBs had to share responsibilities and collaborate with PROs for effective plastic waste management.

Plastic credit model

Producers could earn plastic credits by recycling or recovering plastic waste through accredited processors or exporters. These credits had to be registered online to ensure transparency and compliance.

Product take-back mandates and targets

- The policy mandated that Producers or Retailers take back products at the end of their lifecycle and meet recycling or waste diversion targets individually or collectively through PROs.

- **Tradable recycling credits:** Producers who exceed their recycling targets should trade credit certificates with others, ensuring industry-wide compliance.

PRO Association (PROA)

A national PRO Association (PROA) was proposed to coordinate data sharing, reporting and compliance efforts across all registered PROs.

Audit and certification

An independent certifying agency was to ensure the accuracy of waste recycled/disposed through verified certificates, using fool-proof mechanisms like GST bills and QR codes.

Funding mechanism

Funding for PROs should be based on a per-kilogram fee system, with brand owners and importers bearing a larger share of the costs due to their control over packaging design.

Graded EPR targets

The EPR target was to start at 30 per cent of the total plastics introduced in the Indian market and gradually increase to 90 per cent over five years, ensuring compliance for all types of plastic packaging.

PLASTIC CREDIT-BASED MODEL

The plastic credit model allowed producers to meet their EPR obligations by ensuring that an equivalent amount of packaging waste is recovered and recycled.

Plastic credit system

Producers could purchase credits from accredited plastic recyclers, waste-to-energy plants, cement co-processors or exporters. These credits would serve as proof that an equivalent amount of plastic has been recycled, satisfying the producer's EPR obligations.

Market mechanism

The model introduced market dynamics, where processors receive additional funding for each tonne of plastic waste recycled.

Accreditation and traceability

All transactions were proposed to be registered on the EPR portal, ensuring traceability, preventing the resale of credits, and maintaining system integrity.

NOTIFIED EPR GUIDELINES AND THE CENTRALISED EPR PORTAL

In February 2022, the MoEF&CC officially notified the EPR guidelines for plastic packaging, which were incorporated as an amendment (Schedule II) to the Plastic Waste Management Rules, 2016.[3] These guidelines were largely shaped by the recommendations of the third model proposed by the committee, endorsing a plastic credit-based system. This system allowed PIBOs to comply with EPR without directly managing plastic waste on the ground.

The guidelines also drew insights from other models in the Uniform Framework:

- PIBOs can fulfill their obligations either individually or through PROs or WMAs by procuring plastic credits or certificates.
- ULBs can collaborate with Plastic Waste Processors (PWPs) to gain a foothold in the EPR certificate market.
- Graded EPR targets are established for various categories of plastic packaging waste.
- An audit and certification mechanism has been proposed to complement implementation.

However, the notified rules have left several key aspects from the Uniform Framework unaddressed:

- PROs are no longer recognised as a legal entity.

- The EPR Framework does not benefit informal sector workers, who play a crucial role in plastic waste management.

- ULBs are not provided with a financial mechanism to assist in plastic waste collection.

- IEC activities, which are seen as vital for managing plastic waste, receive no emphasis.

- ULBs, as major sources of plastic waste, have not received the necessary support from PIBOs to manage waste effectively.

- PIBOs are not limiting the proliferation of non-recyclables and difficult-to-recycle plastic packaging materials.

THE EPR PORTAL

The Central Pollution Control Board (CPCB) launched the Centralised EPR (Extended Producer Responsibility) Portal for plastic packaging in April 2022.[4] The portal plays a critical role in streamlining compliance with the EPR guidelines under the Plastic Waste Management Rules, 2016. It was proposed to enhance accountability, traceability and transparency in managing plastic packaging waste and meeting EPR obligations.

The key features of this centralised portal are as follows:

- **Registration of stakeholders:** Producers, Importers and Brand Owners (PIBOs) and Plastic Waste Processors (PWPs) must register on this platform. PIBOs operating across more than two states must register with the CPCB, while those in fewer states should register with State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs). Similarly, PWPs, which include plastic recyclers, waste-to-energy plants and co-processing units, must register with SPCBs/PCCs.

- **Modules on the portal:** The portal consists of seven critical modules designed to support various aspects of the EPR process:
  - Registration of PIBOs and PWPs

- Issuance of plastic certificates
- Monitoring of transactions between PIBOs and PWPs
- Levy of environmental compensation for non-compliance
- Filing of annual returns
- System-generated reports for accountability
- Mechanisms for third-party audits to ensure compliance

- **Plastic certificate trading**: The portal captures the exchange of plastic certificates between PIBOs and PWPs. This system allows producers to meet their recycling obligations by purchasing certificates from registered recyclers who process equivalent amounts of plastic waste.

- **Environmental compensation and reporting:** The portal also integrates mechanisms for levying environmental compensation on entities that fail to meet their EPR obligations. It simplifies the process of filing annual returns.

PLASTIC PACKAGING WASTE CATEGORIES

Category I: Rigid plastic.

Category II: Flexible plastic(single-layer or multilayer) more than one layer with different types of plastic.

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

Category IV: Compostable plastic.

Category V: Biodegradable plastic.

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.

OBJECTIVES AND METHODOLOGY

The Centralised Extended Producer Responsibility (EPR) portal for plastic packaging went live on April 5, 2022. Its primary aim has been to record the key data related to plastic waste generation by PIBOs, and EPR certificate generation and issuance by plastic waste processors (PWPs).

This CSE assessment has analysed the portal's data. The study period was from the launch of the portal until 00:00 hrs IST, August 15, 2024.

OBJECTIVES OF THE STUDY

The study's primary goal is to assess the total plastic (packaging) introduced in the Indian market and trends in EPR compliance for plastic packaging by analysing the data recorded on the centralised EPR portal. The analysis involves the evaluation of the following aspects:

- **Registered PIBOs and their plastic footprint**: Track the number of PIBOs registered and evaluate their contributions toward packaging plastic.

- **Registered PWPs and operating efficiency**: Track the number of PWPs registered and evaluate their contributions to recovery and recycling in terms of capacity *vs* quantity processed.

- **EPR certificates**: Examine the generation and transfer of EPR certificates.

- **Compliance trends**: Identify any trends or patterns in compliance behavior by key stakeholders like PIBOs and PWPs.

THE STUDY METHODOLOGY

Data collection and pre-processing

- **Data downloading:** Data for PIBOs, PWPs and EPR certificates has been manually downloaded from the EPR portal.

- **Data sorting**: Data sorting has been done by omitting the unregistered and in-progress entries by PWPs, and deletion of the test entries made by CPCB.

- **Categorisation**: The data was grouped into two main categories:
  - PIBOs: Producers, Importers and Brand Owners
  - PWPs: Plastic Waste Processors responsible for recycling and disposal of plastic waste

DESCRIPTIVE STATISTICS

- **PIBO analysis**
  - Total number of registered PIBOs
  - Analysis of plastic packaging volumes (category-wise) introduced by PIBOs and corresponding EPR targets

- **PWP analysis**
  - Number and type of registered PWPs (recyclers, waste-to-energy operators, cement co-processors, etc)
  - Processing capacity of the registered PWPs
  - Volume of plastic waste processed by each PWP

PIBO ANALYSIS

TOTAL NUMBER OF PIBOS

A total of 41,544 PIBOs have registered on the centralised EPR portal for plastic packaging.

- 83 per cent are importers
- 10.6 per cent are producers
- Only 6.3 per cent are brand owners
- Although manufacturers are also mandated to register on the portal, **no manufacturer features on the portal.**

Of the PIBOs that have registered with the CPCB, 91.7 per cent are importers, 8.1 per cent are brand owners, and only 0.08 per cent are producers.

At the state level, Karnataka has the highest number of brand owners registered on the portal. Maharashtra leads the way in the total number of registered importers, while Gujarat has the highest number of registered producers.

99 per cent of the total producers have registered with the state regulators. 58 per cent of the total importers have registered with the CPCB, and 69 per cent of the total brand owners have registered with the CPCB.

This indicates that producers might be operating at local levels while brand owners have wider coverage with a stronger presence and deeper penetration in the markets.

MAP 1: PIBOs in India

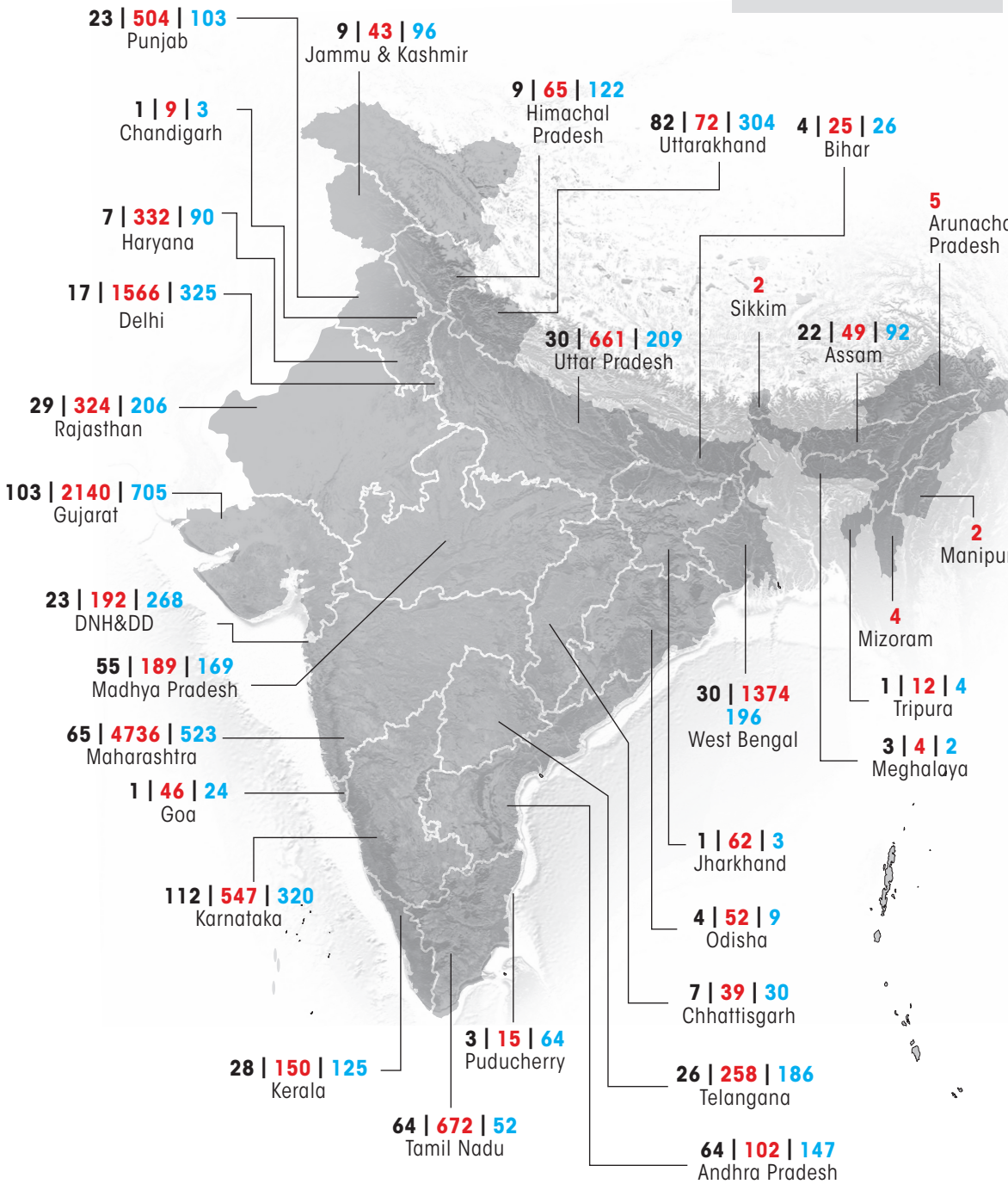
1797 | 20250 | 18
PIBOs registered with CPCB

823 | 14253 | 4403
PIBOs registered SPCBs / PCCs

2620 Brand owners

34503 Importer

4421 Producer



DNH&DD: Dadra & Nagar Haveli and Daman Diu

STATUS OF PLASTIC PACKAGING IN INDIA

Since the portal was launched, **PIBOs have introduced 23.9 million tonne of plastic packaging into the Indian market.** Of this, Producers accounted for 64.86 per cent (15.5 million tonne); Brand Owners, 25.92 per cent (6.2 million tonne); and Importers, 9.22 per cent (2.2 million tonne).

For the 18 producers registered with the CPCB who introduce products in more than two states, close to 48 per cent of the total plastic packaging is Category I- rigid plastics. However, this trend is not consistent with the producers registered with the state level regulators where most of the plastic is flexible in nature.

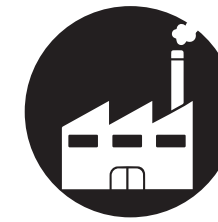
Close to 50 per cent of the total plastic introduced by the brand owners is Category II- flexible plastics and 23 per cent is category I- rigid plastics. This trend is consistent for brand owners who have registered with CPCB and SPCBs.

Category I plastics have a higher probability of getting collected and hence reaching a recycling facility. It should be noted that most of the producers and brand owners operating at the state level place Category II (flexible) plastic on the market.

Category II plastics, which include low-value and non-recyclable plastic packaging, account for 65.97 per cent (15.8 million tonne) of the total plastic packaging. Rigid plastics that have a high collection probability, relatively better recycling infrastructure and thus higher recyclability made up 24.78 per cent (5.93 million tonne), while aseptic packaging like tetra-packs and multi-material cartons contributed 8.93 per cent (2.13 million tonne). Compostable and biodegradable plastics (including commodities) only contributed 0.3 per cent (0.07 million tonne) of the plastic introduced in the Indian market.

Graph 1: PIBO (Producers)

Producers:
■ Category I ■ Category II ■ Category III ■ Category IV



■ Range 25-10 Lakh (tpa) ▼ | Number of Producers ▼

2320 producers, 53 per cent of the total registered producers. Contributed 61 per cent of the total plastic packaging placed on the Indian market by producers.

Gujarat	705	3,42,710.45	18,15,925.23	2,67,581.31	5,587.64
Maharashtra	523	2,60,927.25	9,21,226.30	1,69,056.45	1,722.80
DNH&DD	268	3,75,269.63	9,02,532.63	52,477.23	543.05
Uttar Pradesh	209	1,03,115.20	8,89,775.96	1,23,679.51	290.18
Telangana	186	1,02,831.13	9,81,086.19	15,432.11	952.26
Uttarakhand	304	2,83,195.46	7,69,848.25	30,989.77	12,538.88
Kerala	125	9,26,047.73	1,09,457.66	141.69	58.84

■ Range 10-5 Lakh (tpa) ▼ | Number of Producers ▼

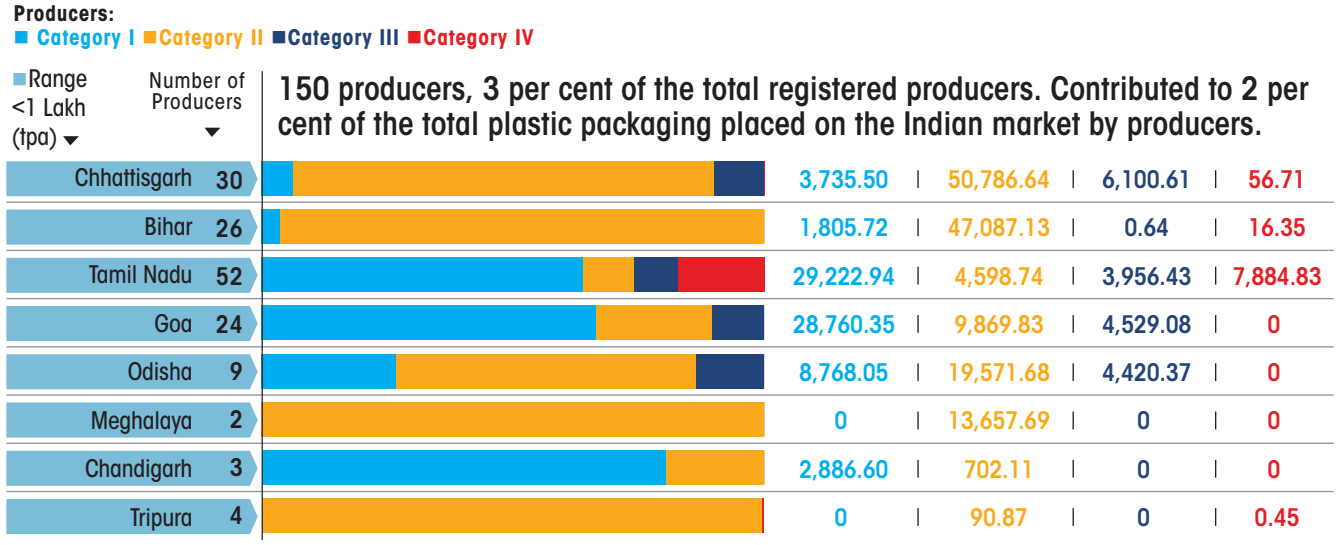
987 producers, 22 per cent of the total registered producers. Contributed to 22 per cent of the total plastic packaging placed on the Indian market by producers.

Madhya Pradesh	169	53,195.80	6,97,172.67	17,798.02	14,740.65
Rajasthan	206	88,019.27	6,27,460.71	38,510.44	1,833.54
Karnataka	320	1,21,822.99	5,25,568.82	55,185.41	5,079.78
West Bengal	196	49,198.27	6,21,507.45	14,619.12	9.30
J&K	96	3,01,983.32	2,12,023.15	21,074.63	38.18

■ Range 5-1 Lakh (tpa) ▼ | Number of Producers ▼

964 producers, 22 per cent of the total registered producers. Contributed to 15 per cent of the total plastic packaging placed on the Indian market by producers.

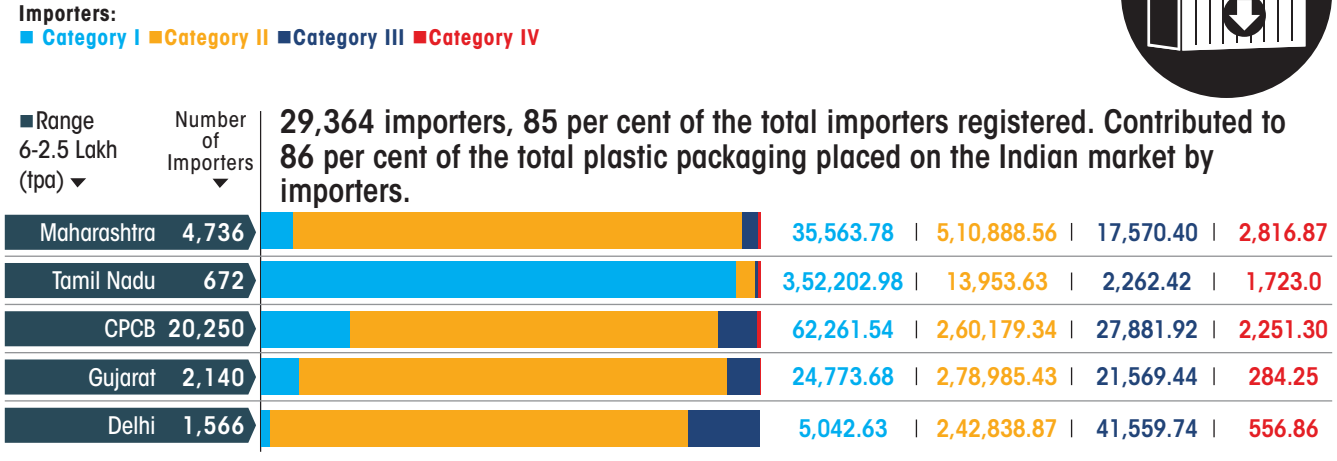
CPCB	18	1,89,394.52	1,36,460.77	68,834.42	0
Haryana	90	49,067.19	2,70,484.41	41,016.22	450.76
Delhi	325	13,719.18	2,77,022.91	32,256.57	141.94
Himachal Pradesh	122	1,63,442.30	1,24,152.38	22,219.56	773.63
Andhra Pradesh	147	40,730.96	2,25,049.99	3,729.96	122.40
Punjab	103	31,855.06	2,17,802.89	6,602.26	46.0
Assam	92	29,849.47	1,60,439.55	5,794.96	279.0
Jharkhand	3	2,182.65	1,21,373.52	0	0
Pondicherry	64	13,189.21	1,01,832.48	4,683.81	11.61

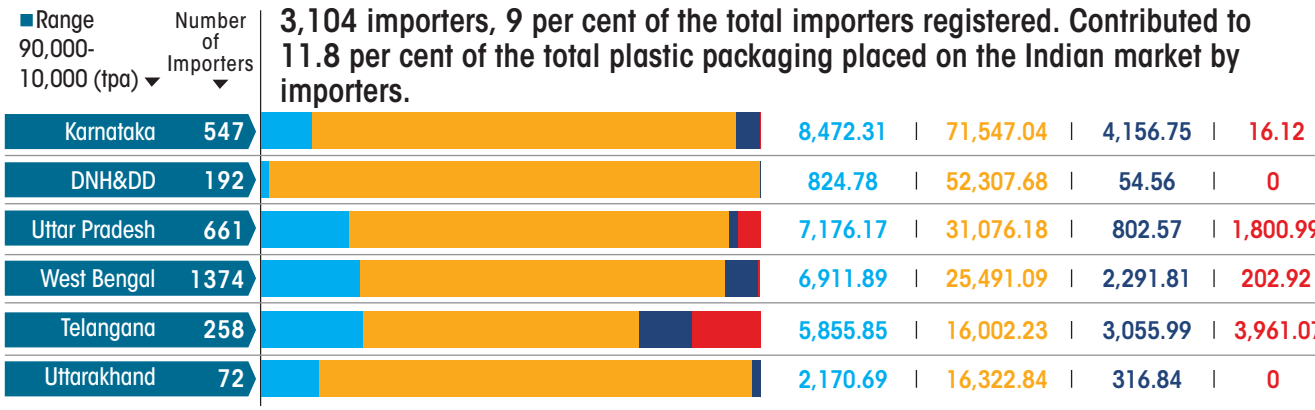


DNH&DD: Dadra & Nagar Haveli and Daman Diu; J&K: Jammu and Kashmir; CPCB: Central Pollution Control Board

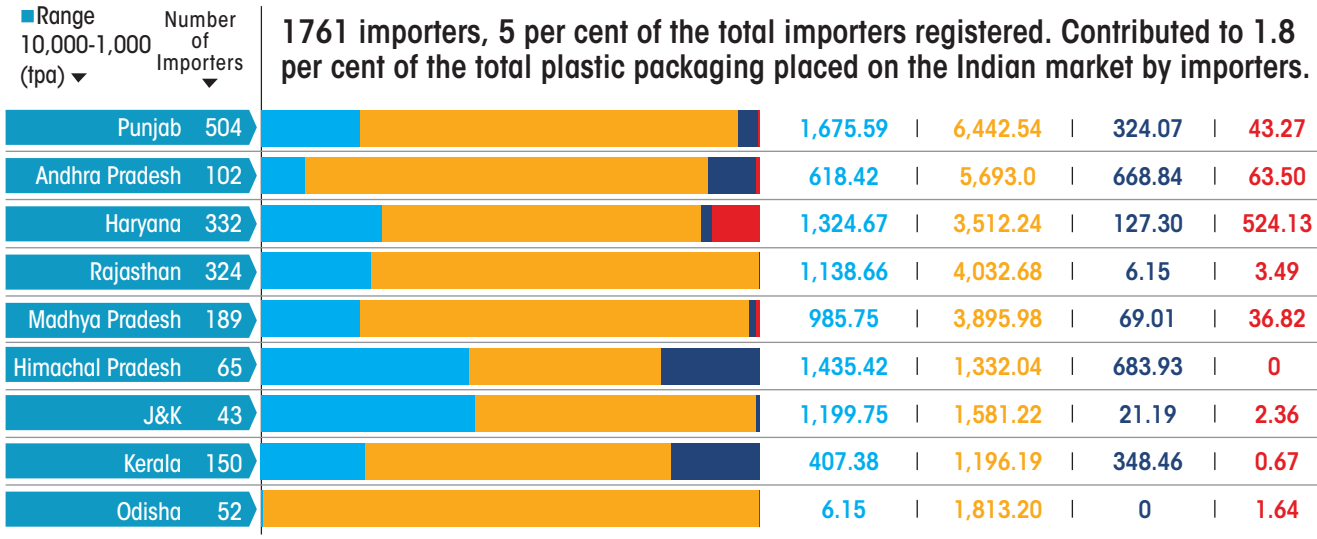
Gujarat (705) and Maharashtra (523) have registered the highest number of Producers. These 1,228 Producers together have introduced **25 per cent of all plastic packaging** placed on the Indian market by producers. Over half of the registered producers operate in just seven states & UTs: Gujarat, Maharashtra, Dadra Nagar Haveli and Daman Diu., Uttar Pradesh, Telangana, Uttarakhand and Kerala and have collectively introduced 61 per cent of the plastic packaging (placed on the Indian market by producers).

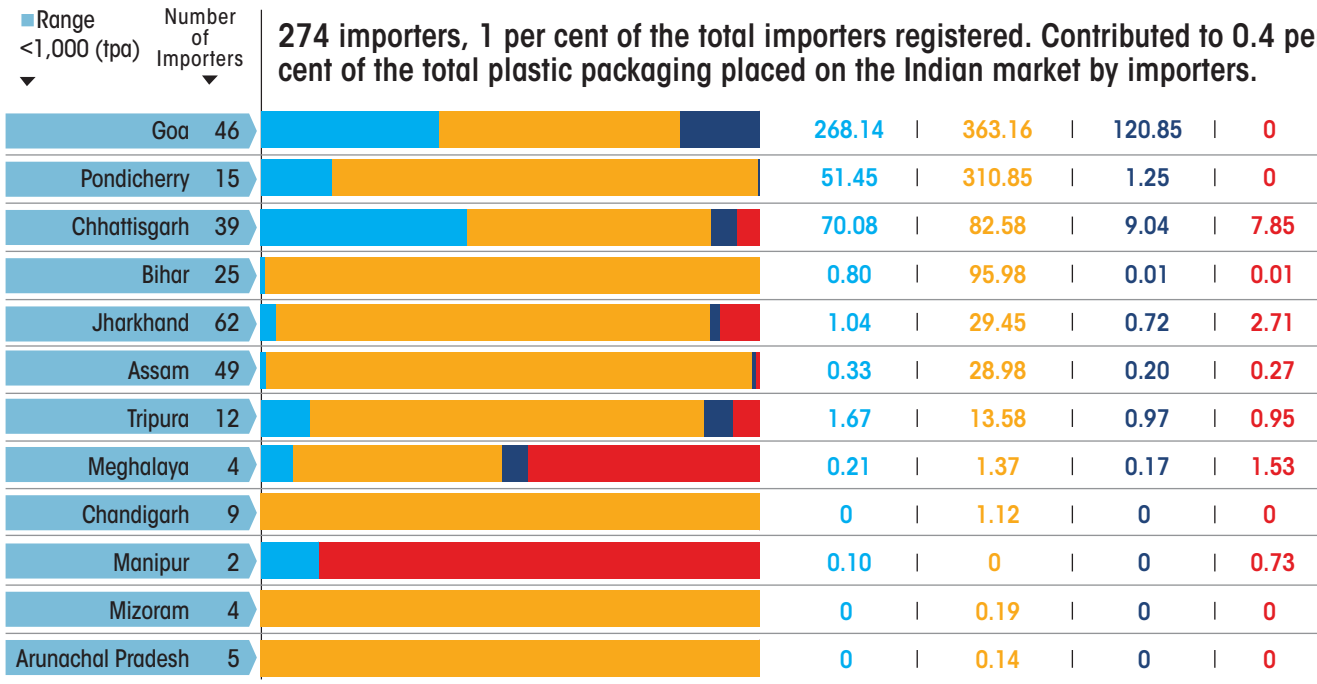
Graph 2: PIBO (Importers)





Importers:
Category I Category II Category III Category IV





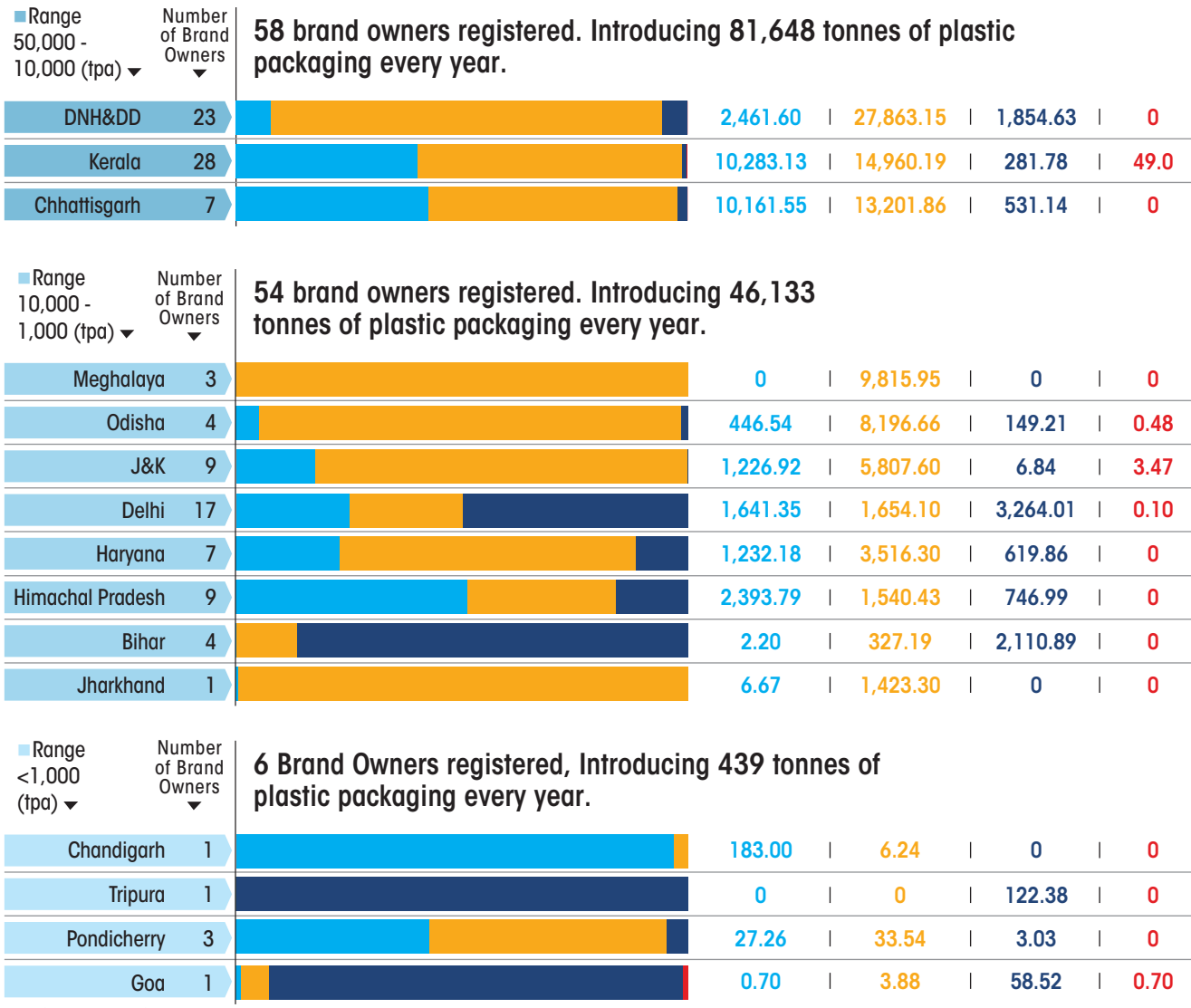
Sikkim: 2 importers are registered with Sikkim State Pollution Control Board but their data was not available on the EPR portal
DNH&DD: Dadra & Nagar Haveli and Daman Diu; J&K: Jammu and Kashmir; CPCB: Central Pollution Control Board

While the highest number of Importers (20,250) have registered with the CPCB, the maximum amount of plastic packaging has been introduced in the Indian market by Importers registered with Maharashtra and Tamil Nadu: 15 per cent of the Importers have registered with these two states, but have accounted for 40 per cent of all the plastics (placed on the Indian market by importers). Almost 59 per cent of the importers registered with the CPCB have introduced only 16 per cent of the plastic packaging placed on the Indian market.

Graph 3: PIBO (Brand Owners)

Brand Owners:
■ Category I ■ Category II ■ Category III ■ Category IV

Range >45 Lakh (tpa)	Number of Brand Owners	Category I	Category II	Category III	Category IV
1797 brand owners, 69 per cent of the total registered brand owners. Contributed to 76 per cent of the total plastic placed on the Indian market by Brand Owners.					
CPCB	1,797	13,40,536.05	24,59,241.94	9,01,644.51	988.42
Range 2-1Lakh (tpa)	**Number of Brand Owners**				
384 brand owners, 15 per cent of the total registered brand owners. Contributed to 15 per cent of the total plastic placed on the Indian market by Brand Owners.					
Assam	22	67.50	1,78,189.06	0	58.50
Andhra Pradesh	64	65,278.65	1,01,886.83	7,365.94	107.99
Punjab	23	94,131.26	33,114.70	18,001.30	24.0
Gujarat	103	15,024.35	94,588.91	9,595.53	2.70
Uttar Pradesh	30	70,748.74	25,967.69	18,277.96	0
Karnataka	112	26,980.65	72,679.92	8,759.51	2,163.03
West Bengal	30	60,352.60	38,317.96	5,611.54	56.30
Range 1 Lakh-50,000 (tpa)	**Number of Brand Owners**				
321 brand owners, 12 per cent of the total registered brand owners. Contributed to 7 per cent of the total plastic placed on the Indian market by Brand Owners.					
Telangana	26	40,772.87	41,375.73	7,086.76	2,312.81
Tamil Nadu	64	18,493.48	62,442.48	5,238.58	111.26
Rajasthan	29	7,366.24	65,142.71	1,352.31	0
Madhya Pradesh	55	7,863.74	52,603.83	5,614.45	74.26
Uttarakhand	82	9,233.64	48,660.24	2,409.49	110.77
Maharashtra	65	12,529.62	34,986.32	3,925.34	329.80



DNH&DD: Dadra & Nagar Haveli and Daman Diu; J&K: Jammu and Kashmir; CPCB: Central Pollution Control Board

69 per cent of the brand owners have registered with the CPCB, have collectively introduced over 75 per cent of the all plastic packaging (placed on the Indian market by brand owners). 112 brand owners that are registered with the Karnataka SPCB have introduced less than 2 per cent of the all plastic packaging placed on the Indian market.

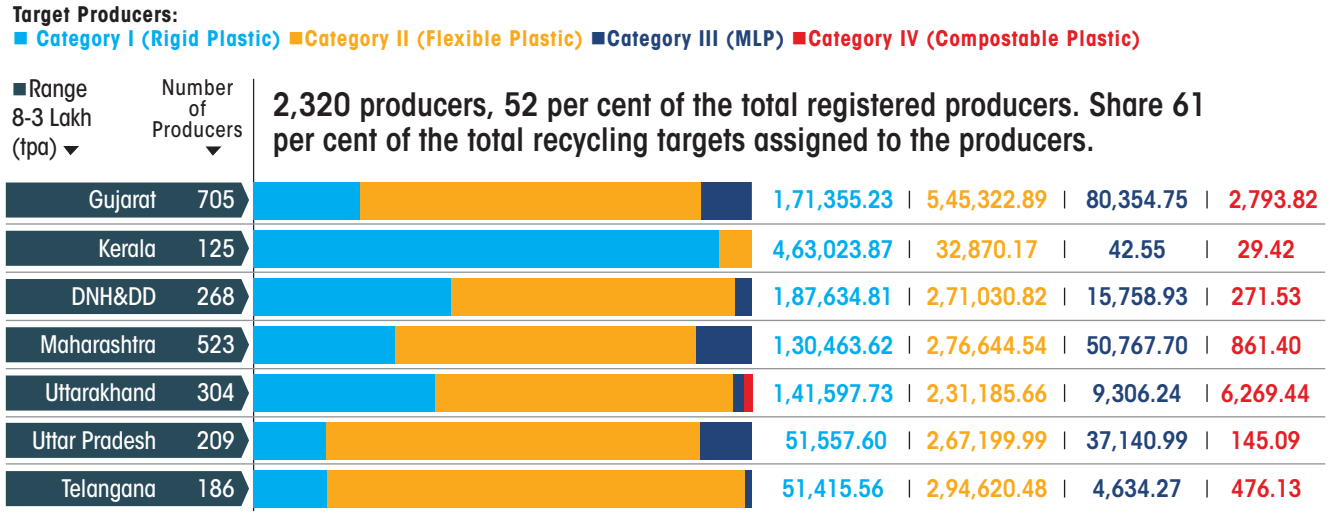
EPR TARGETS OF PIBOS

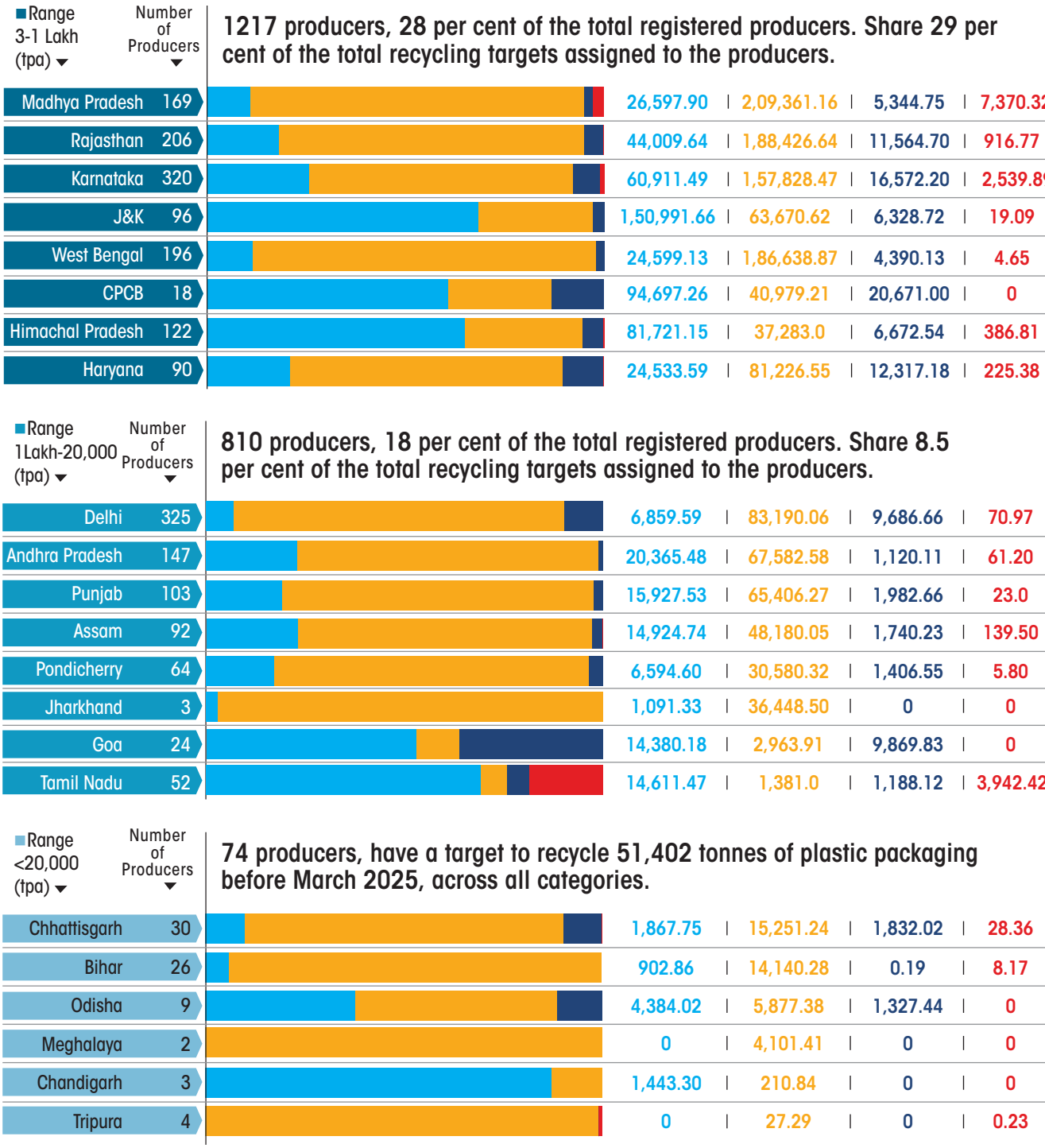
The PIBOs have a mandate to recycle 8.4 million tonne (MT) of plastic packaging by March 2025. This is 35 per cent of the total plastic packaging introduced in the market. Producers have a target to recycle 5.4 MT of plastic packaging, while Brand Owners must recycle 2.2 MT. Importers have to recycle 0.77 MT by the end of 2024-25.

To meet the EPR targets, PIBOs have to cumulatively recycle 4.74 MT of Category II plastics, 2.96 MT of Category I plastics, 0.6 MT of Category III, and 0.03 MT of Category IV plastics.

The remaining 15.5 MT of plastic packaging waste will have to be disposed of through end-of-life disposal options such as co-processing in cement plants, waste-to-energy plants, waste-to-oil plants and road-making activities. 71 per cent (11.05 MT) of this will be Category II (flexible plastic packaging); 19 per cent (2.96 MT) will be Category I; and 10 per cent (1.48 MT) will be Category III plastics.

Graph 4: EPR Targets Producers





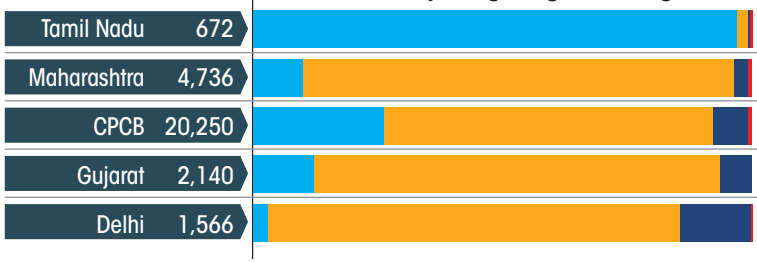
DNH&DD: Dadra & Nagar Haveli and Daman Diu; J&K: Jammu and Kashmir; CPCB: Central Pollution Control Board

Graph 5: EPR Targets Importers

Targets Importers:
■ Category I (Rigid Plastic) ■Category II (Flexible Plastic) ■Category III (MLP) ■Category IV (Compostable Plastic)

■Range 2 Lakh-80,000 (tpa) ▾ | Number of Importers ▾

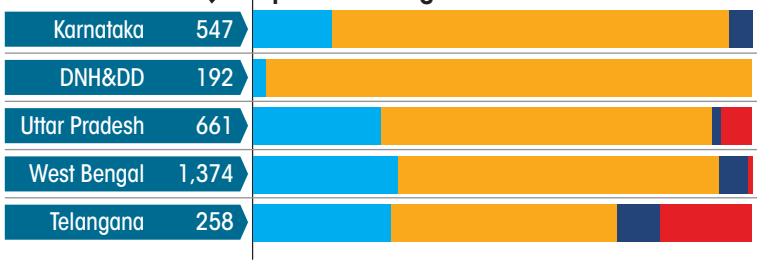
20,250 importers registered with CPCB, 59 per cent of total registered importers. Share 15 per cent of the total recycling targets assigned to the importers across all plastic categories. 9114 registered with relevant SPCB's. Share 71 per cent of the total recycling targets assigned to the importers across all plastic categories.



Tamil Nadu	672	1,76,101.49	4,190.28	679.41	861.50
Maharashtra	4,736	17,781.89	1,53,419.99	5,276.40	1,408.43
CPCB	20,250	31,130.77	78,131.93	8,372.95	1,125.65
Gujarat	2,140	12,386.84	83,779.41	6,477.31	142.12
Delhi	1,566	2,521.32	72,924.59	12,480.40	278.43

■Range 80,000-10,000 (tpa) ▾ | Number of Importers ▾

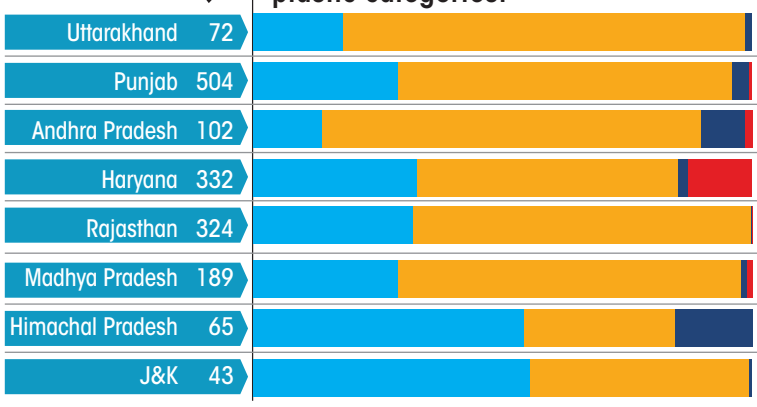
3032 importers, 9 percent of the total registered importers. Share 10 per cent of the total recycling targets assigned to the importers across all plastic categories.



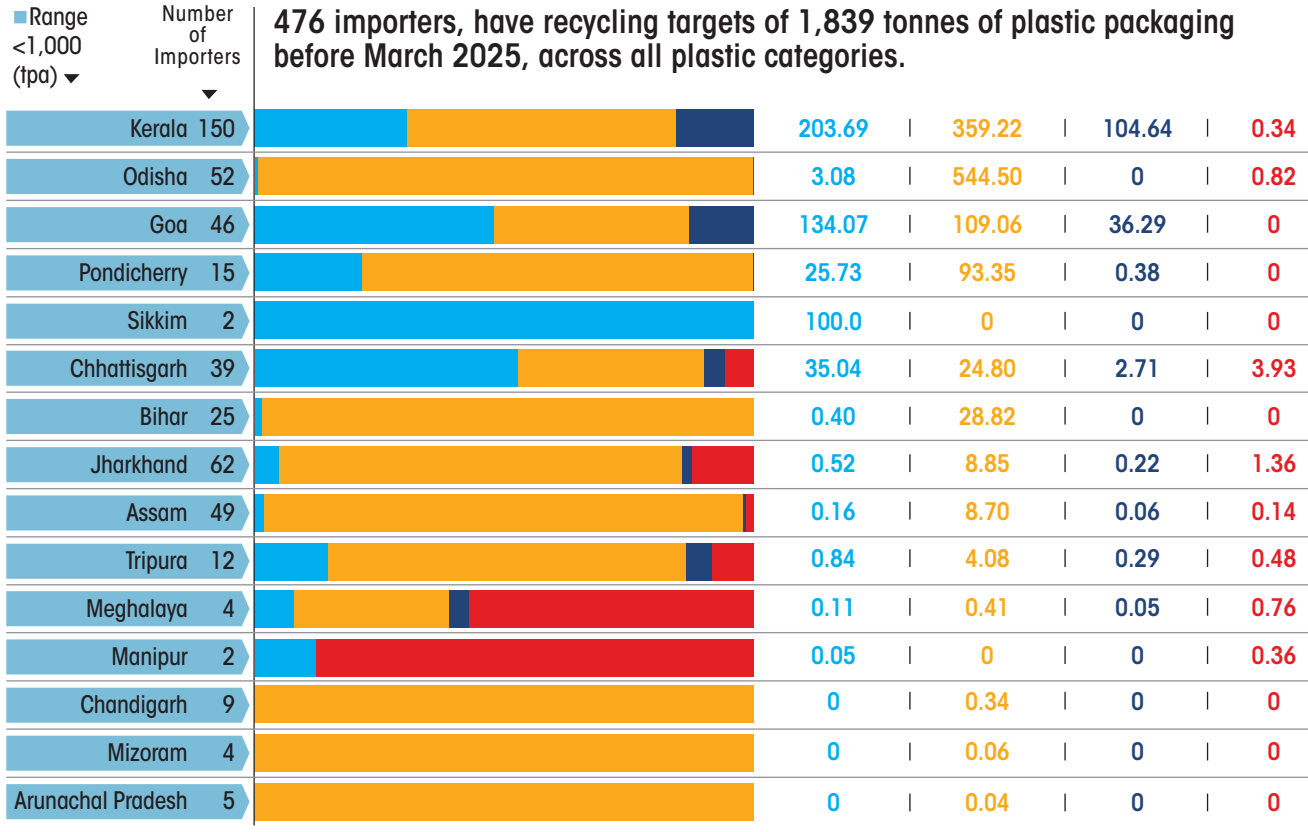
Karnataka	547	4,236.15	21,485.60	1,248.27	8.06
DNH&DD	192	412.39	15,708.01	16.39	0
Uttar Pradesh	661	3,588.09	9,332.19	241.01	900.50
West Bengal	1,374	3,455.95	7,654.98	688.23	101.46
Telangana	258	2,927.93	4,805.48	917.72	1,980.53

■Range 10,000-1,000 (tpa) ▾ | Number of Importers ▾

1631 importers, 5 per cent of the total registered importers. Share 2.5 per cent of the total recycling targets assigned to the importers across all plastic categories.



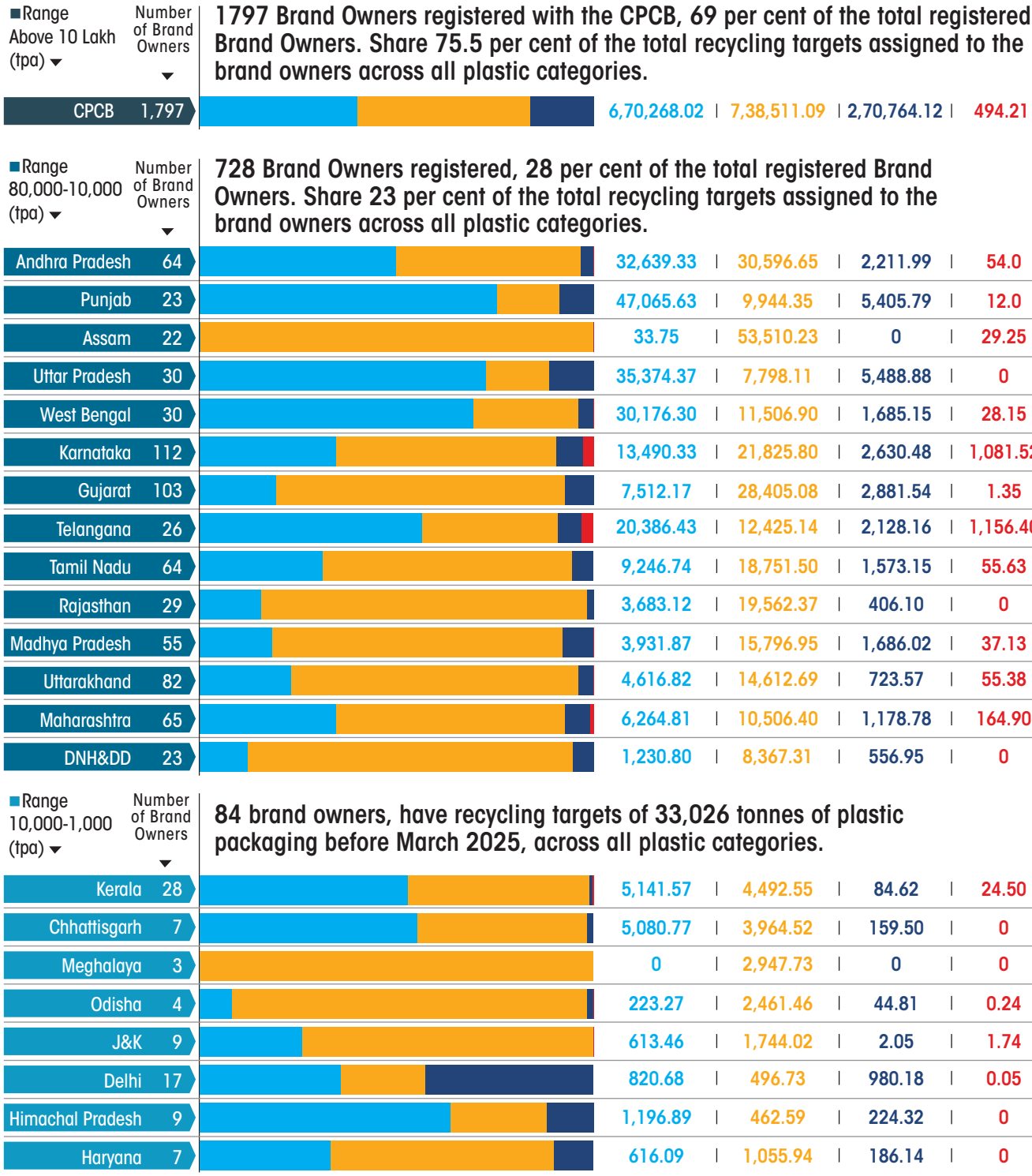
Uttarakhand	72	1,085.34	4,901.75	95.15	0
Punjab	504	837.79	1,934.70	97.32	21.63
Andhra Pradesh	102	309.21	1,709.61	200.85	31.75
Haryana	332	662.34	1,054.73	38.23	262.07
Rajasthan	324	569.33	1,211.02	1.85	1.75
Madhya Pradesh	189	492.87	1,169.96	20.72	18.41
Himachal Pradesh	65	717.71	400.01	205.38	0
J&K	43	599.87	474.84	6.36	1.18

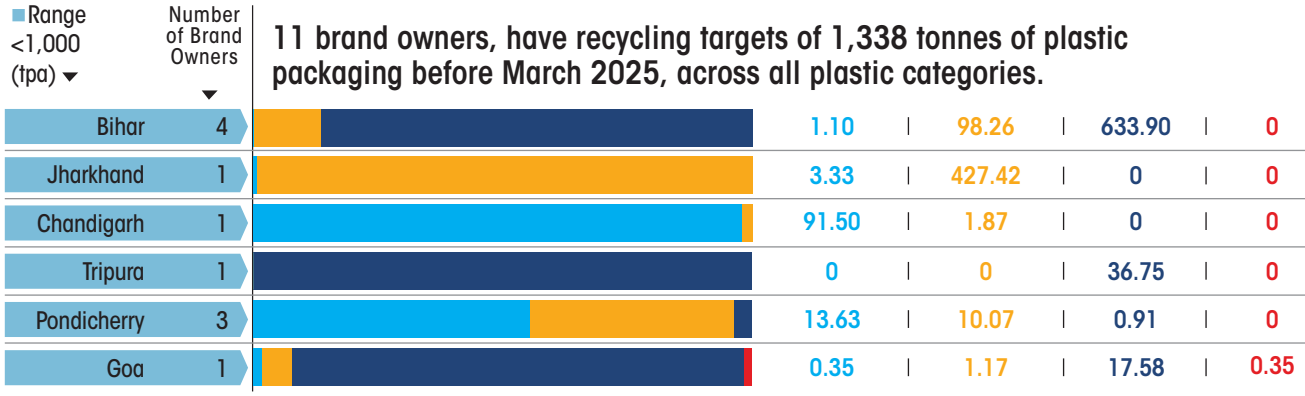


DNH&DD: Dadra & Nagar Haveli and Daman Diu; J&K: Jammu and Kashmir; CPCB: Central Pollution Control Board

Graph 6: EPR Targets Brand Owners

Target Brand Owners:
■ Category I (Rigid Plastic) ■Category II (Flexible Plastic) ■Category III (MLP) ■Category IV (Compostable Plastic)





DNH&DD: Dadra & Nagar Haveli and Daman Diu; J&K: Jammu and Kashmir; CPCB: Central Pollution Control Board

PWP ANALYSIS

TOTAL NUMBER OF PWPS

There are **2,492 unique registered entities/units of Plastic Waste Processors (PWPs)** featuring on the EPR portal that have been engaged in recycling, waste-to-energy, waste-to-oil, co-processing, and industrial composting before August 15, 2024.

Among the PWPs, there are mechanical recycling units: these are all those entities/units that recycle plastic waste into pellets and products (Categories I, II and III in both cases). These units are eligible to generate R1, R2, R3, R4, R5 and R6 categories of recycling certificates.

There are also PWPs that are EoL (End of Life) units — these include entities/units engaged in waste-to-oil, waste-to-energy (boilers), co-processing (cement plants) and industrial composting. These units are eligible to generate C1, E1, E2, E3 and E4 categories of EoL certificates.

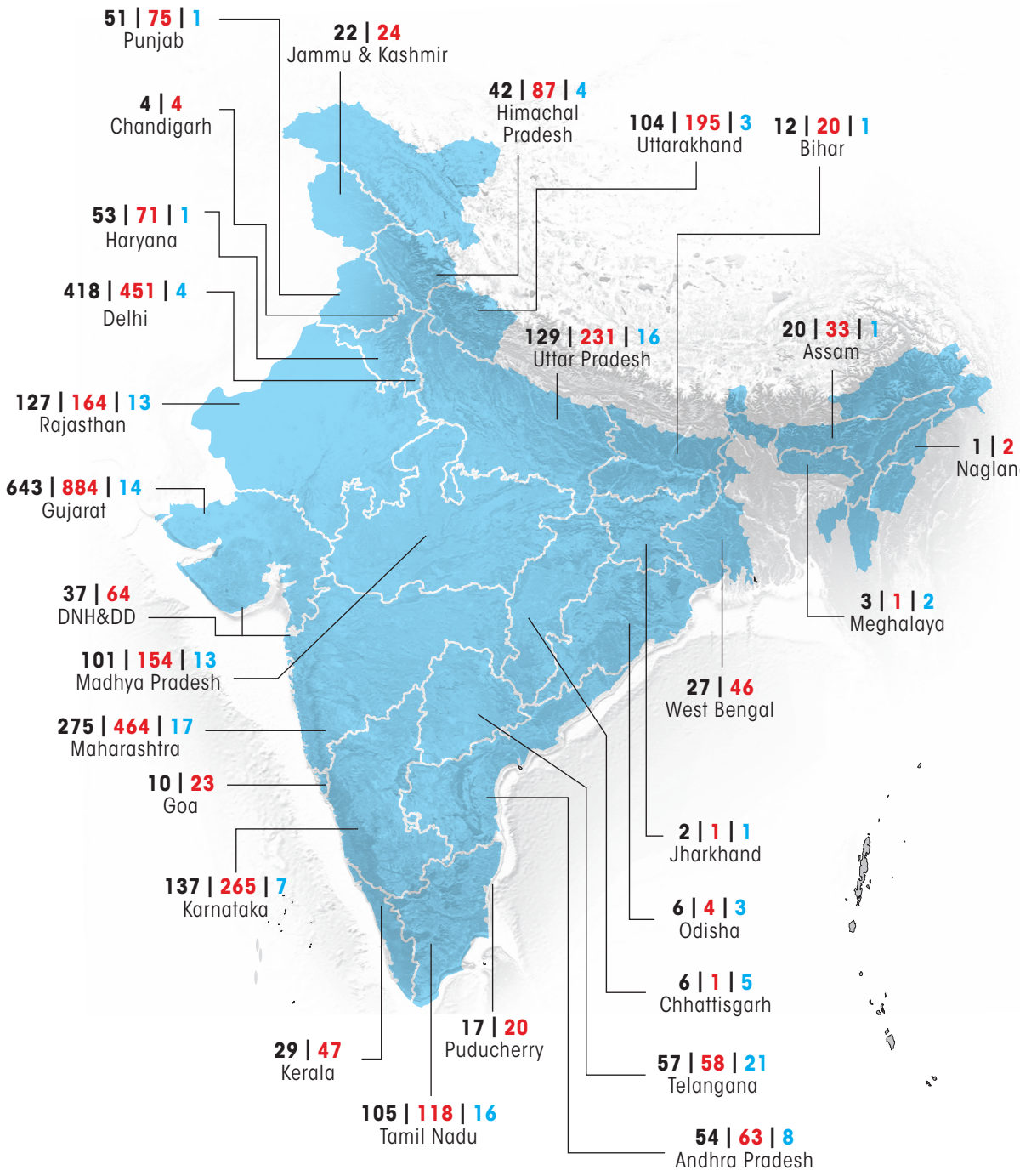
It has been observed that most of the PWPs that are mechanically recycling plastic waste or disposing of plastic waste through EoL processes is, often, higher than the number of registered PWPs. This is because a single registered entity/unit can be involved in processing more than one category of plastic packaging waste — these units make multiple entries in the portal based on the number of categories they are processing. For instance, company A, which is a unique registered PWP, is engaged in processing categories I, II and III — it will then make three separate entries in the portal.

MAP 2: PWPs in India

2492 Total Registered PWPs

3570 Units of Mechanical Recycling

151 Units of End Of Life



DNH&DD: Dadra & Nagar Haveli and Daman Diu

There are stark regional variations with respect to the availability of PWPs. Five northeast Indian states of Arunachal Pradesh, Manipur, Mizoram, Sikkim and Tripura do not have any registered PWPs. Excluding Assam, the other two states, Meghalaya and Nagaland, have only one registered mechanical recycling unit each. The UTs of Ladakh, Andaman and Nicobar Islands and Lakshadweep also do not have active PWPs.

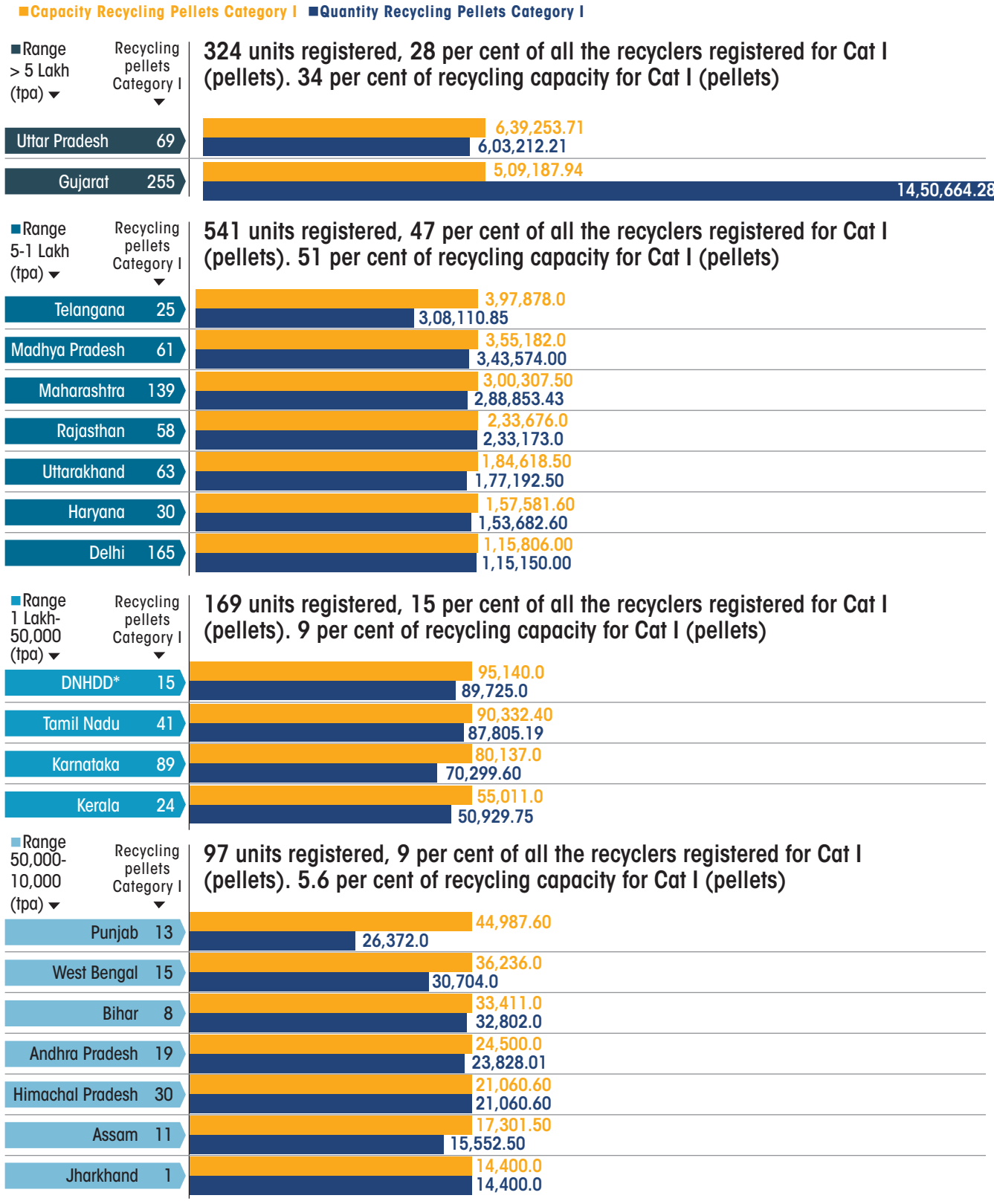
On the other side of the scale, Gujarat has 26 per cent of the country's PWPs, followed by Delhi with 17 per cent and Maharashtra with 11 per cent.

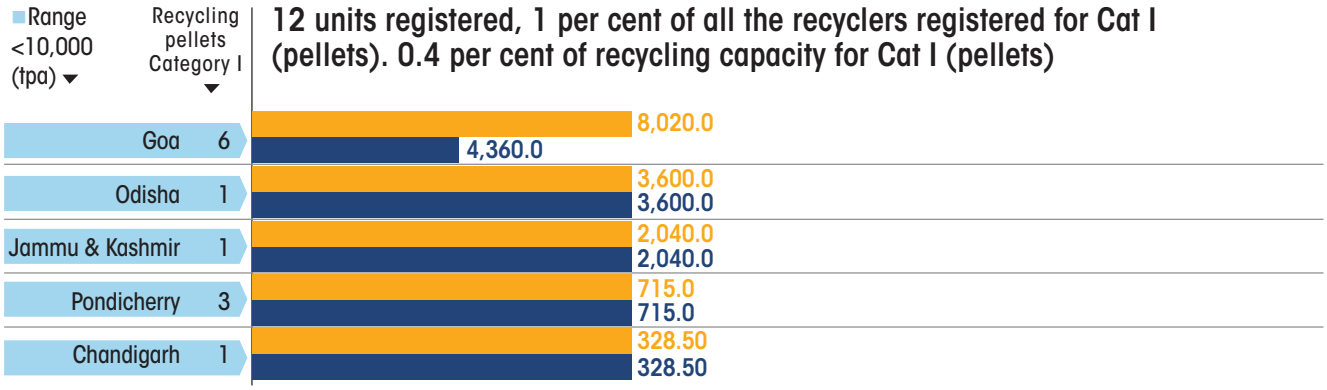
MECHANICAL RECYCLING

Category I — recycling into pellets

Gujarat, Delhi and Maharashtra have the highest number of registered PWPs involved in mechanically recycling rigid plastics into pellets; Uttar Pradesh, with 69 registered units, has the highest installed capacity. There are a total of 1,143 registered entities in the country with a combined capacity to recycle 3,420,711.85 tonne per annum (TPA) of rigid plastics into reusable pellets. However, data from the portal indicates a higher volume of 4,148,135.02 TPA being processed — that is 121 per cent of the declared and verified capacity. This discrepancy, which inflates the reported recycling output, is due to erroneous entries from registered PWPs in Gujarat, where the quantity processed is about 285 per cent of the processing capacity. These discrepancies negatively impact the value of R1 Category of recycling certificate for CAT (Category) 1. Notably, Chhattisgarh, Meghalaya and Nagaland have no registered PWPs for this type of recycling.

Graph 7: PWP Recycling Pellets Category I



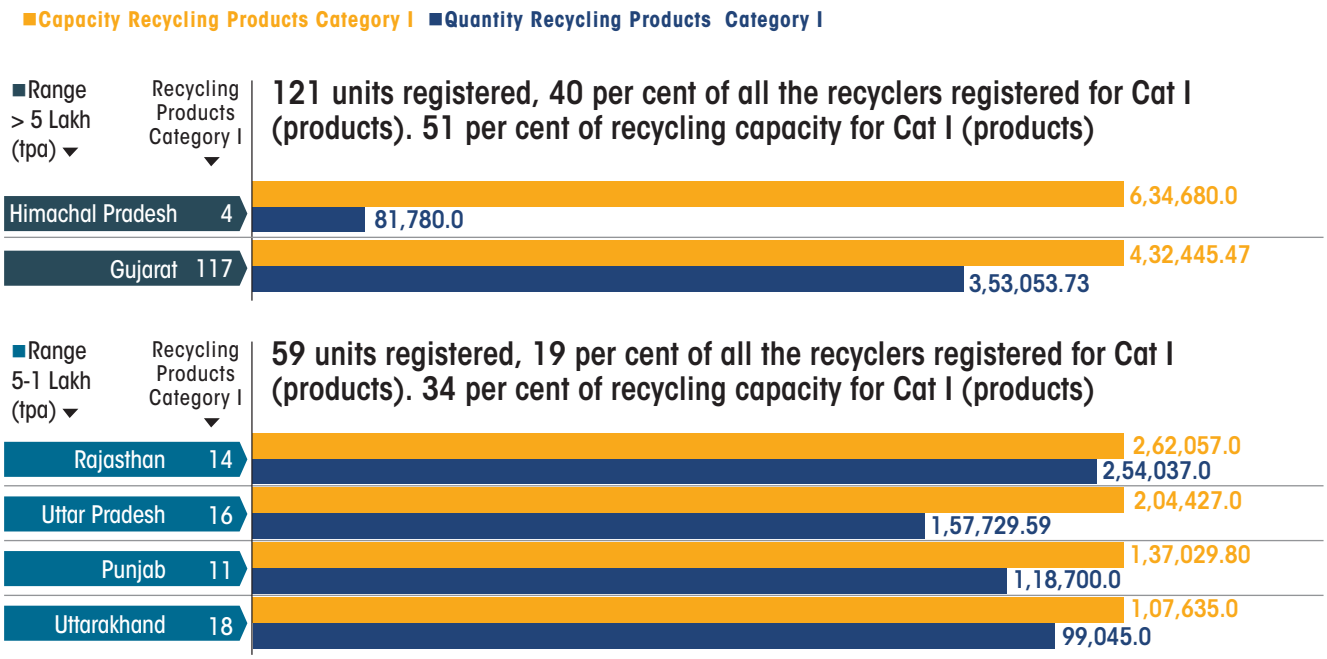


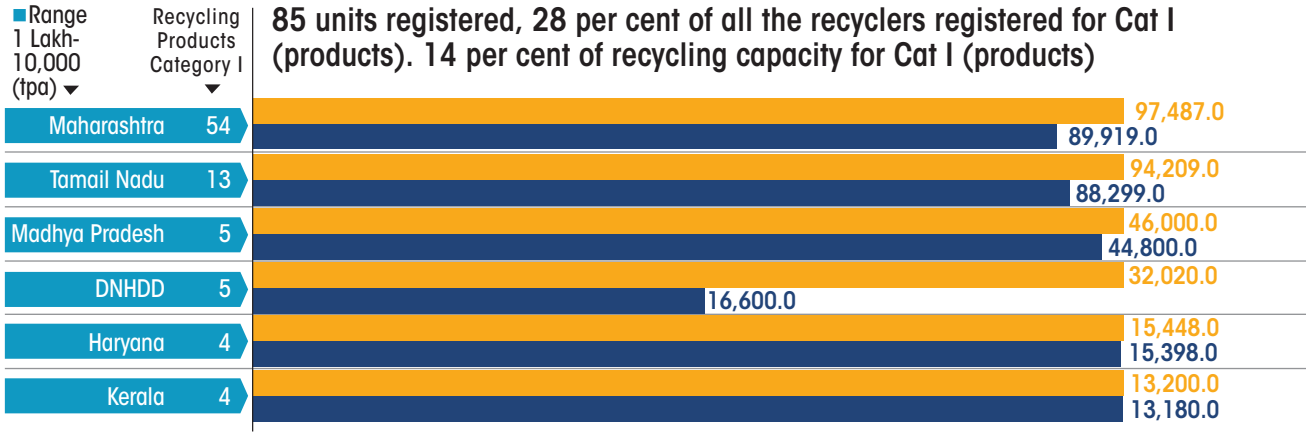
DNHDD: Dadra Nagar Haveli & Daman Diu; CPCB: Central Pollution Control Board

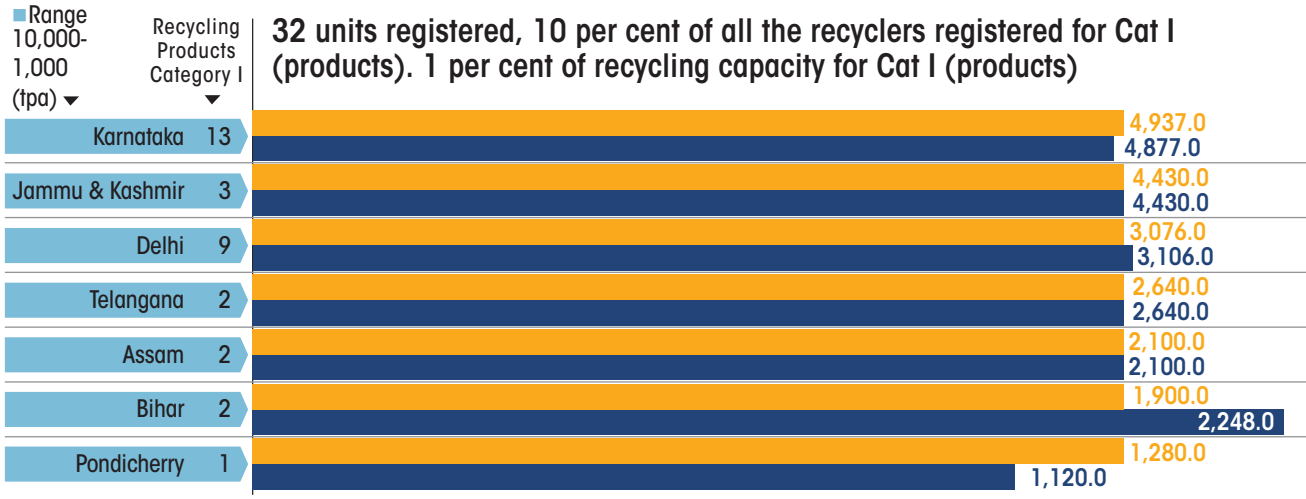
Category I – recycling into products

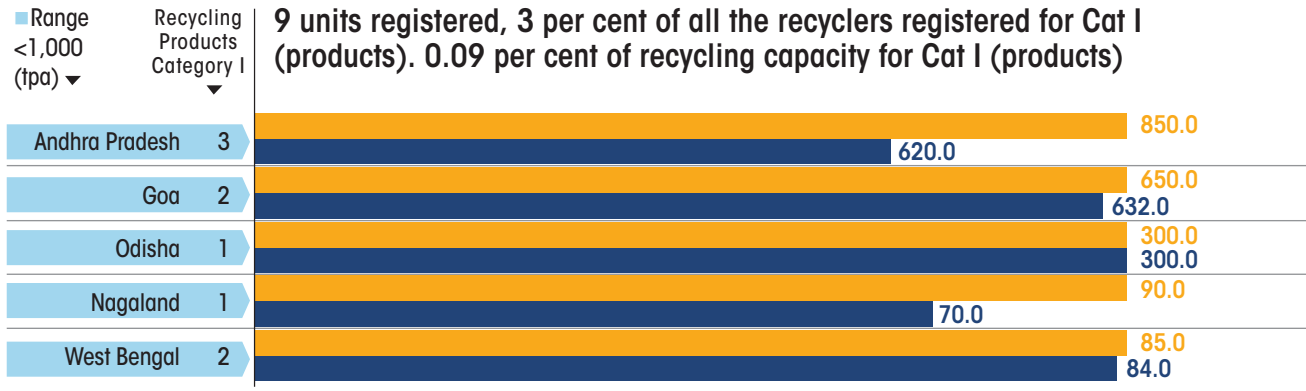
A total of 306 registered units have a combined capacity of 2,098,976.27 TPA. The portal reports that 1,354,768.31 TPA has been processed which is 64 per cent of the capacity. Bihar and Delhi with 2 and 9 registered PWPs have processed 118 per cent and 101 per cent of their respective capacities. Gujarat, Maharashtra and Rajasthan have the highest number of units that are eligible to generate R4 Category of recycling certificates for CAT I. States/UTs like Chandigarh, Chhattisgarh, Jharkhand and Meghalaya have no registered processors for converting rigid plastics into products.

Graph 8: PWP Recycling Products Category I







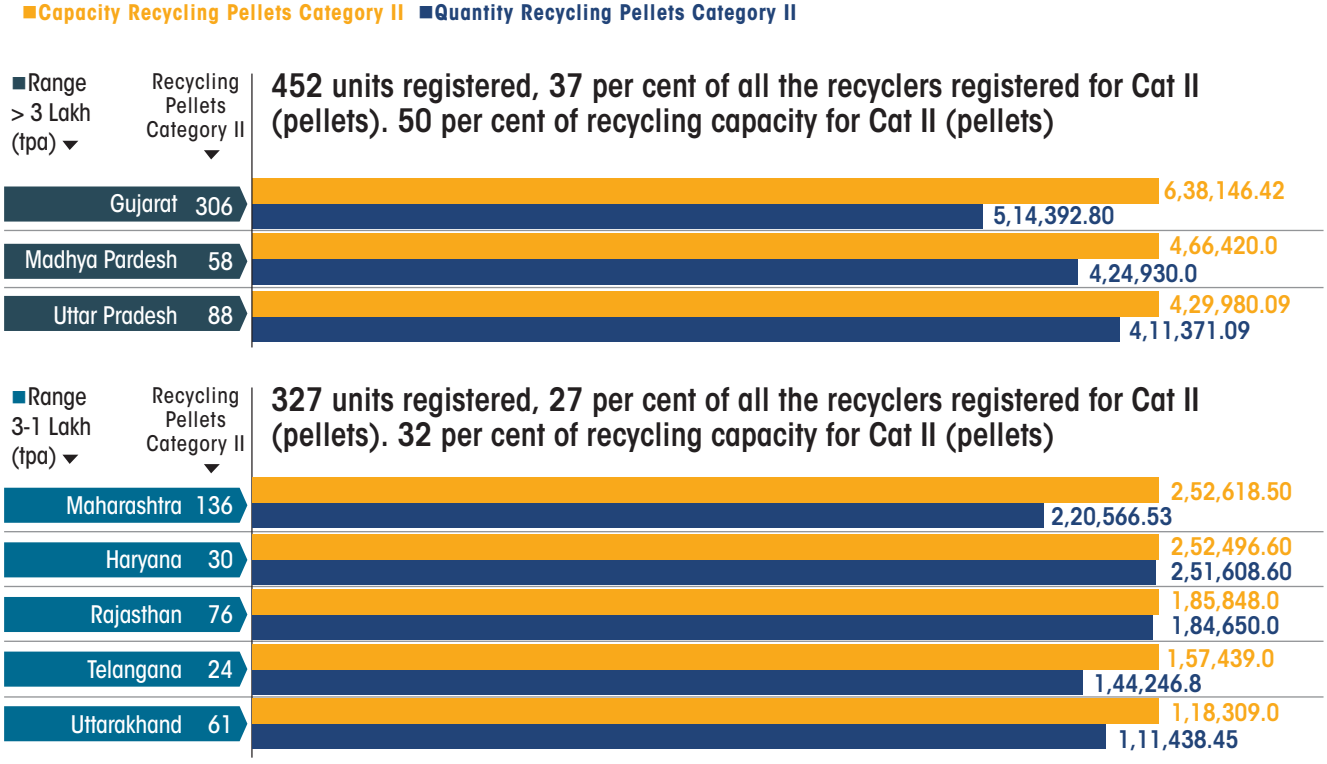


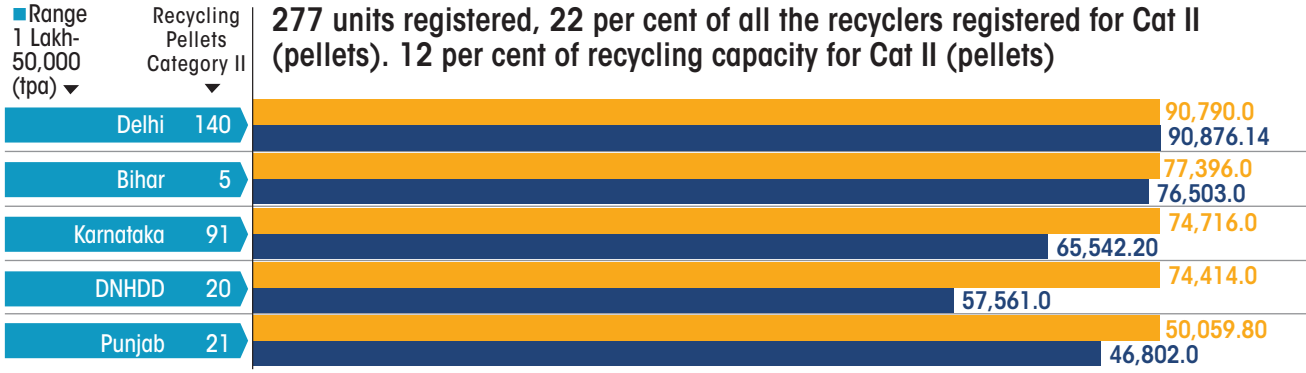
DNHDD: Dadra Nagar Haveli & Daman Diu; CPCB: Central Pollution Control Board

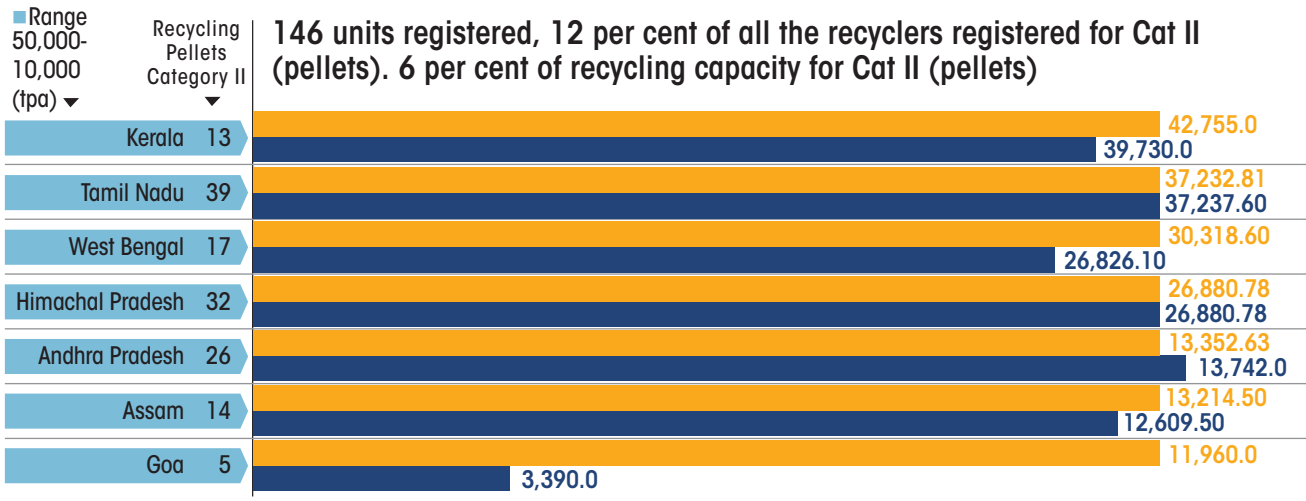
Category II — recycling into pellets

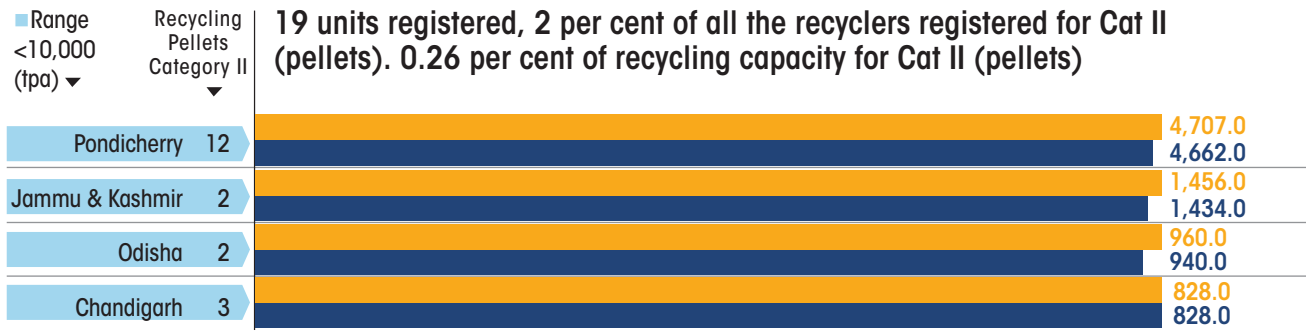
Gujarat, Delhi and Maharashtra also top the list in the recycling of flexible plastics into pellets, with 1,221 registered PWPs that together have a declared and verified capacity of 3,052,298.73 TPA and have currently processed 2,768,768.58 TPA — which is 90 per cent utilisation of the capacity. The highest numbers of registered units on the EPR portal are processing flexible plastic recycling into pellets. However, states like Chhattisgarh, Meghalaya and Nagaland have no units converting flexible plastic waste into reusable pellets. Andhra Pradesh and Delhi, with 26 and 140 units respectively, have processed more than 100 per cent of their capacities. These units are generating R2 Category of recycling certificates for CAT II.

Graph 9: PWP Recycling Pellets Category II







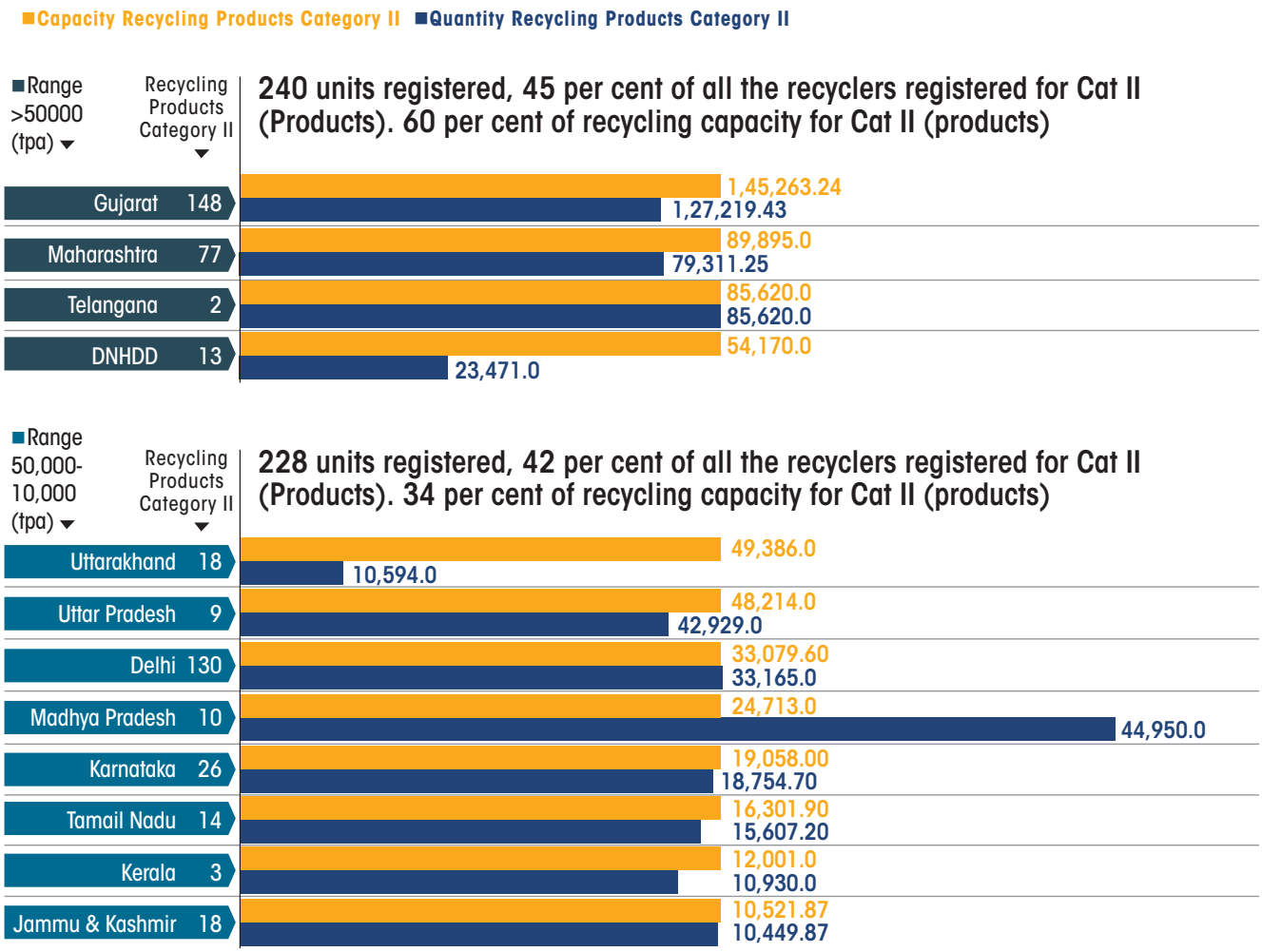


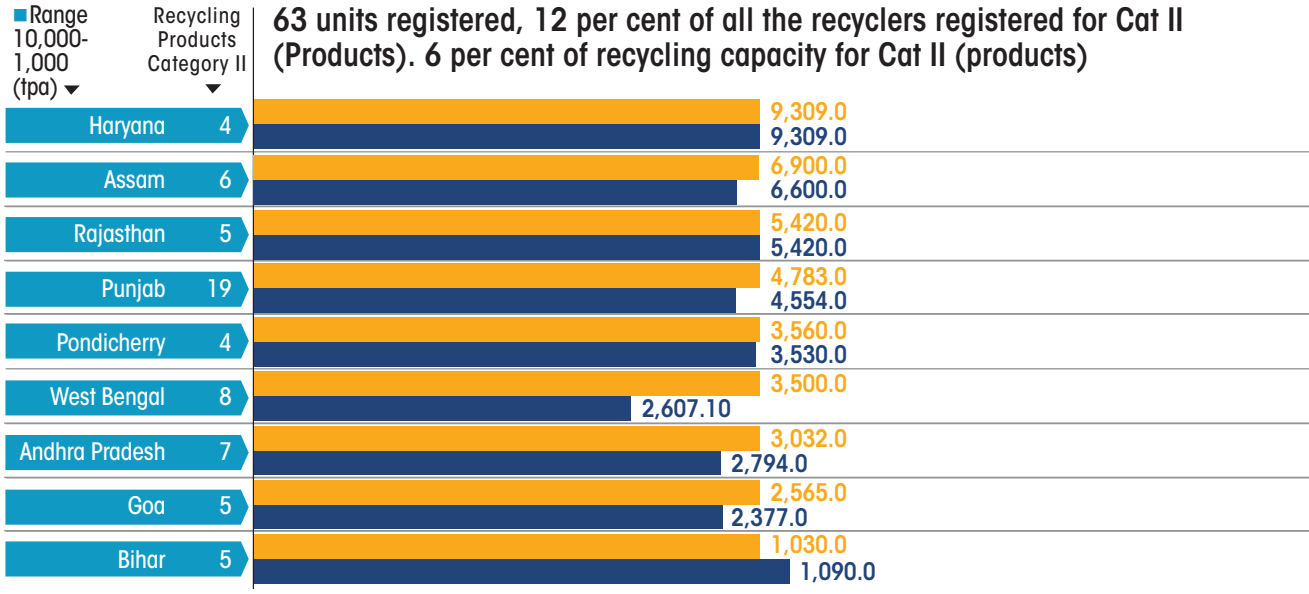
DNHDD: Dadra Nagar Haveli & Daman Diu

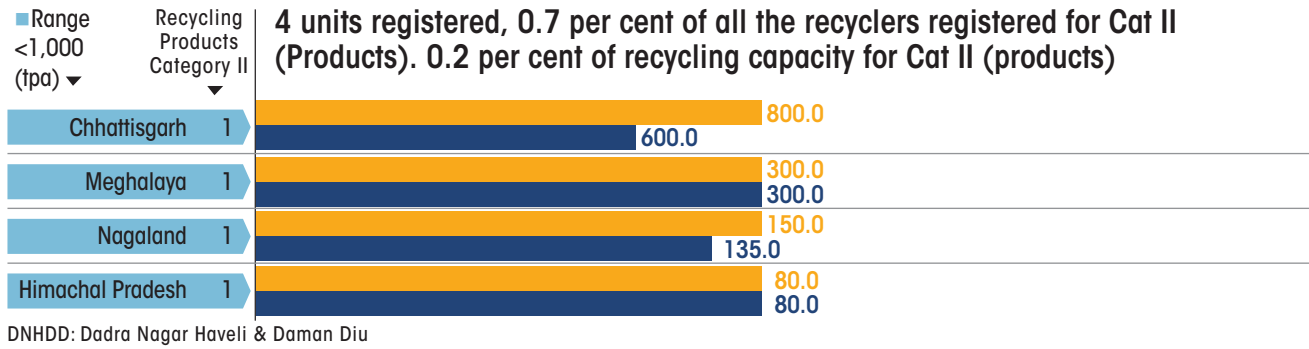
Category II — recycling into products

A total of 535 registered PWPs have a combined capacity of 629,652.61 TPA for recycling flexible plastic waste into products, with 542,397.55 TPA currently being processed — 86 per cent of the total capacity. Bihar, Delhi and Madhya Pradesh have processed 105 per cent, 101 per cent and 181 per cent more flexible plastic than their declared and verified capacities. Gujarat, Delhi and Maharashtra have the highest numbers of registered PWPs, while states/UTs like Chandigarh, Jharkhand and Odisha have no registered PWPs for CAT II recycling into products. These units are generating R5 Category of recycling certificates for CAT II.

Graph 10: PWP Recycling Products Category II







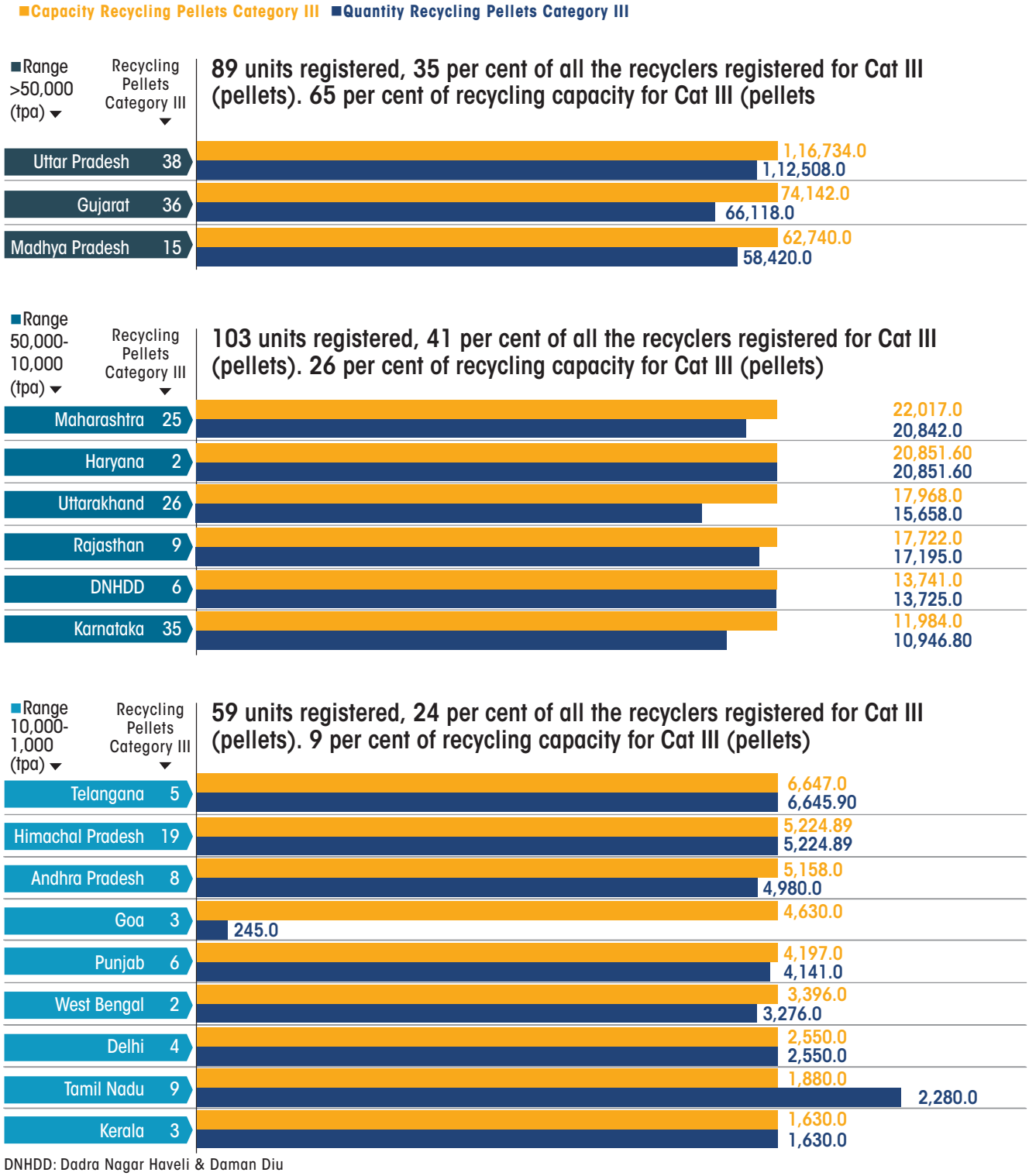
DNHDD: Dadra Nagar Haveli & Daman Diu

Category III — recycling into pellets

There are 251 registered PWPs processing multi-layered plastics (MLPs) into pellets. The quantity that is processed is 367,237.19 TPA against the combined capacity of 393,212.49 TPA — that is 93 per cent utilisation of the capacity. Uttar Pradesh, Gujarat and Karnataka have the highest numbers of registered PWPs in this category, while 9 states/UTs have none.

Discrepancy was noted for Tamil Nadu which has 9 registered PWPs that processed 121 per cent of the total capacity; 2,280 TPA of MLP was made into pellets against the declared verified capacity of 1,880 TPA. These units are generating R3 Category of recycling certificates for CAT III.

Graph 11: PWP Recycling Pellets Category III

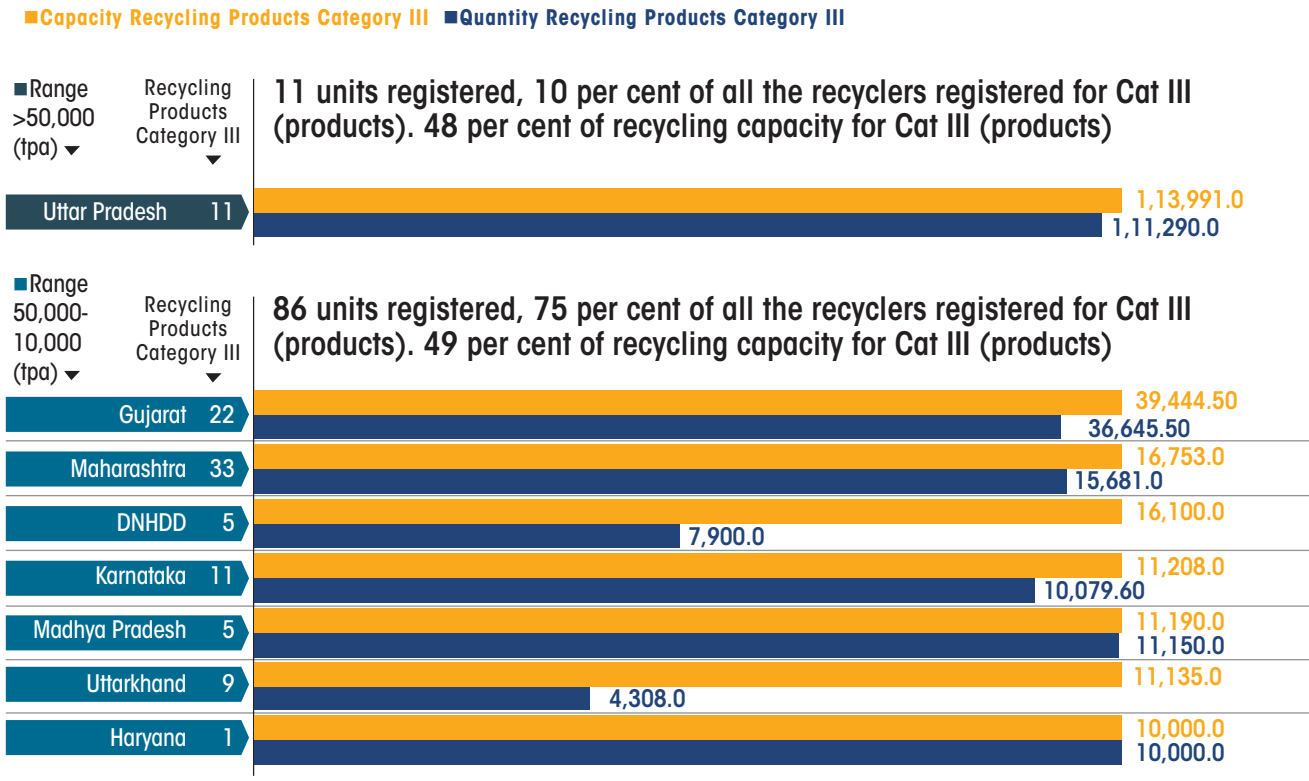


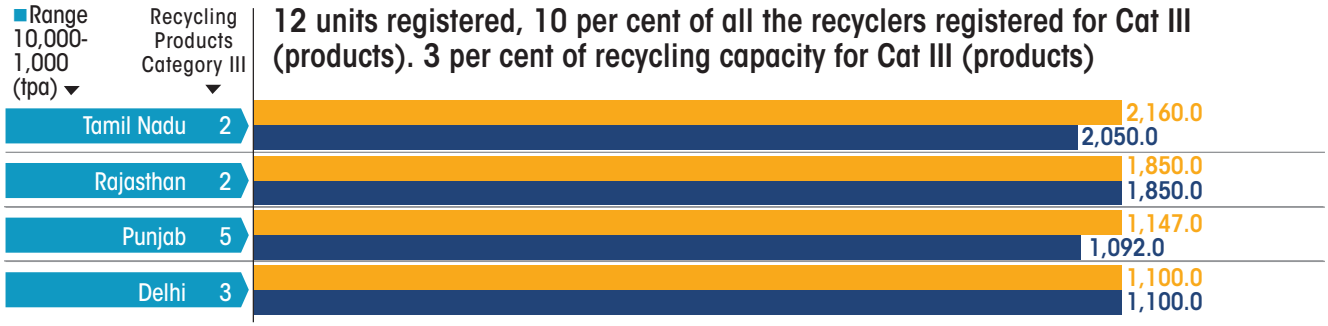
DNHDD: Dadra Nagar Haveli & Daman Diu

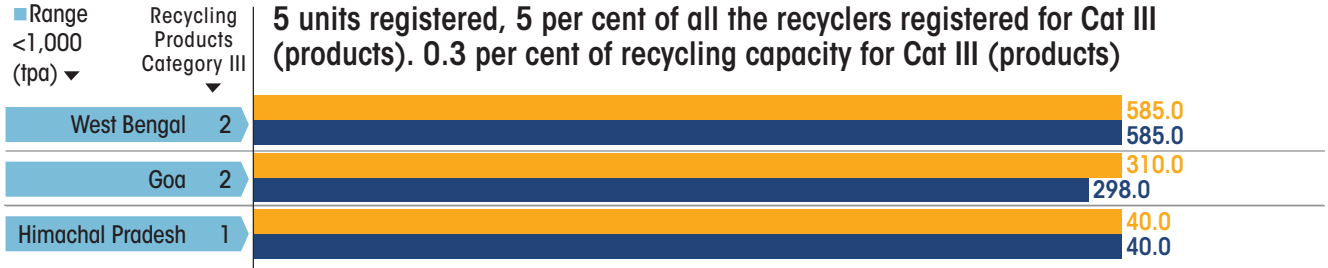
Category III — recycling into products

A total of 114 registered recyclers collectively process 214,069.1 TPA of MLPs into products, against a capacity of 237,013.5 TPA that is 90 per cent utilisation of the capacity. Maharashtra and Gujarat have the highest number of PWPs converting MLPs into products, followed closely by Karnataka and Uttar Pradesh with 11 units each. 13 of the 28 states/UTs with registered PWPs have no facilities for processing MLPs into products. These units are generating R6 recycling certificates for CAT III.

Graph 12: PWP Recycling Products Category III







DNHDD: Dadra Nagar Haveli & Daman Diu

END OF LIFE DISPOSAL

Composting (Industrial)

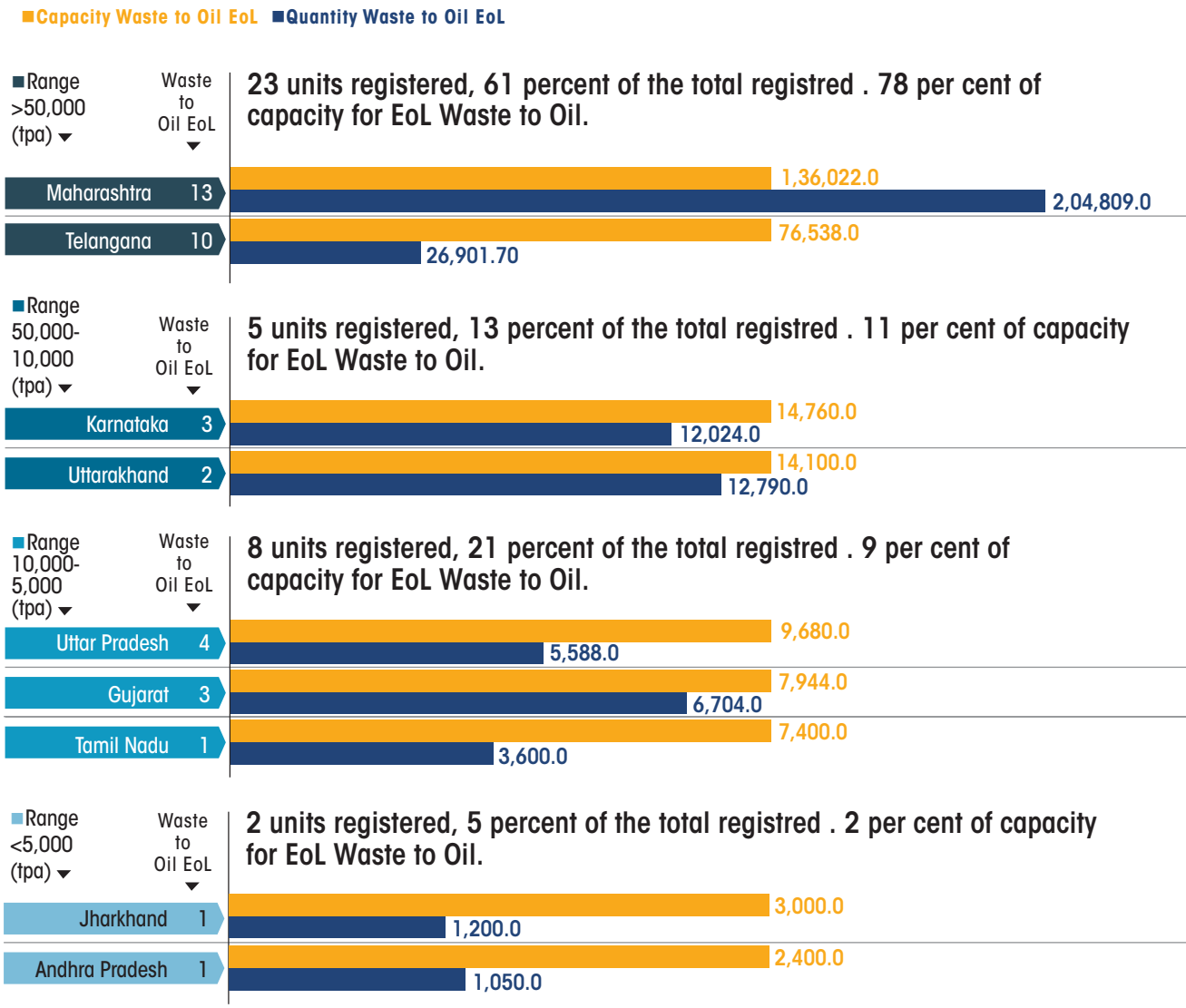
There is only one registered facility operational in the country. This facility is in Gujarat and has a capacity to process 3,600 TPA. It is generating C1 EPR certificates for processing compostable plastics as EoL solution for CAT IV plastic commodity waste.

Graph 13: EoL Composting

EoL waste-to-oil

Nineteen out of 28 states/UTs with registered PWPs have no waste-to-oil units. Maharashtra has the highest number of registered waste-to-oil EoL facilities with 13 units that processed 150 per cent of the plastic waste — 204,809 TPA against the capacity of 136,022 TPA. This discrepancy in numbers has inflated the overall quantity processed by the 38 units across the country to 101 per cent of their combined capacity. This has an impact on the value of E4 certificates for CAT I, II and III plastic packaging waste.

Graph 14: Waste to Oil EoL

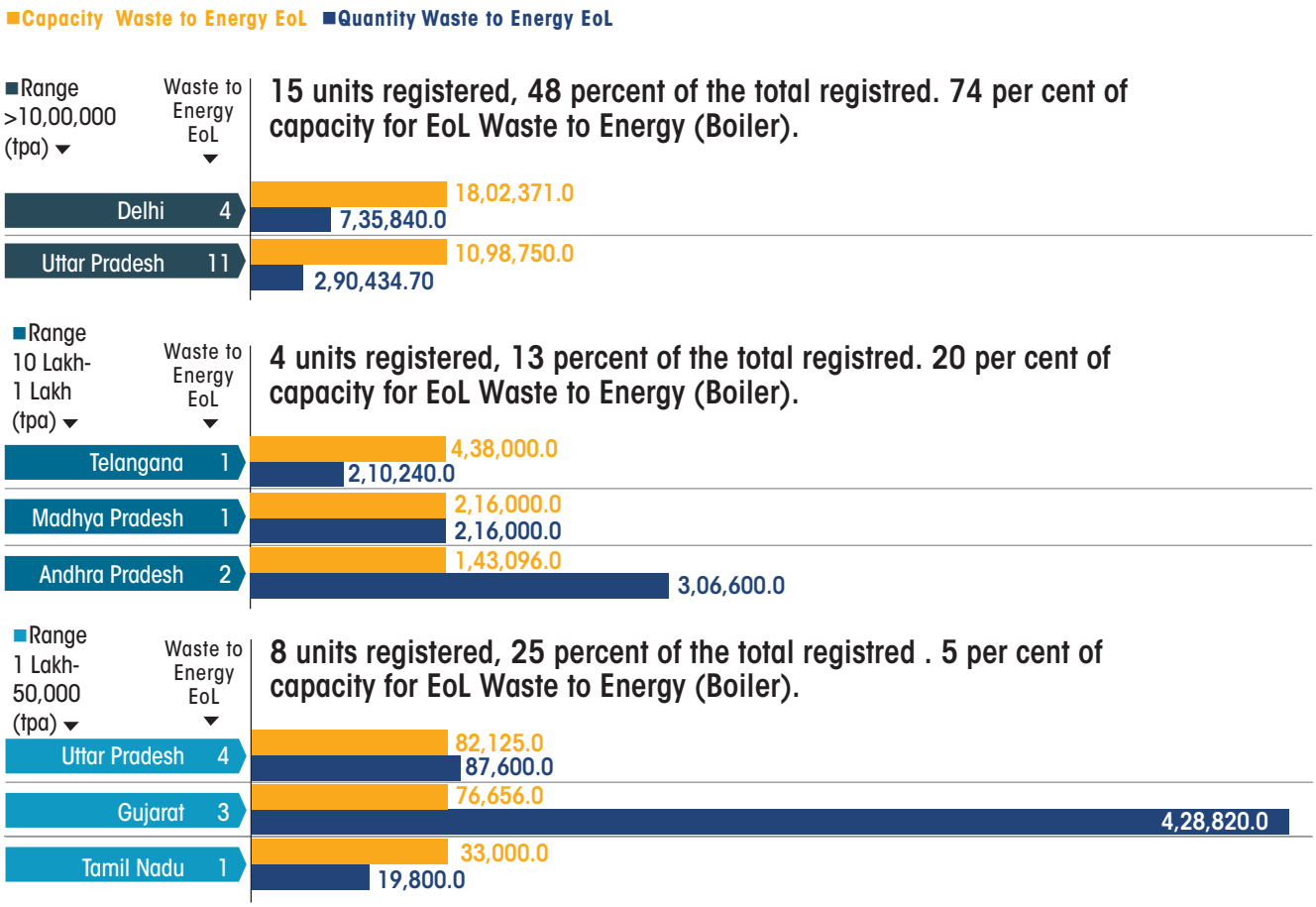


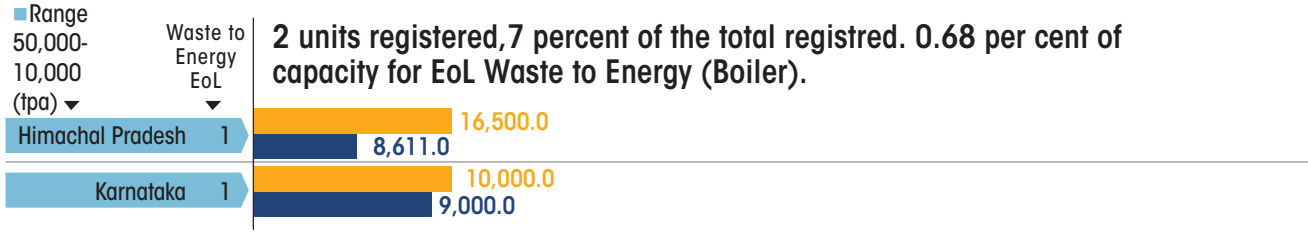
EoL waste-to-energy (boilers)

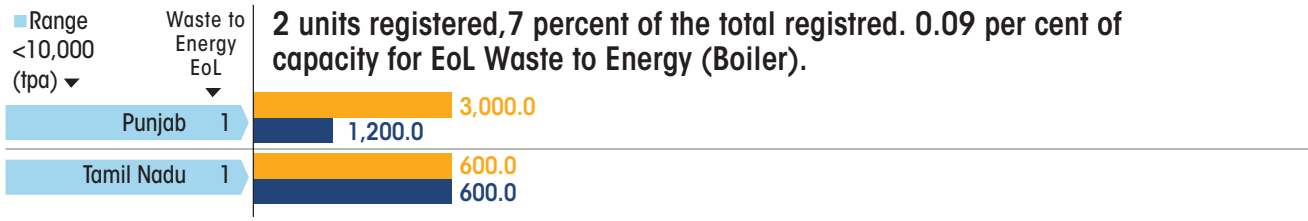
A total of 31 registered waste-to-energy (boiler) units are operational in the country, processing plastic packaging waste of 2,314,745.7 TPA against a capacity of 3,920,098 TPA; capacity utilisation, thus, stands at 59 per cent. Delhi and Uttar Pradesh have the highest installed capacities of 1,802,371 TPA and 1,098,750 TPA respectively. Sixteen states/Uts do not have any active registered waste-to-energy (boiler) units.

Discrepancy was recorded for Gujarat where units collectively processed 559 per cent more than the installed capacity — 428,820 TPA against a capacity of 76,656 TPA. This discrepancy impacts the value of E3 EoL certificates for CAT I, II, III and IV plastic packaging waste.

Graph 15: Waste to Energy EoL (Boiler)



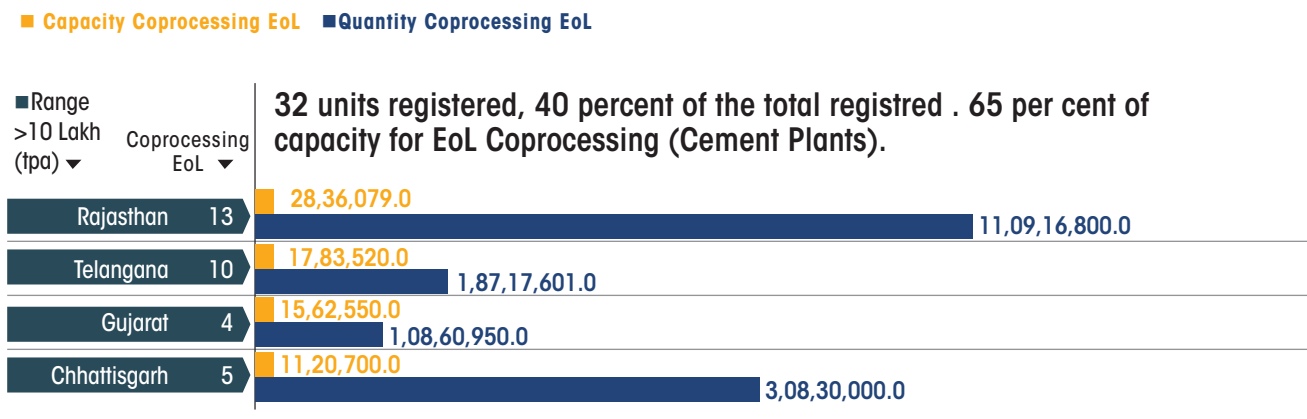


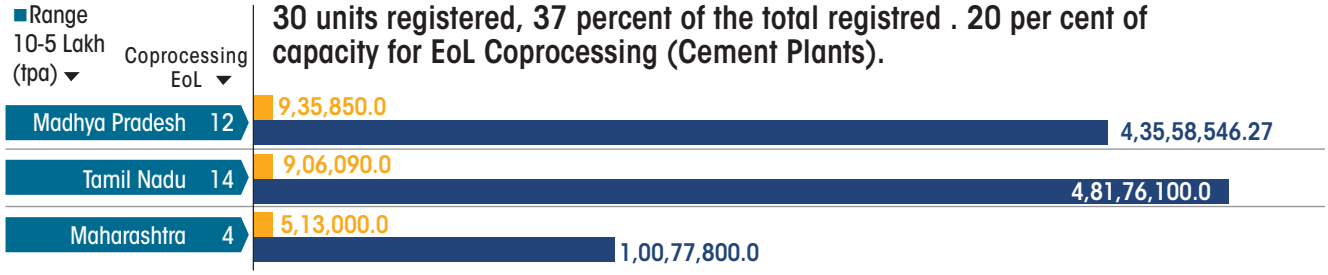


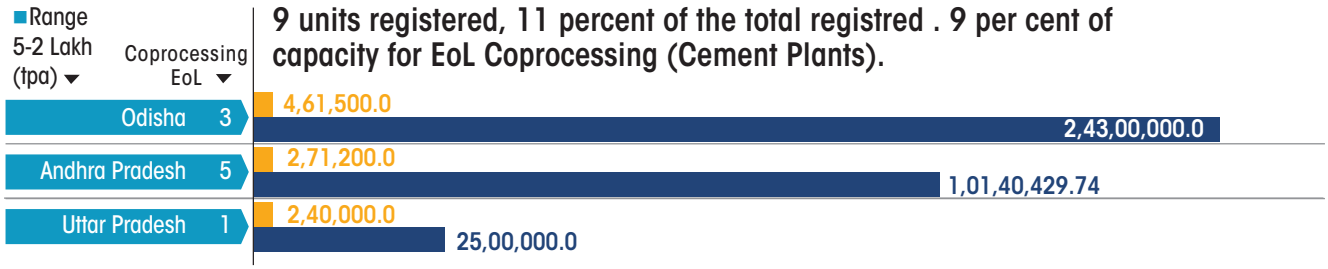
EoL_co-processing (cement plant)

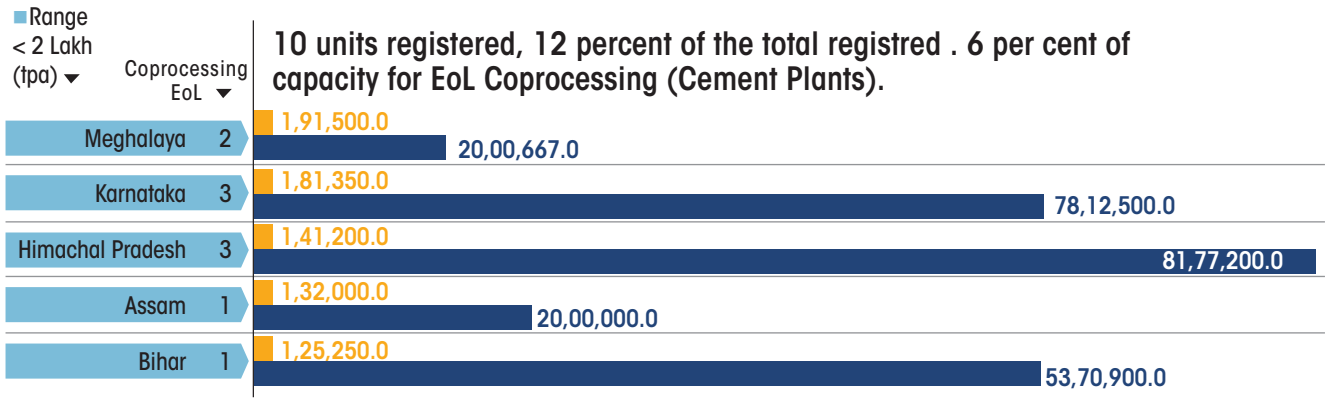
Out of 28 states/UTs with registered PWPs, 15 have EoL co-processing cement plants which are eligible to generate E1 EoL certificates for CAT I, II, III and IV plastics. Collectively, 81 registered units processed 335,439,494 TPA against a capacity of just 11,401,789 TPA. This huge discrepancy infers that together, the units processed 2,942 per cent more than their declared and verified capacity. This difference between processing capacity vs quantity processed is present in all 15 states.

Graph 16: Co-processing EoL




Range 10-5 Lakh (tpa)
Coprocessing EoL
30 units registered, 37 percent of the total registred . 20 per cent of capacity for EoL Coprocessing (Cement Plants).
Madhya Pradesh 12
9,35,850.0
4,35,58,546.27
Tamil Nadu 14
9,06,090.0
4,81,76,100.0
Maharashtra 4
5,13,000.0
1,00,77,800.0


Range 5-2 Lakh (tpa)
Coprocessing EoL
9 units registered, 11 percent of the total registred . 9 per cent of capacity for EoL Coprocessing (Cement Plants).
Odisha 3
4,61,500.0
2,43,00,000.0
Andhra Pradesh 5
2,71,200.0
1,01,40,429.74
Uttar Pradesh 1
2,40,000.0
25,00,000.0

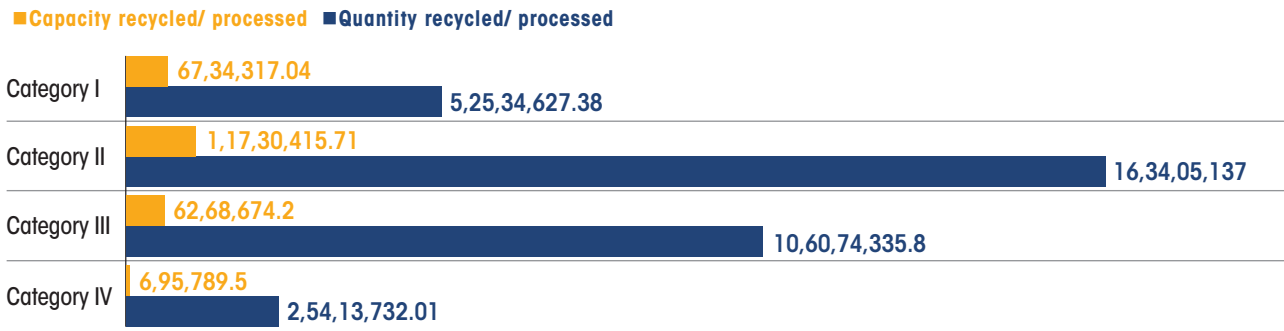

Range < 2 Lakh (tpa)
Coprocessing EoL
10 units registered, 12 percent of the total registred . 6 per cent of capacity for EoL Coprocessing (Cement Plants).
Meghalaya 2
1,91,500.0
20,00,667.0
Karnataka 3
1,81,350.0
78,12,500.0
Himachal Pradesh 3
1,41,200.0
81,77,200.0
Assam 1
1,32,000.0
20,00,000.0
Bihar 1
1,25,250.0
53,70,900.0

PWP's PROCESSING EFFICIENCY

CAT I: Quantity processed is **780** per cent more than the capacity.
CAT II: Quantity processed is **1,393** per cent more than the capacity.
CAT III: Quantity processed is **1,692** per cent more than the capacity.
CAT IV: Quantity processed is **3,652** per cent more than the capacity.

Other than Cat III (recycling into products) and industrial composting, there are multiple dubious entries on the EPR portal for types of plastic recycling and EoL solutions. The difference between the quantity processed and processing capacity is astounding primarily for EoL co-processing, where the 15 states with cement plants accepting plastic packaging waste have processed a combined average of 3,155 per cent against the declared and verified capacities.

Graph 17: PWP Capacity vs Quantity



THE KEY FINDINGS

- PIBOs that have registered on the centralised portal, collectively introduced 23.9 million tonne of plastic packaging into the Indian market. The most circulated plastic in the Indian market is flexible plastics, used for packaging products such as snacks, fritters, chips, biscuits and other small packaging formats including sachets.

Plastic category	Quantities introduced (in million tonne)
Category I (Rigid)	5.93
Category II (Flexible)	15.8
Category III (MLP)	2.13
Category IV (Compostable)	0.07
Total	23.93

- For PIBOs who have registered with the CPCB, 48 per cent of the total plastic packaging introduced by Producers is rigid. However, 52 per cent of the total plastic packaging introduced by Brand Owners is flexible, while almost 74 per cent of the total plastic introduced by Importers is flexible.

- EPR guidelines mandate mechanical recycling of 8.4 million tonne of plastic packaging by March 2025.

Plastic category	Mechanical recycling targets (in million tonne)	EoL disposal targets (in million tonne)
Category I (Rigid)	2.96	2.96
Category II (Flexible)	4.74	11.05
Category III (MLP)	0.6	1.48
Category IV (Compostable)	0.03	0.04
Total	8.4	15.5

- The mechanical recycling capacity of the country is 9.82 million tonne. This figure is further divided into category-specific recycling capacity:

Plastic category	Mechanical recycling capacity (in million tonne)
Category I (Rigid)	5. 51
Category II (Flexible)	3.68
Category III (MLP)	0.63
Total	9.82

- The compostable plastic processing capacity of the country is 3,600 tonne per year, with only one industrial composting plant in the state of Gujarat.

- We are introducing way more plastic packaging in the Indian market than the recycling capacity of the country.

Plastic category	Quantity introduced in the Indian market (in million tonne)	Capacity for mechanical recycling (in million tonne)	Surplus supply in the market (per cent)
Category I (Rigid)	5.93	5. 51	107
Category II (Flexible)	15.8	3.68	430
Category III (MLP)	2.13	0.63	338
Total	23.9	9.82	243

- The EPR portal has quantitative data in terms of registered PIBOs and processors, recycling capacities etc. It does not have the mechanism to control product type based on the feed. This is why it always fails to collect and maintain qualitative data. Qualitative data on the EPR portal are inconsistent and may not make sense.

- **There is not a single registered recycler for polyvinyl chloride (PVC) in the country.** The per capita consumption of PVC in 2021 was 2.4 kg/annum.[5] In 2023, the domestic demand for PVC reached four million tonne.[6] In 2024, the Government of India increased the basic custom duty on PVC from 10 per cent

to 25 per cent to encourage the manufacture of PVC within the country.[7] However, the weak recycling sector for this resin may act as a hindrance, especially because PVC cannot be processed in EoL applications like waste-to-oil, waste-to-energy and cement co-processing plants.

- A higher number of certificates have been generated through wrongful means and have already been traded with PIBOs. While action has been taken against the recyclers, the PIBOs continue to enjoy "compliance" status despite procuring fraudulent certificates. Due to the Indian EPR being "market-driven," a high supply of certificates at low prices has driven the cost of the EPR certificates downward. Apart from the mechanical recyclers who have been issued a show cause notice or levied environmental compensation, almost all the co-processing facilities continue to generate huge amounts of certificates without any legal action being taken against them. A handful of mechanical recyclers have also issued more certificates than their capacity without any legal action.

THE WAY FORWARD

1. Since the launch of the portal in April 2022, registered PIBOs have introduced nearly 24 million tonnes of plastic packaging into the Indian market. In other words, over three years an average of 8 million tonnes of plastic packaging has been introduced annually, which is almost double India's official annual plastic waste generation estimate of 4.1 million tonnes. Of the plastic packaging introduced, roughly 65 per cent was of what is categorized as 'flexible' – category II – which is problematic for collection and disposal.

   In terms of 'processing' roughly 9 million tonnes (some 35 per cent) is to be processed using mechanical recycling, which is largely used to make the plastic waste into pellets and other products. The remaining 15.5 million tonnes (65 per cent) plastic packaging waste is planned to be sent for end-of-life disposal, in which the waste collected is sent for co-processing or incineration in waste to energy and cement plants.

   In terms of compliance, it is clear that PIBOs are meeting their collection and recycling targets when it comes to rigid plastic category (Category I). However, this is not the case in terms to flexible plastic (Category II), which suggests the challenge in terms of collection and its disposal.

   The portal provides an effective means of gathering quantitative data on plastic waste, and it is recommended that this data be incorporated into the Central Pollution Control Board (CPCB) and MoEFCC's reporting on plastic waste generation. Considering that plastic packaging comprises 43–59% of India's plastic waste, with most packaging reaching end-of-life within a year, incorporating this data will yield a more realistic understanding

of national plastic waste generation. This approach can enable policymakers to establish a more accurate roadmap for effective plastic waste management.

2. Over two-thirds of the plastic packaging introduced to the Indian market is flexible plastic. According to the CPCB's updated Environmental Compensation (EC) document, the availability of flexible plastics is ten times higher than rigid plastics and nearly double that of multilayer aseptic packaging like cartons. This acknowledgment from the CPCB highlights the challenges posed by flexible plastics, given their prevalence and the difficulties associated with their collection and recycling.

   Allowing large quantities of these materials overwhelms local waste management systems, leading to inefficiencies in operations and finances. To address this, it is crucial that strict adherence to floor prices for hard-to-recycle plastics is enforced, with periodic reviews of these prices, as outlined in the EC document, to ensure they remain effective as EPR implementation progresses. Introducing disincentives for problematic plastic formats is essential to drive better design choices—a sign of a more advanced EPR system.

   Additionally, eco-modulation of EPR certificate prices should be implemented, placing greater responsibility on PIBOs that introduce plastics that are difficult to collect, transport, or recycle.

3. Some fundamental changes should be made to the centralized EPR portal to ensure that it maintains qualitative as well as quantitative data. This will help policy/ decision-makers take swift action based on the data and evidence captured in the portal

   For instance, reports from Gujarat, Maharashtra, and Karnataka indicate that some Plastic Waste Processors (PWPs) have inflated their processing quantities beyond their declared

and verified capacities. Such practices bring into question the accountability and sustainability of the EPR system. The graphics further highlight numerous inconsistencies and discrepancies across various states, pointing to a pressing need for robust oversight and transparent operations within these facilities.

a. The EPR guidance document mandates that processors produce certificates within the registered production capacities, ensuring the types and quantities of products manufactured align with their approved capacities. To address current discrepancies noted on the EPR portal, the number of certificates generated should strictly match or be less than the processing capacity assigned to each PWP following a physical verification by the State Pollution Control Boards (SPCBs), maintaining system integrity and accountability.

b. Cement co-processing units across all 15 states are handling quantities that exceed their declared and verified capacities. The EPR portal guidance document clearly specifies that cumulative plastic waste processed must remain within the registered processing capacity. These discrepancies should be reviewed, corrected, and addressed with strict action to ensure compliance.

c. The EPR guidelines and portal currently permits recyclable plastics to be directed toward end-of-life (EoL) disposal methods, which is both unnecessary and counterproductive, as rigid plastics (Category I) typically have equal collection and generation factors, meaning they are consistently collected. Therefore, EPR guidelines and the portal should restrict Category I (rigid) plastics from being sent for EoL disposal processing. This restriction should apply to both new EoL processors registering on the platform and any existing registered processors, who should be prevented from disposing of recyclable plastics through EoL facilities.

d. Risk-based audits should be conducted by state and central authorities, such as SPCB/PCC and CPCB. By analyzing data from the centralized portal, they can prioritize inspections and audits for PWPs or PIBOs (beginning in April 2025) who report certificate claims exceeding a defined threshold.

4. The EPR portal currently lacks records for any Poly Vinyl Chloride (PVC) recycling facilities, suggesting that PVC waste may be processed informally in facilities without necessary permits, such as consent to establish or operate. This lack of formal documentation is particularly concerning given the chloride content in PVC, which disqualifies it from incineration options like waste-to-energy or co-processing plants due to potential environmental hazards.

   PVC plastics are commonly used in packaging, and recent announcements in India's 2024 budget indicate plans to increase PVC production. This makes it crucial to closely monitor PVC recycling operations to better understand the flow of PVC waste in the recycling market and the types of products manufactured from recycled PVC. Proper oversight is essential to ensure environmentally safe recycling practices and efficient waste management for PVC materials.

5. Only 34% of the total registered PWPs—comprising 756 plastic waste recyclers and 96 end-of-life (EoL) processors out of 2,492 registered PWPs—have generated and traded their EPR certificates with PIBOs. Of the 18.27 million certificates generated, only 8.49 million (46%) stem from mechanical recycling, while another 9.3 million are from EoL processing techniques. This suggests that a substantial portion of registered recyclers and EoL processors are not producing certificates, likely due to either insufficient material for processing or unfamiliarity with the portal.

To address these gaps, it is essential to conduct parallel inspections of these facilities to identify operational challenges and verify their functionality. This approach can help reduce the number of non-operational PWPs, support onboarding efforts, and facilitate a more reliable certificate trading system among genuinely active and informed PWPs.

6. Third-party audits of processors that have issued certificates should be prioritized, with any improperly generated certificates nullified. This measure will promote the availability of legitimate certificates held by processors, which can then be traded with PIBOs at fair, mutually agreed-upon rates, consistent with the floor prices suggested by the CPCB. Regulators must drive the EPR cost regulation process by ensuring that only genuine certificates are available in the market, which would help maintain their value and prevent processors from selling them at discounted rates. Additionally, PIBOs may be more inclined to invest in R&D for re-use systems and increased recycled content if they see a strong economic incentive in doing so.

REFERENCES

1. Ministry of Environment Forest Climate Change, Plastic Waste Management Rules, 2016, 18th March 2016, as accessed at https://eprplastic.cpcb.gov.in/plastic/downloads/Plastic_Waste_Management_Rules_March_2016.pdf on 15th August 2024

2. Ministry of Environment Forest Climate Change, Uniform Framework for Extended Producers Responsibility, June 2020, as accessed at https://www.igtrahd.com/NewsEvents/264/Final-Uniform-Framework-on-EPR-June2020-for-comments.pdf on 15th August 2024

3. Ministry of Environment Forest Climate Change, Extended Producer Responsibility Guidelines (Schedule II), 16 th February 2022, as accessed at https://eprplastic.cpcb.gov.in/plastic/downloads/4th%20Amendment%20(EPR%20guidelines)%20Feb%202022.pdf on 18 th August 2024

4. Ministry of Environment Forest Climate Change, Centralized Extended Producers Responsibility Portal for Plastic Packaging, Central Pollution Control Board, 5 th April 2022, as accessed at https://eprplastic.cpcb.gov.in/#/plastic/home/main_dashboard on 20 th July 2024

5. Jaijit Bhattacharya and Manoj Dinne, PVC: Need to quadruple capacity to support India's economic growth to $10 trillion by 2030, 7th March 2024, as accessed at https://government.economictimes.indiatimes.com/blog/pvc-need-to-quadruple-capacity-to-grow-indias-economy-to-10-trillion-economy-by- 2030/108294252#:~:text=India's%20per%2Dcapita%20consumption%20of,and%20China%20(10.3%20kg) on 1st October 2024

6. Ibid

7. Joint Secretary (TRU-1), DOF. No. 334/04/2024- TRU, Ministry of Finance as accessed at https://www.indiabudget.gov.in/doc/cen/dojstru1.pdf on 1 st October 2024

Centre for Science and Environment
41, Tughlakabad Institutional Area, New Delhi 110 062
Phone: 91-11-40616000 Fax: 91-11-29955879
E-mail: cse@cseindia.org Website: www.cseindia.org