



International Science Council statement at INC-4

Key requirements for a science-based legally binding instrument to end plastic pollution

The International Science Council (ISC) federates over 250 national science academies, international disciplinary unions and regional scientific organizations.

Ahead of INC-4, the ISC and its expert group on plastic pollution prepared a [high-level commentary on the Revised Draft text](#), highlighting the following recommendations, grounded in the latest scientific evidence, aimed at ensuring an effective and robust regulatory instrument and implementation towards ending plastic pollution:

- 1. The scope of the instrument should cover the full life cycle of plastics as per UNEA resolution 5/14, considering the extensive impacts of plastic pollution across the entire plastic life cycle as demonstrated by an increasing body of scientific evidence.** The scope should cover the life cycle starting from the extraction of raw materials and petrochemical feedstocks, including alternatives such as bio-based feedstocks, through the design, production, use and disposal of plastics. It should furthermore cover all plastic types, components and sizes, including primary and secondary plastics originating from unexpected fragmentation. This includes materials, chemicals, additives, micro- and nanoplastics. **The instrument should not contain any categorical a priori exemptions, which will lead to a missed opportunity to reduce plastic and address the associated adverse impacts across all sectors and segments of society.**
- 2. Increasing scientific evidence demonstrates the human health risks posed by plastic pollution and exposure.** The instrument must be informed by robust scientific advice on the health impacts of plastic pollution. Recognizing existing gaps in understanding the full range of health impacts, the instrument should adopt a precautionary approach when establishing all measures in the instrument. Implementing measures for monitoring, surveillance, and assessment within the instrument, along with coordinating efforts to develop standardized international methods to assess exposure and risks are essential to enable informed decision-making, including strengthening of the instrument over time.
- 3. To achieve the objective of ending plastic pollution to protect human health and the environment from plastic pollution the instrument should include effective measures to address the key sources and drivers of plastic pollution. Critically, this should include reducing primary and problematic plastic production.** Current plastic production levels exceed sustainability thresholds, and scientific evidence indicates that increasing recycling alone cannot tackle the projected growth in plastic production by 2050. Business as usual does not support achieving the Paris Agreement goal to limit warming below 1.5°C; plastic production currently contributes at least 4.5% to global greenhouse gas emissions (GHG), with recent scientific



evidence indicating that approximately 75% of GHG emissions from primary plastic production occur from the steps prior to polymerization.

4. **The instrument should include science-based criteria to determine safety and sustainability of plastics, enabling the shift to a safe, toxic-free circular plastics economy.** Criteria should be developed to inform specific lists for elimination and restriction of chemicals and polymers of concern, and of problematic and avoidable plastic products, and to determine safe and sustainable design. The ISC encourages continuing work to develop these sets of criteria as well as initial lists for inclusion in the instrument and its annexes as initially adopted. Ensuring appropriate interlinkages between these criteria and elimination lists are essential. Criteria, lists and standards should be subject to ongoing review and assessment to ensure they reflect the best available scientific knowledge.
5. **Science-based safety and sustainability criteria should extend to all alternative solutions, including bio-based, biodegradable and compostable plastics.** Recent scientific findings indicate that certain alternatives may have health and environmental impacts due to similar harmful properties or increased land use and water consumption. It is therefore crucial to assess the impacts of alternatives across the life cycle to prevent regrettable substitution. Alternatives should be subject to ongoing monitoring and assessment in the same manner as other products, materials and substances regulated under the instrument.
6. **Globally harmonized requirements for transparency and traceability of chemical composition, and labelling standards are an essential enabling measure for the implementation of the instrument.** Additionally, the instrument should coordinate efforts to **develop reliable and harmonized methods for monitoring and tracking plastic waste and pollution at local, national, and global levels**, to ensure consistent and replicable data collection and to increase data coverage both spatially and temporally. This is key for implementing control measures to avert new accumulation in the environment and assess the effectiveness of mitigation actions.
7. **The instrument should incorporate measures supporting a just transition and to minimize burden and macroeconomic impacts on vulnerable communities and regions.** Financial support for innovation and capacity building, particularly in low-income countries and Small Island Developing States (SIDS), is crucial.
8. **Successful implementation of commitments to end plastic pollution hinges on sustained engagement of science and the establishment of a robust science-policy interface tailored for the science and technological implementation needs of the instrument.** The subsidiary scientific body under the plastics instrument should closely collaborate with existing and emerging initiatives, including the Science-Policy Panel on chemicals, waste, and pollution (SPP), to ensure coordination and avoid duplication. However, it is important that implementation of the instrument does not overly rely on entities established under other instruments or processes which have broader or distinct mandates that will not support the range of scientific and technical needs for the implementation of the future plastics instrument. The ISC highlights that the design of the science-policy interface should incorporate inputs from SPI experts and practitioners and consider lessons from existing mechanisms and implementation experiences.



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This is an area that can benefit from dedicated work following INC-4. The ISC stands ready to facilitate discussions among experts with experience in science-policy design and implementation to explore key functions, effective governance arrangements, and potential models for consideration.

Furthermore, **we strongly encourage Parties to make all efforts to finalize a mandate for intersessional work post-INC-4 to enable the further development of the instrument's text.** We recommend establishing modalities for the intersessional work that include formal platforms such as technical working groups and subcommittees that can draw on scientific input as required and with **clear terms of engagement that support consultation with the wider scientific community and other knowledge holders.**

The ISC stands ready to leverage its extensive scientific knowledge, science-policy expertise, and regional networks, along with its partnerships and convening capabilities, to continue to support the development of an effective instrument and a robust science-policy interface to curtail plastic pollution.