PLASTICS : A BOON Or A BANE

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SUSTAINABLE DEVELOPMENT GOALS: BEATING PLASTICS POLLUTION

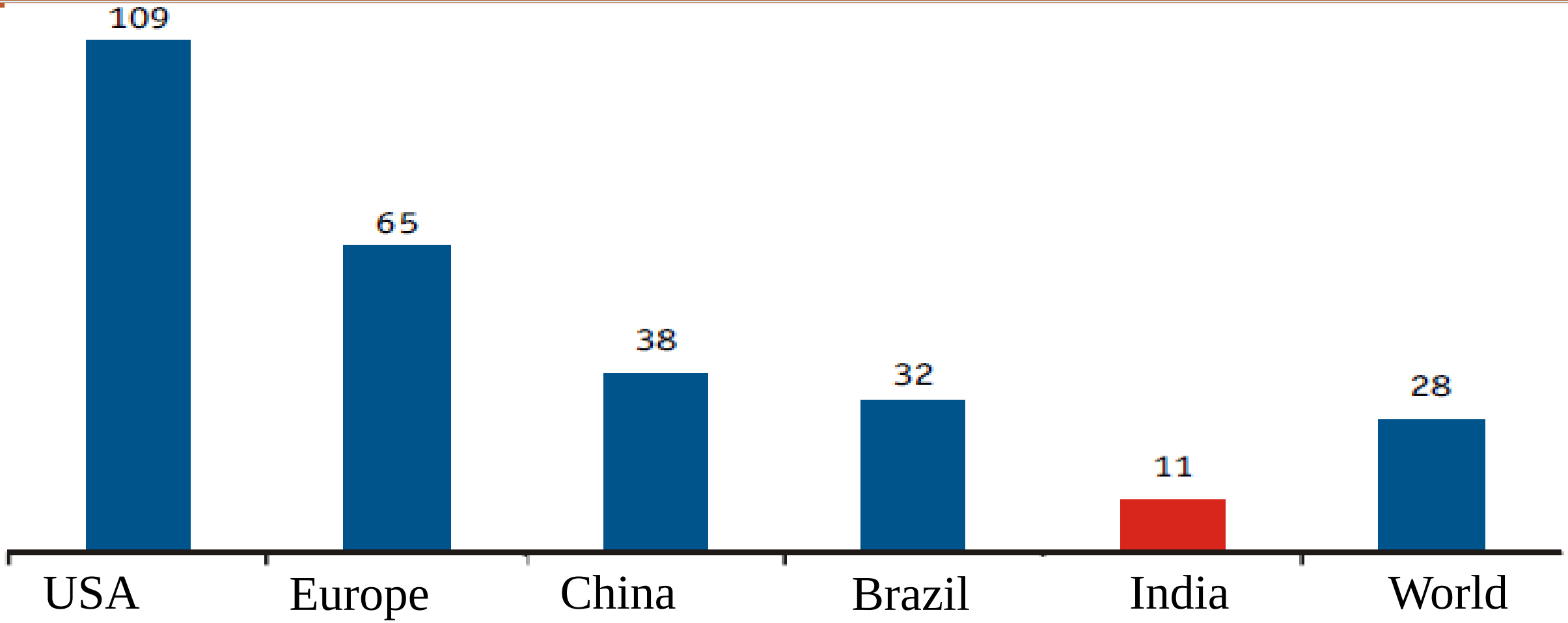
JUNE 8, 2018, IIC, NEW DELHI

Global Facts

- Global plastics consumption is ~200 million tons; 5% CAGR.
- At least 267 different marine species known to have suffered

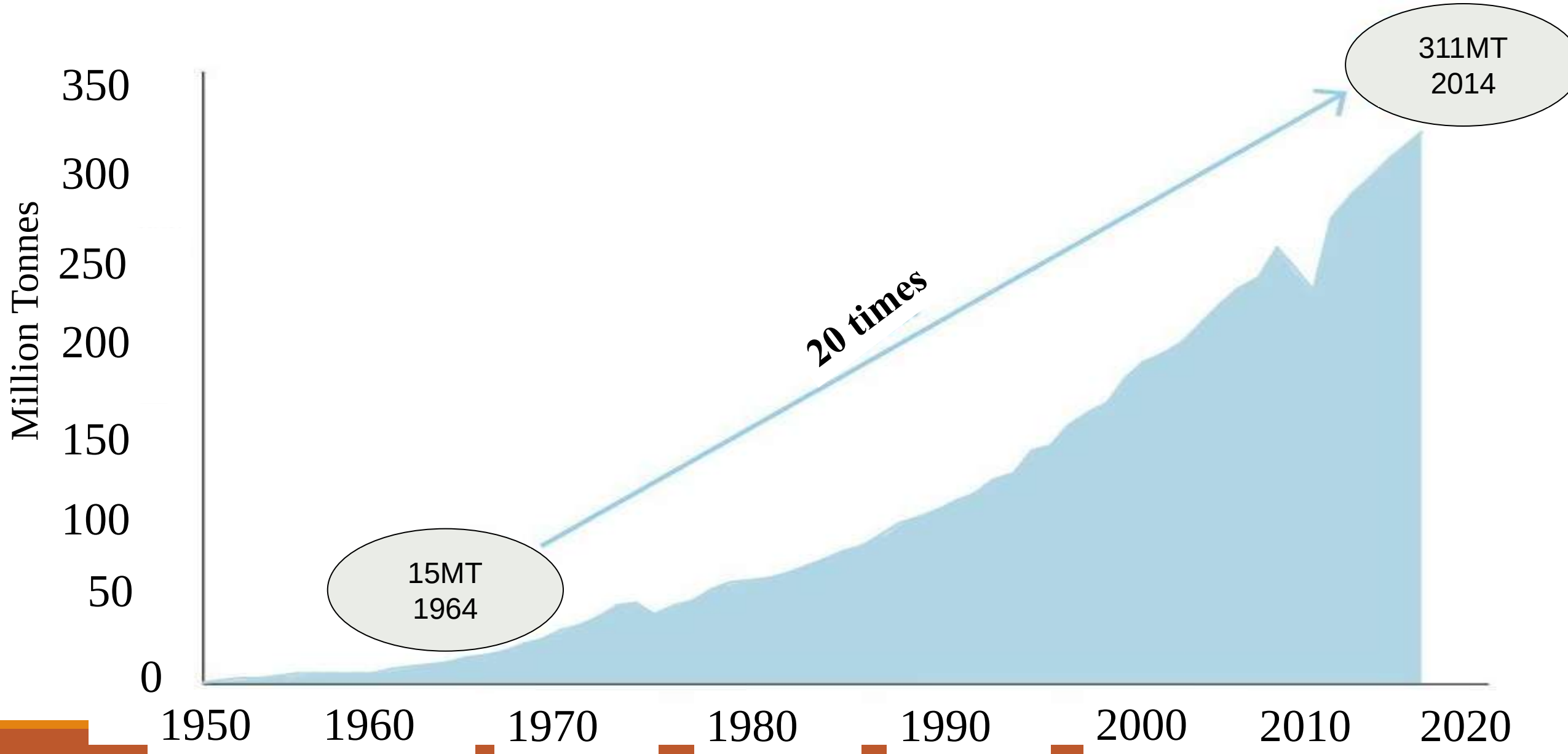
  from entanglement or ingestion of plastics debris.
- Currently, As low as 10% of the total Plastics is recycled.
- The world average per capita plastics consumption is 26 kg.
- Per capita plastics usage per capita Gross National

Per capita consumption of plastics Products (2017)Kg/person

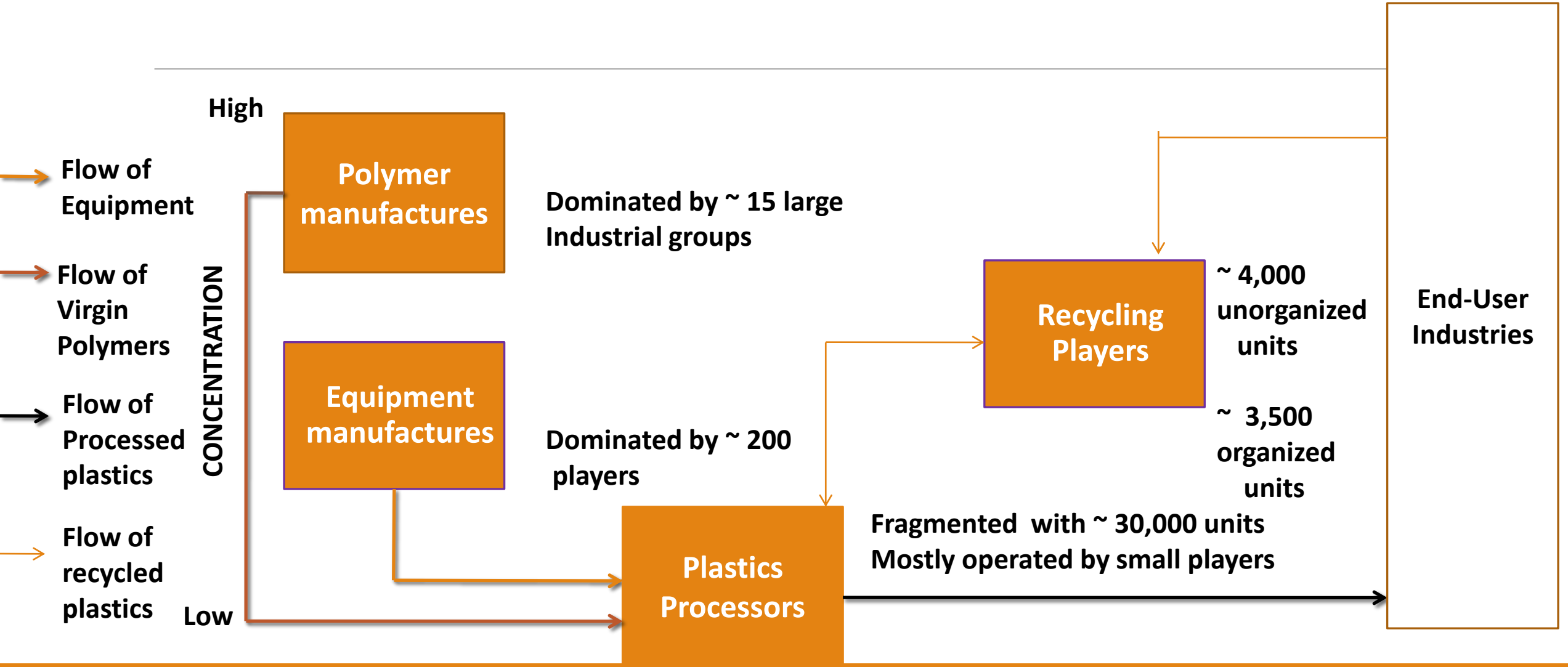


- **The low consumption level indicates an enormous growth potential for the plastics sector in India.**

Growth in Global Plastics Production& Various Modes



Structure of Indian Plastics Industry



Source: CRISIL, Plastindia Foundation, Kanvic, TSMG Analysis

Import-Export Scenario of Plastics (in KT), 2013

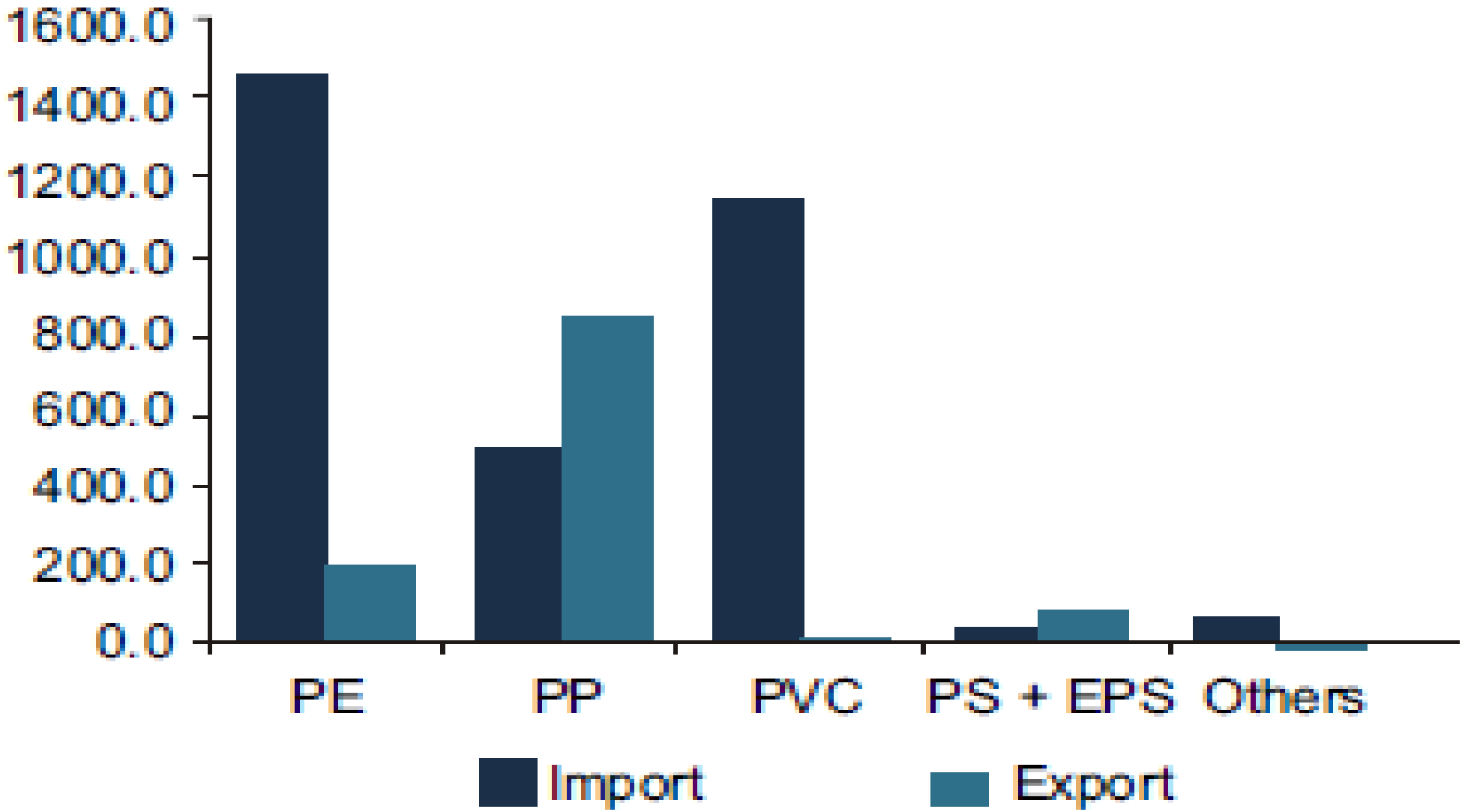
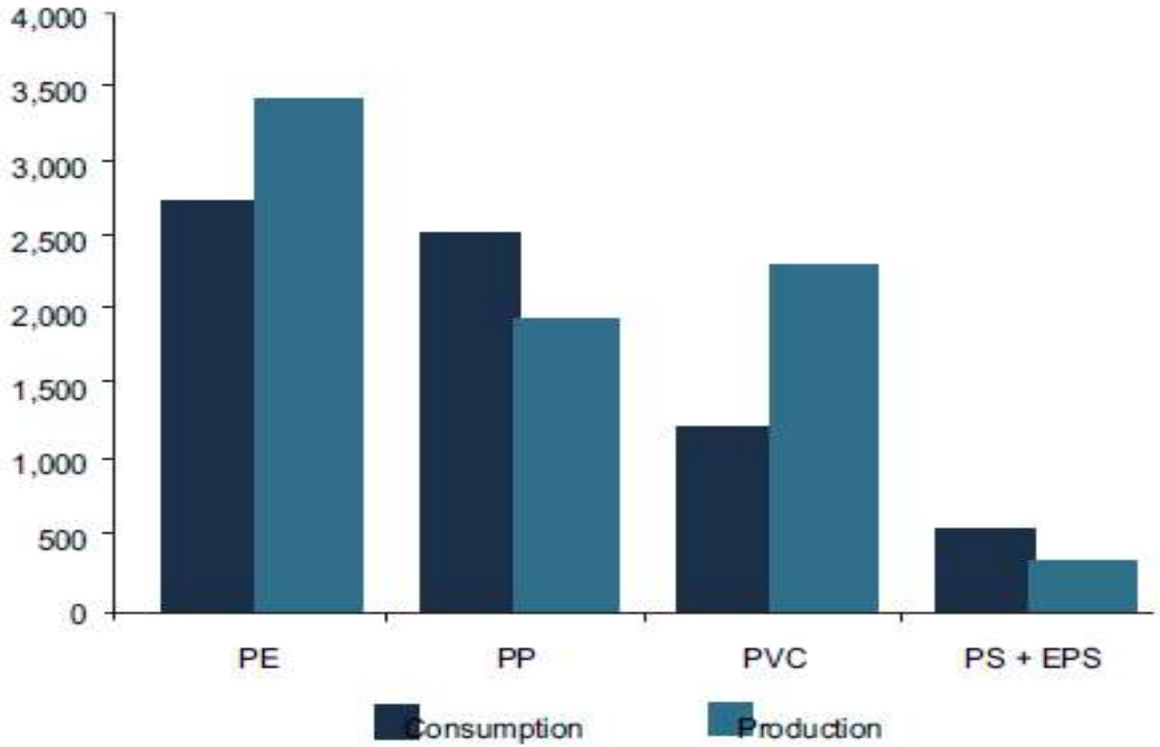


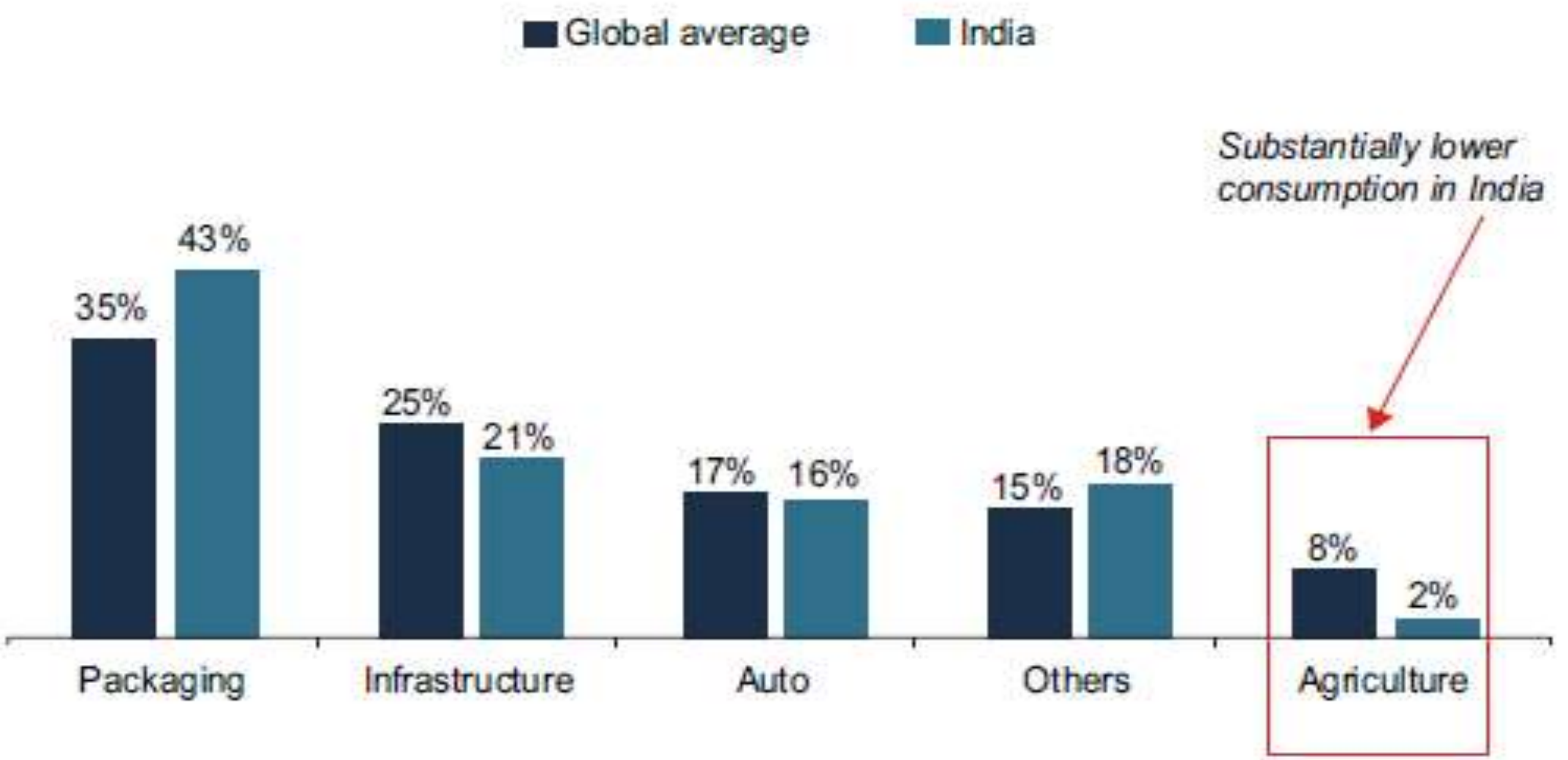
Figure 9: Demand-supply scenario of plastics, Fy13

SLIDE TITLE

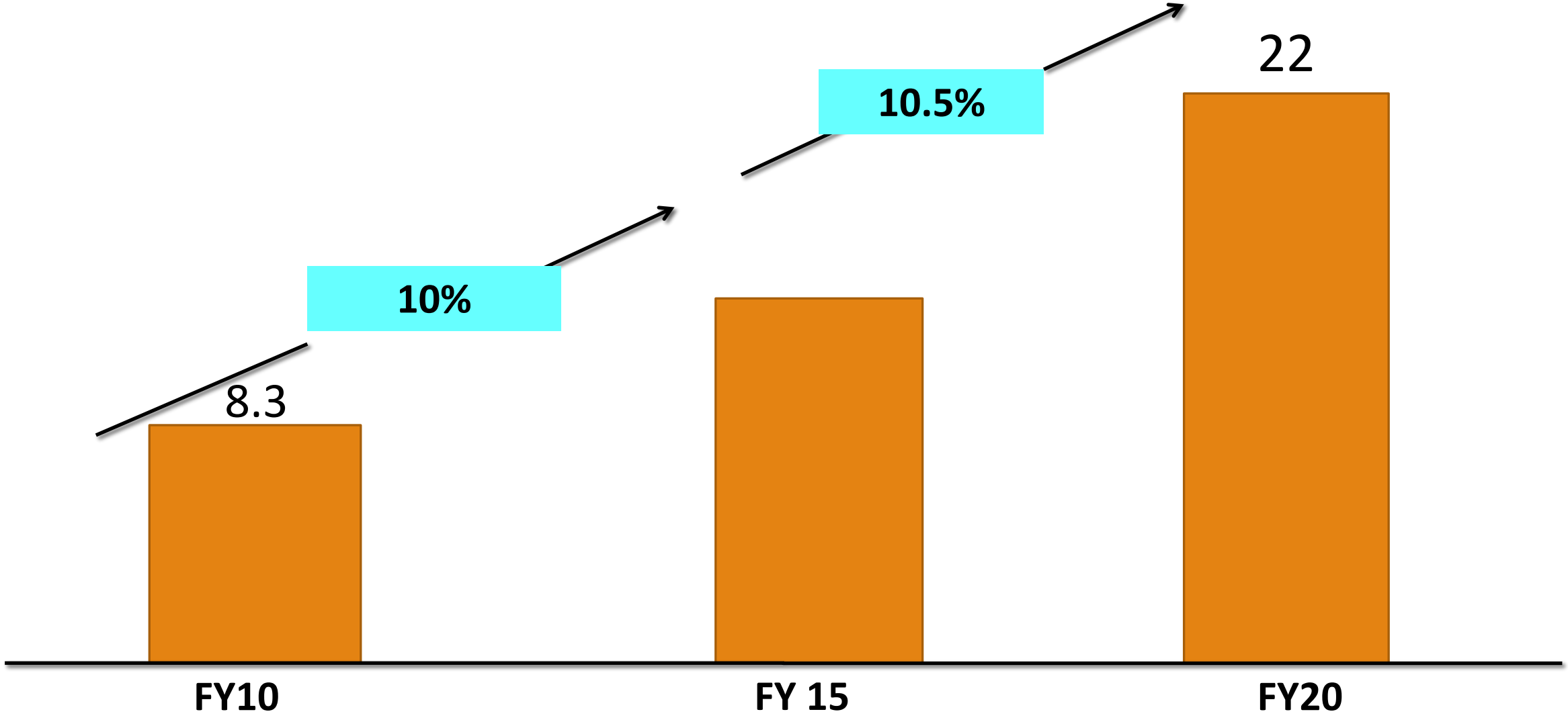


***Source**: Govt. of India Statistics, Analysis by Tata Strategic*

Polymer Utilization by Application, 2015



Plastic processing in India (MMTPA)

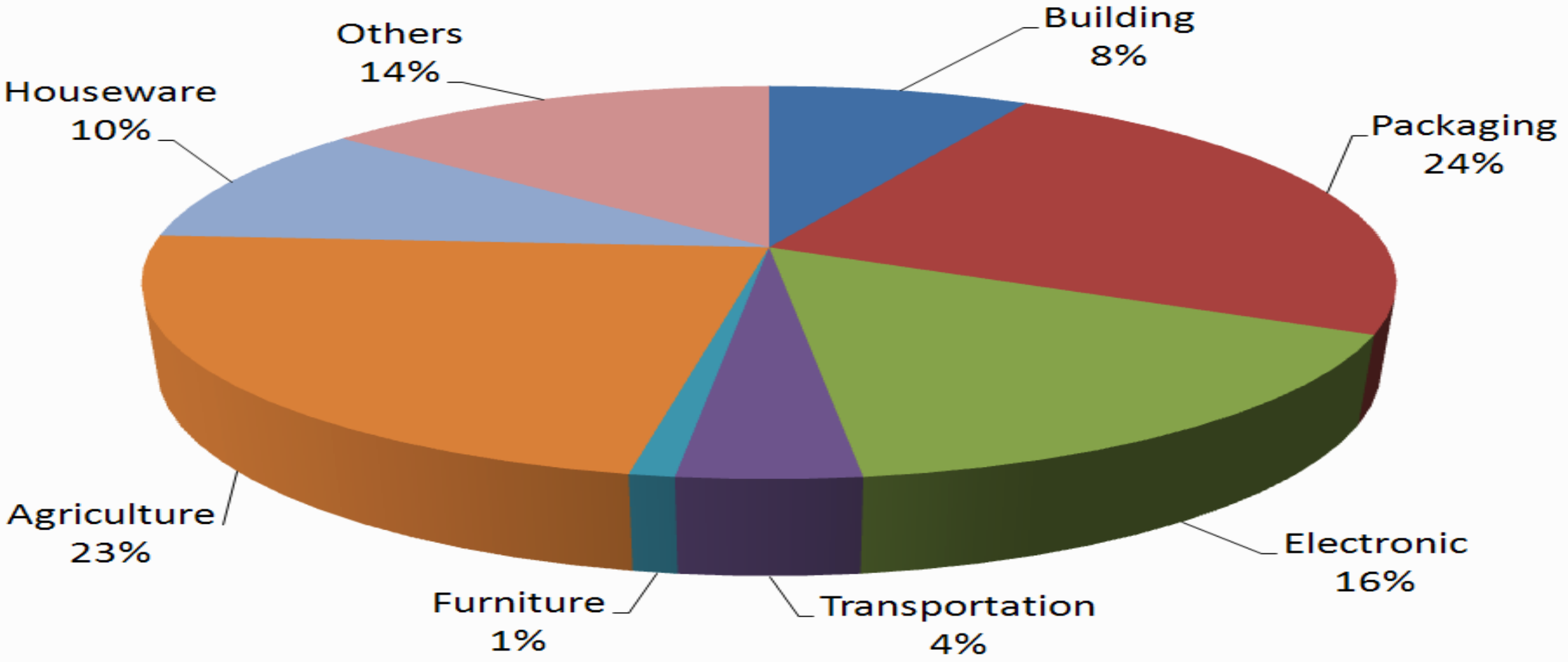


Snapshot of the Indian Plastics Processing Industry

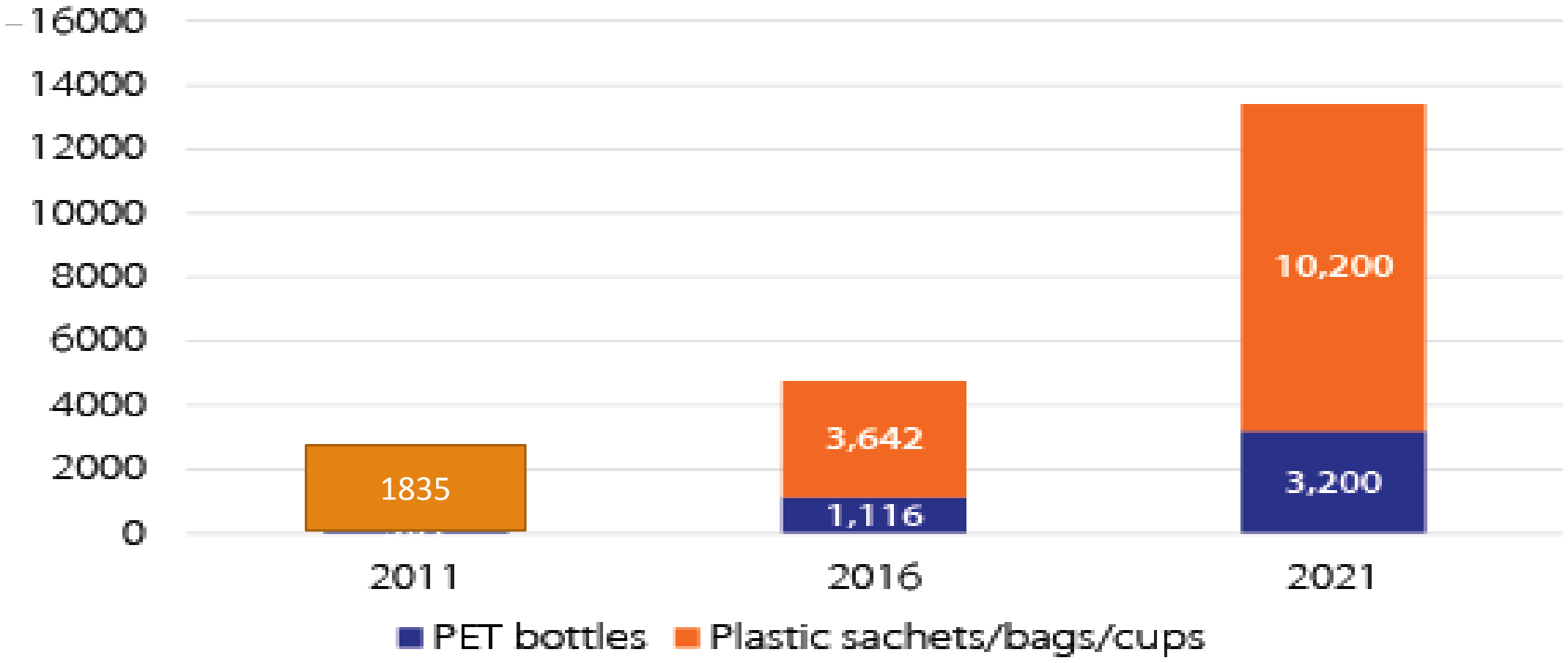
Estimated size of plastic processing in value (FY 15)	~ INR 1 LAKH CRORE
Market size in volume (FY15)	13.4MMTPA
Processing Units	> 30,000
Technical manpower (as per CIPET)	11 lakh employees
Growth Rate	10-11%
Per Capita Plastic Consumption	11 kg (World: 28 Kg)


Agriculture
• Advanced Agricultural technology
• Distribution channels
• Refrigerated storage
Infrastructure
• Building & Construction
• Public utilities services
• Mega highway projects
Plastic demand growth drivers
Other growth areas
• Industrial/rigid packaging
• Automotive/Appliances
• Medical/personal care
Packaging Industry
• Food/Processed food
• FMCG items
• Packaged & fast food industry

Plastics Consumption by Application : India

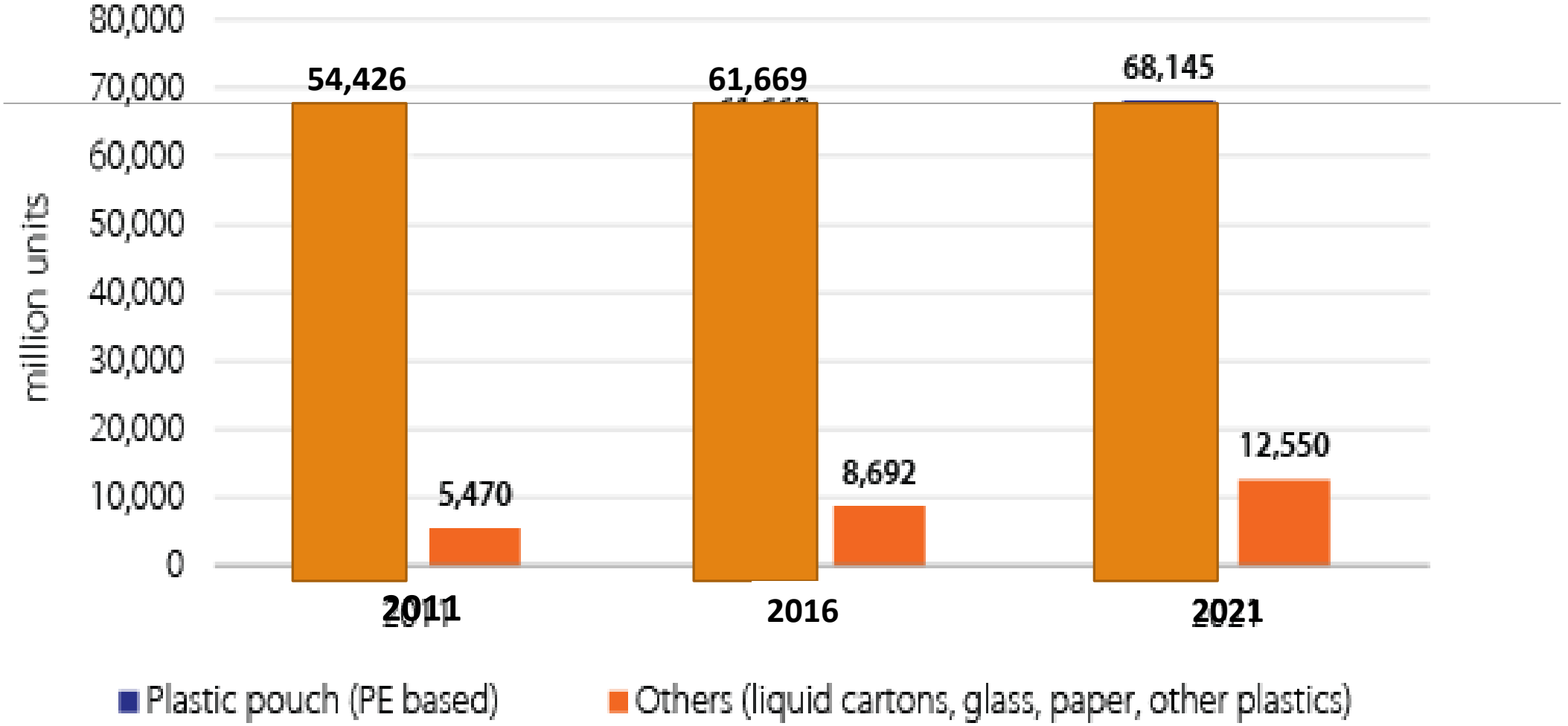


Consumption trends for water packaging in plastics sachets, bottles, and cups (in million units per year) in India



Source: GlobalData, Rabobank analysis 2018

Primary plastics packaging usage in milk in India (in million units per year)



Source: GlobalData, Rabobank analysis

PLASTICS : A BOON

- Plastics are a unique material that can substitute metal, wood,

  paper and what not.
- Plastics are wonderful materials , not depleting natural resources.
- Extreme versatility and ability to be tailored to meet very specific

  technical needs.
- Substitution of wooden furniture by plastics; saves environment

  from felling trees.

Plastics: Advantages

Easy to handle

Excellent thermal & electrical Insulation properties

Light weight

Water Resistance to water, chemicals & stress

Easy to Handle

Recyclable

Durable

latively Inexpensive as compared to other material

Easy to clean

Versatile

Hygienic for Food packaging

Available in different colours

- Since introduction of plastics in 1950s they have countless advances in our industry and way of life
- Indian plastic industry is making significant contribution to economic development & growth of various key sectors that includes Automotive, Construction, Electronics, Healthcare, Textiles, and FMCG..

Plastics in Food Packaging

Secondary Packs	Jute substitution	Packaged Crates	Glass substitution	Active packaging (MAP)	Vacuum Packaging
					
• Saves storage space • Ease of handling	▪ High strength for packing pulses, grains, flours, etc ▪ Enhanced storage life	•Saves storage space • Ease of handling •Disposable	•Cost effective •Easy to transport •Provides barrier properties during shelf life	•Maintains freshness by simultaneous respiration & permeation •Equilibrium packaging atmosphere is created with appropriate % O2 & CO2	•Multi-layer packaging •No fumigation required •Long shelf life

Plastics in Agriculture

- Avoid extreme temp.
- Provide appropriate env. conditions
- Prevent plants from direct sunlight
- Reduced pesticide use

- Helps maintain humidity
- Prevents contamination from weeds
- Avoids contact between plant & ground
- Prevents soil erosion
- Prevents moisture evaporation

- Used for short plants
- Avoid extreme temp.
- Provide appropriate env. conditions
- Prevent plants from direct sunlight
- Reduced pesticide use

- Plastic irrigation pipes prevent waste of water and nutrients
- Rain water can be retained in reservoirs built with plastics
- Water is distributed via pipes, drop irrigation systems

Boxes & Crates for crop collection, handling & transport

- For storing animals grains & straw during winter,
- Resistant & content can be stored for years.

➢ **Plasticulture has provided Innovative and sustainable solutions to Agriculture**

Plastics in Automotive Industry

Instrument Panels
- > Retainers
- > Center Stacks
- > Back-lit Buttons & Switches

Sunroofs
- > Rails
- > Slides
- > Housings

Seating
- > Arm Rests
- > Seat Pans
- > Slides
- > Handles

Airbag Retainers
- > Housings
- > Brackets

Door Systems
- > Lift Components
- > Module Carriers
- > Latches
- > Handles

Shifter Bases
- > Housings
- > Levers
- > Frames

Fuel Systems
- > Gas Caps
- > Clips
- > Connectors
- > Filler Tubes

Engineered Thermoplastic Solutions

Drivetrain
- > Seal Rings
- > Thrust Washers
- > Bushings

Pedal Boxes
- > Housings
- > Brackets
- > Wear Components

Sensor Housings
- > Drivetrain
- > Emission
- > Safety & Security

Front End Modules
- > Carriers
- > GOR's
- > Cooling Modules

RTP

PLASTICS : A BANE

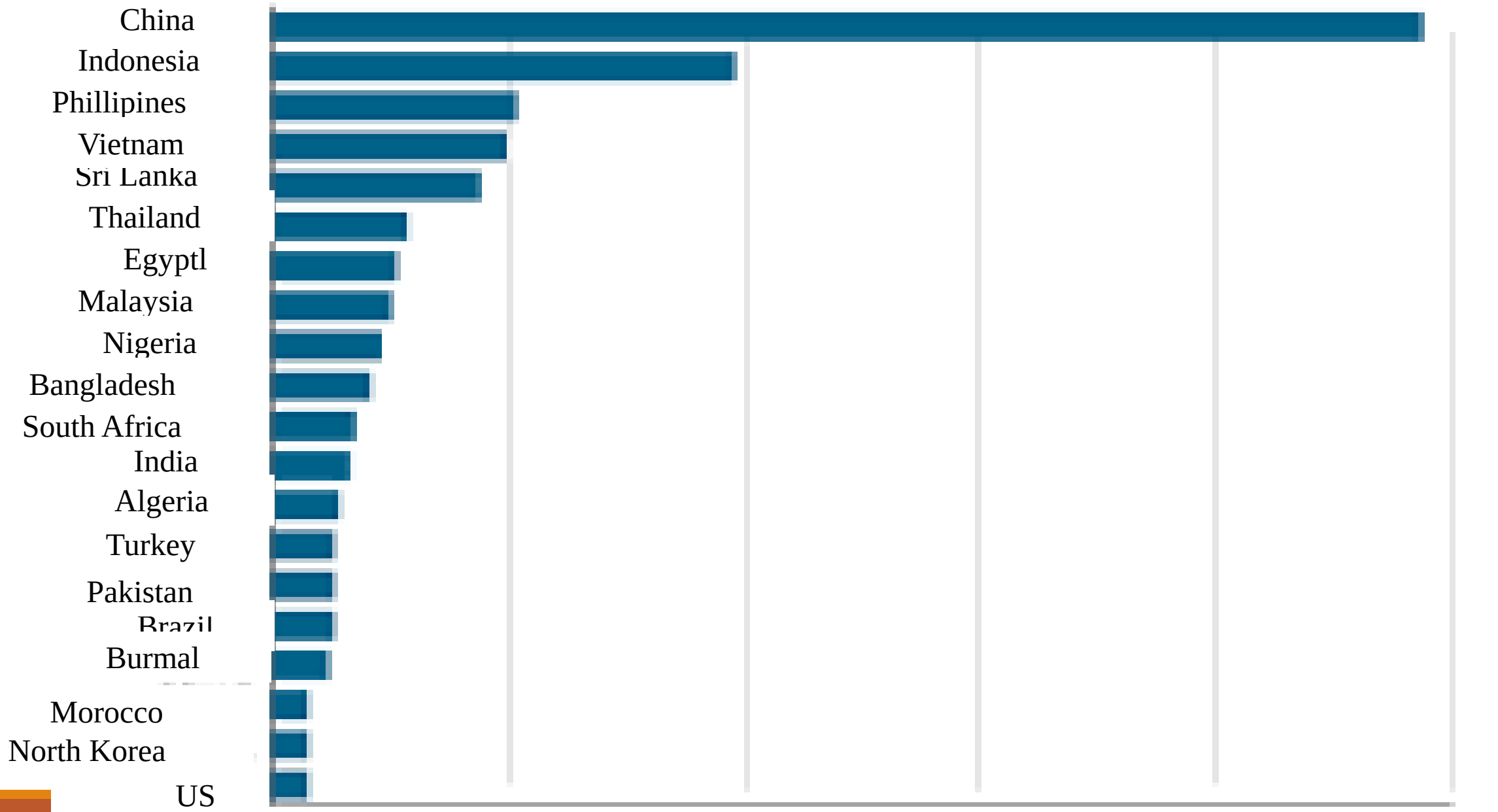
- Disposal of plastic is a challenge even to the modern society
- Polycarbonate, used to make transparent baby bottles has Bisphenol A (BPA), a known hormone disruptor can lead to cancer, insulin resistance, inflammation, and heart disease.

- can cause skin allergies or dreadful disease like cancer due to repeated recycle of degradable plastics
- Plasticizers like phthalates are suspected to cause upheaval in the hormone systems of Burning of Chlorinated plastics release carcinogens: dioxins and furans animals and people, especially kids.

Plastics: A Bane

- Every product has a shelf life, but sadly that is not the case with plastics.
- Burning of Chlorinated plastics release carcinogens: dioxins and furans
- India generates around 56 lakh tonnes of plastic waste annually, where Delhi alone accounts for 9,600 metric tonnes per day.
- Plastic menace is also one of the major causes that is making waste management an Herculean task for the country.

Plastic Debris contributed to Oceans in 2010 (Pounds)



Humans have created about 8.3 billion metric tons of plastics till date outgrowing al other man-made materials other than steel & cement

How heavy is 8.3 billion metric tons?

Rapid Rise of Plastics

A world without plastics seems unimaginable today, although their large scale production and usage dates back to around 1950

Global Plastic Production Estimates

Waste Generated by Different Indian Cities:
Plastics Waste/day in2014-15

690

429

426

408

314

Around The World: How Are Countries Dealing With Plastics

- **France:** The country passed a 'Plastic Ban' law in 2016 to fight the growing problem of plastic pollution in the world which states all plastic plates, cups, and utensils will be banned by 2020.
- **Sweden** is following the policy of 'No Plastic Ban, Instead More Plastic Recycling.'
- **Ireland** is the perfect example that shows how one can get rid of the ubiquitous symbol of urban life – Plastics. The country passed a plastic bag tax in 2002 – that means that consumers would have to actually purchase bags. It was so high that within weeks of its implementation there was a reduction of 94 percent in plastic bag use.

Around The World: How Are Countries Dealing With Plastics

- **China:** The country instated a law in 2008 to deal with its growing plastic woes. China made it illegal for stores (small or big vendors) to give out plastic bags for free. It also said that owners should start charging the consumers for the plastic bags and allowed them to keep any profit they made for themselves. End result, after two years of the law implementation, usage of plastic bags dropped by a whopping 50%. That means around 100 billion plastic bags were kept out of the landfills.
- **Rwanda:** The country too suffered from plastic pollution like any other developing country, there were billions of plastic bags choking waterways and destroying entire ecosystems of Rwanda. To fight this scourge, the government launched a radical policy to ban all non-biodegradable plastic from the country.

THNAKS

- Sincere gratitude to Dr.(Mrs.) Malti Goel, President & CEO, CCRI for the Opportunity & Honor
- Sincere Thanks to Prof. (Dr.) Manjeet Aggarwal, Dean Research and Head of Deptt. Basic and Applied Sciences, NIFTEM & to Mrs. Nidhi Kaushik, Research Scholar Food safety NIFTEM, Kundli, Haryana for Technical content of the Presentation