

MOVING TOWARDS CIRCULAR ECONOMY

Innovative approaches and digital solutions towards
Circular Economy

Presented by

Dr. Radha Goyal
Deputy Director,
Indian Pollution Control Association

About Us

Established in 2001 as a Non – Government Organization



Enlisted with Central Pollution Control Board for Plastic Waste Management in preparing & executing Extended Producer Responsibility (EPR) action plans for plastic waste management.



IPCA is the member of expert and core committee constituted by MoEFCC, CPCB, Government of NCT of Delhi, Government of Uttarakhand, Government of Jammu and Kashmir and CPCC for plastic waste management.



IPCA is empanelled with Greater Noida Industrial Development Authority (GNIDA) for Decentralized Waste Management system and for management of Bulk Waste Generators in Greater Noida.



Expert member of Joint Committee on Indoor Air Quality Management constituted by MoEFCC and CPCB.



Vision

Sustainable economic development of India in a way that ensures environmental protection.



Mission

To ensure proper recycling of different kinds of waste to produce other useful products

Our Services



Door to Door plastic waste collection



On-site composting of organic waste



E-waste collection and dismantling services



Material Recovery Facilities



CSR projects on Environment Sustainability



EPR for Plastic Waste Management



Plastic Recycling



Academic Research and Publications



Awareness , Training and Capacity Building Programmes for different stakeholders

Key Stakeholders

Our Key Stakeholders

Policy makers,
Regulators &
Municipalities

Households and
commercial
markets

Hospitals

Educational and
research institutes

Hotels,
Restaurants and
banquets

Waste collectors,
scrap dealers &
aggregators

Recyclers and co-
processors



Status of Solid Waste in India

As per CPCB, during **2020-21**, total quantity of solid waste generated in the country is

1.7 Lakh MTD

Delhi NCR generated

10990 MTD

in the year **2021-22** as per the reports published by CPCB
year **2021-22** as per the reports published by CPCB

Solid Waste Generation per capita in India is

119.07 g/day

50655.4 TPD

which is 31.7 % of the total waste generated remains un-accounted.

It is estimated that **88 square kilometer** of precious land to be brought **under waste disposal** through landfilling by 2050.

Environmental and health impacts of waste dumping

- An **inefficient municipal solid waste management** system may create **serious negative environmental** impacts like infectious diseases, land and water pollution, obstruction of drains and loss of biodiversity.
- Improper disposal of municipal solid waste can create unsanitary conditions, and these conditions in turn can lead to pollution of the environment and to outbreaks of vector-borne disease.
- The tasks of solid-waste management present complex technical challenges. They also pose a wide variety of administrative, economic, and social problems that must be managed and solved.



Human health hazard



Water pollution



Threat to animals



Land pollution



Air pollution



Disruption of ecosystem

Key Initiatives of IPCA



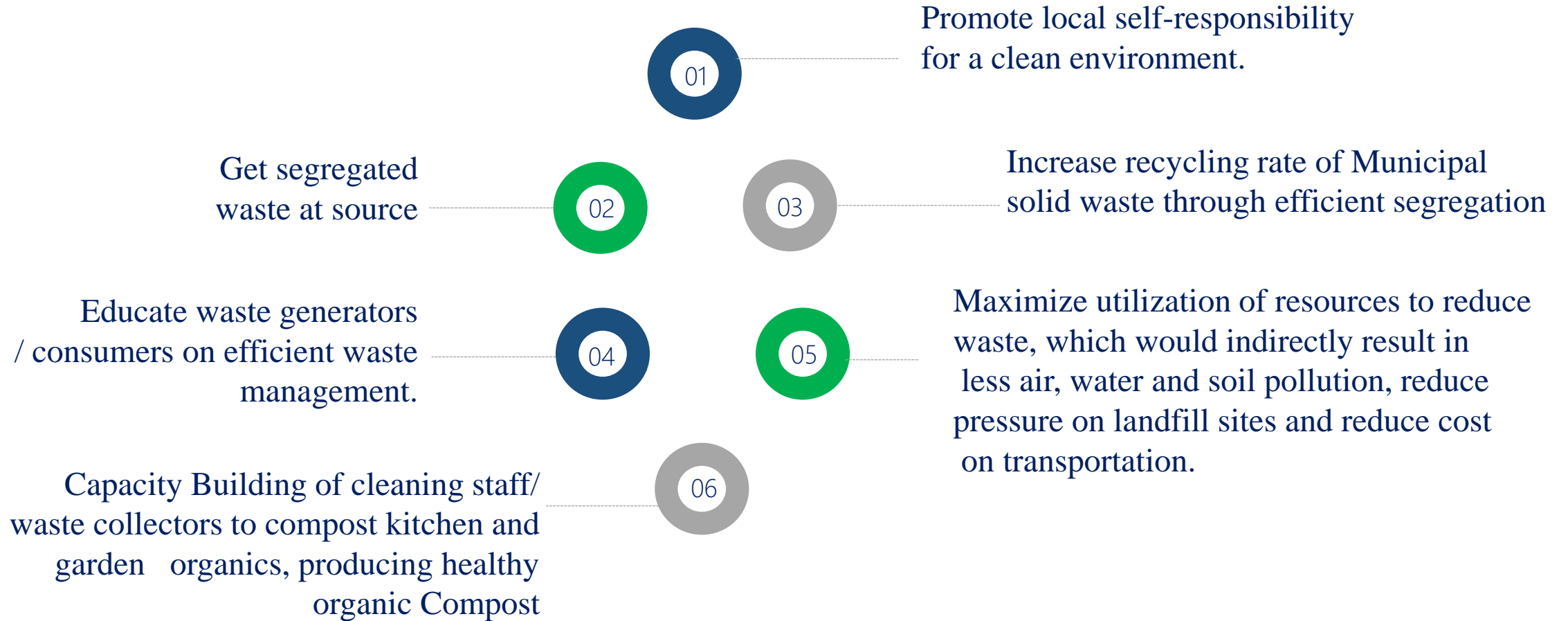
Our Community Engagement Programmes For Decentralized Waste Management

Project S.O.R.T.



The objectives of S.O.R.T. are aligned with the vision and mission of Swachh Bharat Abhiyan, the flagship campaign by Government of India

Objectives





Awareness Workshop for residents



Capacity Building Workshop for Housekeeping staff



Installation of Aerobins



Collection of Segregated Wet Waste

Organic Waste Management Supply Chain



Harvesting of Compost



O& M Activities



Input of Wet Waste



Mixing



Installation Of Aerobin Composters



vivo Y21T
Pradeep Aug 11, 2023, 12:03



Aug 11, 2023 11:33:50 AM
624 Doctor Sushila Naiyar Marg
Indirapuram
Ghaziabad
Meerut Division
Uttar Pradesh



Zero Waste Campaign



- **Zero waste Campaign** is initiated by IPCA with the support of Municipal Corporation of Delhi where we are providing end to end solutions to the Bulk Waste Generators of different zones of MCD.
- This initiative employs a **Decentralized Waste Management approach**, wherein both wet and dry waste are managed effectively. Wet waste undergoes treatment through the installation of innovative Aerobin composters, while dry waste is systematically collected through convenient door-to-door collection methods.
- Expanding the success of this model in East Delhi, the campaign is now extending its reach to North (Keshavpuram zone) and the West Zone of the Municipal Corporation of Delhi.

Components of the campaign



The campaign has adopted two distinctive models: **the Service-based Model and the Purchase Model**

Service Based Model

In the Service-based Model, Resident Welfare Associations (RWAs) procure Aerobins from IPCA and gets into agreement where they pay a certain waste management fee for limited time period.

This inclusive model encompasses not only the provision of Aerobins but also comprehensive Operation and Maintenance (O&M) services. IPCA also collects the dry waste and channelise it for recycling.

Households benefit from awareness enhancement and capacity-building workshops, engaging street plays, and energizing clean-up drives.



Purchase Model

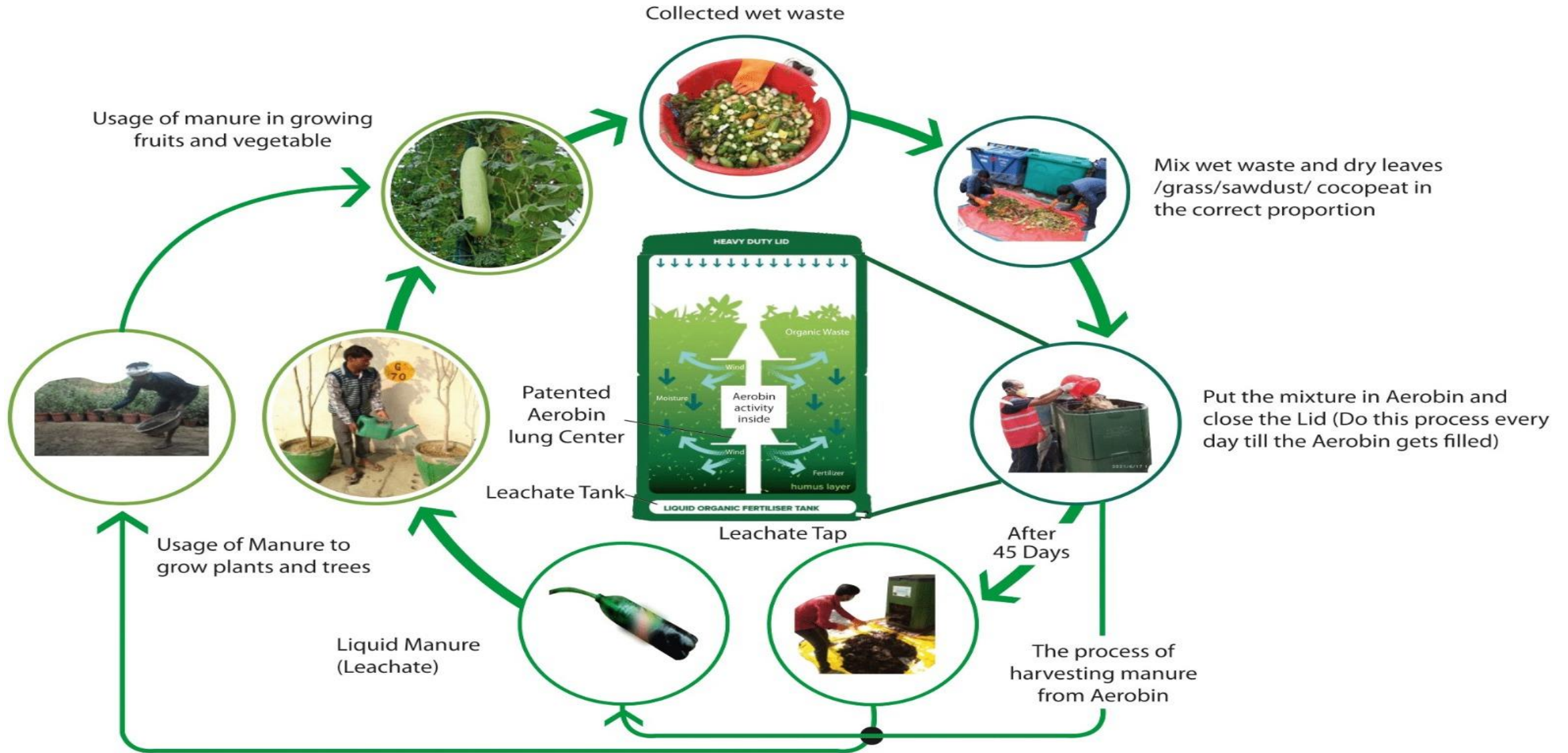
The Purchase Model entails societies directly acquiring Aerobins for wet waste treatment.

For management of Dry waste, it persists through collection, transportation and channelization for recycling.

IPCA employs an array of Information, Education, and Communication strategies to engage a diverse spectrum of societies.



THE PROCESS OF MAKING COMPOST FROM WET WASTE



Impact at a Glance



10000+ maids/
servants

3000+
waste workers

20000+
Residents &
students
participated

Capacity Building

8,80,300 kg

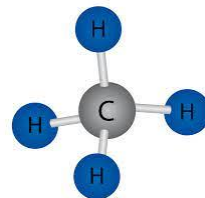
of wet waste treated



Dumping in landfill and has
cut down emission by

4,80,143kg

of CO2 equivalent per year



Reduction in Methane from
Mixed waste Landfilling

15,510kg

1,28,500kg

of total compost harvested





Dy. Commissioner West Zone MCD @dcwestzone · Jul 21
 MCD in association with IPCA has launched the project S.O.R.T. (Segregation of Organic Waste for Recycling & Treatment) today from DAV school at Vikas Puri.

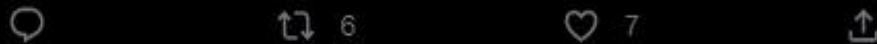
It's a small step toward making zero waste schools/societies.

@MCD_Delhi

@SBM_MCD

#SwachhSurvekshan2023

#SwachhBharat



@control indian

Deputy Commissioner, Shahdara South ... @dcshahso... · Nov 16

MCD, Shahdara South zone is proud to declare 'Maharaja Agrasen College' as a Zero-waste campus. Segregation of waste like paper waste, plastic waste, wet waste and e-waste is done successfully.

@GyaneshBharti1

@SBM_MCD

@MoHUA_India

@vandana_rao

@AshwaniKumar_92

@LtGovDelhi





Dy. Commissioner West Zone MCD @dcwestzone · Aug 13
Inauguration of Compost Pit by Deputy Commissioner, West Zone in Kangra
Apartment, Vikas Puri Ward No. 20-S. @MCD_Delhi @SBM_MCD
@LtGovDelhi @AshwaniKumar_92 @GyaneshBharti1 #saynotoplastic
#SwachhBharat #HarGharTiranga



2 6 11



DC, Shahdara North Zone
@dc_snz_edmc

C ब्लॉक दिलशाद गार्डन को 6 ऐरोबिन की सौगात।
स्वच्छता की ओर कदम बढ़ाते हुए *दिल्ली नगर निगम, शाहदरा
उत्तरी क्षेत्र* ने *C ब्लॉक दिलशाद गार्डन में 2400 लीटर क्षमता के
6 ऐरो बिन स्थापित किए*। ये ऐरो बिन *इंडियन पॉल्युशन कंट्रोल
एसोसिएशन की मदद से* स्थापित किए गए।

Translate Tweet

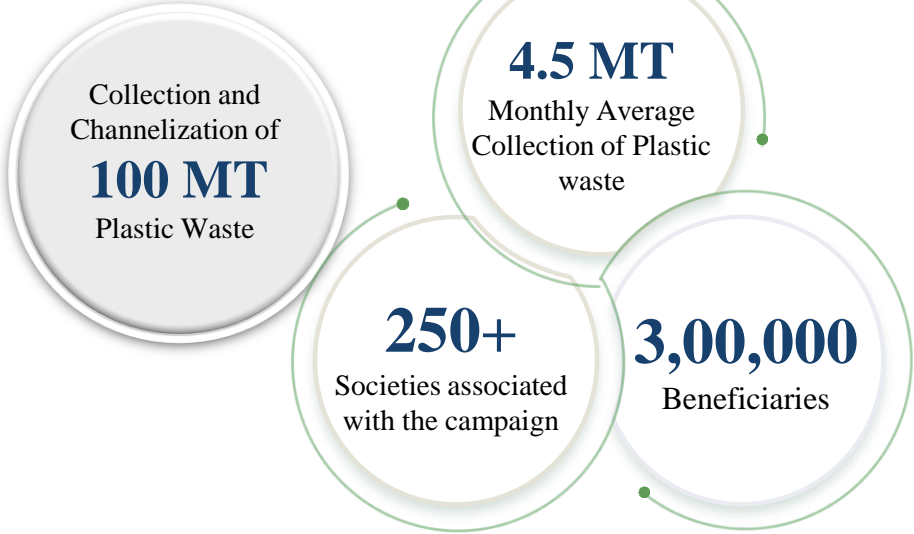


Community Engagement Programmes

My 10 kg Plastic Campaign

The campaigns holistic aim is to educate waste generators on waste segregation and implement decentralised system of Plastic waste management. My 10 kg Plastic Campaign, which promotes Extended Citizen Responsibility, has become the campaign of more than 50000 households in Delhi NCR

Impact



Community Engagement Programmes

Bottles for Change

Bottles for change programme is an initiative by Bisleri International Pvt. Ltd. that aims to create awareness among citizens about importance of Waste Segregation and Plastic Recycling.

Impact



Community Engagement Programmes

D.R.O.P

This project is about bringing **behavioral change** among citizens **about usage of plastic and management of plastic waste** through practicing **Source Segregation & Zero Littering**.

Project D.R.O.P covers 500 **waste generation points** (housing societies, Schools, Colleges & Commercial spaces) in India's 5 major cities i.e. **Gurugram, Vishakhapatnam, Mumbai, Bangalore & Vijayawada** where plastic waste is collected for recycling.



Setting-up Material Recovery Facility (MRF)

- IPCA initiated a plastic waste management project “ **Mantra for Advanced Sustainable Solution**” with an aim to add value to non-commercial low-grade plastic waste along with motivating & educating waste workers to collect and segregate plastic waste efficiently.
- Under the project, we have developed **5 Material Recovery Facilities** in Delhi NCR where dry waste is collected and channelized for further segregation.
- Plastic waste brought to MRF is segregated into categories of plastic like LDPE, HDPE, PP, PET, MLP, PVC, and PS using a conveyer belt.
- After this, the plastic waste goes to our Recycling Facility and other dry waste goes to their respective recyclers



MRFs developed by IPCA

Infrastructure type	Location	Capacity
Material Recovery Facility (MRF)	Geeta Colony, East Delhi	2 TPD
	Patparganj, East Delhi	2 TPD
	New Seemapuri, East Delhi	2 TPD
	Greater Noida	10 TPD
	Ghaziabad	50 TPD

MRF, Geeta Colony



MRF, Patparganj



MRF, New Seemapuri



MRF, Greater Noida



MRF, Ghaziabad



Plastic Recycling Unit

- At our recycling facility, the baled materials undergo a meticulous process. First, they are shredded into smaller plastic pieces, which are then evenly distributed across the processing platform. The amount of shredded plastic is adjusted to meet the specific thickness requirements of the boards, which can range from 6 mm to 24 mm.
- The platform is then covered with a thin sheet of plastic and sent to the hot and cold press machine through scissor lift for about one hour. After this, our chip boards of varying thicknesses but uniform width and height (8 ft x 4 ft) are ready.
- These chip boards are then utilised for the fabrication of different consumer products. The corrugated sheets are also manufactured at the recycling facility with dimensions 3 feet x 8 feet.

Plastic Recycling Facility

S.no	PRF Component	Capacity
1	Consent to recycle or treat plastic wastefrom UP State Pollution Control Board	900 MT per month
2	Installed Capacity of the PRF (two shiftoperation level)	300 MT per month
3	Existing Operational capacity	300MT per month

The technology used in Plastic Recycling Facility (PRF) is indigenous technology and the PRF is one of first kind of plant in North India.



Extended Producer Responsibility

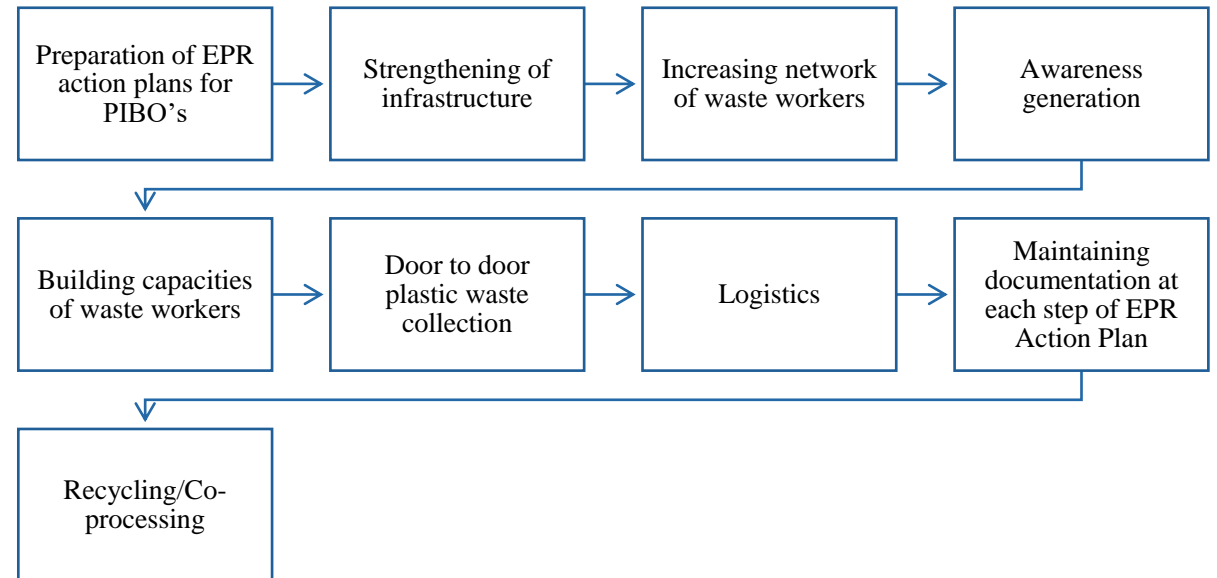
IPCA is one of the pioneer organization for implementing the EPR action plan in India where we developed an efficient supply chain for Plastic Waste management to comply with the PWM Rules, 2016m as amended time to time.



Methodology adopted to implement EPR

Collect Back Mechanism

This mechanism goes from consumer to recyclers/co-processors covering the whole supply chain of Plastic Waste.





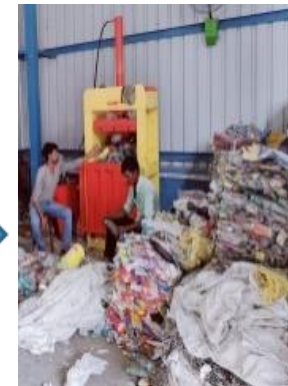
Collection from Plastic Waste Collection Bin



Transportation to MRF



Segregation of waste at MRF

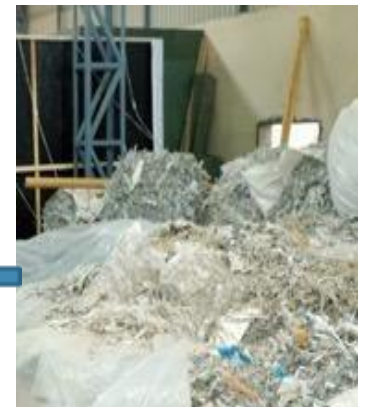


Baling at MRF

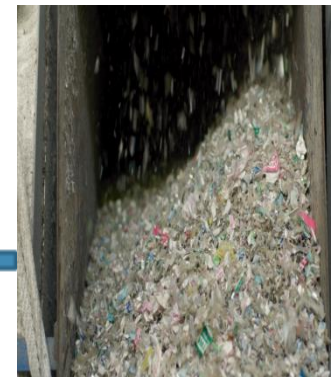


Transportation of baled material to recycling facility

Plastic Waste Management Supply Chain



Unloading of waste at recycling facility



Shredding of waste



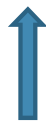
Pre-preparation of plastic board



Board preparation by hot and cold press



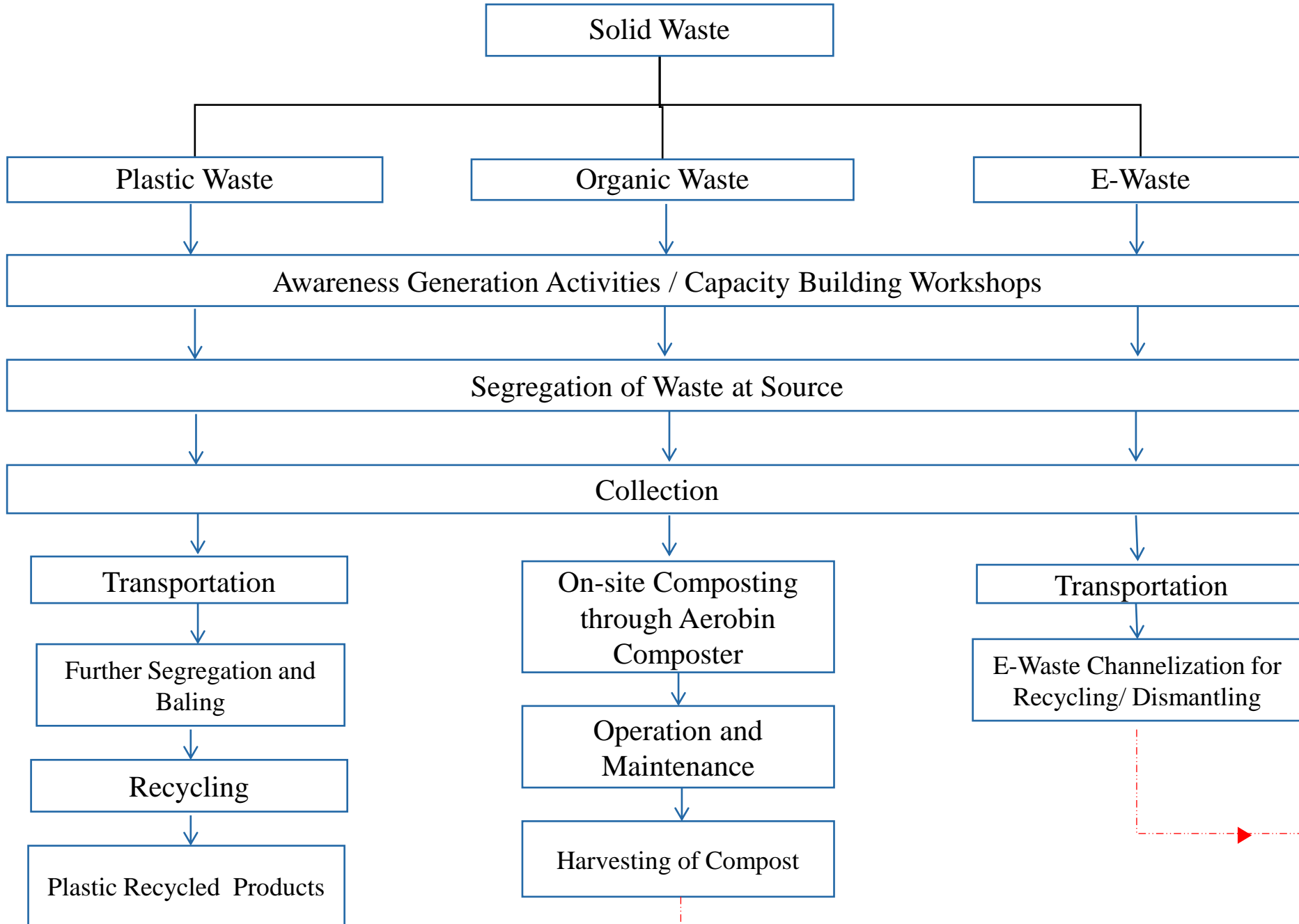
Finished products to be used by consumers



Our Recycled Products



Waste Generators



Thank You!

