

# **Closing the Loop**

## **Asia-Pacific Day for the Ocean**

# **Reducing Plastics Pollution in India**



*Indian Centre for Plastics in the Environment (ICPE)*

20<sup>th</sup>, November 2018, Bangkok



## *Country Profile - India*

- Second most populous country (1.35Billion)
- Area ~3.0 million sq.km (8<sup>th</sup>, in the world)
- GDP at current prices ~USD 2.7 trillion
- Use of virgin plastic ~ 14 million tons
- Per capita virgin plastics ~10 kg (World average 46kgs).
- ~ 60% of plastics (~80% of PET bottles) recycled.

# *Solution to Plastics Pollution*



**Pursuit of**

**Sustainability**

**focus on**

**Circular Economy**

# *Sustainable Development - Definition*



“ development which meets the needs of the present without compromising the ability of future generations to meet their own needs.”

... Brundtland Report

# *Circular Economy - Definition*



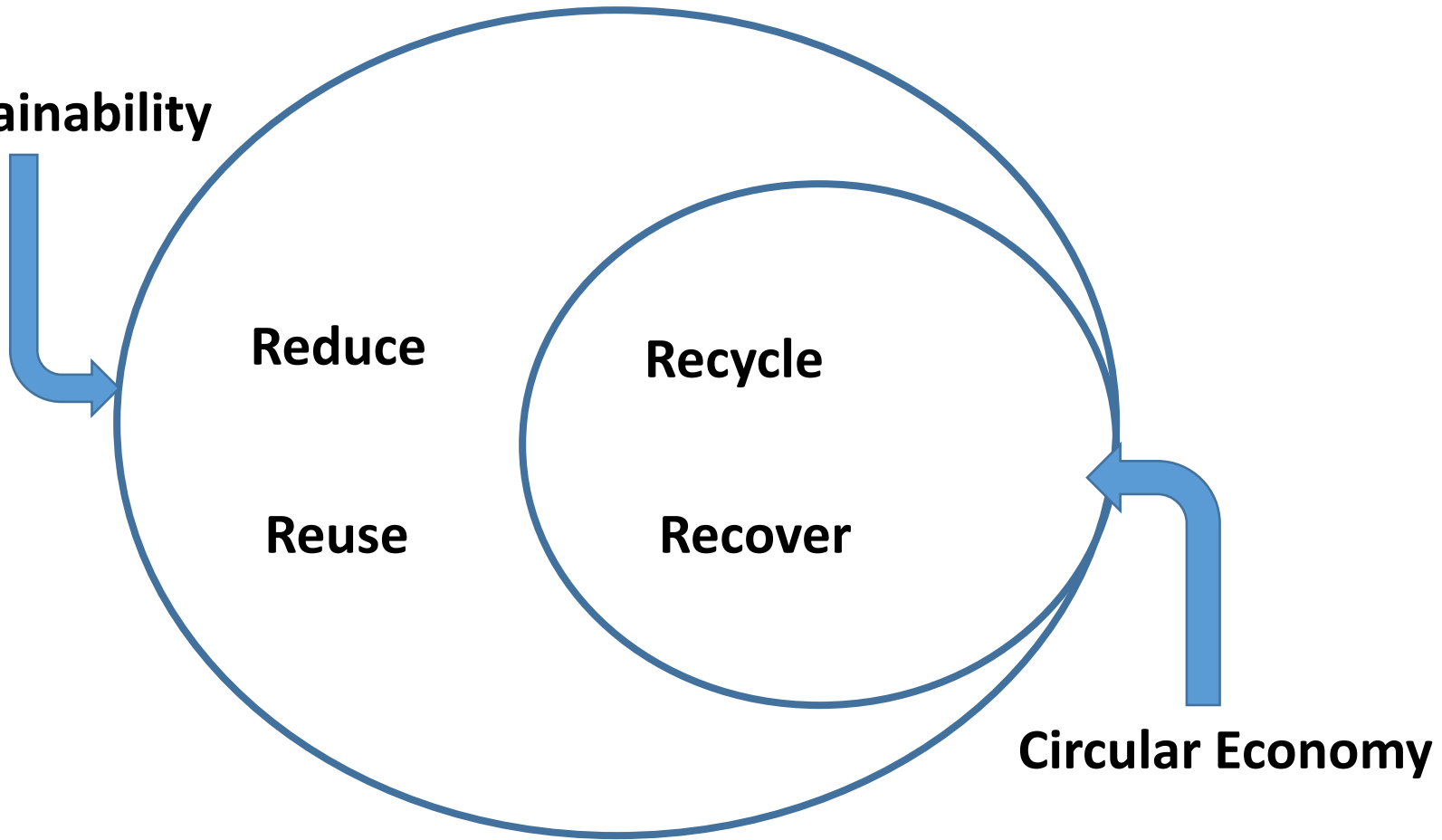
“ Framework for an economy that is  
**restorative** and **regenerative** in design.”

... Ellen Macarthur Foundation

# *Sustainability & Circular Economy*



**Sustainability**

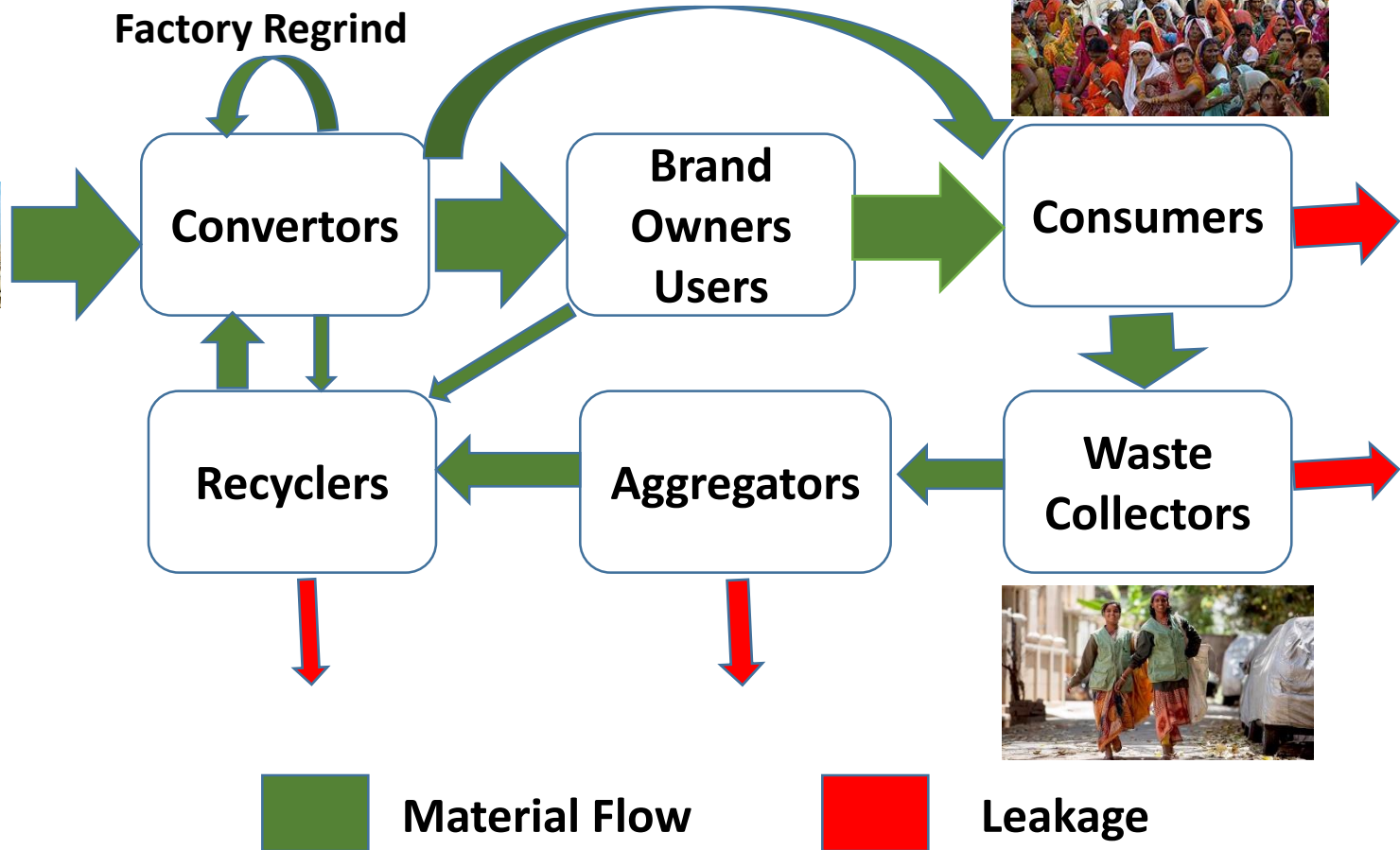


**Circular Economy**

# Circularity in Indian plastic industry



Factory Regrind





## *Material Recycling Rates - Global*

<b>Materials</b>	<b>Rates</b>
Iron & Steel	70-90%
Paper	50- 60%
Plastics	10-15%

## *Energy Savings in Recycling*

<b>Materials</b>	<b>Recycling Temperatures</b>
Aluminum	~ 660 °C
Steel	~ 1500 °C
Glass	~ 1400 °C
Plastics	~ 200 – 250 °C



# Recycling & Recovery Options - Plastics



Plastic Waste

## Mechanical Recycling

- Different plastic products

## Chemical / Feed-stock Recycling

- Conversion to monomers
- Pyrolysis - hydrocarbons

## Energy / Material Recovery

- Incineration / Recover Energy
- Generating Electricity
- In cement kilns / blast furnaces
- Building Roads

# *India : Pioneer in waste plastics for bituminous road*



***ASPHALT PLANT OF BMC, WORLI, MUMBAI***

**Prof. V S AGHASE ROAD DADAR, MUMBAI**



# *Addressing Plastic Pollution in India*

- **Cleaning India Movement (Swach Bharat Abhiyan)**
- **Regulatory Initiatives (Designing & Implementation of EPR)**
- **Formalizing informal waste management sector**
  - SwaCH (KKPKP), Pune
  - Indian Pollution Control Association, Delhi
  - Stree Mukti Sanghathan, Mumbai
  - Saahas Zero Waste, Bangalore
  - NEPRA, Ahmedabad
- **Appropriate technology to manage difficult to recycle waste**
  - Building Roads
  - Co-processing in Cement Kilns

# *Regulatory Landscape - India*



- **Plastic Waste Management Rules 2016, issued on 18<sup>th</sup>, March'16 amended on 27<sup>th</sup>, March'18**
  - Local bodies to channelize recyclable plastic waste to registered plastic waste recyclers
  - Local bodies to create infrastructure for collection, segregation, storage, procurement, processing, transportation and disposal of plastic waste
  - Waste generator to minimize generation of waste and segregate at source.
  - Thickness of permissible plastic bags increased.
  - Concept of EPR introduced for brand owners.
- **India pledged to abolish all “Single-Use” plastics by 2022**



## *Regulatory Landscape – India (Contd..)*

- **State of Maharashtra issued notification “Maharashtra Plastic & Thermocol Products (Manufacture, Usage, Sale, Transport, Handling & Storage) notification 2018”**
  - Prohibits use of few plastic products (plastic bags, cutleries, certain EPS products, disposable food containers..)
- **State of Uttar Pradesh bans plastic bags, disposable cutleries & select EPS products in phases from July’18.**
- **Bihar, Odisha, Tamil Nadu proposing / implementing ban on few plastic products perceived to be problematic.**
  - The list varies from state to state but Plastic carry bags are included in all these initiatives
- **Few other states had earlier restricted the use or banned plastic carry bags in past.**

# *Conclusions*



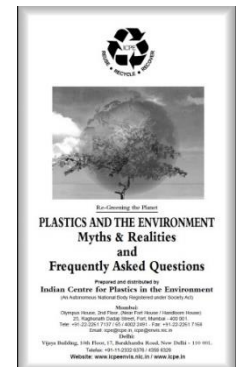
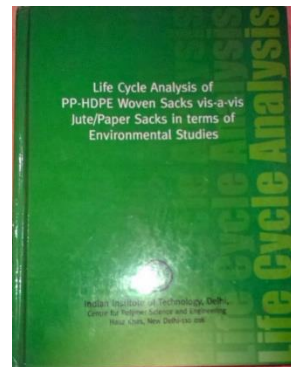
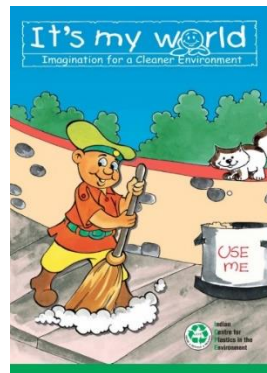
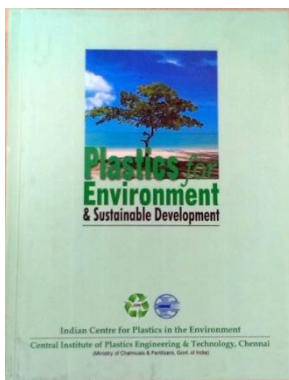
- Enhancing circularity imperative to fight against pollution.
- Compared to alternatives, plastics are relatively new (50-70 years vis-à-vis thousands of years for metal, glass and paper).
- Societies are on learning curve in their usages, handling & disposal.
- Plastics typically have lower material, energy and water footprints.
- Advanced economies have derived the benefits with better waste management policies & practices.
- Eliminating use of few plastic products may not achieve desired results.

# Indian Center for Plastics in the Environment



- Established in Jan'99 on recommendation of task-force constituted by Ministry of Environment, Forest and Climate Change, Govt. of India
- Non-profit organization supported by the industry.
- Involved in providing technical inputs to policy makers, regulators and industry.
- Support development of technology (Use of plastic waste road construction, co-processing in cement kilns, pyrolysis to liquid and gaseous energy products)

[www.icpe.in](http://www.icpe.in) , [www.icpe.co.in](http://www.icpe.co.in) , [www.icpeawareness.in](http://www.icpeawareness.in) , [www.icpeconference.com](http://www.icpeconference.com)



**Thank You**

