

Micro-plastics Regulation

Mains: GSIII - Environment

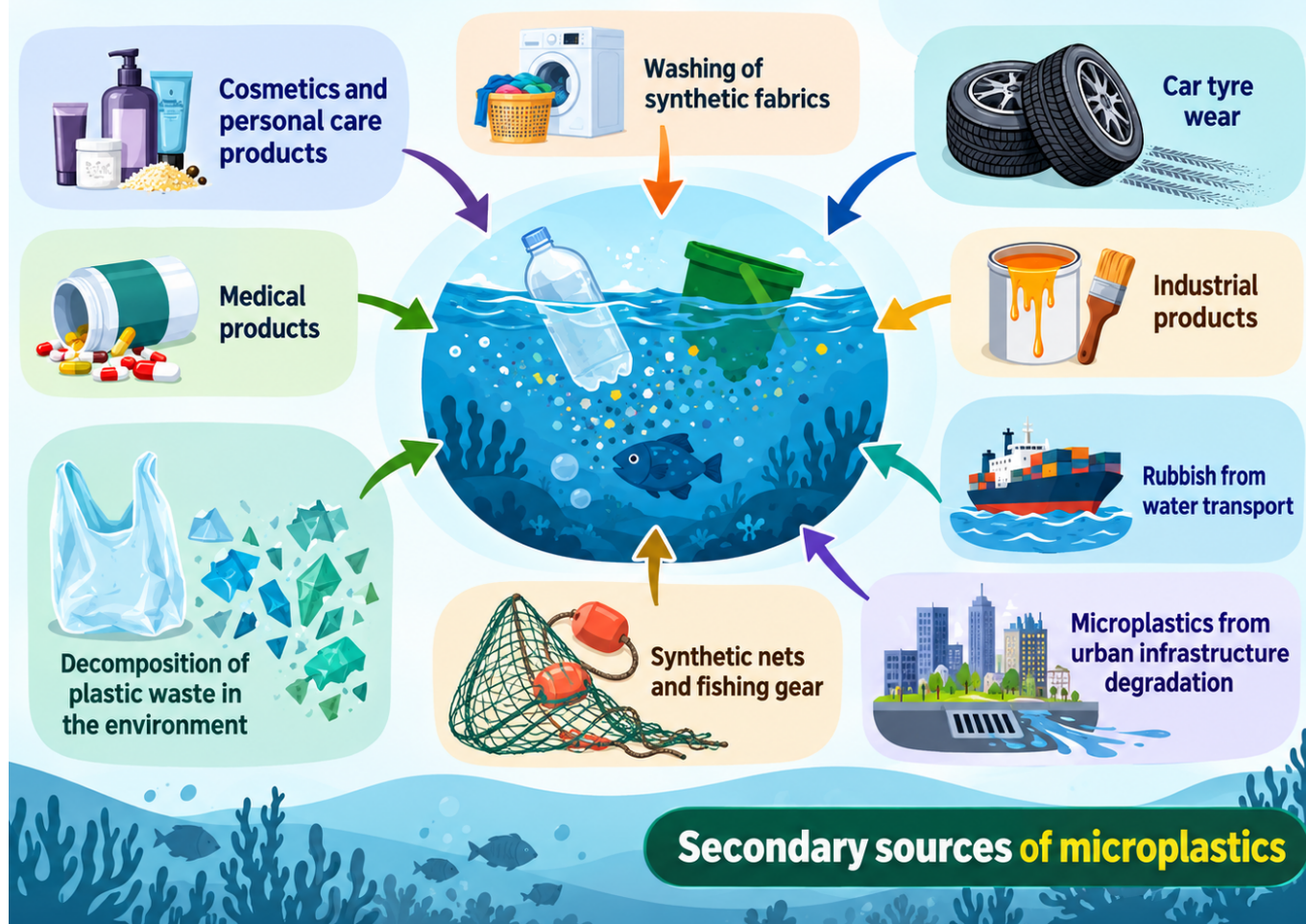
Why in News?

Countries are expanding regulations on microplastics from tyres, textiles, paints and plastic pellets, shifting from waste management to source-based pollution prevention.

What are Micro-plastics?

- **Microplastics** - These are plastic particles generally ranging 1 micrometre (μm) to 5 millimetre (mm).
- Unlike conventional plastic waste, they are difficult to capture after release and originate from diverse sources.
- The major sources of microplastics are:
 - Untreated sewage from many cities along the river's course
 - Industrial waste
 - Religious offerings wrapped in non-degradable plastics
- They have been detected in water, soil, food and air, as well as human biological samples such as blood, placenta and breast milk.
- Their potential health impacts are a growing concern, although the extent of associated risks is still under investigation.
- Microplastics are harder to regulate because they originate from multiple sources and are often too small to capture through conventional plastic-waste policies.

Primary sources of microplastics



What are the Emerging Global Regulatory Approaches for Micro plastics?

Regulation of Intentionally Added Microplastics -

- **United States** - The Microbead-Free Waters Act, 2015 was an early major intervention.
- It banned rinse-off cosmetics containing intentionally added plastic microbeads.
- **Canada** - From 2018, Canada prohibited the manufacture and import of toiletries containing plastic microbeads.
- **United Kingdom** - In 2018, the UK banned the manufacture of rinse-off cosmetics and personal-care products containing microbeads.
- **Thailand** - Thailand prohibited the production, import and sale of rinse-off cosmetics containing plastic microbeads from 2020.
- **European Union** - Commission Regulation (EU) 2023/2055, adopted under the EU's REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) framework.
 - It restricts intentionally added synthetic polymer microparticles and covers products such as cosmetics, detergents, cleaning products.
- **Addressing Human Exposure - United States** Microplastics Safety Act (H.R. 4486), introduced in 2025.

- It seeks to study the potential impacts of microplastics in food and water.
- It proposes that the U.S. Department of Health and Human Services, through the Food and Drug Administration (FDA), examine their potential human-health impacts.
- **Other** - A major regulatory challenge is microplastics that are not deliberately added but are generated when products wear, abrade or shed particles.
 - **Major Sources** - Tyres, Synthetic textiles - Release fibres, particularly during washing, Paints - Generate particles through weathering and wear.

Evidence from IUCN

- According to the **International Union for Conservation of Nature (IUCN)** -
 - Synthetic textile laundering accounted for 34.8% of microplastics entering the world's oceans.
 - Tyre erosion accounted for 28.3%.
- Together, they represented nearly two-thirds of releases under its central scenario.

- **European Measures on Tyres and Vehicles** -
 - **EU - Euro 7** - Regulation (EU) 2024/1257, commonly known as Euro 7, introduces requirements for non-exhaust vehicle emissions.
 - It includes controls related to Brake-particle emissions, Tyre abrasion.
- **Tackling Textile Microfibres** -
 - **France** - France's **Anti-Waste for a Circular Economy Law (AGEC Law), 2020** addresses textile microfibre pollution.
 - From January 1, 2025, new domestic and professional washing machines must be equipped with -
 - A microfibre filter, or Another solution capable of reducing fibre dispersion.
- **Plastic Pellets - Preventing at Source** - EU Regulation (EU) 2025/2365 requires companies and carriers to prevent, contain and clean up pellet losses.

Plastic pellets, also called nurdles, are small industrial plastic particles used as raw material for manufacturing plastic products.

*The **EU Zero Pollution Action Plan** aims to reduce microplastic releases by 30% by 2030.*

What is the Significance of the Emerging Rulebook?

- **Lifecycle Regulation** - Governments are increasingly regulating plastics across their entire lifecycle, rather than only after disposal.
- **Preventive Approach** - The focus is shifting towards preventing microplastic emissions at source.
- **Product Responsibility** - Manufacturers and users are increasingly being made responsible for the particles released by products during production, transport, use.
- **Broader Environmental Governance** - Microplastics are no longer treated merely as a marine pollution issue,
- but as a wider concern involving terrestrial ecosystems, food, air and human exposure.

What are the Challenges Ahead?

- **Scientific Uncertainty** - Health impacts and long-term ecological consequences are still being studied.
- **Multiple Sources** - Diverse sources make uniform regulation difficult.
- **Detection and Monitoring** - Tiny particles are difficult to measure, trace and remove.
- **Legacy Pollution** - Existing environmental contamination cannot be addressed merely by preventing future releases.
 - Existing microplastics in rivers, oceans and soil will persist, while plastic waste continues to fragment.
- **Industry Compliance** - New standards for products, machinery and industrial handling can impose compliance costs.
- **International Coordination** - Microplastics cross national boundaries through oceans, rivers and atmospheric transport.

What could be done?

- Develop harmonised **global standards for definitions**, measurement and monitoring of microplastics.
- **Strengthen source-specific regulations** covering tyres, textiles, paints, cosmetics and plastic pellets.
- **Promote microplastic-safe product design** and cleaner production technologies.
- **Expand monitoring** of water, soil, food and air for microplastic contamination.
- **Invest in research on human-health** and ecosystem impacts.
- Establish systems for identifying and **managing legacy microplastic hotspots**.
- Promote international cooperation under broader global efforts to combat plastic pollution.

What lies ahead?

- The emerging global rulebook on microplastics represents a fundamental shift from “managing plastic waste” to “preventing plastic pollution at source.”
- Effective regulation must therefore cover the entire lifecycle of plastics, scientific research and international cooperation to reduce microplastic pollution.

Reference

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