



Legal Initiative for Forest and Environment

# CSE National Conclave on Plastic Waste Management THE PLASTIC LIFECYCLE

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## How do we define plastics?

understanding of plastics, and we'd like to... we'd like to kind of get rid of the **adjective** plastics and start talking about the nouns.

VOICE: Oh. Ah. Well what are plastics? Are they a thing that you find in nature or do they have to be chemically created?

RALPH HARDING: This is part of the problem, really, because plastics are not understood. And of course, that's our fault. That's our fault that plastics aren't understood because really, we use big long words and plastics are man-made. They're derived from oil and gas entirely. They're synthetic and they're organic and they are constructed... constructed molecules by man. And the science and the tech-

Radio Interview, (~1970') Ralph Harding from Society of the Plastics Industry

Source: Center for International Environmental Law

## There are 3 legally binding Definitions of Plastics

*“**plastics**” means those **materials** of headings 39.01 to 39.14 which are or have been capable, either at the moment of polymerisation or at some subsequent stage, of being formed under external influence (usually heat and pressure, if necessary with a solvent or plasticiser) by moulding, casting, extruding, rolling or other process into shapes which are retained on the removal of the external influence.”*

### Harmonized System Convention (1988)

*“The terms plastic or plastics do not have a precise meaning because they reflect rather complex formulated systems whose exact composition is generally unknown.” European Committee on Standardization, 2006*

*“**Plastic**” means a **solid material** which contains as an essential ingredient one or more high molecular mass polymers and which is formed (shaped) during either manufacture of the polymer or the fabrication into a finished product by heat and/or pressure. Plastics have material properties ranging from hard and brittle to soft and elastic (...)”*

### MARPOL Annex V (2011)

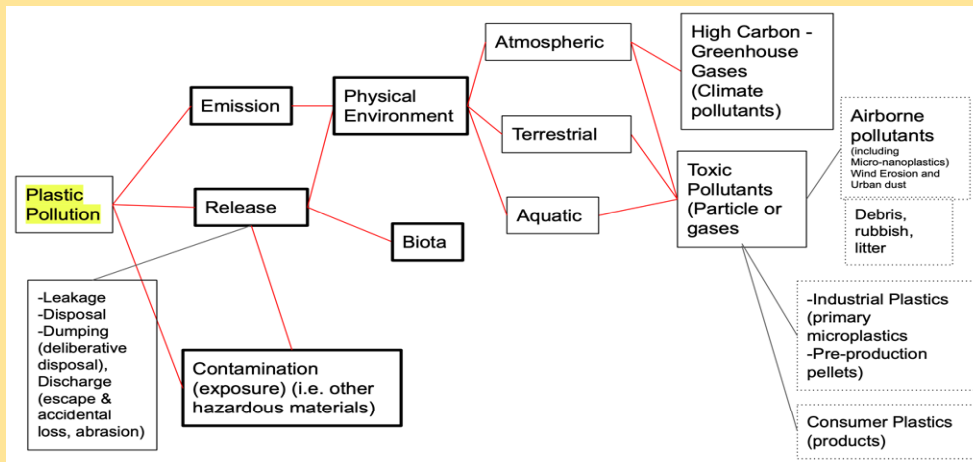
*Art. 3.4.q “**plastic**” means a **material** consisting of a polymer, to which additives or other substances may have been added, and which can function as a main structural component of final products, with the exception of natural polymers that have not been chemically modified*

### Regional Plan on Marine Litter Management in the Mediterranean (2021)

Need to differentiate  
“plastics products” and  
“**plastics materials**”

# Plastic Pollution

- The definition (if any) should be given in the context of the full lifecycle



**OECD:** Broadly, all emissions and risks resulting from plastics during its production, use, waste management and leakage.

# Full lifecycle

- The lifecycle of a material is not necessarily the same as the lifecycle of a product.
- Recognition of the different stages does not mean that all of the stages will be addressed with the same priority

Broadly, all emissions, **hazards** and risks resulting from plastics during its **(full life cycle)** including **feedstock extraction**, production, use, waste management and **leakage release**.

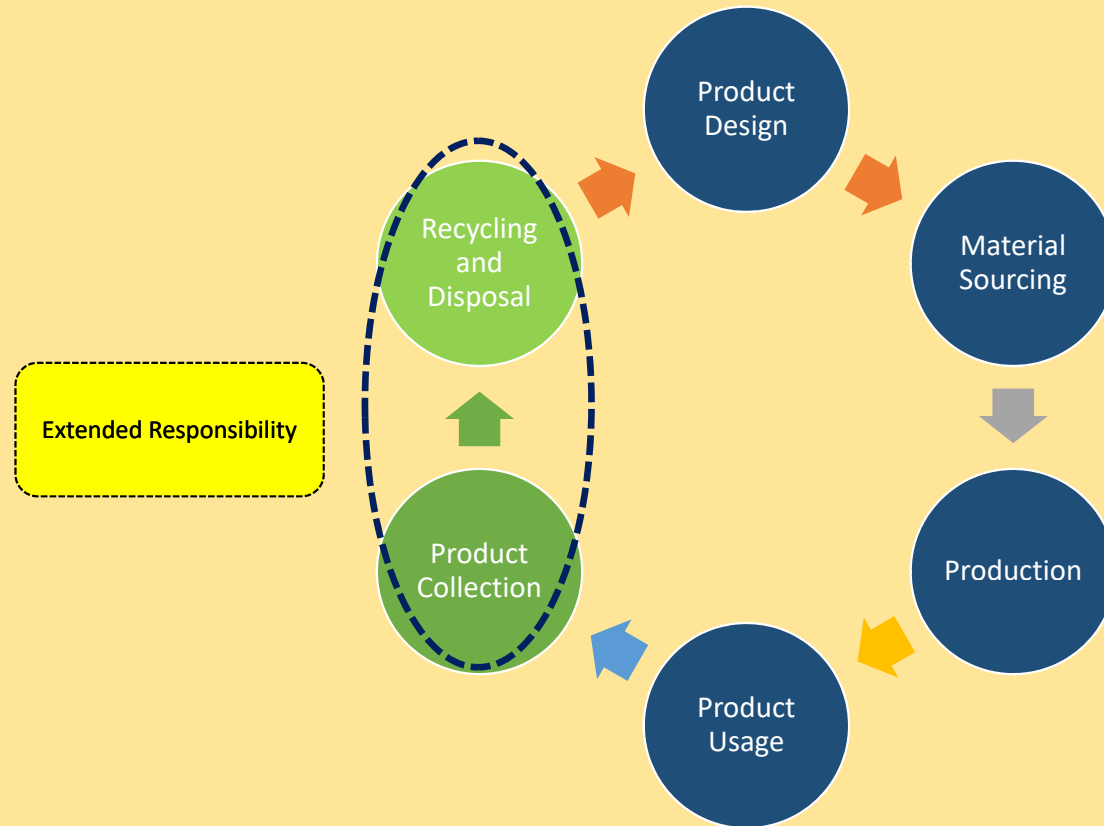
# Waste Governance and Public Administration

<b>Ancient Regimes</b>	<b>Traditional Public Administration</b>	<b>New Public Management</b>	<b>Public Management/Network Governance</b>	<b>Value</b>
Citizens as subjects	Citizens as voters	Citizens as consumers	Citizen as partner	
Government as rulers	Government as trustee	Government as Managers	Government as partner	
Coerciveness	Delegation	Responsiveness	Collaboration	

# Legislative Timeline

- The Plastics Manufacture, Sale And Usage Rules, 1999
- The Plastics Manufacture and Usage (Amendment) Rules, 2003
- Plastics (Manufacture, Usage and Waste Management) Rules in 2009
- Plastic Waste Management and Handling Rules 2011
- Plastic Waste Management (PWM) Rules 2016
- Plastic Waste Management (Amendment) Rules, 2018
- Plastic Waste Management (Amendment) Rules, 2021
- Plastic Waste Management (Amendment) Rules, 2022

# Extended Producer Responsibility



# DEFINE RECYCLING?

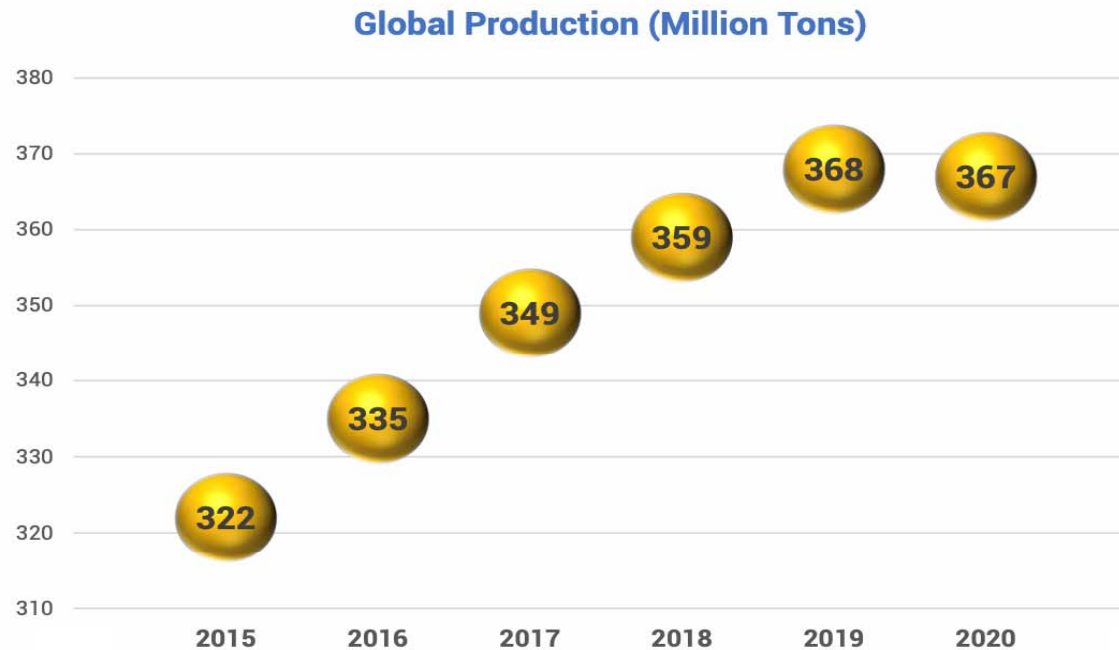
Category	Description
Closed Loop Recycling	The same product from the product it was recovered from (no deterioration of quality)
Downcycling	Products where performance is least needed relative to original application
Feedstock Downcycling	Regenerated plastics, through de-polymerization (chemical recycling) which breaks down plastic products into its chemical constituents
Energy Recovery/Incineration	Waste-to-energy incineration



# Is it just a litter problem?

## GLOBAL PRODUCTION OF POLYMERS

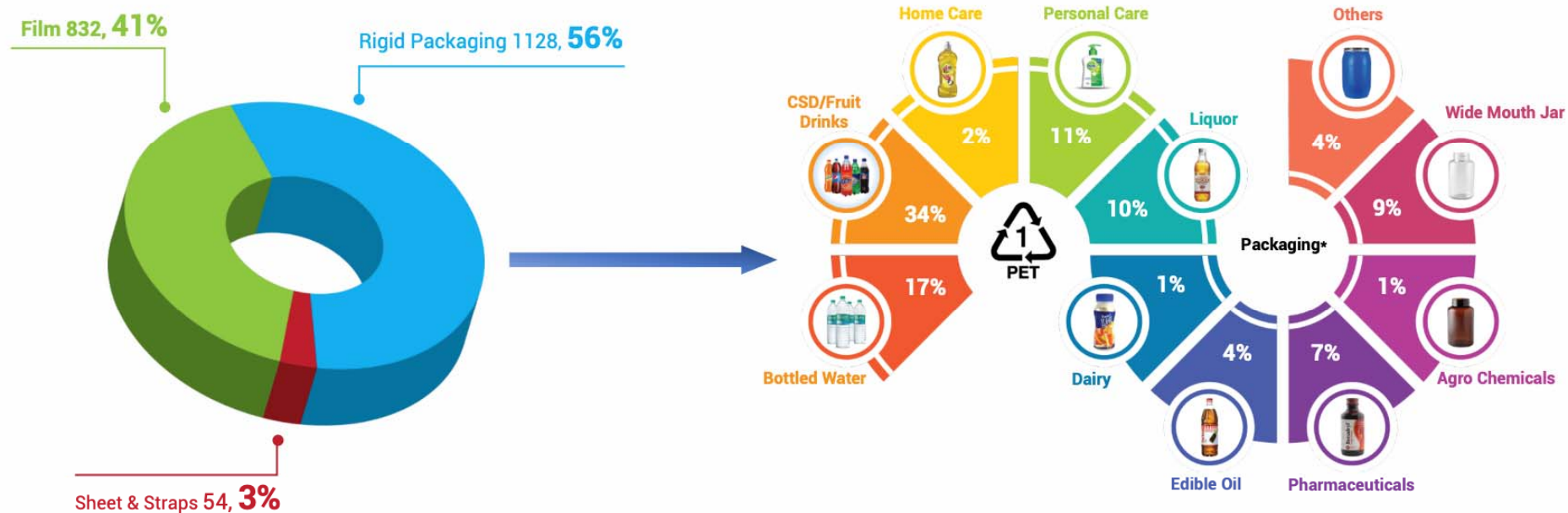
**PLASTINDIA 2023**  
FEB 1-5  
PRAGATI MAIDAN • NEW DELHI • INDIA  
11<sup>TH</sup> INTERNATIONAL PLASTICS EXHIBITION, CONFERENCE & CONVENTION



Includes Thermoplastics, Polyurethanes, Thermosets, Elastomers, Adhesives, Coating and Sealants and PP-Fibers.  
Not included PET-, PA- and Polyacryl-Fibers.

# PET & BOPET SECTORWISE DEMAND (2021-22) - INDIA

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All Fig in KT

2021-22 Demand 2014 KT    2022-23 Est. 2195 KT    YoY Growth ~ 9%

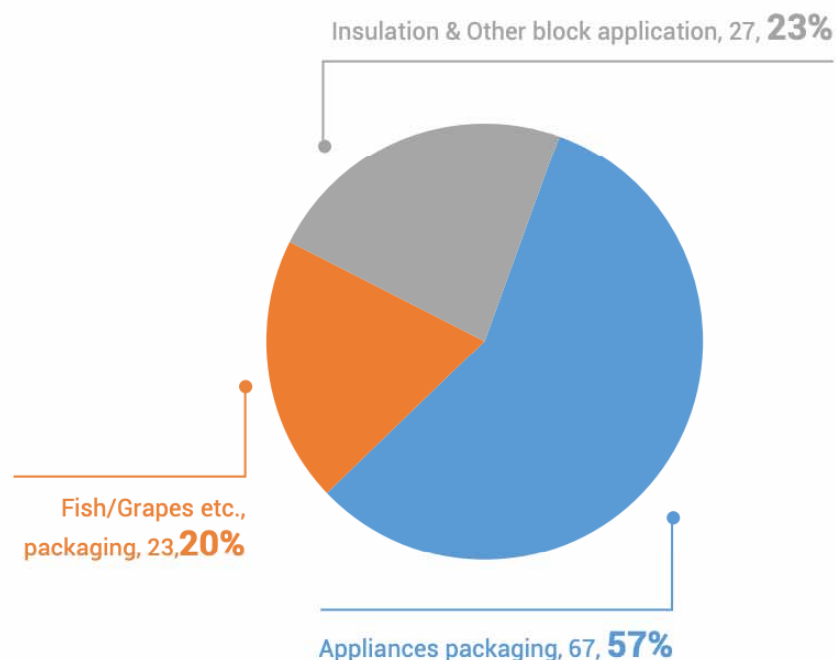
Source: PLASTINDIA FOUNDATION/Industry Estimate

# EPS SECTORWISE DEMAND (2021-22) - INDIA

SECTOR	MAJOR APPLICATIONS	KT
Packaging	Appliances	67
	Fish/ Grapes etc.,	23
Construction	Insulation & Other block application	27
Total		117



All Fig in KT



**2021-22 Demand 117 KT    2022-23 (E) 121 KT    YoY Growth ~4%**

Source: PLASTINDIA FOUNDATION/Industry Estimate

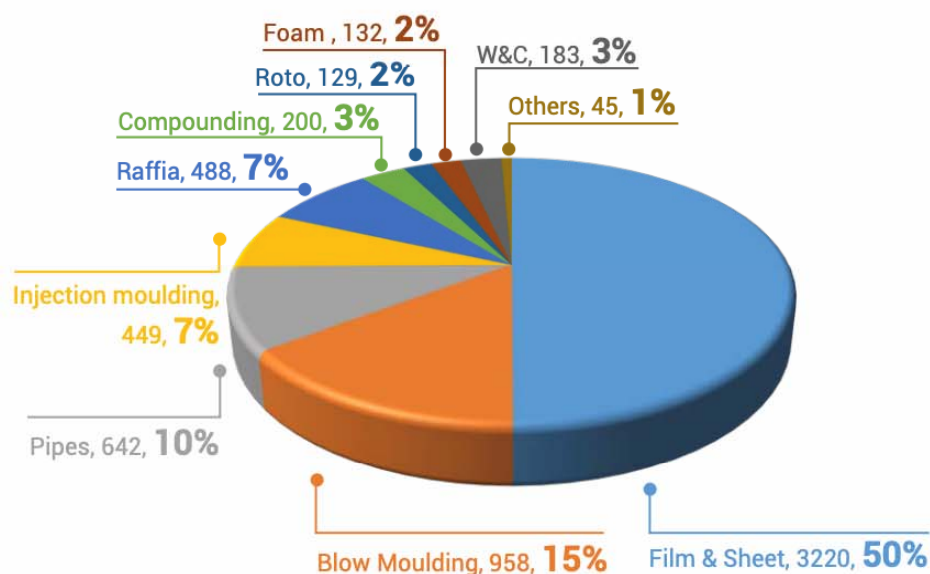


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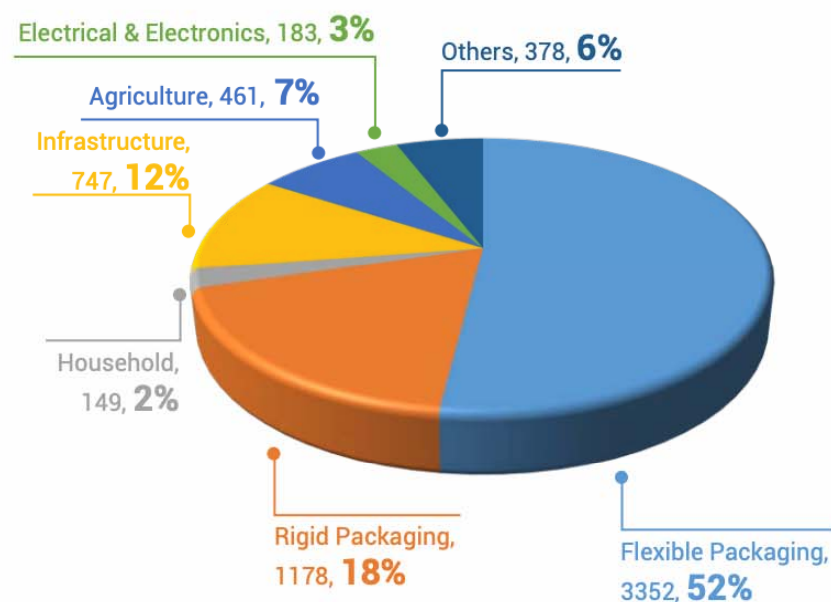
# PE SECTORWISE DEMAND (2021-22) - INDIA

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PE Sector wise Break up 2021-22 - 6447 KT



PE Application wise Breakup 2021-22- 6447 KT



All Fig in KT

2021-22 Demand 6447 KT 2022-23 (E) 6770 KT YoY Growth ~ 7%

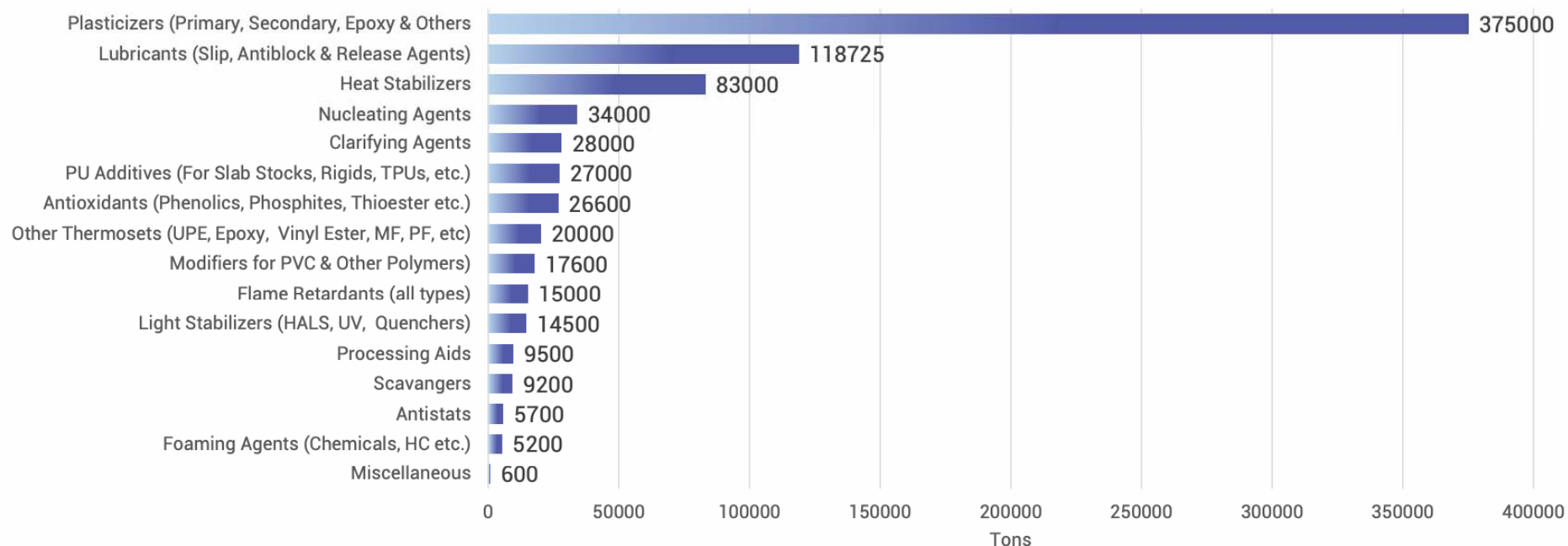
Source: PLASTINDIA FOUNDATION/Industry Estimate



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# MAJOR POLYMER ADDITIVE EST. DEMAND (2021-22) - INDIA

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(All Figs in Tons)

**2021-22 Demand 790 KT 2022-23 (E) 845 KT YoY Growth ~ 7%**

Source : PLASTINDIA FOUNDATION / Industry Estimate



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**Deep Dive into Plastic Monomers, Additives, and Processing Aids** Helene Wiesinger\* *et al* –  
*Environ. Sci. Technol.* 2021, 55, 13, 9339



# Policy Gaps in Plastic Legislation

- Decoupling the plastic from waste management narrative
- Lifecycle of plastic
- Challenging the global north leakage narrative
- False/end of pipeline solutions
- Poisoning the circular economy – Chemicals and Health
- Transparency and reporting
- Expanding the scope of EPR
- Production caps??