Releases and leakages: Why is this article important and what could be improved?

Primary polymers, chemicals, or particles of all kinds can be intentionally or unintentionally added to plastic products. Their releases and leakages occur throughout the full life-cycle of plastics and end up in the environment, food, and organisms. Emissions from plastics include greenhouse gases (GHGs), chemicals and air pollutants (e.g. volatile organic compounds, micro/nanoplastics), as part of leakages and releases. Article 7 is essential for prevention (ensure that releases and leakages are primarily prevented), monitoring and reporting at regional, national and global levels, and for safe and sustainable remediation where feasible.

To be effective, this article is best considered alongside others within the Chair's text, since avoiding releases and leakages throughout the plastics life-cycle and the operationalization of those articles including the following:

- Regulating chemicals and products of concern, in particular addressing products with a high likelihood of releases and leakages (Article 3)[1].
- Promoting safe, sustainable, essential and transparent product design (Article 5)[2].
- Regulating plastics to achieve sustainable production (Article 6) and prioritizing upstream measures (i.e. measure relating to the extraction and processing of feedstocks (bio- and fossil-fuel based) and production and processing of plastic monomers, polymers and associated chemicals)[3], since downstream measures (waste treatment, waste transport and trade, mechanical recycling, remediation) are, themselves, sources of plastic pollution releases and leakages[4,5].
- Aligning with waste hierarchy and circular economy ambitions (Article 8).
- Effective and just financial mechanisms (Article 11) focused on upstream measures to enable the development and implementation of provisions.
- Consistency with the definitions set-out in Article 2[6], specifically those for plastic pollution (forms and sources) and the environments they contaminate (incl. soils, surface freshwater, groundwater, marine waters, cryosphere, atmosphere, biota), and food, drinking water or indoor air, which are significant exposure routes.

Which forms and sources of releases and leakages from plastics are important to consider?

Forms of plastic pollution include, but are not limited to, macroplastics, micro- and nanoplastics, chemicals, air pollutants, GHGs and air-borne particles. Sources of pollution are found throughout the full life-cycle of plastics from resource extraction (or production of biomass for bio-sourced plastics), during production of monomers, additives, polymers and plastic products, during plastic use and remediation[7].

Macroplastics are released into the environment during the production, transport, use and waste management of plastics[8]. Microplastics are manufactured at a size inferior to 5 mm or generated by the breakdown of macroplastics in the environment. Their release or breakdown in the environment occur at all stages of the plastic life-cycle (incl. production, use, waste management and remediation). Intentionally added microplastics such as those present in paints, personal care products, and industrial abrasives are major sources of microplastics. Microplastics are also generated by synthetic textiles (around 1.02 million tonnes of microfibers emitted each year), tyre and roadwear (around 3.6 million tonnes of microplastics each year), food contact materials, fisheries, aquaculture, agricultural plastics, international trade of plastics (officially 230,000 tonnes of pellets were lost globally in 2023), fly ash from incinerated plastics, mechanical recycling and other waste management strategies[5].

How could Article 7 of the current Chair's text be improved?

In paragraphs 2 and 3, reference to "accessible and affordable technologies and measures for preventing releases and leakages into the environment" weakens the article. Plastic pollution is transboundary, as are the releases and leakages, with local to global impacts, necessitating global, binding provisions. Similarly, paragraph 5 ("In implementation of this article, Parties may take into account national circumstances and capabilities.") risks limiting action to the national level. Financial, technical and capacity support mechanisms will be needed

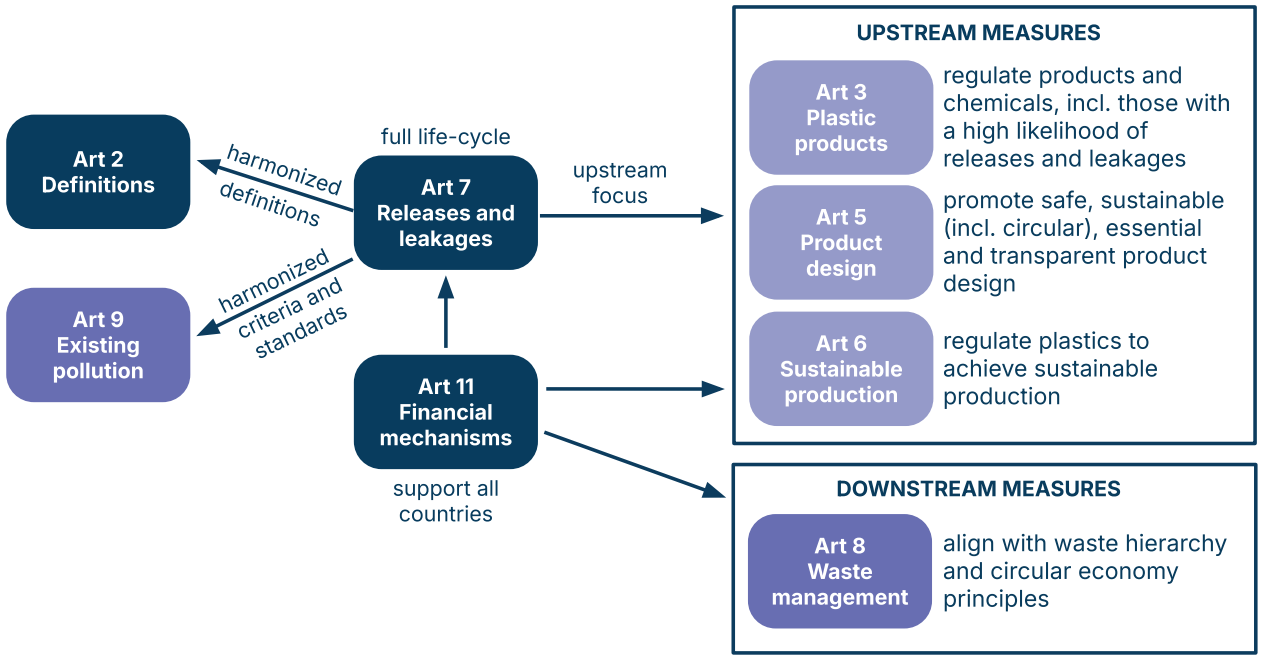

Figure 1: Key links between Article 7 and other articles in the Chair's text, indicating the importance of Article 7 to the Treaty.

if the treaty is to effectively compensate for differences in national circumstances and capabilities. These mechanisms will need to be designed to provide equitable access for all member states to the best available technologies, as well as the capacity building, and finances needed to prevent further releases and leakages. These mechanisms will also enable the development and implementation of provisions, at system, business, service, economic, social and technical levels, in order to reduce releases and leakages from the full life-cycle of plastics. Financial mechanisms or financing actions prioritizing upstream measures (polymer production reduction, chemical simplification, safer and more sustainable product and system design) will be more effective to decrease releases and leakages, than at waste management phase (recycling, incineration, waste transport and trade and remediation)[9,10].

The Chair's current text leaves out a few important aspects that will be needed to operationalize the goals of this article:

- Standardized and independent methods (guidelines, data collection, indicators, criteria and thresholds) for identification and monitoring of plastic releases and leakages (linked to Article 9 on existing plastic pollution).
- Standardized and harmonized protocols for monitoring, data analysis and evaluation, and reporting frameworks.
- Transparent reporting mechanisms from sub-national to global levels to provide information on the production, use and waste flows of plastics, chemicals and products.
- Standardized and harmonised systems for labeling, tracing, monitoring plastic polymers, chemicals and products, throughout the entire supply chain, to report and effectively remedy any release and leakage (cf. proposed EU regulation on preventing plastic pellet losses to reduce microplastic pollution).
- Harmonised criteria to assess the safety and sustainability of removal and remediation technologies[11] where releases and leakages have occurred, for effective remedy, with regular transparent monitoring and reporting for global evaluation of their effectiveness.
- Financial incentives for implementing the proposed actions[6].
- A subsidiary body free from conflicts of interest[12] to guide choice and implementation of the best approaches to prevent plastic releases and leakages, considering associated environmental, economic, social, cultural and human health impacts[13].

MEA	What it addresses	Limitations
Basel Convention, incl. Its Plastics Amendment	Regulation of plastic waste trade	Does not address production and use of plastics
Rotterdam Convention	Regulation of international trade of hazardous chemicals	No restriction on chemical use
Stockholm Convention	Regulation of chemicals listed as Persistent Organic Pollutant (POP)	Little overlap with plastic chemicals
Montreal Protocol	Ozone-depleting chemicals	
Minamata Convention	Mercury-containing chemicals	
Globally Harmonised System (GHS)	Information exchange on physical hazards and toxicity of chemicals	Not legally binding, not adopted or implemented by all UN Member States
MARPOL Convention	Sea-based sources of marine litter	Does not address land pollution (the major source of marine plastic pollution[16])
UNCLOS Convention	Defines and regulates maritime areas	No specific regulation for plastic waste; no monitoring or control of pollution

Table 1: Do existing MEAs already address plastic releases and leakages into ecosystems?

Do other Multilateral Environmental Agreements (MEA) already sufficiently address releases and leakages from plastics?

Finally, it is worth noting that no other MEAs sufficiently addresses the releases and leakages of plastic pollution into ecosystems, because existing MEAs

- do not address the earlier life-cycle stages of plastics (e.g. product design to reduce releases and leakages). As such they fall short of fulfilling the Resolution 5/14 mandate to address the full life-cycle of plastics[14];
- do not address critical elements such as single-use plastics, micro/nanoplastics or plastic polymers of concern;
- do not set global criteria and standards for safe and sustainable production, use, removal and remediation as we would hope to see in the future global plastics treaty; nor do they
- cover very few of the at least 3,600 plastic chemicals of concern[15], while most of the 16,325 plastic chemicals are missing information on their potential health hazards.

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