

ENHANCING CONTROLS TO PROTECT HUMAN HEALTH FROM PLASTICS

Resolution 5/14¹ was approved at UNEA in March 2022, setting an ambitious goal to end plastic pollution including in the marine environment through the development of an international legally binding instrument. This Plastics Treaty is intended to include all impacts from plastics throughout their lifecycle. To address these impacts, the health and environmental effects from toxic chemicals in plastics, including in the waste stage, must be addressed. Resolution 5/14 requires the Treaty to promote sustainable production and consumption of plastics through, among other means, product design and environmentally sound waste management, including through resource efficiency and circular economy approaches.

Understanding the Science and the Plastics-Health Linkages

Plastics are made from a mix of chemicals, which are mostly made from fossil fuels. At the exploration, mining, and extraction phases of precursors of major plastic materials, toxic pollutants are produced and released into the environment. Additional chemicals are added to plastic polymers (which are large numbers of similar chemical units bonded together) to provide specific functions, such as flexibility, stability in sunlight, fire resistance, and others. Over 10,000 different chemicals are known to be used in plastics. The links are increasingly clear between plastics and their associated chemicals and plastic pollution with its detrimental effects on human health and the environment.

Plastics pose adverse health impacts at every stage of their lifecycle:

- **When fossil fuels are extracted and used as feedstock for plastics, toxic pollutants** are used and released into the environment. Emissions and releases at the extraction phase especially affect communities living around the industrial complex.²
- **When plastics are made**, workers and communities near plastic production facilities are exposed to toxic chemicals that can contaminate their air, water, dust, and food.
- **In the products people use every day** there are



hazardous chemicals, including in consumer products made from new and recycled plastics. Toxic chemicals have even been found in plastic toys and other plastic products intended for vulnerable populations.

- **When plastics are recycled** into new products, toxic chemicals from the used products are transferred to the new products. These toxic chemicals threaten workers both in the formal and informal sectors.³
- **When plastic wastes are disposed of** they are either dumped, burned, or landfilled. Open burning

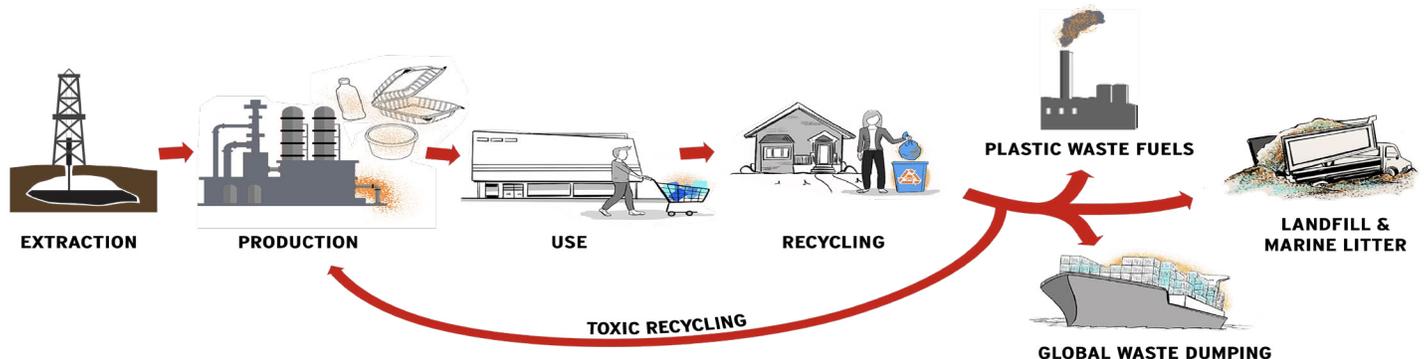
and incineration of plastic wastes emits dioxins and other toxic chemicals into the air and generates highly hazardous ash and residues that are typically dumped or landfilled, contributing to the environmental dispersal of highly toxic chemicals. Toxic plastic additives can leach out of solid waste and contaminate surrounding food chains and waterways.

• **When plastics enter marine environments** they leach toxic chemicals that compromise aquatic organisms' ability to reproduce, threatening the food chain. Ocean plastic debris can spread toxic chemicals globally and plastics also attract and carry chemicals globally, acting as vectors for chemicals of concern. This accumulated chemical load can make plastics even more dangerous to wildlife and the food chain.

Plastic particles carrying toxic chemicals can enter the body in a variety of ways. Although the health effects of exposure to plastic particles are not yet fully understood, research has shown that humans are exposed to micro- and nano-plastics through consumption, inhalation, and skin contact. Many common plastic chemicals are endocrine disruptors. Animal studies have shown that the harmful health effects from these chemicals can be passed down across generations, meaning that chemicals in plastics that harm our health may harm our children's and grandchildren's health.⁴

Why a Global Treaty on Plastics Must Protect Health

Scientific evidence shows that we have exceeded the "planetary boundaries" for chemical production and plastic pollution, meaning that production and emissions may threaten the stability of the entire global ecosystem. Providing for global control of the health impacts of the chemical ingredients used in plastics is necessary because plastics cross borders in many uncontrolled ways throughout their lifecycle:



• In the **extraction and feedstock production** phase: The raw materials that are used to make plastics (mostly oil and gas) cross borders as they are transported between extraction sites, then to feedstock production sites, and then to material production sites. Chemicals released into the environment during extraction and feedstock production can also be transported over large distances via water and atmospheric transport.

• In the material **production** phase: As plastic materials made with toxic chemicals are used in virtually every sector of the economy, their supply chain is complex. Plastics are known to cross borders several times even before they are made into useful products. Pre-production pellets are manufactured and transported, and plastic articles and unfinished products are often traded before they are incorporated into products.

• In the **use** phase: Plastic products carrying toxic chemicals may be exported to several different countries before they are sold and used by consumers.

• In the **waste** phase: Plastic wastes with toxic chemicals can cross borders several times. After being collected, they may be exported for sorting, then exported again to recycling facilities or for final disposal.

At all these stages plastics have toxic impacts and leach hazardous chemicals. However, countries can align in creating common standards for tracking chemicals in plastic materials and creating global sustainability standards that make non-toxic plastics part of a circular economy. Such standards would help reduce resource consumption, increase the useful life of plastic materials, and increase the likelihood that plastics can be recycled in closed loops, or at least not be downcycled.

Plastics Treaty Complementarity with Existing MEAs on Chemicals and Waste

Plastics and chemicals are regulated under several other multi-lateral environmental agreements (MEAs). Several plastics and some chemicals used as plastics ingredients are regulated under the following MEAs which include plastics and chemicals related to plastics:

- The Stockholm Convention is a global treaty that aims to protect human health and the environment from the effects of persistent organic pollutants (POPs). While many of the chemicals covered by the Stockholm Convention are relevant to the lifecycle of plastics, it does not cover hazardous chemicals that are not considered POPs but are widely used in the lifecycle of plastics, such as bisphenols and phthalates.
- The Basel Convention aims to protect human health and the environment from the adverse effects resulting from the generation, transboundary movements, and management of hazardous wastes and other wastes. However, it does not cover the design of materials to prevent waste or hazardous waste production. Additionally, not all plastics are included in its scope, and it does not cover chemicals of concern used in plastics.
- The Rotterdam Convention aims to protect human health and the environment through informed decision-making by countries with regard to trade in hazardous chemicals. It establishes a list of covered chemicals and requires countries exporting a chemical on that list to first receive a prior informed consent (PIC) from the importing country. The obligation to receive prior informed consent includes chemicals subject to bans or severe restrictions in the exporting country. Some of the chemicals identified under the Convention and many banned or severely restricted chemicals are used in plastic materials.
- The Montreal Protocol on Substances that Deplete the Ozone Layer protects human health and the environment from adverse effects resulting or likely to result from human activities which modify or are likely to modify the ozone layer. It covers chemicals used in certain plastics.
- The Strategic Approach to International Chemicals Management (SAICM) is a voluntary policy frame-

work to promote chemical safety around the world. SAICM's overall objective is the achievement of the sound management of chemicals throughout their lifecycle, including waste, so that they are produced and used in ways that minimize significant adverse impacts on the environment and human health. Many "Emerging Policy Issues" and "Other Issues of Concern" are relevant to plastics, such as chemicals in products, chemicals in electronics, and endocrine disrupting chemicals.

While all these instruments are aimed at the protection of both human health and the environment and include plastics and plastic ingredients, their goals only partially overlap with the intention of the Plastics Treaty. A Plastics Treaty that aims to eliminate negative impacts of plastics throughout their lifecycle, based on non-toxic circular economy principles and intervening on the design of plastic materials and products, would help achieve the environmental and health objectives of other MEAs. Such an approach for the Treaty could help prevent the inclusion of POPs and ozone-depleting substances in plastics, reduce the amount of hazardous waste, and increase the transparency of information in the supply chain.

Therefore, the Plastics Treaty could regulate areas in the lifecycle of plastics that are not covered by other MEAs and help prevent the harmful health and environmental impacts of plastics and their chemical ingredients beyond the scope of the Basel, Rotterdam, and Stockholm Conventions, in particular.

Lessons Learned from Other MEA's Covering Plastics, Chemicals, and Waste

- **Adopting sustainable design criteria can avoid chemical hazards.** The lack of precautionary design criteria for plastics creates material flows that include toxic chemicals and leads to burdensome decision-making in the identification and phase-out of chemicals in plastics that are health and environmental concerns.
- **Assessing chemical families can avoid poisonous substitutions.** Individual chemicals from related groups or families usually present similar hazards, but by adopting mostly a one-by-one regulatory approach, we allow similarly harmful chemicals to be used often for decades after related chemicals have been re-

stricted.

• **Providing information on plastics' composition can lead to producers' awareness, consumer confidence, and safer recycling and disposal.** A lack of or insufficient knowledge about and communication of the ingredients of plastic materials in the supply chain and in products sold to consumers leads to ignorance about plastics' ingredients. Manufacturers of products with plastic components may not always be aware of the toxic ingredients in their plastics. Also, lack of traceability leads to the mismanagement of plastics containing hazardous chemicals. For example, recycling plastics with harmful chemicals results in toxic consumer products and exposure to workers, particularly in the informal sector.

• **Regulating toxic plastics and promoting alternative materials can avoid harmful wastes.** Lack of controls on the production of plastics of concern triggers large quantities of hazardous waste streams that are challenging to manage in an environmentally sound manner. Recycling these creates an uncontrollable spread of hazardous chemicals into new products.⁵ Voluntary approaches have limited impacts in harmonizing the market for cleaner material flows.

Priority Interventions to Create Synergies and Increase Coherence with Existing MEAs on Plastics

To close the gap in existing MEAs dealing with plastics and chemicals, Plastics Treaty negotiators should consider the following priority recommendations of mechanisms to include in the Treaty to ensure increased health protections (in line with IPEN's Plastics Treaty Platform⁶):

• **Precautionary principle:** as in the Stockholm Convention, the objective of the Treaty should be the protection of human health and the environment based on the precautionary principle.

• **Plastics as carbon and chemicals:** definitions need to ensure that plastics are understood as materials that are made of polymers and chemicals and that plastic pollution includes impacts on human health from plastics and their ingredients throughout the plastics lifecycle.

• **Non-toxic circular economy:** the Treaty should reject the option of a toxic circular economy and the

recycling and reuse of plastic materials that contain hazardous chemicals should be avoided.

• **Transparency and reporting:** require reporting and transparency on the types and amounts of plastics produced, imported, and exported, as well as plastic waste generation, collection, and end-of-life management. Transparency on the chemicals used in plastics production and as plastic ingredients should be publicly available and communicated in the supply chain including to waste managers, recyclers, and consumers through labelling and databases.

• **Sustainability criteria for plastics:** the design of plastics should be informed by sustainability criteria that are compatible with a non-toxic circular economy, resource efficiency, and a low carbon economy. These can include, as a priority, a positive/negative list of polymers and a positive/negative list of chemicals, including groups of chemicals, to prevent so-called "regrettable" (poisonous) substitution and increase innovation.

• **Scientific review committee:** a scientific body should be established to review the sustainability criteria and add or remove chemicals and polymers of concern to ensure the Treaty is updated with current scientific knowledge, including reviewing the health and environmental harms from nano- and microplastics.

REFERENCES

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³ Human Rights Watch, (2022) "It's As If They're Poisoning Us" Health Impacts of Plastic Recycling in Turkey, https://www.hrw.org/sites/default/files/media_2022/09/turkey0922web_0.pdf

⁴ Trasande, L. (2022). A global plastics treaty to protect endocrine health. *The Lancet Diabetes & Endocrinology*, 10(9), 616–618. [https://doi.org/10.1016/S2213-8587\(22\)00216-9](https://doi.org/10.1016/S2213-8587(22)00216-9)

⁵ Article 6(d)(iii) of the Stockholm Convention on Persistent Organic Pollutants (POPs) prohibits the recycling of wastes contaminated with POPs to maintain toxic-free material cycles ⁶ IPEN, Plastics Treaty Platform: Protecting human health and the environment from toxic chemicals. Available in 6 languages at: <https://ipen.org/documents/ipen-plastics-treaty-platform>