

PLASTIC WASTE MANAGEMENT

KEY ISSUES

Training Programme on Plastic Waste Management

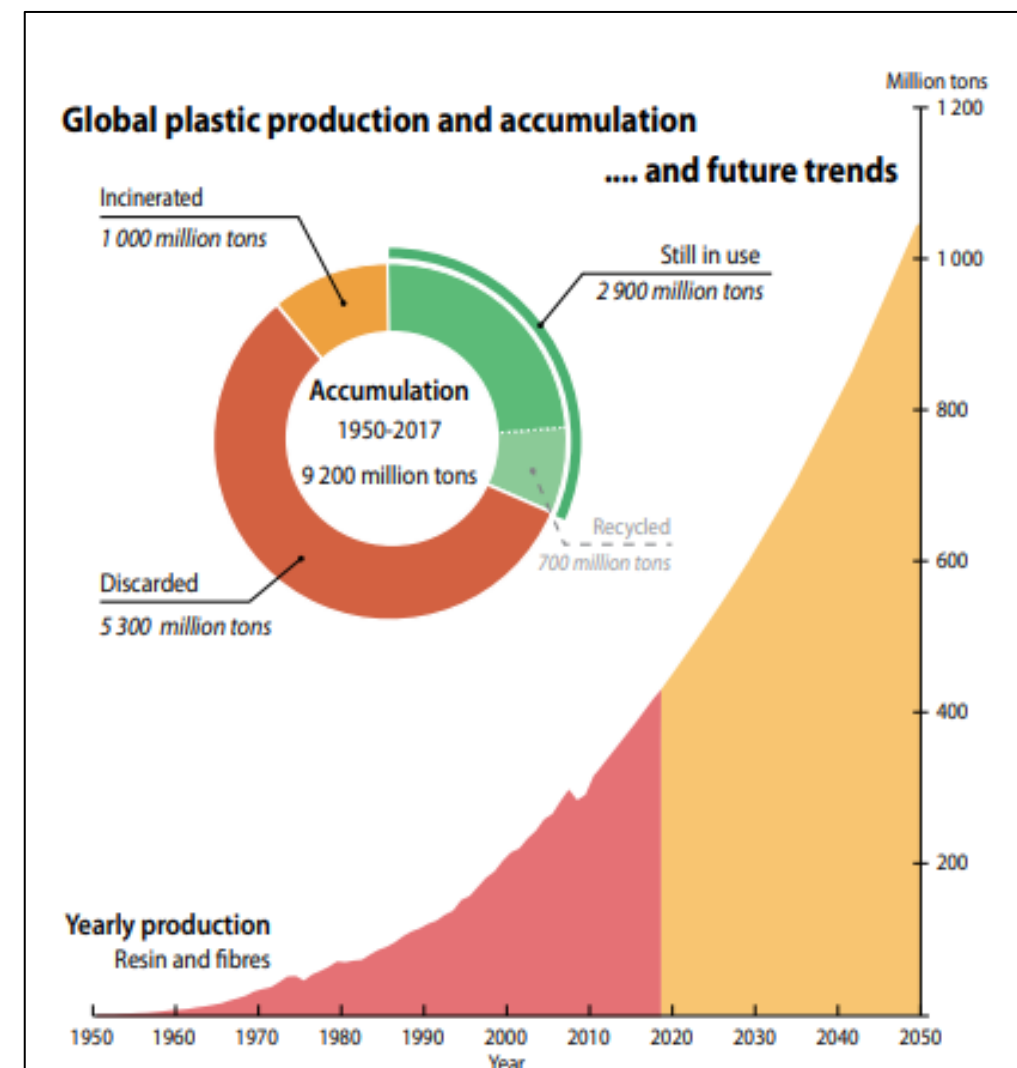
Department of Environment, Government of National Capital Territory of Delhi

29 April 2022



How big is the problem?

- Plastics are largest, most harmful and persistent fraction of marine litter accounting for 85% of total marine waste
 - More plastics than fish in oceans expected by 2050
- Global plastic production quadrupled in 40 years. A million plastic bottles purchased per minute; 5 trillion plastic bags used worldwide every year.
- A third of all plastic produced is designed for single-use purposes
- 60% of plastic produced since 1950 in landfills/natural environment
- Plastic waste into aquatic ecosystems projected to triple by 2040



India

- Low per capita consumption of 13 kg in India compared to global average (28 kg)
- India- 12th highest contributor to mismanaged plastic waste; projected to be 5th by 2025
- Ganges is among the 10 river systems which carry 88-99% of plastic to the ocean

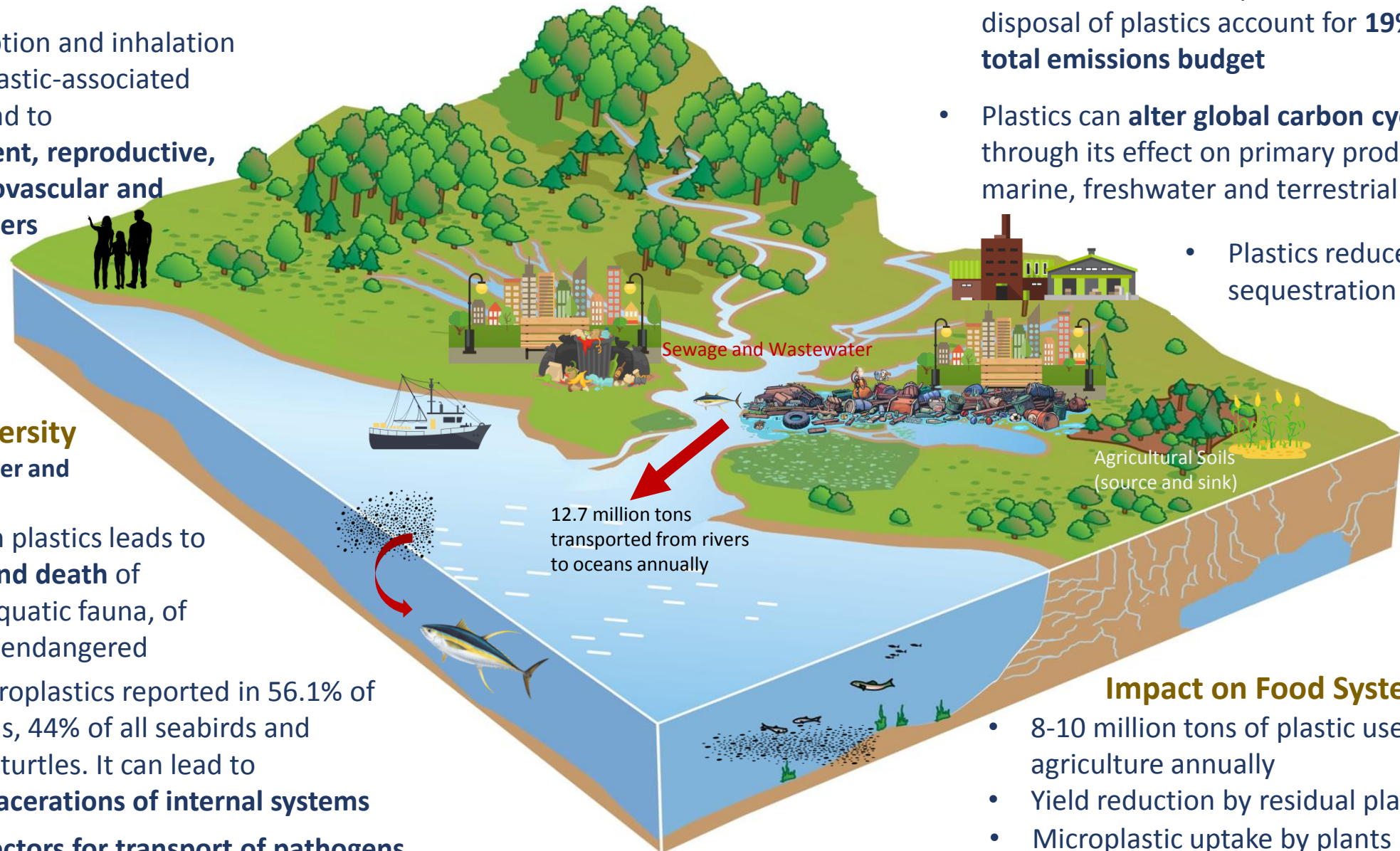
Why worry about plastic waste?

Human health

Ingestion, absorption and inhalation of plastics and plastic-associated chemicals can lead to **neurodevelopment, reproductive, hormonal, cardiovascular and metabolic disorders**

Threat to biodiversity (terrestrial, freshwater and marine life)

- **Entanglement** in plastics leads to **physical harm and death** of terrestrial and aquatic fauna, of which many are endangered
- **Ingestion** of microplastics reported in 56.1% of marine mammals, 44% of all seabirds and 100% of marine turtles. It can lead to **starvation and lacerations of internal systems**
- Plastics act as **vectors for transport of pathogens**



Climate Change

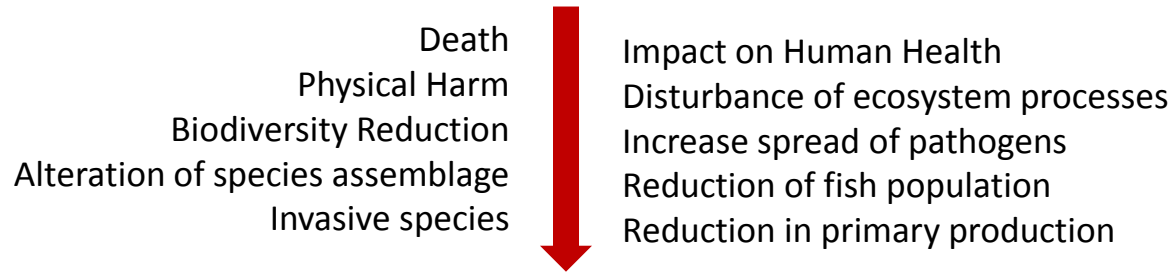
- GHG emissions from production, use and disposal of plastics account for **19% of the total emissions budget**
- Plastics can **alter global carbon cycling** through its effect on primary production in marine, freshwater and terrestrial systems
- Plastics reduce carbon sequestration in soils

Impact on Food Systems

- 8-10 million tons of plastic used in agriculture annually
- Yield reduction by residual plastic in soils
- Microplastic uptake by plants
- Assimilation into food chains

Socio-economic impacts of plastic pollution

Biological Impacts



Economic Impacts

Productivity reduction
Reduced confidence in produce/products
Waste management issues/costs
Increased health issues/costs

Societal Impacts

Reduction in human wellbeing
Reduced recreational experience
Heritage Loss

Economic costs:

- Actual expenditures required to prevent or recover damage of plastic pollution & marine litter
 - Loss of output or revenues
 - Loss of plastics as a valuable material
 - Welfare costs – human health impacts and loss of ecosystem services
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- Estimated cost of marine plastic pollution: \$6-19 billion annually (including losses in tourism, fisheries and aquaculture and the expense of clean-ups; excluding costs of human health and ecosystems)
 - Asia-Pacific Region: Annual economic costs of marine litter – US\$ 1.26 billion (2008) rising to US\$ 10.8 billion in 2015

Underlying issues

Growing quantities of discarded plastic waste are an outcome of multiple factors

- **Widespread use of plastic items and underlying use pattern**

- Single-use plastic products dominate plastic production
- Approximately 36 % of all plastics produced are used in packaging, including single-use plastic products for food and beverage containers- 85% ends in landfills or as unregulated waste; over 90% of global plastic in packaging used is virgin
- While the public has become sensitive to plastics, studies show that this does not translate into reduced plastic use for a variety of reasons- habits, constraints etc.

- **Inadequate waste management in general**

- About 61% of plastic leakage originates from uncollected waste, could grow to 70% by 2040 under a business-as-usual scenario as collection services fail to keep pace
- Limited policy coordination among national and subnational policies with loopholes and weak implementation (e.g. penalties for improper disposal)

Underlying issues

Growing quantities of discarded plastic waste are an outcome of multiple factors

- **Pricing of plastic and waste**

- Low price of virgin feedstocks and the presence of subsidies
- Absent pricing policies for waste- industries and consumers behave as if the disposal of waste is free despite it being resource-intensive; environmental costs are usually not priced

- **Limited recycling rates**

- Less than 10%, well below global recycling rates for other commodities and resources such as paper (58%), iron (70%) and steel (98%)
- Reasons include lack of information about the constituents of plastic products, which can lead to loss of quality through the mixing of waste streams
- However, plastic recycling and reuse is gaining traction with the help of new technologies and legislative requirements

- **Alternatives**

Lessons

- A single-solution strategy will be inadequate
- Overall waste management
- Interventions upstream and downstream of plastic production and use, with a focus on *Closing the tap* with regard to virgin plastic production
 - **Phasing out** of unnecessary, avoidable and problematic products and polymers
 - Improved **recycling** through investment in technologies and standards for plastic recyclates
 - Expansion of **consumer reuse options** or new delivery/service models, eco-design, implemented in conjunction with other strategies such as substitution, increased collection and recycling, and secure disposal of residual waste
 - Clear **labelling standards** to enhance traceability and transparency across the plastics supply chain



Lessons

- Fiscal **instruments** such as taxes, fees and charges, deposit-refund schemes, **extended producer responsibility schemes**
- Green chemistry innovations for **safer alternative** polymers and additives
- Initiatives to change **consumer attitudes**
- Circularity - Beyond the 3Rs (**Reduce, Reuse and Recycle**), to 5Rs with **Recover and Redesign**; and further to 7Rs with **Refuse and Rethink**.
- Other patterns of Rs have also been designed for circularity, such as **Receive, Repair, Refill, Rent and Resell**
- **Improved science and evidence on quantification of different plastic fractions from key sources and their impacts**





Global Momentum

UNEA Resolutions since 2014

Multilateral Environmental Agreements

Basel Convention, Stockholm Convention, Convention on Biological Diversity, Convention on Migratory Species

G20 Osaka Blue Ocean Vision 2019

To reduce additional pollution by marine plastic litter to zero by 2050

Global Partnership on Marine Litter

Global Tourism Plastics Initiative

- **Global resolution at UNEA5.2** (End Plastic Pollution: Towards an International legally binding instrument)
 - Inter-governmental Negotiation Committee to develop legally binding instrument based on full lifecycle of plastic
- **Regional Action Plan on Marine Litter** (Arctic, Baltic Sea, Mediterranean, North-East Atlantic, Pacific, South Asia Seas etc.)
- **National level plastic plans** (Australia, Canada, China, France, Ghana, Indonesia, Sweden etc)
- **Growing number of legal initiatives**, including bans on certain single-use plastic products, plastic bags and microbead products
 - More than 60 countries now support bans on different types of plastic items
- Europe-wide **strategy to transition towards a more circular economy**; all plastic packaging to be recyclable by 2030, SUPs to be reduced and use of microplastics is restricted.
- **Use of innovative technologies** (e.g. waste to oil), policies/strategies (e.g. EPR, DRS), and enforcement mechanism

Plastic Waste in Delhi

- Assessment and characterization of plastic waste in NCT
 - 10% of solid waste
 - Per capita per day of plastic waste - 53.6 grams
 - High amount of waste generation in comparison to the capacity of landfill availability
 - Littering and open dumping of plastic waste common
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- Insights from UNEP's CounterMEASURE project
 - Low value plastics like LDPE and MLPs were the most common type of plastic waste
 - Littering was the main source of plastic leakage
 - Illegal dumpsites were the most common hotspots



Moving ahead

Infrastructure and capacity for overall waste management -recycling, treat

Supply chain for uptake of recycled products

Coordination across stakeholders for effective implementation of EPR on plastic packaging

Legacy plastic waste

Inclusion of informal workers supporting the collection

Monitoring and verification systems including punitive measures for defaulters

Scaling up of feasible alternatives to SUPs based on a life cycle approach

Consumer awareness

UNEP's work in India

Taking forward PM's vision for phase out of SUPs by 2022

New science	Macro plastics hotspots and leakage pathways
	Micro-plastics concentration
Technical and policy support to MoEFCC	Technical support to Marine Litter Cell in MoEFCC
	Research and stakeholder engagement to support action on alternatives, recycling, EPR
Strategies and action plans at city, state, and national level	Haridwar, Agra, Prayagraj, Patna
	Uttarakhand, Bihar
Capacity building	Approach paper for national action plan
	For ULBs in partnership with NIUA
Awareness and outreach	With MoEFCC, NMCG Support from Governments of Norway, Japan



Tide Turners Plastic Challenge

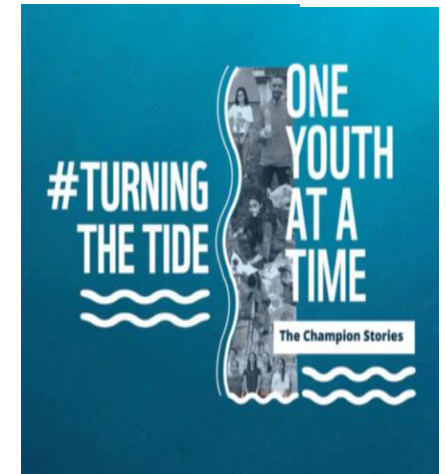
Engaging youth to address plastic pollution

33 countries; India
initiated in 2019; 8
States in 2019 to 28 States
in 2021

Partnered MOEFCC with
1049 eco clubs

Challenge taken by
300,000+ youth.
6500+ qualified as
champions in India

Completed 3 sessions 4th
session to end in Jun, 2022



Looking ahead: building youth as agents of transformative action

- Reach out to critical mass of youth

THANK YOU



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