

Avoidable and problematic plastics

Main messages

- Plastic pollution is a global challenge in need of reduction, substitution and recycling efforts.
- Distinct criteria of problematic and avoidable plastics, including short-lived and single-use plastic products and intentionally added microplastics, will allow for targeted interventions, considering factors like essentiality and feasibility of alternatives.
- Local context plays a crucial role in determining avoidable and problematic plastics.

Background

To effectively address plastic pollution, we need to focus on “turning off the tap”, giving priority to reducing plastic usage, exploring alternatives, and innovative product and material designs.^{1,2} Substantial systemic changes aimed at reducing, substituting, and recycling could effectively tackle approximately 70% of the world’s plastic produced.³

In the revised draft treaty text,⁴ Part II element 3 emphasises problematic and avoidable plastics, aiming to establish criteria for specific products and categories, including intentionally added microplastics. There is a need to develop global standards, annexes, and protocols for various products or groups of products, such as ‘plastic products’, ‘intentionally added microplastics’, ‘avoidable’ products eligible for phase-out, and ‘problematic’ items subject to reduction measures.

Defining problematic and avoidable plastics

Developing distinct classifications for problematic and avoidable plastics allows for identification of specific control measures, such as eliminations without replacement and redesign in support of resource efficiency. Traditionally, problematic and avoidable plastics are associated with single-use items like bottles, bags, and packaging, which make up a significant portion of global plastic waste and are prone to becoming litter and commonly found in the environment due to misuse.^{5,6} However, the concern extends beyond single-use items to include additives found in plastics, and their corresponding toxicity impacts^{7,8} which eventually also hamper recycling. As we prioritise reduction in tackling plastic pollution, using a science- and evidence-based approach to classify which plastics are problematic and avoidable, becomes crucial.

Microplastics, plastic particles measuring less than 5 millimetres in size, are derived from both intentional and unintentional sources.⁹ Intentional sources include cosmetics, cleaning agents, fertilizers, hygiene and personal care products, while unintentional sources encompass the degradation of primary plastics, roads, tyre dust, synthetic textiles, paints, marine coatings, fishing gear, plastic processing, legacy waste, wastewater treatment, and industrial activities. These tiny plastic fragments pose significant environmental risks and contribute to the broader issue of plastic pollution, thus warranting attention within frameworks aimed at identifying problematic and avoidable plastics.¹⁰

Problematic plastics have adverse impacts across their life cycle, but are difficult to phase out due to essential use. Therefore, criteria for identifying problematic plastics are needed. Criteria may include: containing hazardous chemicals, causing harm to the environment or human health, emissions, and subsequent challenges in recycling or reuse. Avoidable plastics, on the other hand, are either non-essential and can be eliminated; or are essential but can be reduced through alternatives. Criteria for identifying avoidable plastics may consider their essentiality, feasibility of alternatives, potential for reuse or redesign, and lifespan improvement.¹¹ UNEP has reported on the potential to adopt alternatives to avoidable plastics to reduce marine litter, however, life cycle assessments are important, so that replacement materials are examined for trade-offs and unintended consequences.¹² Local context also plays a crucial role in determining avoidable and problematic plastics.¹³

Application-based approach

Every year, over 400 megatonnes of new plastic is produced globally, with packaging (36%), textiles (14%) and consumer products (10%) comprising over half of all plastic produced. Many of these products have short lifespans and quickly become waste.¹⁴ An application-based approach could encourage a focus on major plastic users like the packaging industry, where reductions in single-use plastics, such as sachets and multilayer film packaging, could reach 44%. Textiles, now predominantly synthetic fibres, contribute to microplastic pollution, while “fast fashion” exacerbates concern of production and end-of-life management.¹⁵ Consumer products vary widely in essentiality, therefore context-specific evaluations for classification are necessary. Phasing out non-essential consumer products and designing essential consumer products with reuse or recyclability in mind is crucial for achieving circularity, while exploring global standards for toxicity removal could improve overall product sustainability.

Polymer-based approach

The top four polymers used across major sectors are polypropylene (PP) (17%), low density polyethylene (L/LLDPE) (16%), polyester, polyamide and acrylic (PP&A) (14%), and high-density polyethylene (HDPE) (13%).¹⁶ PP is the most widely used, but not widely recycled, while L/LLDPE, used for flexible packaging, poses challenges for recycling due to multi-layer applications. PP&A in textiles are not widely recycled and are a significant source of microplastics, but are reused in the second-hand clothing market. HDPE is widely used and recycled, although colour variability hampers recycling efforts.

Other major polymers include polyvinyl chloride (PVC) (10%), mainly used in construction, which raises toxicity concerns and emits dioxins when burned¹⁷ Polyethylene terephthalate (PET) (9%) is vital for water packaging but requires specific design for recycling. Polyurethane (PUR) foam, like PVC, is reported as toxic.¹⁸ Expanded polystyrene (EPS) (6%), used for single-use items, is problematic due to poor recyclability and easy fragmentation into microplastics. Other polymers (4%), such as polycarbonate and acrylonitrile butadiene styrene (ABS), are not recyclable and may contain toxic additives. Alternative plastics such as compostable or biodegradable plastics, if not designed and managed properly, may also contain toxic additives and increase greenhouse gas emissions.

Opportunities

- An application-based approach provides opportunities to focus interventions on major plastic product producers and specific product categories, including intentionally added microplastics.
- Designing essential consumer products with reuse, repair or recyclability in mind can enhance circularity and sustainability.
- Exploring global standards for toxicity removal and alternative materials can improve overall product safety and sustainability.

Challenges

- Determining criteria for problematic and avoidable plastics requires navigating complexities in essentiality, transparency and recyclability.
- Identifying problematic and avoidable materials across various sectors and/or product groups (including intentionally added microplastics) presents challenges due to diverse applications and materials.
- Developing effective control measures is needed to overcome geographical disparities and to ensure fair regulations.

The table below outlines the language of the revised draft of the Intergovernmental Negotiating Committee for a legal instrument to tackle plastic pollution, including in the marine environment (28 December 2023) and the simple language equivalent, relating to Problematic and avoidable plastic products, including short-lived and single-use plastic products (Part 3.a)

Revised zero draft text	Synopsis
Element 3a: Problematic and avoidable plastic products, including short-lived and single-use plastic products and intentionally added microplastics	
<i>Alt. title: Problematic plastic products and avoidable plastic products and groups of such products, [including short-lived and single-use plastic products] and [products containing] intentionally added microplastics</i>	
0. No provision on this matter.	
Option 1.1	Option 1.1
1. Each Party shall [not allow][reduce] the production, sale, distribution, import or export of [the] plastic products, [including short-lived and single-use plastic products], listed in part II[1] of annex B [after the dates specified for those products, and] identified based on criteria [and within the timeframe set out in the same] [provided alternatives or substitutes are available, accessible, affordable, and environmental-friendly] [set out in part I of] annex [B], except where the Party has a registered exemption for the relevant product(s) under part II of annex B pursuant to [Part II.4 on exemptions available to a Party upon request]. [This provision does not limit Parties' abilities to enact bans or adopt more ambitious criteria in addition to the criteria in part I of annex B.]	Shall [not allow] [reduce] specific plastic products listed in annex B by specified dates , if alternatives are available and accessible as detailed in annex B. Exemptions available.
OPI Alt 1. No text.	
OPI Alt 2. Each Party must take the necessary measures to regulate and reduce and not allow the production, sale, distribution, import or export of the plastic products, including short-lived and single-use plastic products, listed in part II of annex B after the dates specified for those products, and identified based on criteria set out in part I of annex B, except where the Party has a registered exemption for the relevant product(s) under part II of annex B pursuant to [part II.4 on exemptions available to a Party upon request].	Must take measures to regulate, reduce and not allow specific plastic products listed in annex B by specified dates if alternatives are available and accessible as detailed in annex B. Exemptions available.
Option 1.2	Option 1.2
2. Each Party shall [reduce] [restrict] the production, sale, distribution, import or export of [the]** plastic products listed in part III of annex B identified based on the criteria and within the timeframe set out in the same annex.	Shall [reduce] [restrict] of [the] specific plastic products listed and as defined by criteria in annex B, within timeframe set out.

Option 2.1	Option 2.1
1. Each Party [should] [shall] take [the necessary] measures [, consistent with national laws,] [to regulate] [and] [to] [reduce and] [, as appropriate,] [the use of problematic and avoidable plastic products, including short-lived and single-use plastic products in its territory.] [not allow the production, sale, distribution, [import or export] of problematic and avoidable plastic products, including [short-lived] and single-use plastic products [with high risk of environmental leakage], identified based on [[national criteria guided by] the criteria contained in part I of annex B] [by the governing body* after enforcement of the instrument*] [taking into consideration technical feasibility and accessibility of alternative plastics and plastic products, and socio-economic impacts]. The measures taken to implement this provision, including the appropriate nationally determined timeframes for reduction and [as appropriate] phase-out, shall be reflected in the national plan communicated pursuant to [Part IV.1 on national plans]. [This provision does not limit Parties' abilities to enact bans or adopt more ambitious criteria in addition to the criteria in part I of annex B.]]	[Should] [shall] take measures to [regulate] [reduce] specified products identified based on [national criteria guided by] criteria in annex B [after enforcement of instrument] [taking into account feasibility and accessibility]. Measures include nationally defined timeframes for reduction and [appropriate] phase-out, reflected in a national plan .
OPI bis. Each Party should identify at the national level a list of problematic and avoidable plastic products	Should identify a list of problematic and avoidable plastic products at the national level
OPI Alt 2. Subject to its national action plan and based upon national circumstances and capabilities, each Party should take the measures to regulate the production, sale, distribution, of problematic and avoidable plastic products, including short-lived and single-used plastic products, identified based on the science-based criteria [with an application-based approach]. The measures taken to implement this provision shall be reflected in the national plan communicated pursuant to [Part IV.1 on national plans]	Should feasibly take measures to regulate specified plastic products, based on science-based criteria [with application approach]. Measures shall be reflected in national plan .
OPI bis Alt 2. The governing body* shall develop guidance on the regulation of problematic and avoidable plastics based on scientific criteria and take into account the availability, accessibility and affordability of sustainable alternatives	Governing body shall develop guidance on the regulation of problematic and avoidable plastics based on scientific criteria and feasibility .
OPI ter Alt 2. For implementation the Parties must promote the development of safe and cost-effective alternatives and such knowledge and technologies must be shared freely among all the Parties.	Promote the development of safe and cost-effective alternatives .
OPI quater Alt 2. The cost of compliance of control measures shall be assessed for each country and funding shall be made available through the dedicated fund as per a procedure decided by the governing body* to enable compliance of control measure.	Cost of compliance measures shall be assessed for each country and dedicated funding made available through decision of governing body.
Option 3.1	Option 3.1
1. Parties are encouraged to take measures to gradually reduce the use of problematic and avoidable plastic products, identified on the basis of relevant parameters, and based on the availability, accessibility and affordability of sustainable alternatives, in particular to developing countries, taking into account their national circumstances and capability.	Encouraged to take measures to gradually reduce the use of specified plastic products, based on feasibility and national circumstances .

Resources

WWF's report by Eunomia identifies 17 core product groups for regulation, categorised into those in need of elimination or reduction, and those requiring safe circulation and management, based on a risk-based analysis and a feasibility study (WWF, 2023). The New Plastics Economy Global Commitment promotes the use of voluntary criteria for problematic and unnecessary plastic packaging or plastic packaging components among global commitment signatories in several countries (EMF, 2023). Annex I to the Commission proposal for a European Union (EU) Regulation setting eco-design requirements for sustainable products and repealing Directive 2009/125/EC proposes product parameters for sustainable product regulation (European Commission, 2022).

A report from The Forum on Trade, Environment & the SDGs (TESS) outlines options for Trade-related cooperation on problematic and avoidable plastics building on existing experiences with single-use plastics (Sugathan & Birbeck, 2023). The report published by the Secretariat of the Basel, Rotterdam and Stockholm (BRS) conventions on global governance of plastics and associated chemicals conceptualises a potential scope for plastic pollution, including problematic, unnecessary and avoidable plastic products to be prioritised based on selection criteria (BRS, 2023). A concept note from Plastics Europe proposes the use of a decision-tree assessment (instead of a negative list) consisting of a hierarchical flow of questions to help identify and address either problematic and/or avoidable plastic applications (Plastics Europe, 2023).

Further reading

- ³ Pew Charitable Trusts, SystemIQ, 2020. Breaking the Plastic Wave: A Comprehensive Assessment of Pathways towards Stopping Ocean Plastic Pollution. The Pew Charitable Trusts: Washington, DC.
- ⁴ UNEP, 2023. Revised draft text of the international legally binding instrument on plastic pollution, including in the marine environment (No. UNEP/PP/INC.4/3).
- ⁵ European Commission, 2021. Single-use plastics.
- ⁶ Plastics Europe, 2021. Plastics – the Facts 2021: An analysis of European plastics production, demand and waste data.
- ¹⁰ EU, 2023. Commission Regulation (EU) 2023/2055 of 25 September 2023 amending Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards synthetic polymer microparticles.
- ¹¹ TemaNord, 2024. Global criteria to address problematic, unnecessary and avoidable plastic products.
- ¹² UNEP, 2018. Exploring the potential for adopting alternative materials to reduce marine plastic litter.
- ¹³ UNCTAD, 2023. The pressing case for natural and environmentally friendly substitutes to plastics. (No. UN Doc. UNCTAD/DITC/TED/2023/2).