

# SUSTAINABLE SUPPLY CHAIN OF PLASTIC WASTE



**CIRCULAR ECONOMY**  
saving resources, creating jobs

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## About IPCA

- IPCA established in year 2001 after campus recycling project experience at IIT Delhi from 1998-2001 and enlisted with CPCB at national level.
- IPCA started their journey with MSW collection, segregation and recycling project for Corporate, and subsequently for residential colonies, townships, educational institutions, hotels, and industries and developed supply chain for various waste commodities.
- IPCA has played a significant role in organizing the rag pickers of Delhi NCR from informal to formal sector and creating a network of recyclers at PAN India.
- IPCA is also managing the industrial waste in eco-friendly manner using its own R&D equipment's and techniques.
- IPCA's activities and approach are leading towards attaining the sustainability in waste management sector.

## *What is Plastic?*

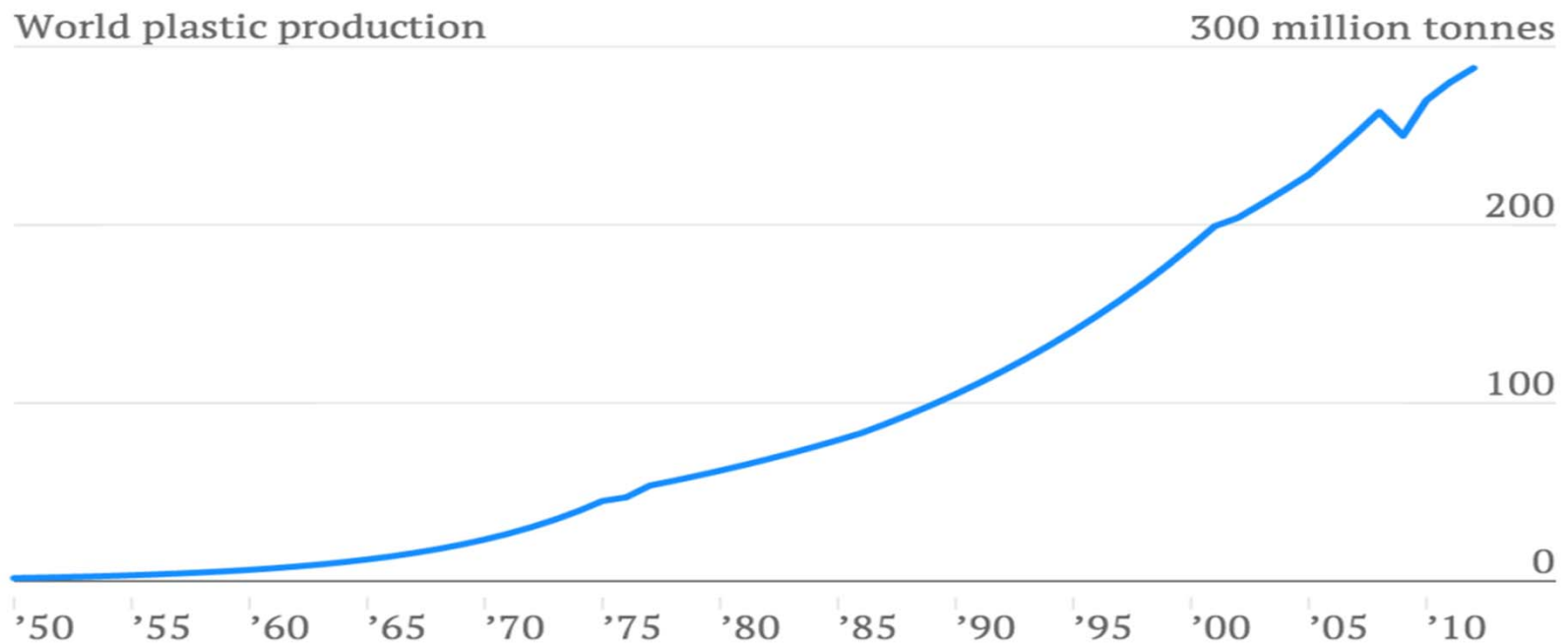
Plastic is a “synthetic or semi synthetic material, which contains an essential ingredient a high polymer such as polyethylene terephthalate, high density polyethylene, Vinyl (PVC), low density polyethylene, polypropylene, polystyrene resins, multi-materials like acrylonitrile butadiene styrene (ABS), polyphenylene oxide (PPO), polycarbonate (PC), Polybutylene terephthalate (PBT) and which at some stage in its processing into finished products can be shaped by flow”.

## *Advantage of Plastics*

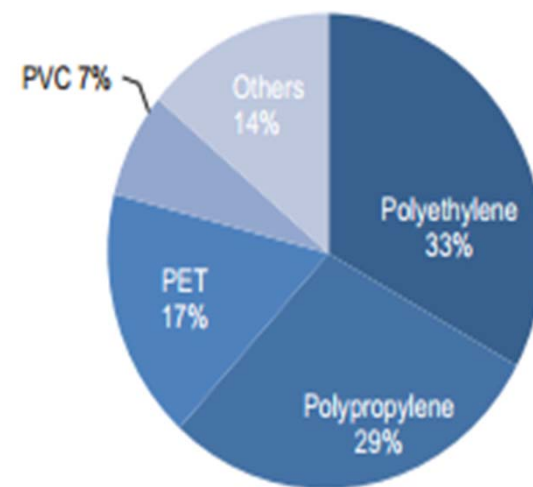
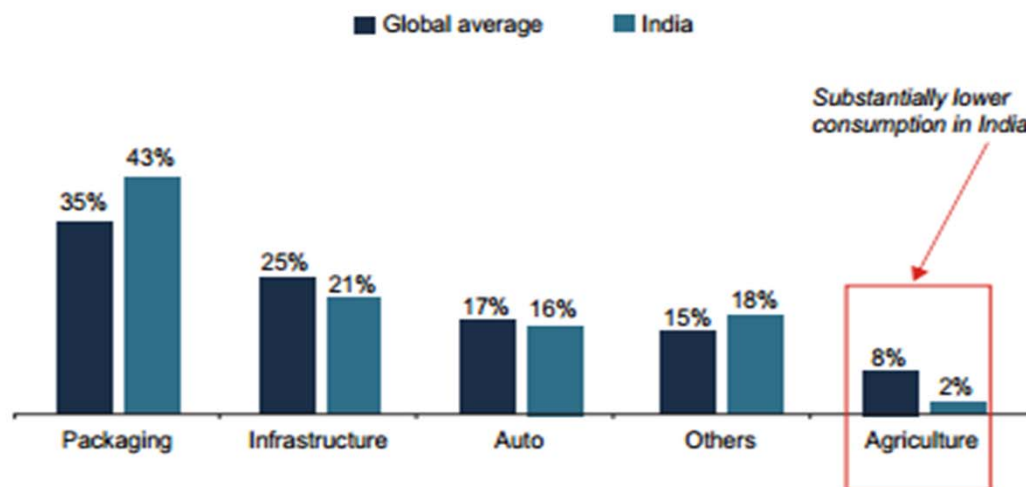
- ❑ Excellent Durability
- ❑ Resistance to chemical and water
- ❑ Lighter in weight than competing material
- ❑ Corrosion resistance
- ❑ Hygienic in packaging food material
- ❑ Low electrical and thermal conductivity, insulator
- ❑ Easily formed into complex shapes, can be formed, casted and joined.
- ❑ Wide choice of appearance, colors and transparencies
- ❑ Relatively inexpensive to produce



## *Facts and Statistics on Plastic*



## Facts and Statistics on Plastic



Polymer utilization in 2013 and plastics in flexible packaging (% share)

## *Facts and Statistics on Plastic*

- ❑ Somewhere between 500 billion and a trillion plastic bags are consumed worldwide each year.
- ❑ Plastic production is consuming 8% of the world's oil production with 4% as feedstock and 4% during manufacture.
- ❑ Once plastic is produced it takes 400-1 000 years to decay.
- ❑ its non-biodegradable nature and non-disintegrating properties by natural action of bacteria, enzymes or other biologically and naturally occurring organisms.

## *Facts and Statistics on Plastic*

- During the year 2010- 11, the total quantum of plastic waste generated in the country is estimated to be about 15,342 MT per day. Out of the total plastic waste generated daily in the country only 60% (9250MT) is collected and recycled and the remaining 40% (6137MT) remains uncollected
- Uncollected plastics, which are hardly recycled (less than 1%) and find their way either into drains and choke them or get dredged in the soil and make the land infertile; or into rivers, open lands, parks, railway tracks and coasts

## *Plastic Waste in India*

Estimated Quantity of Plastic Waste Generated	15,300 MT Per Day (9% of Total MSW)
Per Capita Plastic Waste Generation	6 kg per capita per year
Plastic Collection and Recycling Rate	60% (India Leads in the world)
Recyclable Plastic composition in waste	80% (LDPE, PET, PVC, HDPE, PP, PS)
Non-Recyclable Plastic Composition in waste	20% (Alkyds, Epoxy, Non Recyclable Ester, Melamine formaldehyde, Polyurethane, Urea formaldehyde, Phenol formaldehyde, Silicons)
Cause of threat	<ul style="list-style-type: none"> <li>➤ Non-biodegradable in nature</li> <li>➤ Non segregation</li> <li>➤ Littering, burning and dumping at Landfill</li> </ul>





















## *Challenges in Plastic Waste Management*

- ❑ People attitude toward waste management (social behaviour)
- ❑ Lack of Source Segregation of waste
- ❑ In-efficient door-to-door collection system of waste
- ❑ Lack of knowledge on recycling properties of the waste commodities
- ❑ Lack of infrastructure for recycling and processing of plastic waste
- ❑ High logistic cost involved in collection, storage and transportation of light weight waste.
- ❑ High rate of contaminations on post consumed plastic waste, which again add more cost for the recyclers.

## *Promising Approach*

- ❑ Mass awareness on source segregation and zero littering of waste.
- ❑ There is a dire need for 100 % plastic waste collection system.
- ❑ Involved waste collectors and rag-pickers to segregate different grade of plastic and organize training and capacity building program for them.
- ❑ Develop dry waste collection centre at ward level, which will be equipped with hydraulic baler to reduce logistic cost.
- ❑ Supply quality and segregated waste material to the respective recycling industries.
- ❑ Connect more industries for the recycling or processing of plastic waste.

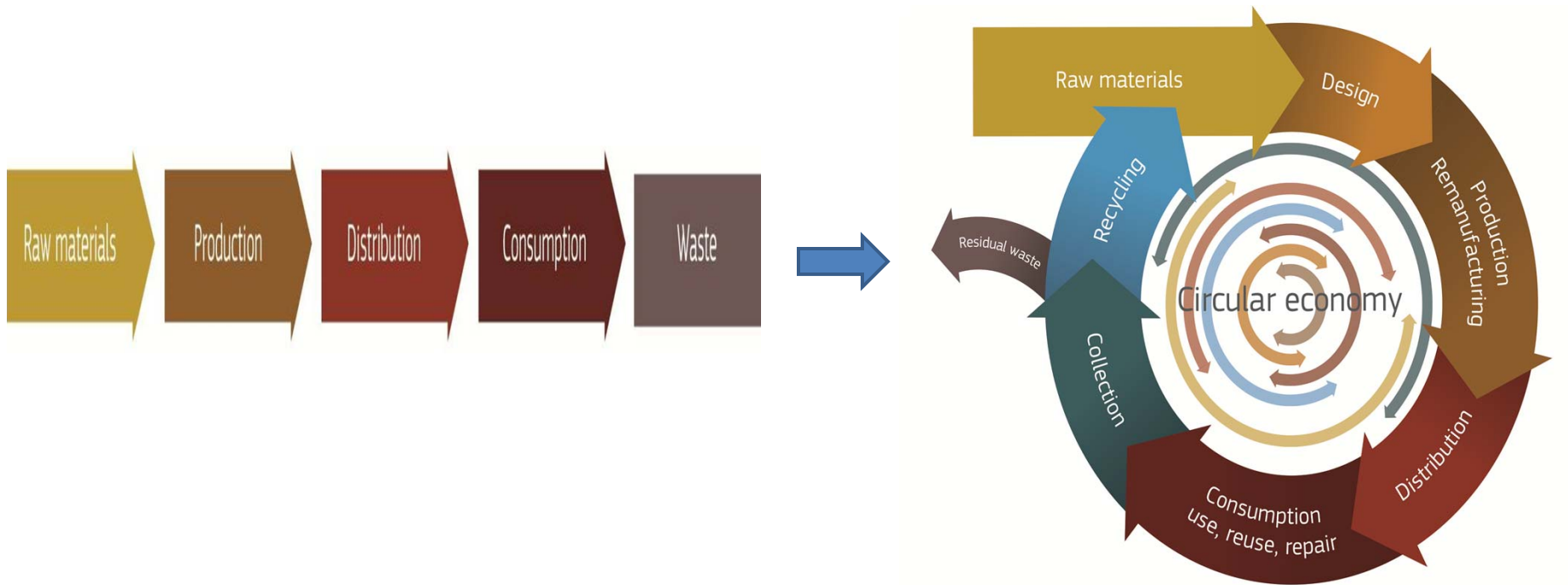




## *Over 1 million people in India engaged in waste collection*



## *From a linear economy ... to a circular economy*



## *IPCA strategy for Circular Economy*

- Identify the stakeholders and develop and define their roles and responsibilities, keep evolving the processes which enable the same.
- Involve, institutionalize the local rag pickers and link them to social security measures, giving them equal dignity and respect among the society and relieve them from the title of waste scavengers.
- Segregate, collect, transfer, re-segregate, using the principles of reduce, reuse, recycle and reprocess the remains which cannot be recycled and have to go to landfills. The aim is to reduce the landfills and increase recycling rate.
- Ensure that the segregated waste commodities reach to right recycling industries and the waste picker get the maximum value of its efforts.

## SUPPLY CHAIN OF WASTE MANAGEMENT







**IPCA launched WE CARE Project on 28<sup>th</sup> November 2017**



**With the Consortium Partners'**



**With the Supporting Partners'**





INDIA'S **1<sup>ST</sup>** JOINT EPR INITIATIVE

WASTE

CONSORTIUM PARTNERS

SUPPORTING



**WE CARE**

Waste Efficient Collection and Recycling

Implemented by:



**Launch of WE CARE**





## OBJECTIVES

- ❑ To bring like minded and environment conscious brand to a common platform to strengthen the collection and processing of plastic waste
- ❑ To comply with PWM Rules 2016, which is recently amended with few amendment and now it is PWM (Amendment) Rules 2018
- ❑ To develop collect back mechanism of post consumed plastic waste
- ❑ To demonstrate plastic is recyclable and energy recoverable
- ❑ To develop a sustainable supply chain for the handling and processing of post consumer Plastic waste.
- ❑ To build up a network for waste pickers/waste dealers / traders / aggregators for collection and segregation of post consumed Plastic Waste.
- ❑ To encourage people to participate in source segregation of waste for betterment of our environment.
- ❑ Improving the sanitary condition of India through efficient waste management approach.



**Workshop with Waste Collectors/Segregators/  
Waste dealers etc.**





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**Networking with Rag-Picker's Communities**





**Networking with Rag-Picker's Communities**



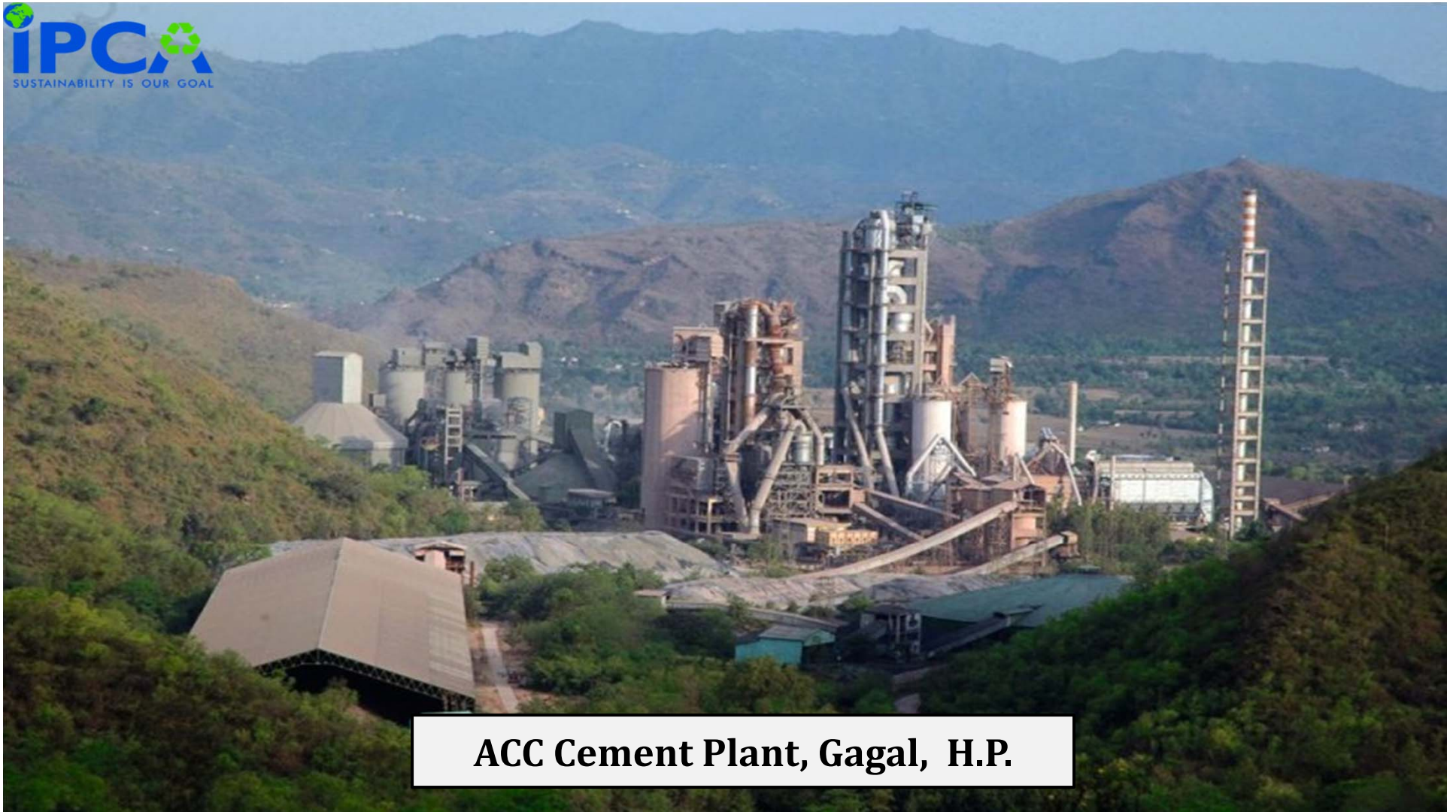
## *Set Up Dry Waste Collection Centre*





**Waste to Energy Plant Ghazipur**





**ACC Cement Plant, Gagal, H.P.**

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# Thank you

**Ashish Jain, Director**  
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