



Information that could be of relevance to the Intergovernmental Negotiating Committee submitted by the World Health Organization (WHO)

Ensuring the integration of health aspects within the international legally binding instrument on plastic pollution, including in the marine environment

- The World Health Assembly, with representation from 194 Member States, has voiced its concern that the production, consumption, and disposal of plastic products, including microplastics and related chemicals, which can be released into the environment, may potentially impact human, plant, and animal health as well as the environment, directly and indirectly (WHA Resolution 76.17, 2023).
- Members of the Intergovernmental Negotiating Committee on Plastic Pollution (INC) broadly agree that the plastic treaty should protect both the environment and human health from plastic pollution. To achieve this objective a health perspective needs to be embedded in all relevant parts of the agreement.
- A health protective treaty will ensure that society continues to benefit from plastic's advantages while transitioning to plastic products that are free of harmful substances and do not pollute the environment during their lifecycle or beyond. It will also promote the climate-resilient and environmentally sustainable use of plastics in healthcare.

I. PLASTIC CRISIS IS ALSO A HEALTH CRISIS

Plastic pollution contributes negatively to the triple planetary crisis of climate change, biodiversity loss, and pollution, all of which pose serious concerns to human health. Moreover, scientific research has documented a wide range of risks and potential adverse impacts on human health at every stage of

Key guiding principles of WHO's position:

1. That pursuing the highest attainable standard of human and environmental health should be a core objective of the treaty.
2. The need to address the known and predicted health risks and exposures associated with plastic polymers, chemicals and additives, microplastics and nano plastics at all stages of the plastics lifecycle.
3. Ensuring access to safe and effective health products that are of good quality and are affordable, accessible and appropriate to those that need them.

the plastics lifecycle. The impacts are often greatest for people and communities in the most vulnerable situations, including children. The body of scientific evidence on these health implications continues to grow. Examples of the health aspects of plastics are given below:

- Numerous recent studies confirm that many of the thousands of **chemicals used in plastics (including monomers, polymers and additives)** are hazardous to health¹. These studies highlight that some of the chemicals and additives contained in plastics, and used in their production, are

¹ The Minderoo Foundation has developed a plastic health map – compiling human health research on a wide range of plastic associated chemicals, Plastic Health Map - Minderoo Foundation.

endocrine disruptors and can cause hormonal imbalance, reproductive disorders, infertility and increase the risks of renal disease and cancer². There is also growing evidence that exposure to chemicals in plastics can be linked to dyslipidemia, insulin resistance, obesity, and diabetes, all of which are risk factors for cardiovascular diseases³. Many of the chemicals used in plastics can be released during use of the plastic or following its disposal. Human biomonitoring studies frequently identify chemicals associated with plastics in both adults and children. Systematic evidence reviews have linked exposures to many of these chemicals to a range of adverse health effects, including effects on reproduction, child neurodevelopment, circulatory and respiratory disorders and certain cancers⁴.

- There is growing scientific evidence that **the release of nano- and microplastics across the life cycle of plastics** presents adverse health risks⁵. Microplastics are widespread in the environment, including biota, air, water and sediments in all regions of the world⁶, and in the human body. Microplastics that are found in the environment include: (1) plastic pellets, flakes and powder; (2) intentionally-added microplastics and additives; (3) secondary microplastics originating from products; and (4) secondary microplastics originating from degradation and weathering of larger pieces of plastic waste after deposit in landfills or when lost in the environment, including from recycling facilities⁷. Several recent reports, including by the European Commission (2023)⁸, UNEP (2023)⁹ and the World Health Organization

(WHO) (2019)¹⁰ and (2022)¹¹, highlight that nano- and micro-plastics accumulate in the human body, potentially causing inflammation, organ damage, and immune system disruption.

- **Production and consumption of plastics** has reached unsustainable levels with negative impacts on human health, climate and the environment. The vast quantity of plastics that accumulate daily in the environment also poses growing concerns for human health. For example, the Minderoo-Monaco Commission on Plastics and Human Health (2023)¹² highlighted that plastic waste leaches toxic substances into the environment, contaminating the air, soil, and water. Inhalation or ingestion of these harmful substances can lead to respiratory and gastrointestinal problems and neurological disorders, as noted in scientific publications¹³. Moreover, plastic debris can serve as a “trojan horse,” facilitating access for bacteria and other pathogens, increasing the risk of infectious diseases¹⁴, mainly where the debris accumulates in waterways and sewage and sanitation systems.
- **Certain groups in vulnerable situations are disproportionately exposed to health hazards and risks** across the entire lifecycle of plastics. These include workers, both formal and informal, and those engaged in waste management (including e-waste, waste picking and clean-up), and communities, including Indigenous peoples, particularly those living near extraction, production, and conversion facilities upstream, and incineration and landfills downstream at disposal¹⁵.

-
- 2 United Nations Environment Programme and Secretariat of the Basel, Rotterdam and Stockholm Conventions (2023). Chemicals in plastics: a technical report. Geneva; European Environment Agency, Human exposure to Bisphenol A in Europe, 2023; The Minderoo-Monaco Commission on Plastics and Human Health. Ann Glob Health. 2023; CIEL, Breathing Plastic, The health Impacts of Invisible plastics in the Air, 2023; Gore, A.C., La Merrill, M.A., Patisaul, H.B., and Sargis, R. Endocrine Disrupting Chemicals: Threats to Human Health. The Endocrine Society and IPEN. February 2024, Endocrine Society: <https://www.endocrine.org/advocacy/society-letters/2023/plenary-plastics-treaty-statement>.
 - 3 Rajagopalan S, Landrigan PJ. Pollution and the Heart. N Engl J Med. 2021 Nov 11 See for example: Discovery and quantification of plastic particle pollution in human blood - ScienceDirect or How microplastics are transported and deposited in realistic upper airways? | Physics of Fluids | AIP Publishing.
 - 4 Symeonides C, Aromataris E, Mulders Y, et al. An Umbrella Review of Meta-Analyses Evaluating Associations between Human Health and Exposure to Major Classes of Plastic-Associated Chemicals. Ann Glob Health. 2024 Aug 19;90(1):52. doi: 10.5334/aogh.4459.
 - 5 Marfella R, Prattichizzo F, Sardu C, et al. Microplastics and nanoplastics in atheromas and cardiovascular events. N Engl J Med 2022.
 - 6 "Addressing Microplastics in a Global Agreement on Plastic Pollution" (norden.org).
 - 7 "Addressing Microplastics in a Global Agreement on Plastic Pollution" (norden.org).
 - 8 European Commission, Nanoplastics: state of knowledge and environmental and human health impacts, 2023.
 - 9 United Nations Environment Programme and Secretariat of the Basel, Rotterdam and Stockholm Conventions, Chemicals in plastics: a technical report, 2023.
 - 10 World Health Organization, Microplastics in drinking-water, 2019.
 - 11 World Health Organization, Dietary and inhalation exposure to nano- and microplastic particles and potential implications for human health, 2022.
 - 12 The Minderoo-Monaco Commission on Plastics and Human Health. Ann Glob Health. 2023.
 - 13 CIEL, Breathing Plastic, The health Impacts of Invisible plastics in the Air, 2023; The Minderoo-Monaco Commission on Plastics and Human Health. Ann Glob Health. 2023.
 - 14 CIEL, Plastic & Health, The hidden costs of a plastic planet, 2019 and <https://www.ciel.org/wp-content/uploads/2023/03/Breathing-Plastic-The-Health-Impacts-of-Invisible-Plastics-in-the-Air.pdf>.
 - 15 Schuele H, Baum CF, Landrigan PJ, Hawkins SS. Associations between proximity to gas production activity in counties and birth outcomes across the US. Prev Med Rep 2022.



II. PLASTICS AND HEALTHCARE

Plastics play an important role in healthcare as components of some medical devices, packaging of medicines, and other health products. They are also used in the development and manufacture of health products. Plastic is estimated to comprise 30% of all healthcare waste, with annual volumes of 1.7 million tonnes globally. As was acknowledged during the COVID-19 pandemic, 30% of healthcare facilities (60% in the least developed countries) are not equipped to handle existing waste loads¹⁶.

In response to these challenges, many healthcare systems worldwide are developing and implementing innovative solutions to reduce, reuse, and recycle plastics while ensuring a balance with equitable access to affordable, life-saving health products. The treaty can do much to advance and promote such efforts.

III. WHY IS AN INTEGRATED APPROACH TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT ESSENTIAL?

To achieve the treaty's objective of protecting the environment and human health from plastic pollution, it is essential to recognize that human and environmental health are interconnected. This calls

for an increased focus on finding integrated solutions and the application of a one health¹⁷ approach in the treaty to support coherent and harmonized strategies to improve public health, the environment and sustainable development outcomes.

The following illustrates how a health perspective can support the elaboration and implementation of a treaty that effectively meets its objective and enhances its impact and relevance:

- **One Health approach:** One Health is 'an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems. It recognizes the health of humans, animals, plants, and the wider environment are closely linked and interdependent'. Applying a one health approach to the proposed plastics treaty would help ensure that health risks and environmental impacts are comprehensively evaluated. It would also help avert unintended additional health risks arising from measures taken to address plastic pollution, where, in some instances, environmental and health considerations point in different directions. One example relates to recycled plastics, where there are health risks associated with recycling and reusing plastics that contain toxic chemicals and harmful substances

16 Global analysis of health care waste in the context of COVID-19 (WHO, 2022).

17 One health (who.int).

(Greenpeace 2023)¹⁸ or non-intentionally added harmful substances¹⁹. Efforts to promote plastic circularity should ensure safe, toxic-free material cycles. Practices and technologies that support a circular economy, such as chemical or advanced recycling, must not negatively impact the environment or human health.

- **Informed policy decisions:** The health sector has a vital role in raising awareness about health and environmental hazards and risks, providing scientific data and evidence, and using evidence-based guidance to inform policy decisions. Healthcare professionals are increasingly vocal regarding their concerns about unnecessary use of plastic in healthcare. The health sector can lead by example by reducing the unnecessary use of plastics and substituting them with safer alternatives.
- **Synergies, cooperation and awareness:** Plastic pollution is multifaceted, and to address this global challenge, work in silos should be avoided. The health sector can play an important role in negotiating and implementing the plastics treaty. The recognition that the plastic crisis is also a health crisis and can contribute to fostering cooperation among ministries, international organizations, and other stakeholders to tackle the interconnectedness of plastic pollution across the entire life cycle. A recent example of potential synergies is a decision²⁰ adopted by the Tenth session of the Conference of the Parties to the WHO Framework Convention on Tobacco Control (WHO FCTC) urging Parties to coordinate their efforts to address plastic waste of tobacco products (including cigarette filters) and related electronic devices with the objectives of the WHO FCTC in relation to national policies and international treaties and for dealing with plastics and hazardous waste, as appropriate. Synergies should be utilized with ongoing initiatives such as the WHO-led Alliance for Transformative Action on Climate and Health (ATACH)²¹ to promote climate resilience and environmentally sustainable health systems. Over 90 Member States are already actively participating in ATACH. Further, measures and activities under the plastics treaty should seek to benefit from, and

not duplicate, existing well-established expertise, mechanisms, networks, and fora on health risks and the development, use, and disposal of health products.

- **The role of the WHO and plastics in healthcare²².** WHO supports countries to ensure a balance is achieved between ensuring access to safe, effective, and quality-assured health products that are affordable while ensuring a more sustainable use of plastics²³. The role of WHO is critical in setting standards for safety, efficacy, and quality assurance; issuing evidence-based guidance and recommendations for clinical use; supporting countries to select and prioritize health products for reimbursement and use; and defining technical specifications for the procurement of medicine, medical devices including diagnostics tests and other health products that includes, amongst other criteria, the concept of circularity, including waste minimization and sustainability.

IV. ESSENTIAL ELEMENTS TO ACHIEVE A HEALTH-PROTECTIVE PLASTICS TREATY

Strengthening health protections under the compilation treaty text

The compilation of draft text resulting from INC-4 contains several provisions that are relevant to health²⁴. Although central to the treaty's objectives, the health perspective has received limited attention so far, in the formulation of both control and implementation measures. In developing the essential elements of the instrument, it is vital to take a coherent health-protective approach throughout the treaty text to give effect to the right to health and ensure that health risks and benefits are consistently considered in all decisions made and measures adopted, especially the impacts in low and middle-income countries and to the last mile and final users. This approach should be guided by the precautionary principle to take account of emerging science. In line with a sequenced approach, the focus should be on those elements and mechanisms that will lead to an effective and significant reduction of plastic pollution and to an agreement that will effectively protect human health.

18 Greenpeace, Forever Toxic: The Science on Health Threats from Plastic Recycling, 2023.

19 Carmona, E., Rojo-Nieto, E., Rummel, C. D., Krauss, M., Syberg, K., Ramos, T. M., ... & Almroth, B. C. (2023). A dataset of organic pollutants identified and quantified in recycled polyethylene pellets. Data in Brief, 51, 109740.

20 [https://fctc.who.int/news-and-resources/publications/i/item/fctc-cop10\(14\)-implementation-of-article-18-of-the-who-fctc](https://fctc.who.int/news-and-resources/publications/i/item/fctc-cop10(14)-implementation-of-article-18-of-the-who-fctc).

21 <https://www.who.int/initiatives/alliance-for-transformative-action-on-climate-and-health>.

22 See also, WHA Resolution on the impact of chemicals, waste and pollution on human health which makes a stronger case for the role of WHO: https://apps.who.int/gb/ebwha/pdf_files/WHA76/A76_ACONF2-en.pdf.

23 WHO written submission to INC 3: [who_partb_28082023_1.pdf](https://www.unep.org/who-partb_28082023_1.pdf) (unep.org).

24 [Compilation_Text.pdf](#) (unep.org).

The following non-exhaustive list of elements is essential to ensure the protection of the environment and human health under the treaty and should be considered for further development of the treaty text.

1. Clear objective: an explicit recognition that the overall objective of the treaty is to protect the environment and human health from risks and adverse impacts of plastic pollution.

2. Reduction of the overall production of primary plastic polymers: Under business-as-usual scenarios, the volume of plastics and plastics waste is projected to dramatically increase in coming decades at levels that society is ill-equipped to cope with. While plastics will continue to be important for society, it is critical to ensure a sustainable level of plastic production to mitigate the adverse environmental and health outcomes from emissions and releases at all stages of the plastics lifecycle, including production processes. It is therefore vital that the plastics treaty includes mechanisms to control the supply of plastics.

3. Achieving non-toxic plastic materials, addressing plastic products, chemicals of concern in plastic products, and product design

- **General approach:** Plastic products placed on the market should be non-toxic, including plastic products with recycled content (which may raise particular health concerns)²⁵. Due to the high number (thousands) of chemicals of concern used to make plastics²⁶, the treaty needs to adopt an approach and mechanism that ensures a move to a non-toxic circular economy for plastics by eliminating chemicals of concern in plastic products (including focusing on groupings of chemicals²⁷). To ensure a safe circular economy, intentionally added microplastics should be phased out or substituted with safer alternatives. Approaches such as “chemical simplification” may be useful in that regard²⁸.

- **Initial list:** there is an opportunity for a sequenced approach to address chemicals of concern and problematic and avoidable plastic products. An initial list for eliminating certain chemicals, groups of chemicals and avoidable plastic products could be developed based on existing regional or national regulations and initiatives already undertaken in the public and private sectors to move away from certain chemicals of concern in plastic products due to their hazardous properties and exposure potential. WHO supports the immediate ban of plastics in nicotine and tobacco products, and where an immediate ban is not feasible, a gradual phase-out or stringent control of plastics present in tobacco products, electronic delivery systems, and packaging, recognizing them as problematic and avoidable plastics under the treaty. Accordingly, it is recommended that countries support the inclusion of “cigarette filters” in Annex X, as proposed under Section 3 b of the Compiled text of the treaty.
- **Criteria:** the treaty should contain a list of criteria, including sustainability and health criteria, to be used in eliminating, restricting, and phasing-out certain (groups of) chemicals and problematic and avoidable plastic products. These criteria could also be developed between the Diplomatic Conference and the first Conference of the Parties (COP) for its adoption by the COP. These criteria should include health risks and harmfulness to human health, including bioaccumulation and toxic long-term effects (e.g., carcinogenic, reprotoxic, endocrine disruptors) and the potential for human exposure. There also needs to be a mechanism to update and amend these criteria to take account of scientific developments and avoid regrettable substitutions.
- **Sectoral approach:** Health impacts and preventive interventions can differ across sectors and applications. For example, the health issues relating to the food and beverage sector require a different approach than those relating to the fisheries, agriculture, health care and construction. Adopting a sectoral approach in the treaty text

25 Greenpeace, *Forever Toxic: The Science on Health Threats from Plastic Recycling*, 2023; Brosché, S., Strakova, J., Bell, L. and Karlsson, T. Widespread chemical contamination of recycled plastic pellets globally. International Pollutants Elimination Network (IPEN), December 2021.

26 Extensive scientific data on the potential adverse impacts of about 7,000 substances associated with plastics show that more than 3,200 of them have one or more hazardous properties of concern, *Chemicals in Plastics - A Technical Report* | UNEP - UN Environment Programme.

27 *Chemicals-in-Plastics.pdf*.

28 *Chemicals in Plastics - A Technical Report* | UNEP - UN Environment Programme.

would recognize these differences and facilitate implementation. The health sector, including health products and services, is a very large and complex global sector in which uses of plastic are diverse and today play an essential role in health care services. Health products, medicines, and medical devices and their packaging are subject to stringent legal and regulatory requirements that dictate design, safety, quality, and performance. There are more than 10,000 types of medical devices, ranging from simple syringes to nuclear medicine scanners. Some are assembled using electronics, mechanics, or materials that come from other sectors, which needs to be taken into account. There is a global need to raise awareness, innovate, and develop new medical products using less plastic. Disposable or single-use products have expanded over the years. Advances are being made to reuse some medical products and maintain the efficacy, quality, and affordability, but this will take time and investment to bring to scale. The health sector has well-established normative guidance, governance mechanisms, health policy, and scientific expertise, which the plastics treaty should take account of, seek to benefit from, and not seek to duplicate. It is recommended to include “healthcare and health products” for consideration in any dedicated programme of work to ensure that provisions in the plastics treaty that could affect access to health products consider, the impact especially for low-income settings and consider the time required to find solutions and generate the needed evidence for implementation.

Currently, it is observed that “cigarette filters and other tobacco-related products” have been included as a dedicated program of work under Section 4bis of the Compiled text²⁹. It is unclear how Section 4bis interplays with the implementation of Section 3b on *problematic and avoidable plastic products* and, in particular, whether a problematic and avoidable plastic should be expressly excluded from the scope of a dedicated programme. It is imperative that this section clearly specifies that the tobacco industry must not be treated as a 'stakeholder' or 'responsible producer' and should be treated in accordance with Article 5.3 of the WHO FCTC and its Guidelines. If this cannot be ensured, the removal of tobacco as a dedicated program of work should be considered.

- **Exemptions:** No blanket exemptions for the health sector or any other sector or category of products should be foreseen under the treaty. Many approaches can reconcile the obligations under the plastics treaty aimed at reducing the production and use of plastics with ensuring access to more sustainable, safe, effective, affordable, and quality-assured health products³⁰.
- **Gradual strengthening:** The treaty should establish a review mechanism. The lists of chemicals of concern and problematic plastic polymers and products listed in the Annexes should be regularly updated. The review mechanism/assessment to update potential Annexes should take into account new scientific evidence on health impacts and guiding principles such as do no harm or the precautionary principle. The mechanism should also have a robust conflict of interest policy to ensure that the treaty is informed by independent science.

4. Transparency, information sharing, and labelling: Workers and the public have a right to be informed about the composition of plastic products and possible health risks³¹. Health and safety information about potential harmful compounds, hazardous chemicals, or other potential health risks should not be considered confidential. The treaty should, therefore, ensure the availability of information on the chemical and material composition of plastic products along the value chain for manufacturers, importers, retailers, consumers, and recyclers³². This could be accomplished through product marking, providing transparency throughout the supply chain. Disclosure requirements are needed to ensure that companies across the plastic value chain disclose information on the (i) chemical composition of their plastics and plastic products, (ii) human health risks of products, and (iii) actions taken to assess and mitigate those risks.

5. Emissions and releases: This treaty should aim to minimize and avoid any emissions related to plastic products with potential health risks and releases of nano and microplastics in all ecosystems (including the atmosphere) throughout the plastics lifecycle.

29 Not included in the Chair's Non-Paper (3).

30 The WHO offers some reflections and possible approach: who_partb_28082023_1.pdf (unep.org).

31 <https://www.ohchr.org/en/documents/thematic-reports/ahrc3040-report-right-information-hazardous-substances-and-wastes>

32 The Stockholm Convention provides (Article 9), that information on health and safety of humans and the environment shall not be regarded as confidential, which is important to prevent withholding of information relevant to assessments, evaluations and decisions under this treaty to protect commercial or other interests.



© iStock / Boris_Zec

6. Environmentally sound waste management (ESM): The health community can help ensure that health implications from plastic waste are considered for the ESM of plastic waste. This can include contributing to improving “environmental social and corporate governance (ESG)” for treating plastic waste, including future prohibitions, moratoriums, and investment criteria, for example, to avoid solutions that harm human and environmental health.

7. Conflicts of Interest: The WHO and the WHO FCTC Secretariat can offer insights into identifying and managing conflicts of interest in scientific, product development, and policy processes, drawing from experience with Article 5.3 of the WHO FCTC, the WHO Framework for Engagement with Non-State Actors (FENSA)³³, and WHO's Guideline Development Handbook³⁴, all of which include robust conflict-of-interest requirements and processes to protect public health. Prioritizing public interests, including public health, over commercial influences in the negotiation and implementation of this international instrument is essential.

8. Subsidiary Bodies: WHO seeks to actively participate in any relevant scientific or technical mechanism, in accordance with its constitutional mandate, resources, and technical role. To ensure high-quality and unbiased advice, subsidiary bodies must operate independently, with transparent processes, including disclosing interests and methodology, managing conflicts of interest, and allowing independent review of outputs and recommendations.

9. Collaboration: The treaty should promote overall cooperation with all relevant international organizations, including the WHO and the WHO FCTC, as well as the health sector (including manufacturers, regulators, and service providers for health products), health agencies and ministries, civil society, health professionals, scientists, rights holders, academics.

33 <https://www.who.int/about/collaboration/non-state-actors>.

34 <https://www.who.int/publications/i/item/9789241548960>.



© WHO / Yoshi Shimizu

Initial reactions to Chair's Non-Paper (3)

WHO welcomes the Chair's Non-Paper as a foundation for negotiations in Busan at INC-5. However, to ensure a solid and effective treaty likely to meet the objective of protecting human health, the points outlined above (while not exhaustive) are critical for consideration.

Further, in the **Preamble**, in addition to including references to health; enhancing human rights language is crucial, including explicit acknowledgment of Parties' obligations to safeguard human rights, particularly the rights to health and to a clean, healthy and sustainable environment. The treaty should also recognize adverse health impacts and health 'concerns' and that certain groups, communities, and individuals are disproportionately affected by plastic pollution. Preambular sections should in addition prioritize environmental protection, human health, and human rights above commercial interests.

Specific health article. It is observed that a specific health article is included in the compilation treaty text (8bis) and Article 19 of the Chair's Non-Paper. WHO is open to including a standalone article on 'Health' provided that health considerations and protections are included as a cross-cutting issue throughout the text with mandatory consideration of health risks (and benefits where applicable) as detailed above. A specific standalone health provision should then apply in addition to such provisions and be used to further strengthen or tailor health protections and safeguard public health.



**World Health
Organization**