



India as the World Largest Plastic Polluter

For Prelims: [Central Pollution Control Board \(CPCB\)](#), [Public Accounts Committee \(PAC\)](#), [Plastic Waste](#), [Extended Producer Responsibility \(EPR\) Rules](#), [Plastic Waste Management Rules, 2016](#).

For Mains: Plastic Waste Pollution and Its Implication of Environment and Human Health.

[Source: IE](#)

Why in News?

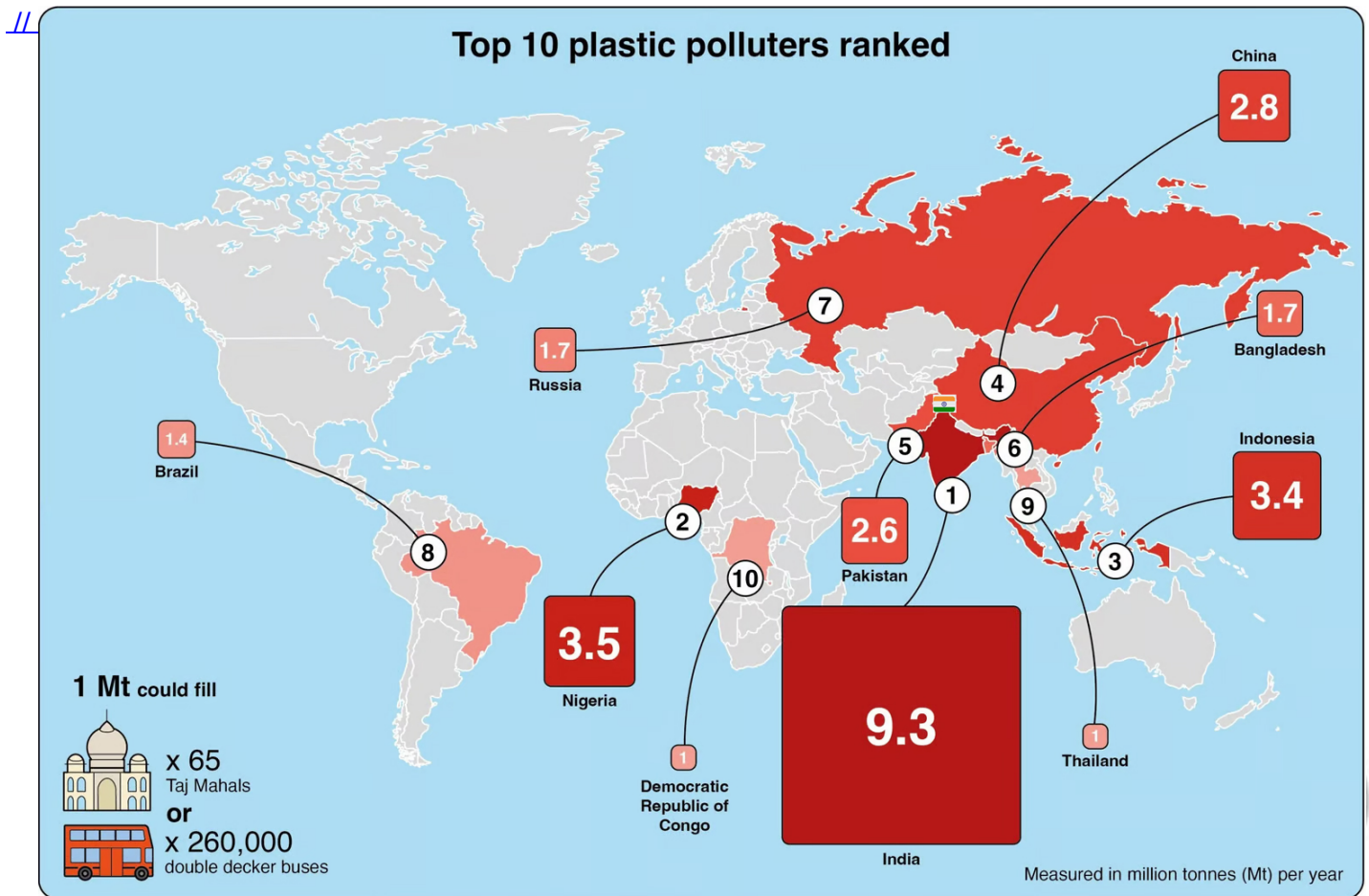
A recent study published in the journal *Nature* has revealed that India is the **highest contributor to global plastic pollution**.

- India accounts for approximately **one-fifth** of the total plastic waste generated worldwide.

What are the Key Findings of the Study?

- **Plastic Waste Generation:** India generates approximately **9.3 million tonnes of plastic pollution** annually. Out of this, 5.8 million tonnes (mt) are incinerated, while 3.5 million tonnes are released into the environment as debris.
 - This figure is significantly **higher than Nigeria (3.5 mt), Indonesia (3.4 mt), and China (2.8 mt)**.
 - India's waste generation rate is approximately **0.12 kilograms per capita per day**.
- **Global North-South Divide:** Plastic waste emissions are highest across countries in **Southern Asia, Sub-Saharan Africa and South-eastern Asia**. There is a clear divide in plastic pollution sources.
 - **Global South countries**, such as India, often rely on **open burning** for waste management, while the **Global North** uses **controlled systems**, leading to **less unmanaged waste**.
- **Disparity Between High and Low Income Countries:** Globally, 69% or 35.7 Mt per year of plastic waste emissions come from 20 countries.
 - In the Global South, plastic pollution mainly comes from **open burning due to poor waste management**, while in the Global North, it's mostly from **uncontrolled debris**.
 - **High-income countries** have higher plastic waste generation rates but **are not among the top 90 polluters due to 100% collection coverage** and controlled disposal.
- **Criticism of Research:**
 - **Narrow Focus:** The study **overemphasised waste management, neglecting the need to reduce plastic production**.
 - **Misplaced Priorities:** It could divert attention from upstream solutions like phasing out single-use plastics.
 - **Industry Support:** Endorsement by plastics industry groups raises concerns about **aligning with industry interests rather than broader environmental goals**.
 - **Undermining Comprehensive Solutions:** The study's focus on waste management

might **weaken efforts to address production and recycling issues.**



What are the Reasons for High Plastic Pollution in India?

- **Rapid Population Growth and Urbanization:** India's rising population and affluence drive **higher consumption and waste generation**. Urbanisation intensifies the problem by increasing the demand for plastic products and packaging.
- **Inadequate Waste Management Infrastructure:** India's **waste management infrastructure is insufficient** to handle the large volumes of waste, with more uncontrolled dumping sites than sanitary landfills, reflecting **poor disposal facilities and practices**.
- **Discrepancies in Waste Collection Data:** India's official waste collection rate is overstated at 95%, while research suggests the actual rate is around 81%, revealing a significant gap in efficiency.
- **Open Burning of Waste:** India **burns approximately 5.8 million tons of plastic waste** each year, worsening pollution and releasing toxic pollutants that pose health and environmental risks.
- **Informal Sector Recycling:** The unregulated informal **recycling sector handles much plastic waste not accounted for in official statistics**, complicating the understanding of plastic pollution levels.

What are the Issues Associated With Mismatched Plastic Waste in India?

- **Environmental Degradation:** Plastic waste clogs waterways, leading to flooding and marine pollution. It harms marine life through ingestion, while burning it releases toxic pollutants, worsening air quality.
- **Public Health Concerns: Microplastics** in water and food pose **potential long-term health risks**.
 - Plastic waste creates **breeding grounds for disease vectors**, increasing the spread of diseases like **dengue and malaria**.

- Burning plastic also releases harmful substances affecting respiratory health.
- **Economic Challenges:** According to a FICCI report, India could lose over **USD 133 billion worth of material value** used in plastic packaging by 2030, with uncollected plastic packaging waste accounting for USD 68 billion of this loss.
- **E-commerce and Packaging Waste:** Rapid **e-commerce** growth has led to increased plastic packaging waste, much of which is difficult to recycle and ends up as litter or in landfills.
- **Regulatory and Enforcement Challenges:** Inconsistent enforcement of plastic waste regulations and issues with the **Extended Producer Responsibility** system hamper effective waste management.
 - India is among the top contributors to global plastic waste.
- **Microplastic Pollution in Agriculture:** Plastic use in agriculture and inadequate wastewater treatment lead to microplastics accumulating in soil, impacting soil health and food safety.
- **Technological and Infrastructure Gaps:** Inadequate **waste segregation and processing facilities**, along with **limited advanced recycling technology**, hinder effective plastic waste management. A lack of **comprehensive waste tracking** further complicates efforts.

What are the Regulations Related to Plastic Waste Management in India?

- **Plastic Waste Management Rules, 2016**
- **Plastic Waste Management (Amendment) Rules, 2018:** Applies phasing out of multi-layered plastic (MLP) to those that are non-recyclable, non-energy recoverable, or have no alternate use.
 - Establishes a central registration system by the **Central Pollution Control Board (CPCB)** for producers, importers, and brand owners.
- **Plastic Waste Management Amendment Rules, 2021: Prohibits specific single-use plastic items by 2022** due to low utility and high littering potential.
 - Enforces collection and environmental management of plastic packaging waste through **EPR**.
 - Increases plastic carry bag thickness from 50 microns to 75 microns by September 2021 and to 120 microns by December 2022.
- **Plastic Waste Management (Amendment) Rules, 2022**
- **Plastic Waste Management (Amendment) Rules, 2024**
- **Other Initiatives:**
 - **Swachh Bharat Mission**
 - **India Plastics Pact**
 - **Project REPLAN**
 - **Un-Plastic Collective**
 - **GoLitter Partnerships Project**

Way Forward

- **Circular Economy:** Promote **RRR i.e. reduce, reuse and recyclability** in design, set up recovery facilities, **incentivize recycled plastics**, and mandate recycled content in products.
- **Smart Waste Management:** Integrate **smart technology in waste management** with **IoT-enabled bins**, **AI** for sorting, and **mobile apps for reporting illegal dumping** and locating recycling centres.
- **Extended Producer Responsibility (EPR):** Strengthen EPR by introducing **graded fees for difficult-to-recycle plastics**, a plastic credit trading system, and extending EPR to the informal sector for better waste picker conditions.
- **Awareness Campaigns:** Launch **national campaigns** in multiple languages, **integrate plastic waste education** in schools, conduct community workshops, and use influencers to promote plastic-free lifestyles. Establish a national **innovation challenge** for youth involvement.
- **Waste-to-Energy:** Invest in advanced **waste-to-energy technologies** like **pyrolysis** and **gasification** for non-recyclable plastics. Ensure strict **emissions controls** and use generated energy to power waste management facilities.
- **Green Procurement:** Apply plastic waste reduction criteria in **government procurement** and use government buildings as models.

Drishti Mains Question:

What are the issues and challenges associated with plastic waste management? What steps should be taken to tackle plastic waste in India?

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q.1 In India, 'extend producer responsibility' was introduced as an important feature in which of the following? (2019)

- (a) The Bio-medical Waste (Management and Handling) Rules, 1998
- (b) The Recycled Plastic (Manufacturing and Usage) Rules, 1999
- (c) The e-Waste (Management and Handling) Rules, 2011
- (d) The Food Safety and Standard Regulations, 2011

Ans: (c)

Q.2 How is the National Green Tribunal (NGT) different from the Central Pollution Control Board (CPCB)? (2018)

1. The NGT has been established by an Act whereas the CPCB has been created by an executive order of the Government.
2. The NGT provides environmental justice and helps reduce the burden of litigation in the higher courts whereas the CPCB promotes cleanliness of streams and wells, and aims to improve the quality of air in the country.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: (b)

Mains:

Q: What are the impediments in disposing the huge quantities of discarded solid waste which are continuously being generated? How do we remove safely the toxic wastes that have been accumulating in our habitable environment? **(2018)**