

# Elaborating on the options of the draft plastics instrument to manage chemicals and polymers of concern

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# 1. Summary

The key objective of the study is to outline strengths and weaknesses of the five options in Part II.2 of the revised draft text of the international legally binding instrument on plastic pollution (hereafter: plastics instrument), seeking to identify the strongest and most comprehensive options suited to achieve the goal of protecting human health and the environment from chemicals and polymers of concern (UNEP, 2024). The study also aims to outline necessary linkages to other relevant sections of the revised draft and provide insights for balancing the control measures reflected in those sections with Part II.2 towards a strengthened and holistic mechanism to govern chemicals and polymers at the global level. The study aims to inform the 4th session of the Intergovernmental Negotiating Committee of the plastics instrument (INC-4), scheduled to take place from 23 to 29 April 2024 in Ottawa, Canada.

The five options presented in Part II.2 of the revised draft reflect diverse ambitions and are influenced by various strategies employed by existing MEAs. The options can be grouped in two different categories: options 1-3 focus exclusively on chemicals and polymers of concern, whereas options 4-5 aim to address in tandem both chemicals and polymers of concern and problematic and avoidable plastic products, the latter receiving specific attention in Part II.3. Each option incorporates a range of textual modifications from the original zero draft prepared for INC-3, including both pre-existing and newly proposed content that is marked with square brackets for further discussion or modification.

*The five options can be summarized as follows:*

- 1. Prohibition approach:** Sets the most stringent obligations for the complete elimination of specified chemicals, groups of chemicals, and polymers of concern in plastics.
- 2. Restriction approach:** Sets obligations for reducing rather than completely eliminating the specified chemicals, groups of chemicals, and polymers.

3. **National plan approach:** Allows individual countries to implement globally agreed criteria at the national level to restrict chemicals, groups of chemicals, and polymers of concern in plastics.
4. **Tiered approach:** Differentiates between hazardous chemicals and polymers (for elimination), problematic ones (for regulation), and those that are avoidable (for regulation), as identified by the instrument.
5. **Voluntary approach:** Prioritizes the regulation of polymers of concern and delegates the oversight of chemicals of concern to MEAs.

*Strengths and weaknesses of the five options:*

Twelve conditions have been identified in this report to enable a comprehensive global mechanism to address chemicals and polymers of concern. These conditions are met at varying levels within each of the five options, based on revised text. Table A presents a summary of the level to which these conditions are met within options 1-5 of Part II.2 of the revised draft. It uses a green tick (✓) to indicate conditions that are met at the strongest level, a red cross (✗) to denote conditions that are missing, and a yellow diamond (♦) to represent conditions that are included but have been bracketed and therefore marked for further discussion or revision. Additionally, it depicts combinations such as ✓/✗, signifying that the options contain both supportive and non-supportive paragraphs, and ♦/✗, indicating the presence of both contested and non-supportive paragraphs.

**Table A.** Summary of conditions included options 1-5 of Part II.2 of the revised draft.

Option	1. Binding obligations	2. Strict elimination	3. Full life cycle	4. Scope	5. Scope (groups of chemicals)	6. Scope (polymers)	7. Global criteria (hazard)	8. Global lists	9. Target dates	10. National plans	11. Rules for permitted use	12. Non-listed chemicals
1	✓	♦/✓	✓	♦	✓	✓	✗	✓	✓	✓	♦	✓
2	✓	✗	✓	✓	✓	♦	✓	✓	✓	✓	♦	✓
3	♦	✗	✓	✓	♦	♦	✗	✗	✗	✓	✗	✗
4	✓/✗	✓/✗	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗
5	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗	✗

Table B provides an overview of strengths and challenges of options 1-5 of Part II.2 of the revised draft. It demonstrates conclusively that options 1 and 2 stand out as the most robust and comprehensive foundations for further negotiations. While options 3 and 5 each exhibit two or three strengths, they are significantly outweighed by weaknesses. Option 4, on the other hand, presents a balanced approach, featuring an approximately equal number of strengths and weaknesses, positioning it as a moderate option.

**Table B.** Overview of strengths and challenges of options 1-5 of Part II.2 of the revised draft. Columns highlighted with light blue indicate conditions with brackets, commonly indicating a weakening of the text.

Option	Strength	Challenges
<b>Option 1</b>	<ul style="list-style-type: none"> <li>Includes a <b>mandatory strict prohibition</b> encompassing chemicals, <b>groups of chemicals</b> and <b>polymers</b> in plastics starting from use/presence to covering all commercial aspects, including trade, thus covering the <b>full life cycle</b>.</li> <li>Includes <b>global lists</b> to be accompanied with <b>target dates</b>.</li> <li>Includes voluntary reporting on use of <b>non-listed chemicals</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Does not specify the use of a <b>hazard-based approach</b>.</li> </ul>
	<ul style="list-style-type: none"> <li>Proposed for regulation to encompass both the presence and use of chemicals, thereby including <b>NIAS</b>, with “presence” being specifically bracketed.</li> <li>Provides rules for <b>permitted use</b> of listed substances where exceptions apply but proposed as advisory in nature rather than mandatory.</li> </ul>	
<b>Option 2</b>	<ul style="list-style-type: none"> <li>Broad scope covering the <b>full life cycle</b> focusing on chemicals, <b>groups of chemicals</b> and <b>polymers</b>.</li> <li>Includes <b>global lists</b> to be accompanied with <b>target dates</b>.</li> <li>Includes a <b>hazard-based approach</b> by referring to “[hazardous] chemicals” and “adverse impacts on human health and the environment.”</li> <li>Includes voluntary reporting on use of <b>non-listed chemicals</b>.</li> <li>Regulation intended to encompass both the presence and use of chemicals, thereby including <b>NIAS</b>.</li> </ul>	<ul style="list-style-type: none"> <li>The <b>level of control</b> does not include a strict prohibition, but rather aims to minimize or regulate.</li> </ul>

Option	Strength	Challenges
	<ul style="list-style-type: none"> <li>While included in the text, the regulation of <b>polymers</b> has been marked in brackets.</li> <li>Provides rules for <b>permitted use</b> of listed substances where exceptions apply but proposed as advisory in nature rather than mandatory.</li> </ul>	
<b>Option 3</b>	<ul style="list-style-type: none"> <li>Refers to presence and use of chemicals thus covers the <b>full life cycle</b>, although does not explicitly refer to the different phases, nor trade.</li> <li>The regulation encompasses both the presence and use of chemicals, thereby including both <b>NIAS</b> and intentionally added substances within its scope.</li> </ul>	<ul style="list-style-type: none"> <li>No <b>strict elimination</b> required.</li> <li><b>No global lists</b> provided, only common criteria to be used at the national level, therefore also <b>no target dates or rules for permitted use (exceptions)</b> are specified.</li> <li>Focus is on <b>risk of chemicals</b> rather than their hazards.</li> </ul>
	<ul style="list-style-type: none"> <li>While included in the text, the regulation of <b>groups of chemicals</b> and <b>polymers</b> has been marked in brackets.</li> </ul>	<ul style="list-style-type: none"> <li><b>Not strictly binding</b> due to proposed inclusion of “in accordance to its national circumstances and capabilities” after “shall.”</li> </ul>
<b>Option 4</b>	<ul style="list-style-type: none"> <li>This option groups chemicals and polymers in three categories (<b>hazardous, problematic and avoidable</b>) with varying control measures. This includes a <b>mandatory obligation to eliminate hazardous chemicals and polymers</b>.</li> <li>All three categories cover the <b>full life cycle</b>, including the production, sale, use, distribution, import or export.</li> <li>All three categories include the development of <b>global lists</b>.</li> <li>The adoption <b>target dates</b> are specified for hazardous chemicals and polymers.</li> </ul>	<ul style="list-style-type: none"> <li>The scope of substances includes chemicals and polymers but excludes <b>groups of chemicals</b>.</li> <li>The control of problematic and avoidable chemicals and polymers is <b>voluntary</b> in nature, focusing on <b>regulation</b> (rather than elimination) using a <b>risk-based</b> approach (instead of a hazard-based approach).</li> <li><b>Target dates</b> are not specified for chemicals and polymers that are problematic and avoidable.</li> <li>Does not include measures to address <b>non-listed chemicals</b>.</li> <li>Does not provide rules for <b>permitted use</b> of listed substances where exceptions apply.</li> <li>The restriction does not refer to the presence of chemicals, thus excluding <b>NIAS</b>.</li> </ul>



Option	Strength	Challenges
<b>Option 5</b>	<ul style="list-style-type: none"> <li>Action on <b>polymers</b> follows a <b>hazard-based approach</b> as it specifies the need to address polymers “with potential adverse impacts on human health or the environment.”</li> </ul>	<ul style="list-style-type: none"> <li>No mandatory obligations are provided, focus is on <b>voluntary measures</b> to regulate polymers.</li> <li>Limited scope to address <b>chemicals or groups of chemicals</b>, as “chemicals of concern used in the plastics industry” are only to be addressed through existing MEAs.</li> <li>Lacks a <b>full life cycle approach</b>, nor does the text specify any life cycle phases.</li> <li>No <b>global lists</b> provided, therefore also <b>no target dates or rules for permitted use (exceptions) are specified.</b></li> <li>No action required on <b>non-listed chemicals.</b></li> <li>The restriction does not refer to the presence of chemicals, thus excluding <b>NIAS.</b></li> </ul>

### Conditions to be met for effective global control of chemicals and polymers

#### 1. *Binding obligations*

It is crucial to craft legally binding obligations that reinforce action and accountability. Options 1-4 impose binding obligations, using the phrase “each Party shall take necessary measures to,” while option 5 is crafted as voluntary, indicated by “Parties are encouraged to.” Nevertheless, option 3 incorporates a clause (“in accordance with its national circumstances and capabilities and subject to its national action plan”) that seeks to soften the primary obligation, effectively transitioning it towards soft law.

#### 2. *Strict elimination*

The degree of control can vary, with strict elimination representing the most stringent approach, compared to more moderately restrictive measures. Strict elimination is mandated in options 1 and 4, employing terminology like “prohibit,” “eliminate,” and “not allow,” although its application in option 1 has been contested and is square bracketed. In contrast, options 2, 3, and 5 advocate for a gentler form of control, using phrases such as “restrict,” “reduce,” “manage,” or “phase down,” indicating a preference for more moderate regulation.

### 3. *Full life cycle*

Effective and comprehensive control of chemicals and polymers of concern requires coverage across their entire life cycle. Options 1-4 address this with two distinct approaches: specifying “the use and presence in” and detailing “the production, sale, distribution, import, and/or export” of these materials. Clearly defining these phases, along with trade aspects, is crucial to avoid ambiguity in how control measures are applied. Unlike the other options, option 5 does not detail any life cycle phases.

### 4. *Scope (non-intentionally added substances)*

Non-intentionally added substances pose significant risks to human health and the environment that will need to be managed – alongside intentionally added substances – to ensure effective and comprehensive global chemicals control. By extending restrictions to the presence of chemicals it is possible to address NIAS that include impurities, reaction by-products, and degradation products. Presence alongside use is mentioned in options 1-3, although it is included in brackets in options 1 and 2. However, the regulation of NIAS is challenging, due to difficulties in testing and detecting them, thus action on NIAS will need to be accompanied with development of advanced analytical methods and establishment of comprehensive databases.

### 5. *Scope (groups of chemicals)*

Addressing groups of chemicals with structural similarities is more efficient and can bring a larger number of chemicals under regulation more quickly, thus helping to prevent regrettable substitution and avoid delays in action. The scope of options 1-3 includes groups of chemicals, although this has been contested and bracketed in option 3, raising concern that it may constitute a problem in other options too, if chosen as starting point for negotiations. Unlike the first three options, options 4 and 5 do not address the regulation of chemical groups.

### 6. *Scope (polymers)*

All five options refer to polymers or polymers of concern, but their inclusion has been contested in options 2 and 3. This may imply that governments that have objected their inclusion in options 2 and 3 have the same position regardless of which option is used as a starting point.

### 7. *Global criteria (hazard)*

Global criteria to identify and list harmful substances are crucial. A hazard-based approach, focusing on inherent toxicity, is stricter and more direct than a risk-based approach that accounts for exposure but may delay actions and require more resources. Option 4, which specifically calls for the elimination of hazardous

chemicals, emerges as the most stringent. Options 2 and 5 suggest restrictions based on the “potential for adverse impacts,” indicating a hazard-based strategy. This stance is reinforced by option 2’s suggestion to prefix chemicals with “hazardous.” Option 3 includes a suggestion in brackets to use “risk”, which suggests a different approach. Option 1 does not mention a hazard-based approach.

#### 8. *Global lists*

Listing chemicals in global lists is featured in options 1, 2 and 4. Options 1 and 2 resemble models provided by the Stockholm Convention and the Montreal Protocol, focusing on prohibition and phase-down. Option 4 introduces a tiered approach for addressing chemicals and polymers by categorizing them in three different groups: hazardous, problematic (with emphasis on risk) and avoidable. However, the overlap between these categories raises questions about the effectiveness of such a classification for efficiently managing chemicals and polymers of concern, as illustrated in Figure A. An alternative approach might involve organizing chemicals and polymers based mainly on a hazard-centric methodology, while blending in elements of a risk-based approach (Box 1).



**Figure A.** Tiered approach for addressing chemicals and polymers of concern, presented in option 4.

### Box 1. Hazard-centric approach to restricting chemicals and polymers of concern

This approach proposes controlling the over 16,000 known plastics chemicals based on a hazard-centric approach, as highlighted by the State of Science of Plastics Chemicals report (PlastChem, 2024). This would mean incorporating hazard in prioritizing chemicals, including persistence, bioaccumulation, mobility, and toxicity (PBMT). It would also mean streamlining the chemical assessment process for those chemicals where a subset of certain hazards, or combinations of hazards, are present, justifying restrictions without separately considering exposure. This approach could be executed with the development of the following lists for controlling plastic chemicals:

- **A prohibition list:** Chemicals with strong evidence of concern
- **A restriction list:** Chemicals with strong evidence of concern, but with certain critical uses (subject to a process of ongoing review similar to the Montreal Protocol)
- **A heightened monitoring list:** Chemicals with lower levels of concern, warranting closer observation, and
- **A data acquisition list:** Chemicals without hazard data, prioritized for research to ascertain their hazard profiles.

#### 9. *Target dates*

Setting target dates can accelerate compliance with regulations. Options 1, 2 and 4 recommend defining target dates in part II of Annex A. In contrast, options 3 and 5 do not propose the inclusion of target dates, which can be explained for option 3 due to its absence of global lists for substances.

#### 10. *National plans*

Options 1 through 3 require that measures be integrated into national plans, unlike options 4 and 5, which do not specify such integration. Additionally, options 1 and 2 propose a more substantial foundation for national plans by promoting the alignment of national actions with global lists of substances. In contrast, option 3 advocates for the creation of national lists derived from global criteria, which does not facilitate the harmonization of efforts across countries.

#### 11. *Rules for permitted use*

Exceptions allow specific uses of banned or restricted substances deemed essential or without alternatives. Establishing clear rules for these exceptions is crucial. Options 1 and 2 are strongest in this regard as they provide for such rules, including marking and labelling products, although this would become a more limited and potentially



voluntary measure if the wording “taking into consideration its socioeconomic context and national circumstances” is included (as proposed by several delegations). Option 3 does not support global listing, which explains the absence of rules for permitted use under exceptions in this option. Option 5’s absence of such rules is attributed to its reliance on voluntary commitments, while option 4’s omission remains unexplained.

## 12. *Non-listed chemicals*

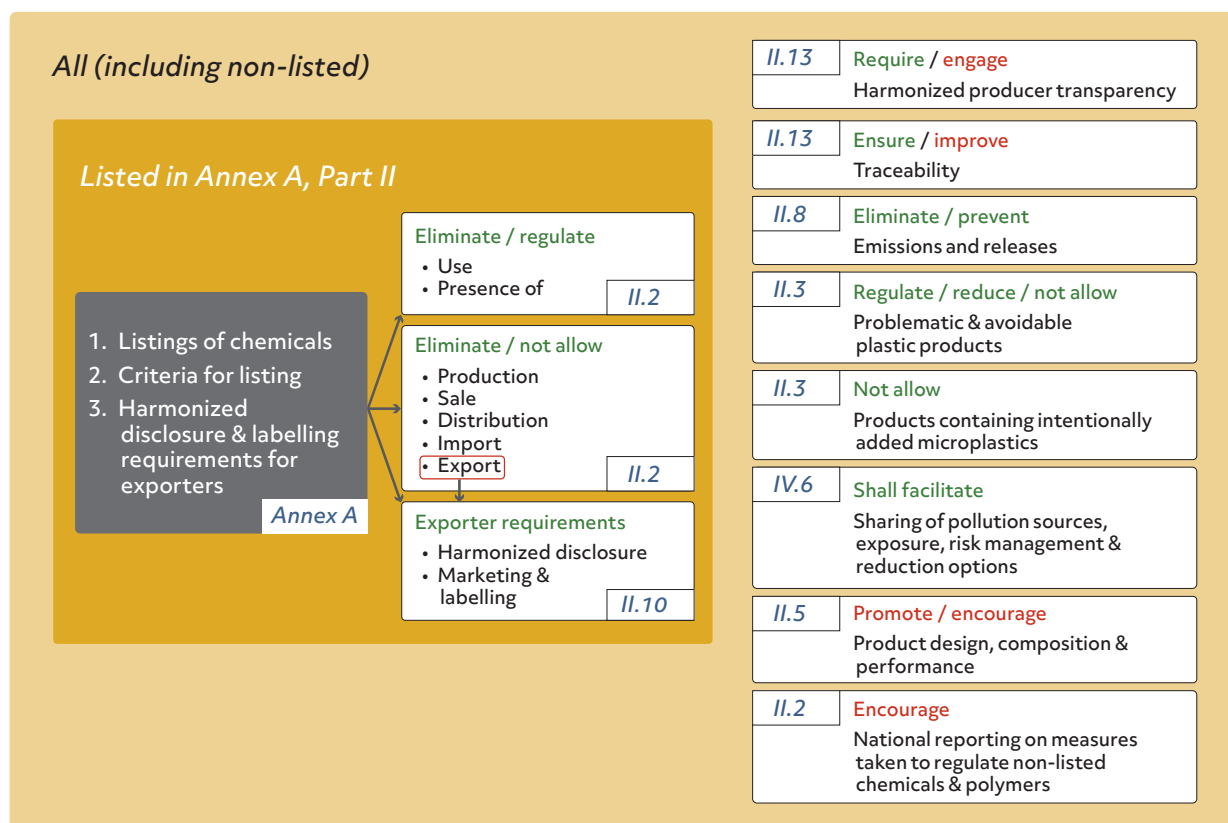
The plastics instrument might not cover all substances initially, so enabling action on non-listed chemicals as a complementary measure is crucial. Options 1 and 2 focus on increasing transparency by encouraging voluntary reporting on measures taken to not allow or restrict non-listed substances that have the potential for adverse impacts. However, given the benefits of international harmonization and the necessity of moving from a reactive to a proactive approach, also taking into account the precautionary principle (see Box 2), it is arguable that stronger and more binding measures are needed for non-listed chemicals than proposed in the revised draft. This could, for instance, include requiring relevant information to be disclosed on all chemicals used in plastics, in line with the “no data no market” principle. Option 3 does not support global listing, which explains the absence of voluntary action beyond lists. Options 4 and 5 do not encourage taking action on non-listed chemicals that would, however, not prevent countries from taking further action.

### **Box 2. Precautionary principle**

The precautionary principle, formally introduced in Principle 15 of the Rio Declaration, states that when there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. This principle enables proactive action to mitigate potential risks, setting it apart from risk-based approaches that necessitate evidence of risk prior to implementing management strategies. The precautionary principle plays a fundamental role in several multilateral environmental agreements, including the Stockholm Convention on Persistent Organic Pollutants (Art 1) and the UN Framework Convention on Climate Change (Art 3.3).

## Linkages to other relevant sections of the revised draft

Figure B provides an overview of the main mechanism for listing chemicals and polymers of concern in Part II of Annex A, drawing from options 1 and 2, and depicts the link between part II.2 and other provisions relating to the governance of chemicals and polymers, as proposed in the revised draft of the plastics instrument.



**Figure B.** Listing of chemicals and polymers of concern in Annex A and other relevant provisions.

Should provisions in Part II.2 be weakened, such as through the exclusion of polymers, criteria and/or listings, it will be important to maintain provisions that provided the strongest options in related sections of the revised draft. These sections and their linkages are elaborated in the report and include:

1. *Emissions and releases (Part II.8)*
  - Must aim to eliminate emissions and releases of all chemicals and polymers, including non-intentionally added substances.
2. *Trade (Part II.10)*
  - Transparency in trade of chemicals and polymers is required to enable safe and environmentally sound management of plastic waste.
  - It is important to include non-Parties as for other MEAs.

### 3. *Transparency (Part II.13)*

- Transparency is a key measure to provide the necessary information to track progress towards safe and circular plastics, as well as the protection of human and environmental health.
- The requirement for producers/importers/exporters/businesses to provide 1) information on the chemical composition, 2) types and quantities of polymers produced and 3) type and quantities of chemicals used in production is particularly important.

### 4. *Information exchange (Part IV.6)*

- Could include sharing of results from hazard and risk analyses, as well as socio-economic aspects, to assist countries with less capacity to manage risks appropriately.
- Complying with trade requirements will be less onerous if information on sources of plastics pollution, exposure and risk management information is made available.

### 5. *Product design, composition and performance (Part II.5)*

- To complement elimination of chemicals, groups of chemicals and polymers of concern, a key contribution to protecting human health and the environment long term is the design of products that promotes the use of safe and sustainable chemicals and polymers, while reducing emissions and releases of plastic pollution across the life cycle.

### 6. *Problematic and avoidable plastic products (Part II.3)*

- The inclusion of chemicals and polymers of concern in criteria to determine problematic plastic products is important, particularly should criteria not be included in the plastics instrument for chemicals and polymers of concern.
- Criteria to determine problematic plastics could capture non-listed chemicals and polymers.

### 7. *Waste management (Part II.9)*

- Safe and environmentally sound waste management of plastic waste is only possible if chemicals, groups of chemicals and polymers of concern have been removed from production, coupled with strong disclosure, marking and labelling.

### 8. *Capacity (Part III.1, 2 and [3])*

- States in need of assistance may require additional resources to conduct research into hazards and risks of products placed on their markets, ensure traceability of chemicals and polymers, detect substances of concern and test for compliance with certification schemes, develop inventories of listed substances and comply with safe disposal methods, including export. A clearing-house platform can assist in disseminating information broadly and quickly.

Paragraphs 5 and 6 of Part II.2 option 4 address governance specifically. While governance elements have not been included in any other options, they are relevant and applicable to all of them. The paragraphs allocate specific roles for both a scientific and technical body and the governing body to ensure a science based mechanism for review and listing of chemicals and polymers of concern is provided for.

### **Summary of key measures related to all listed and non-listed chemicals and polymers**

Additional control measures are provided in the revised draft that are applicable to all chemicals, groups of chemicals and polymers, whether listed in Annex A or not. These measures are necessary to ensure a comprehensive and robust approach which has at its core, the protection of human health.

Should listings or criteria not be included in the final plastics instrument (as per Part II.2), these additional related measures will become increasingly important in. However, together these measures provide a more fragmented approach making it more challenging to achieve the higher ambition of option 1 in Part II.2 and must therefore be regarded as supplemental to Part II.2.

The measures applicable to all chemicals, groups of chemicals and polymers include:

- Requiring harmonised producer transparency (as per Part II.13).
- Ensuring traceability of chemicals, groups of chemicals and polymers (as per Part II.13).
- Eliminating emissions and releases across the life cycle of chemicals, groups of chemicals and polymers (as per Part II.8).
- Regulating and reducing problematic and avoidable plastic products (as per Part II.3). Products containing chemicals and polymers of concern can be considered problematic, depending on the criteria adopted in Annex B for determining problematic and avoidable plastic products.
- Eliminate intentionally added microplastics (as per Part II.3).
- Promote product design, composition and performance that aims to transition all plastic products to be safe and sustainable, eliminating chemicals, groups of chemicals and polymers of concern and associated emissions and releases through better design criteria (as per Part II.5).
- Voluntary inclusion in national reporting on additional measures taken to not allow, or to restrict, the use of chemicals, groups of chemicals or polymers listed in part II of annex A that have the potential for adverse impacts on human health or the environment at any stage of the product life cycle, or to hinder the safe and environmentally sound management, including recyclability and disposal, of the final product (as per Part II.2 para 4/3, applicable to options 1 and 2 only).





# 1. Introduction

## 1.1 Background

Chemicals of concern used in plastics constitute a risk to the environment due to their intrinsic hazardous properties, including but not limited to carcinogenicity, mutagenicity, reproductive toxicity, specific target organ toxicity and endocrine disruption (UNEP & BRS Secretariat, 2023). These chemicals fall into two primary categories: intentionally added substances, including additives, processing agents, and monomers, and non-intentionally added substances (NIAS), such as impurities, reaction by-products, and degradation products. A crucial third category of chemicals encompasses polymers, defined as any macromolecular substance obtained by polymerization of monomers (BRS, 2023). Polymers, while possessing similar hazard properties, also introduce additional concerns, such as their breakdown into macro-, micro-, and nanoplastics. Moreover, the inherent non-recyclability of certain polymers significantly amplifies environmental and human health risks (Pew Charitable Trusts & SYSTEMIQ, 2022).

The “State of the Science of Plastic Chemicals” report identifies 16,325 known plastic chemicals, with 4,219 flagged for concerns such as persistence, bioaccumulation, mobility, and toxicity (PBMT) (PlastChem, 2024). Yet only 6% of plastic chemicals have been regulated globally (PlastChem, 2024). That report advocates for adopting a hazard-based approach and grouping of chemical approach for the regulation of 3,600 currently unregulated chemicals based on these criteria and calls for increased testing and transparency for the 10,726 chemicals lacking hazard data, endorsing a “no data, no market” policy (PlastChem, 2024).

The ongoing negotiations on an international legally binding instrument on plastic pollution, including in the marine environment (hereafter: plastics instrument), provides a unique opportunity to address the global governance gap of chemicals and

polymers on concern in plastics. This movement began with the fifth session of the United Nations Environment Assembly (UNEA-5) in 2022, which led to the creation of an Intergovernmental Negotiating Committee (INC) tasked with finalizing the instrument by the end of 2024 (UNEP, 2022). The first draft text of the instrument was introduced in the run-up to INC-3 held in November 2023 in Nairobi, Kenya, with a revised version prepared for the upcoming INC-4, scheduled for 23-29 April 2024 in Ottawa, Canada (UNEP, 2023; UNEP, 2024).

A central issue in the draft text is the regulation of chemicals and polymers of concern in plastics, which has sparked considerable debate among governments. The revised draft outlines five proposed options for their regulation in Part II.2, with a notable increase in bracketed textual proposals complicating the discourse. The five options vary in scope and ambition, with the initial three focusing on chemicals and polymers of concern specifically, while the latter two suggest integration with section 3 of Part II that addresses problematic and avoidable plastic products. Achieving a consensus on a starting point for the negotiations at INC-4 is crucial for a successful conclusion on this issue in the final round of negotiations at INC-5, set for November 2024 in Busan, Korea. A critical evaluation of the effectiveness of each option will be vital to achieving progress. Table 1 provides an overview of the 5 options presented in the revised draft.

**Table 1.** Overview of the 5 options in the revised draft for controlling chemicals and polymers in plastics.

Option	Summary
<p><b>Option 1</b></p> <p>“Prohibition approach”</p>	<ul style="list-style-type: none"> <li>• Combines a <b>prohibition</b> of chemicals, groups of chemicals and polymers in plastics starting from use/presence to covering all commercial aspects, including trade</li> <li>• Global criteria, dates and exceptions provided in Annex A</li> <li>• Additional provisions provided on non-listed substances and permitted use of substances when exceptions apply</li> </ul>
<p><b>Option 2</b></p> <p>“Restriction approach”</p>	<ul style="list-style-type: none"> <li>• Combines a <b>restriction</b> of chemicals, groups of chemicals and polymers in plastics starting from use/presence to covering all commercial aspects, including trade</li> <li>• Global criteria, dates and exceptions provided in Annex A</li> <li>• Additional provisions provided on non-listed substances and permitted use of substances when exceptions apply</li> </ul>

Option	Summary
<p><b>Option 3</b></p> <p>“The NAP Approach”</p>	<ul style="list-style-type: none"> <li>Control measures rely on a <b>national action plan (NAP) mechanism</b> to support national listing and measures on chemicals, groups of chemicals and polymers in plastics</li> <li>Global criteria provided in Annex A, but no lists</li> <li>Alt paras introduce other regulatory mechanisms such as identify and control, prioritize and evaluate, and test chemicals</li> </ul>
<p><b>Option 4</b></p> <p>“Tiered Approach”</p>	<ul style="list-style-type: none"> <li>Merges chemicals and polymers of concern (Section 2) with problematic and unnecessary products (Section 3)</li> <li>Groups chemicals/polymers in 3 categories: <b>hazardous</b> (elimination), <b>problematic</b> (regulation) and <b>avoidable</b> (regulation)</li> <li>Global criteria, dates and exceptions provided in Annex A</li> <li>Includes provisions on the The Science, Technology and Economics Panels (STEPS)</li> </ul>
<p><b>Option 5</b></p> <p>“Voluntary Approach”</p>	<ul style="list-style-type: none"> <li>Merges chemicals and polymers of concern (Section 2) with problematic and avoidable products (Section 3)</li> <li>Regulation of chemicals outsourced to the Stockholm and Rotterdam Conventions</li> <li>Promotes voluntary action to regulate/reduce polymers</li> </ul>

## 1.2 Objectives of the study

The key objectives of the study are to:

1. Outline strengths and weaknesses of the five options in Part II.2 of the revised draft, seeking to identify the strongest and most comprehensive options suited to achieve the goal of protecting human health and the environment from chemicals and polymers of concern.
2. Outline necessary linkages to other relevant parts of the of the revised draft.

## 1.3 Audience of the study

The report is intended to inform governmental negotiators in preparation for and during INC-4 to help understand and navigate the complexities of the draft, in particular to understand the effectiveness of each of the options. This will be summarized by outlining what will be achieved and what will be lost under each option. Essentially, the aim is to identify what makes the mechanism work.

## 1.4 Scope of the study

The scope of the study focuses on:

1. Global measures to control chemicals and polymers of concern, as per Part II.2 of the revised draft and related measures, such as trade, reporting, annexes, etc.
2. Governance is specifically discussed in relation to the science-policy interface referenced in paras 5 and 6 of option of 4 of Part II.2.

## 1.5 Structure of the report

Section 2 provides the methodology for the mapping of Part II.2 of the revised draft. Section 3 presents the results of the mapping of strength of the textual elements of the five options of Part II.2. Section 4 presents the results of the mapping of the interlinkages of key related sections with Part II.2, including non-listed chemicals and polymers.





## 2. Methodology

This section outlines the primary methodology used for mapping, which comprises two parts: initially identifying conditions for effective global control of chemicals and polymers in plastics within the five options in Part II.2, followed by mapping interlinkages to other sections throughout the revised draft.

### 2.1 Rationale for inclusion of conditions in the analysis of the revised draft

This report aims to clarify the need and, where appropriate, the format of the conditions listed below. These conditions are mapped, and the results presented in Section 3 for each of the options in Part II.2.

1. Why include **binding obligations**?
  - MEAs aim to deliver legally binding measures for controlling various environmental challenges. Yet, compromises can lead to obligations being framed as soft law, which should be avoided.
  - Firm, legally binding obligations are essential for clear guidance on actions and to drive compliance in controlling substances of concern in plastics.
  
2. Why should the level of control include **strict elimination**?
  - Strict elimination (phase-out) of substances in contrast to restriction (phase-down) provides the strongest control measure for mitigating harm.

- Annex A of the Stockholm Convention and Annexes A, B, C, and E of the Montreal Protocol target the phase-out of chemicals, while Annex B of the Stockholm Convention and Annex F of the Montreal Protocol focus on phasing down chemicals.
3. Why should the **full life cycle** be addressed?
- There is evidence of harm to human health and the environment at every stage of the life cycle. To this end, addressing all phases of the life cycle of plastics, including trade, provides the most efficient approach to controlling chemicals, including polymers.
4. Why should the scope of substances cover **non-intentionally added substances**?
- Non-intentionally added substances (NIAS) in plastics emerge unintentionally as impurities in raw materials, unreacted monomers, oligomers and other by-products and side-products of polymer synthesis, contaminants from the production and manufacturing processes such as residual catalysts, solvents and processing aids. They also include breakdown and transformation products of polymers and chemicals in plastics, and contaminants introduced throughout the product's life cycle.
  - They can pose significant risks to human health and the environment and will need to be managed by the plastics instrument alongside intentionally added substances (IAS) such as additives, processing aids, and monomers, to ensure effective and comprehensive global chemicals control.
  - Given their unintended nature, NIAS often remain unidentified and unregulated, leading to potential exposure without adequate safety assessments or controls. However, the detection and quantification of NIAS pose technical challenges, as their composition can be complex and variable. Consequently, developing advanced analytical methods and establishing comprehensive databases are essential steps toward effective identification and risk assessment of NIAS.
5. Why should the scope of substances include **groups of chemicals**?
- Chemicals with clear structural similarities can be grouped, e.g. those with simple structures, or subgroups of similar substructures for those with more complex structures (PlastChem, 2024). Structural similarities in chemicals indicate similar biological properties and therefore similar toxicological hazards, and similar physicochemical properties that are relevant to hazards such as environmental persistence and bioaccumulation.

- Grouping can help prevent regrettable substitution, is more efficient and can bring a larger number of chemicals with similarities under regulation more quickly. Grouping is also a (limited) step towards considering and accounting for combined exposure.
- The Stockholm Convention provides an example of an MEA that uses a grouping of chemicals approach, such as polychlorinated biphenyls PCBs; perfluorooctanoic acid (PFOA), its salts and PFOA related compounds; short-chain chlorinated paraffins (SCCPs); polychlorinated dibenzo-p-dioxins (PCDDs); and polychlorinated dibenzofurans (PCDFs) (BRS, 2023).

#### 6. Why should the scope of substances include **polymers**?

- Polymers are characterized by environmental persistence and long-distance environmental transport, and exhibit other environmental and health impacts similar to those of chemicals of concern. This highlights the critical need to understand polymers not just as materials, but as complex chemicals with significant implications for health and the environment.
- Polymers are released in all phases of the life cycle, including as microplastics, oligomers and monomers, examples of which include styrene from polystyrene or bisphenol A from polycarbonate. Polymers also pose major challenges for achieving circularity, as only a few are inherently recyclable.
- Recognizing these challenges, many countries have taken proactive measures to restrict the use of at least 11 polymers, although in some cases, for particular applications only (NCM, 2024). The polymers most frequently subject to restrictions are polyethylene terephthalate (PET) (37 countries), expanded polystyrene (EPS) (33 countries) and polystyrene (18 countries). These actions reflect a growing international consensus on the need for stringent regulation of polymer use to mitigate their environmental and health impacts.

#### 7. Why include **global criteria** focusing on hazard?

- Development of global criteria allows for the identification of characteristics of substances that are undesirable and require elimination or phase down at the global level.
- The “State of the Science of Plastic Chemicals”, documenting 16,325 known plastic chemicals with 4,219 flagged for concerns due to persistence, bioaccumulation, mobility, and/or toxicity (PlastChem, 2024), underscores the importance of a hazard-based approach for controlling chemicals of concern. A hazard-based approach is stricter, focusing on substances’ intrinsic toxic properties, in contrast to a risk-based approach that considers exposure data, often delaying action and requiring more resources.

- By emphasizing the intrinsic toxic characteristics of chemicals, global criteria can facilitate a more proactive and efficient strategy in managing chemicals, thereby enhancing protection of environmental and human health.
8. Why include **global lists** of substances?
- Utilizing global lists for prioritizing substances of concern in plastics streamlines the application of agreed control measures worldwide, including trade controls and bans/restrictions, ensuring consistent regulatory actions.
  - A harmonized global management strategy via substance listings creates certainty and a level playing field for businesses, enhancing competitiveness and compliance, by setting clear, universally applicable standards.
9. Why include **target dates** for restrictions?
- A target date is the agreed timeline for Parties to commence or complete (comply with) the control measures set under the instrument.
  - Setting target dates can accelerate compliance with restrictions and the phase-out or phase-down of regulated substances and creates certainty for industry.
10. Why include **national plans**?
- A national action plan can provide a useful mechanism for taking action on listed chemicals, following the example of the national implementation plans of the Stockholm Convention.
  - Conversely, relying solely on national action plans could lead to inconsistent approaches that may not address the global challenges posed by plastic-associated chemicals, or ensure sufficient accountability. The success of such plans depends on their alignment with a structured and unified listing process that ensures targeted and harmonized actions across countries.

11. Why include **rules for permitted uses** when exceptions apply?

- Exceptions are special allowances applied to specific uses of substances when countries may temporarily opt out from elimination or restriction via an exemption or when a restricted substance is needed for essential uses without viable alternatives. For instance, the Stockholm Convention outlines essential uses, termed “acceptable purposes”, for chemicals listed in Annex B, such as dichlorodiphenyltrichloroethane (DDT) for disease vector control and perfluorooctane sulfonic acid (PFOS), its salts and perfluorooctane sulfonyl fluoride (PFOSF) for controlling leaf-cutting ants in agriculture.
- It is important to specify and adopt certain rules for permitted substances where exceptions apply. This may include transparency measures, such as marking and labelling, allowing for controlled and informed use of otherwise restricted substances. For instance, the Stockholm Convention requires Parties granted an exemption for producing and using hexabromocyclododecane (HBCD) in new building insulation to label it to aid in its easy identification (Part VII of Annex A).

12. Why address **non-listed chemicals**?

- Given the plastics instrument may not address all substances used in plastics from the outset, it will be important to enable action on non-listed chemicals. This may include, inter alia, mandatory or voluntary reporting obligations on measures taken to identify and restrict the use of non-listed chemicals.

## 2.2 Conditions identified for mapping options towards regulation of chemicals and polymers of concern

The five options for controlling chemicals and polymers of concern provided in Part II.2 of the revised draft have been analysed based on 12 conditions for effective global control of chemicals and polymers in plastics that aim to cover all elements included in the text. Table 2 outlines the 12 conditions with leading questions for the analysis and identifies terms from the revised draft that either satisfy (qualify) or fail to satisfy (disqualify) these elements that may also include absence of terms. This approach aims to assess the efficacy of each of the five options, underscoring their potential strengths and challenges.

**Table 2.** Overview of conditions analysed for the options in Part II.2 of the revised draft.

Condition	Leading question	Qualifying terms found	Disqualifying terms
<b>1. Binding obligation</b>	<ul style="list-style-type: none"> <li>Is the proposed control measure a binding obligation?</li> </ul>	<ul style="list-style-type: none"> <li>Each Party shall take the necessary measures</li> <li>Parties shall take the necessary measures</li> </ul>	<ul style="list-style-type: none"> <li>Each Party [,in accordance to its national circumstances and capabilities and subject to its national action plan,] shall take the necessary measures</li> <li>Each Party shall take measures, as appropriate</li> <li>Parties are encouraged</li> </ul>
<b>2. Strict elimination</b>	<ul style="list-style-type: none"> <li>Is strict elimination included?</li> </ul>	<ul style="list-style-type: none"> <li>Prohibit</li> <li>Not allow</li> <li>Eliminate</li> </ul>	<ul style="list-style-type: none"> <li>Restrict</li> <li>Reduce</li> <li>Manage</li> <li>To reduce or eliminate</li> <li>To prohibit or regulate</li> </ul>
<b>3. Full life cycle phase</b>	<ul style="list-style-type: none"> <li>Is the full life cycle included?</li> </ul>	<ul style="list-style-type: none"> <li>The presence of</li> <li>The production, sale, use, distribution, import or export</li> </ul>	<ul style="list-style-type: none"> <li>The use of [with absence of other terms]</li> </ul>
<b>4. Scope (NIAS)</b>	<ul style="list-style-type: none"> <li>Are NIAS included (in addition to IAS)?</li> </ul>	<ul style="list-style-type: none"> <li>the use [or presence] of</li> <li>the use and presence in</li> </ul>	<ul style="list-style-type: none"> <li>[absence of terms]</li> </ul>
<b>5. Scope (groups of chemicals)</b>	<ul style="list-style-type: none"> <li>Are groups of chemicals included?</li> </ul>	<ul style="list-style-type: none"> <li>Groups of chemicals</li> <li>Groups of [hazardous] chemicals</li> </ul>	<ul style="list-style-type: none"> <li>[absence of the term groups of chemicals of equivalent]</li> </ul>



Condition	Leading question	Qualifying terms found	Disqualifying terms
<b>6. Scope (polymers)</b>	<ul style="list-style-type: none"> <li>Are polymers included?</li> </ul>	<ul style="list-style-type: none"> <li>Polymers</li> </ul>	<ul style="list-style-type: none"> <li>[absence of the term polymers or equivalent]<sup>1</sup></li> </ul>
<b>7. Global criteria (hazard)</b>	<ul style="list-style-type: none"> <li>Is a hazard-based approach included in global criteria in contrast to a risk-based?</li> </ul>	<ul style="list-style-type: none"> <li>[Hazardous] chemicals, [hazardous] groups of chemicals</li> <li>That are hazardous to human health or the environment</li> <li>Adverse impacts on human health or the environment</li> </ul>	<ul style="list-style-type: none"> <li>[The risk] of chemicals</li> <li>That are problematic because they disproportionately contribute to plastic pollution</li> <li>Avoidable because they can be easily substituted for more sustainable alternatives</li> </ul>
<b>8. Global lists</b>	<ul style="list-style-type: none"> <li>Are global lists provided for in the Annexes?</li> </ul>	<ul style="list-style-type: none"> <li>Listed in part II of annex A, except as provided in that annex</li> <li>Identified in Part II of Annex A</li> <li>As defined and listed in [annex]</li> </ul>	<ul style="list-style-type: none"> <li>[absence of relevant terms]</li> </ul>
<b>9. Targets dates</b>	<ul style="list-style-type: none"> <li>Are target dates provided for in the Annexes?</li> </ul>	<ul style="list-style-type: none"> <li>At the latest by the dates provided in part II of annex A</li> <li>Not later than the respective dates in the Annex</li> </ul>	<ul style="list-style-type: none"> <li>[absence of relevant terms]</li> </ul>
<b>10. National plans</b>	<ul style="list-style-type: none"> <li>Is there an obligation to include measures in national plans?</li> </ul>	<ul style="list-style-type: none"> <li>The measures taken to implement this provision shall be reflected in the national plan communicated pursuant to [Part IV.1 on national plans</li> </ul>	<ul style="list-style-type: none"> <li>[absence of relevant terms]</li> </ul>
<b>11. Rules for permitted use</b>	<ul style="list-style-type: none"> <li>Does the text provide rules for permitted use of exceptions listed the Annexes?<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>Where production or use of a regulated [hazardous] chemical, group of [hazardous] chemicals [or polymer] listed in part II of annex A is permitted, each Party [,taking into consideration its socioeconomic context and national circumstances,] with such production or use shall...</li> </ul>	<ul style="list-style-type: none"> <li>[absence of relevant terms]</li> </ul>

1 The inclusion of chemical simplicity covers polymers; therefore, the omission of the term 'polymers' merely highlights the zero draft's limited perspective in its definition of chemicals.

2 Part II.4 provides specific rules for registering exemptions, while the focus in section II.2 is on specific measures that need to be taken if Parties are granted exemptions.

Condition	Leading question	Qualifying terms found	Disqualifying terms
<b>12. Non-listed chemicals</b>	<ul style="list-style-type: none"> <li>Are non-listed chemicals addressed in the text?</li> </ul>	<ul style="list-style-type: none"> <li>Each Party is encouraged to include in its reporting pursuant to [Part IV.3 on reporting on progress] any measures taken to not allow or to restrict the use in plastic products of (hazardous] chemicals, groups of [hazardous] chemicals [and polymers] [not included in Part II of Annex A]...</li> </ul>	<ul style="list-style-type: none"> <li>[absence of relevant terms]</li> </ul>

## 2.3 Balancing options with key related sections

The second part of the mapping focuses on other areas of the revised draft with the following leading question for the analysis:

- How do the options relate horizontally to other key sections?
- What measures in the key related sections must remain strong should the option be weakened?

The sections of the revised draft to be analysed for linkages are listed below:

- Emissions and releases (Part II.8)
- Trade (Part II.10)
- Transparency (Part II.13)
- Information exchange (Part IV.6)
- Product design composition and performance (Part II.5)
- Problematic and avoidable plastic products (Part II.3)
- Waste management (Part II.9)
- Capacity (Part III.1-2).



## 3. Mapping the five options of Part II.2

This section maps the five options presented in Part II.2 of the revised draft against the twelve core elements described in Section 2. It is to be noted that two of the elements are only provided for in options 1 and 2 of the draft: condition #10 on rules for permitted uses and condition #11 on non-listed chemicals, reflected in grey in Table 1 and Table 2.

### 3.1 Option 1 - Prohibition approach

Table 3 provides the mapping of option 1 based on the 12 conditions for effective global control of chemicals and polymers of concern in plastics. Text in green indicates that the condition is met, text in orange signifies that the condition is met but under dispute, and text in red denotes that the condition is not fulfilled. Option 1 captures 11 of the 12 conditions and can be considered as one of the strongest starting points for negotiations.

#### *Strengths of option 1*

- **Binding obligation (#1):** Establishing a legally binding obligation ensures that countries are formally accountable to eliminate chemicals, chemical groups, and polymers from plastics and plastic products universally listed in Part II of Annex A.
- **Strict elimination (#2):** Para 2 includes strict elimination, but the introduction of language in para 1, such as “to regulate, as appropriate” introduces ambiguity, potentially diminishing the strength of the legal obligation to prohibit harmful chemicals, groups of chemicals and polymers. This could lead to varied interpretations and implementations, undermining the effectiveness of the prohibition.

- **Full life cycle (#3):** By including prohibitions on both the manufacturing processes and commercial activities (production, sale, distribution, import, and export), the approach ensures a thorough elimination of harmful chemicals, groups of chemicals and polymers from the entire life cycle of plastics and plastic products.
- **Scope (NIAS (#4):** As proposed in brackets, by emphasizing “presence” in addition to “use,” the restriction on chemicals encompasses NIAS, alongside intentionally added substances, ensuring a comprehensive approach to protecting human health and the environment.
- **Scope (groups of chemicals) (#5):** The scope addresses groups of chemicals, enabling to broaden the regulatory scope and provide a more proactive stance in global chemical management.
- **Scope (polymers) (#6):** Polymers are included, indicating a comprehensive approach.
- **Global lists (#8):** Global lists are provided for in Part II of Annex A, enabling a coordinated and harmonized approach to address chemicals, groups of chemicals and polymers.
- **Target dates (#9):** The inclusion of specific targets for the elimination of these substances in Part II of Annex A provides a clear timeline and milestones for action, allowing for a phased approach that can start with production restrictions before extending to commercial activities.
- **National plans (#10):** While reference national plans were not included in this option as presented in the zero draft, a proposal has been made to reflect measures taken in national plans, resembling the preparation of National Implementation Plans (NIPs) under the Stockholm Convention.
- **Rules for permitted use (#11):** Defines obligations for permitted use, ensuring exceptions do not compromise overall safety and sustainability. However, the proposed clause “taking into consideration its socioeconomic context and national circumstances” would shift it towards being more advisory than mandatory.
- **Non-listed chemicals (#12):** By encouraging voluntary reporting on measures taken to restrict non-listed chemicals, the proposal encourages countries to go beyond the minimum requirements.

#### *Challenges of option 1*

- **Global criteria (hazard) (#7):** The text does not specify the use of global criteria to support listing, although this is implied with the inclusion of global lists and target dates. Nevertheless, direct reference is missing to the application of a hazard-based approach.

**Table 3.** Mapping of option 1 of Part II.2 of the revised draft based on 12 conditions.

Para	1. Binding obligation	2. Strict elimination	3. Full life cycle	4. Scope (NIAS)	5. Scope (groups of chemicals)	6. Scope (polymers)	7. Global criteria (hazard)	8. Global lists	9. Target dates	10. National plans
1	Each Party shall take the necessary measures	[to prohibit or to regulate, as appropriate] [to not allow and [progressively] to eliminate]	the use [or presence] of	the use [or presence] of	chemicals, groups of chemicals,	and polymers [in the production of plastic polymers, plastics and plastic products	n/a	listed in Part II of Annex A except as provided in that annex	[at the latest by the dates provided in part II of annex A]	[The measures taken to implement this provision shall be reflected in the national plan communicated pursuant to [Part IV.1 on national plans].
2	Each Party shall take the necessary measures	to not allow and to [progressively] eliminate	the production, sale, distribution, import or export of plastics and plastics products containing	n/a	chemicals, groups of chemicals,	and polymers	n/a	listed in Part II of Annex A	at the latest by the dates provided in part II of annex A	n/a
3/2 <sup>3</sup>	Each Party [taking into consideration its socioeconomic context and national circumstances,] with such production or use shall	<p>Where production or use of a regulated [hazardous] chemical, group of [hazardous] chemicals [or polymer] listed in part II of annex A is permitted</p> <p>a) ensure that their production or use, including products containing them is carried out in a manner that prevents and minimizes human exposure or release into the environment, and Fosters the safe and environmentally sound management, including the recyclability and disposal, of the polymers, plastics, and plastic products containing them</p> <p>b) ensure their they, including products containing them, are used in a manner consistent with part II of annex A and managed in a safe and environmentally sound manner throughout their life cycle, including for their reusability, repairability, recyclability and final disposal</p> <p>c) require producers and importers of such chemicals and polymers, including products containing them, to provide to government authorities, in addition to the information required under Part II.14 on transparency, tracking, monitoring and labelling complete information about the hazards to human health or the environment associated with the relevant chemical, plastic polymer or plastic product related implications for their safe use, recyclability and disposal based on the harmonized requirements contained in part II of annex A.</p> <p>d) require producers and importers of such chemicals and polymers, including products containing them, to mark and label them, based on harmonised requirements of Part II, Annex A to allow their safe and environmentally sound use and handling throughout their life cycle, including their reusability, repairability, recyclability and final disposal.</p>								
4/3 <sup>4</sup>	Each Party is encouraged	to include in its reporting pursuant to [Part IV.3 on reporting on progress] any measures it has taken to not allow, or to restrict, the use in [plastics][plastic polymers] and [plastics including ] plastic products of (hazardous) chemicals, groups of [hazardous] chemicals [and polymers] [not included in part II of annex A] that have the potential for adverse impacts on human health or the environment at any stage of the product life cycle, or to hinder the [safe and] environmentally sound management, including recyclability and disposal, of the final product.								

3 3/2 addresses permitted uses (condition 11 as per methodology). Para. 3/2 applies only to options 1 and 2.

4 4/3 addresses non-listed chemicals (condition 12 as per methodology). Para. 4/3 applies only to options 1 and 2.



## 3.2 Option 2 - Restriction approach

Table 4 provides the mapping of option 2 based on the 12 conditions for effective global control of chemicals and polymers of concern in plastics. Text in green indicates that the condition is met, text in orange signifies that the condition is met but under dispute, and text in red denotes that the condition is not fulfilled. Option 2 fulfills 11 out of the 12 conditions, positioning it as a robust starting point for negotiations.

### *Strengths of option 2*

- **Binding obligation (#1):** Establishing a legally binding obligation ensures that countries are formally accountable to eliminate chemicals, chemical groups, and polymers from plastics and plastic products universally listed in Part II of Annex A.
- **Full life cycle (#3):** By including restrictions on both the manufacturing processes and commercial activities (production, sale, distribution, import, and export), the approach ensures a thorough regulation of harmful chemicals, groups of chemicals and polymers from the entire life cycle of plastics and plastic products
- **Scope (NIAS) (#4):** As proposed in brackets, by emphasizing “presence” in addition to “use,” the restriction on chemicals, target NIAS, alongside intentionally added substances, ensures a comprehensive approach to protecting human health and the environment.
- **Scope (Groups of chemicals) (#5):** The scope addresses groups of chemicals, enabling to broaden the regulatory scope and provide a more proactive stance in global chemical management.
- **Scope (polymers) (#6):** Polymers are included, although marked in brackets.
- **Global criteria (hazard) (#7):** Specifies the need for inclusion global criteria for chemicals, groups of chemicals and polymers “with the potential for adverse impacts on human health or the environment”, implying the use of a hazard-based approach.
- **Global lists (#8):** Global lists are provided for in Part II of Annex A, enabling a coordinated and harmonized approach to address chemicals, groups of chemicals and polymers. Reference is also made to listing under the Stockholm Convention, marked in brackets.
- **Target dates (#9):** The inclusion of specific targets for the minimization of chemicals, groups of chemicals and polymers in Part II of Annex A provides a clear timeline and milestones for action.



- **National plans (#10):** This option requests reflecting in national plans measures taken to not allow, or to regulate chemicals, groups of chemicals and polymers listed in Part II of Annex A. This approach resembles preparation of NIPs under the Stockholm Convention.
- **Rules for permitted use (#11):** Defines obligations for permitted use of listed chemicals, groups of chemicals and polymers. This ensures that exceptions and exemptions do not compromise overall safety and sustainability. However, the proposed clause “taking into consideration its socioeconomic context and national circumstances” would shift it towards being more advisory than mandatory.
- **Non-listed chemicals (#12):** By encouraging voluntary reporting on measures taken to restrict non-listed chemicals, the proposal encourages countries to go beyond the minimum requirements.

#### *Challenges of option 2*

- **Strict elimination (#2):** The language focusing on minimization, supplemented by conditional elimination (para 1), may result in a less stringent approach compared to option 1’s outright elimination mandate. Likewise, paragraph 2 adopts a milder stance with its request to “to not allow, or to regulate, as appropriate.” These could lead to variations in implementation and potentially slower progress in removing harmful chemicals and polymers from plastics.

**Table 4.** Mapping of option 2 of Part II.2 of the revised draft based on 12 conditions.

Para	1. Binding obligation	2. Strict elimination	3. Full life cycle	4. Scope (NIAS)	5. Scope (groups of chemicals)	6. Scope (polymers)	7. Global criteria (hazard)	8. Global lists	9. Target dates	10. National plans
1	Parties shall take the necessary measures	to minimize, and as appropriate eliminate	[the use and presence in] [the production, sale, distribution, import and/ or export of] plastics and plastics products of	[the use and presence in] [the production, sale, distribution, import and/ or export of] plastics and plastics products of	[hazardous] chemicals, groups of [hazardous] chemicals	[and polymers] [plastic application]	with the potential for adverse impacts on human health or the environment at any stage of the plastic life cycle, or with properties that may hinder safe and environmentally sound management including their reusability, repairability, recyclability and disposal.	n/a	[at the latest by the dates provided in part II of annex A]	n/a
2 <sup>5</sup>	Each Party shall take the necessary measures	to not allow, or to regulate, as appropriate	the use and presence in plastic polymers, plastics and plastic products of	the use and presence in plastic polymers, plastics and plastic products of	[hazardous] chemicals, groups of [hazardous] chemicals	[and polymers]	n/a	identified in part II [and any persistent organic pollutants (POPs) listed] [of annex A] [in Annex A, B and C of the Stockholm Convention on Persistent Organic Pollutants]	[at the latest by the dates provided in part II of annex A]	The measures taken to implement this provision shall be reflected in the national plan communicated pursuant to [Part IV.1 on national plans].
3/2 <sup>6</sup>	Each Party [taking into consideration its socioeconomic context and national circumstances,] with such production or use shall	Where production or use of a regulated [hazardous] chemical, group of [hazardous] chemicals [or polymer] listed in part II of annex A is permitted								
		<p>a) ensure that their production or use, including products containing them is carried out in a manner that prevents and minimizes human exposure or release into the environment, and Fosters the safe and environmentally sound management, including the recyclability and disposal, of the polymers, plastics, and plastic products containing them</p> <p>b) ensure their they, including products containing them, are used in a manner consistent with part II of annex A and managed in a safe and environmentally sound manner throughout their life cycle, including for their reusability, repairability, recyclability and final disposal</p> <p>c) require producers and importers of such chemicals and polymers, including products containing them, to provide to government authorities, in addition to the information required under Part II.14 on transparency, tracking, monitoring and labelling complete information about the hazards to human health or the environment associated with the relevant chemical, plastic polymer or plastic product related implications for their safe use, recyclability and disposal based on the harmonized requirements contained in part II of annex A.</p> <p>d) require producers and importers of such chemicals and polymers, including products containing them, to mark and label them, based on harmonised requirements of Part II, Annex A to allow their safe and environmentally sound use and handling throughout their life cycle, including their reusability, repairability, recyclability and final disposal.</p>								
4/3 <sup>7</sup>	Each Party is encouraged	to include in its reporting pursuant to [Part IV.3 on reporting on progress] any measures it has taken to not allow, or to restrict, the use in [plastics][plastic polymers] and [plastics including ] plastic products of (hazardous) chemicals, groups of [hazardous] chemicals [and polymers] [not included in part II of annex A] that have the potential for adverse impacts on human health or the environment at any stage of the product life cycle, or to hinder the [safe and] environmentally sound management, including recyclability and disposal, of the final product.								

5 The entire paragraph is bracketed, but not shown in the table.

6 3/2 addresses permitted uses (condition 11 as per methodology). Para. 3/2 applies only to options 1 and 2.

7 4/3 addresses non-listed chemicals (condition 12 as per methodology). Para. 4/3 applies only to options 1 and 2.

### 3.3 Option 3 - National plan approach

Table 5 outlines how option 3 aligns with the 12 conditions for effective global control of chemicals and polymers of concern in plastics. Text in green indicates that the condition is met, text in orange signifies that the condition is met but under dispute, and text in red denotes that the condition is not fulfilled. Option 3 meets 5 of the 12 conditions, making it one of the least robust foundations for negotiation. Its potential to provide added value to existing practices is highly questionable. To ensure its effectiveness, the development of a strong follow-up and transparency mechanism, similar to the structure established by the Paris Agreement, would be essential. However, given the vast number of plastic chemicals on the market, it will likely be far more effective to agree on global lists, rather than allowing each country to individually determine priorities among the 16,000 known chemicals used in plastics.

#### *Strengths of option 3*

- **Full life cycle (#3):** Refers to presence and use of chemicals thus covers the full life cycle, although does not explicitly refer to the different phases, nor trade.
- **Scope (NIAS) (#4):** By emphasizing “presence” in addition to “use,” the restriction on chemicals, target NIAS, alongside intentionally added substances, ensuring a comprehensive approach to protecting human health and the environment.
- **Scope (groups of chemicals) (#5):** This option refers to groups of chemicals, but in brackets. A grouping of chemical approach allows for a more proactive stance to control chemicals.
- **Scope (polymers) (#6):** This option refers to polymers, although marked in brackets.
- **National plans (#10):** This approach aims to provide a flexible framework to translate the global criteria into activities reflected in national plans. To this end, the model resembles the Nationally Determined Contributions (NDCs) under the Paris Agreement, thus establishing a legally binding framework for procedural compliance.

### *Challenges of option 3*

- **Binding obligation (#1):** Originally designed as binding, the option is now proposed to be more advisory due to the insertion of “in accordance with its national circumstances and capabilities and subject to its national action plan” in brackets before “shall.”
- **Strict elimination (#2):** The option does not include strict elimination as it aims “to manage” or “to not allow or to regulate.”
- **Global criteria (hazard) (#7):** This option mandates the adoption of global criteria “with potential for adverse impacts on human health and the environment”, implying the use of a hazard-based approach. However, a textual proposal has been made to control risk of chemicals, rather than chemicals, shifting it towards a risk-based approach. Also, it is important to note that this option allows for countries to interpret and apply these global criteria flexibly within their context, resulting in varied national strategies, potentially diluting the effectiveness of a unified global approach to chemicals control.
- **Global lists (#8):** The absence of a universally recognized list of priority chemicals and polymers diminishes the potential for holding entities accountable. Establishing such a list is crucial for transparency and effectiveness in addressing the most significant threats to human health and the environment.
- **Target dates (#9):** This option does request the provision of target dates, explained by the absence of global lists.
- **Rules for permitted use (#11):** This option does provide rules for permitted use, explained by the absence of global lists.
- **Non-listed chemicals (#12):** This option does encourage action on non-listed chemicals, explained by the absence of global lists.

**Table 5.** Mapping of option 3 of Part II.2 of the revised draft based on 12 conditions.

Para	1. Binding obligation	2. Strict elimination	3. Full life cycle	4. Scope (NIAS)	5. Scope (groups of chemicals)	6. Scope (polymers)	7. Global criteria (hazard)	8. Global lists	9. Target dates	10. National plans
1	Each Party [,in accordance to its national circumstances and capabilities and subject to its national action plan,] shall take the necessary measures	[to manage] [[to not allow, or] to regulate]	the presence and use in plastics and plastic products	the presence and use in plastics and plastic products	[the risk] of chemicals[, groups of chemicals]	[ and polymers]	[the risk] of chemicals with the potential for adverse impacts on human health or the environment [,based on agreed scientific criteria, following a transparent and inclusive process decided by the governing body*], or with properties that may hinder their safe and environmentally sound management[, including their reusability, repairability, recyclability and disposal.]	n/a	n/a	The measures taken to implement this provision shall be reflected in the national plan communicated pursuant to [Part IV.1 on national plans].

### 3.4 Option 4 - Tiered approach

Table 6 provides the mapping of option 4 based on the 12 conditions for effective global control of chemicals and polymers of concern in plastics. Text in green indicates that the condition is met, text in orange signifies that the condition is met but under dispute, and text in red denotes that the condition is not fulfilled. Paras 5-6 address governance and are analysed and discussed separately in section 3.6. Para 4 is specific to intentionally added microplastics and has, therefore, not been analysed. Option 4 captures 7 of the 12 conditions and can be considered as a moderate starting point for negotiations. This option stands out by introducing three categories for regulating chemicals and polymers, including those that are hazardous (para 1), problematic based on risk (para 2) and avoidable (para 3).

#### *Strengths of option 4*

- **Binding obligation (#1):** This option includes a mix of binding obligations (para 1) and voluntary obligations (paras 2-3). Its primary advantage lies in the binding nature of the obligation in paragraph 1, which is specifically aimed at elimination of chemicals and polymers identified as hazardous.
- **Strict elimination (#2):** This option features a combination of obligations, including strict elimination (para 1) and less affirmative actions (paras 2-3). Its main strength is in para 1, which enforces a binding obligation for elimination of chemicals and polymers classified as hazardous.
- **Full life cycle (#3):** By including prohibitions on production, sale, distribution, import, and export, the approach ensures a thorough elimination of hazardous chemicals polymers from the entire life cycle.
- **Scope (polymers) (#6):** The scope includes polymers, aligning the option with the precautionary principle.
- **Global criteria (hazard) (#7):** This option provides the strongest reference to adopting a hazard-based approach as it mandates the elimination of the production, sale, use, distribution, import or export chemicals or polymers used in plastic production or plastic products that are hazardous to human health or the environment.
- **Global lists (#8):** Part II of Annex A includes global lists, facilitating a unified and harmonized strategy to manage chemicals and polymers, and to efficiently ensure governmental accountability for action.
- **Target dates (#9):** Hazardous chemicals and polymers are set for elimination by specific dates (para 1), although target dates for addressing problematic and avoidable chemicals and polymers (paras 2-3) are not outlined.



#### *Challenges of option 4*

- **Scope (NIAS) (#4):** The regulation of chemicals does not encompass their presence, thus focus is solely on intentionally-added substances.
- **Scope (groups of chemicals) (#5):** The scope does not include groups of chemicals, narrowing its regulatory scope and ability to provide a more proactive stance in global chemical management.
- **National plans (#10):** No reference is made to national plans, which could serve as a valuable tool for proactive planning and communicating both existing measures (such as inventories) and future strategies.
- **Rules for permitted use (#11):** This option stands apart from options 1 and 2 by not including provisions on permitted use in cases of exceptions. Establishing such rules is crucial for maintaining the safety and sustainability of chemical management, which includes labelling and marking products with exceptions.
- **Non-listed chemicals (#12):** This option differs from options a 1 and 2 by not encouraging voluntary reporting on measures taken to restrict non-listed chemicals.

**Table 6.** Mapping of option 4 of Part II.2 of the revised draft based on 12 conditions.

Para	1. Binding obligation	2. Strict elimination	3. Full life cycle	4. Scope (NIAS)	5. Scope (groups of chemicals)	6. Scope (polymers)	7. Global criteria (hazard)	8. Global lists	9. Target dates	10. National plans
1	Each Party shall	eliminate or not allow	the production, sale, use, distribution, import or export of	n/a	chemicals	or polymers	used in plastic production or plastic products that are hazardous to human health or the environment	as defined and listed in [annex]	not later than the respective dates in the Annex	n/a
2	Each Party shall take measures, as appropriate	to not allow, to phase down or to otherwise regulate	the production, sale, use, distribution, import or export of	n/a	chemicals	or polymers	used in plastic production or plastic products that are problematic because they disproportionately contribute to plastic pollution, especially in the marine environment, or they have properties that may hinder their safe and environmentally sound management, including their reusability, repairability, recyclability and disposal	as defined and listed in [annex], except where the Party has a registered exemption for the relevant product(s).	n/a	n/a
3	Each Party shall take measures, as appropriate	to not allow, to phase down or to otherwise regulate	the production, sale, use, distribution, import or export of	n/a	chemicals	or polymers	used in plastic production or plastic products that are avoidable because they can be easily substituted for more sustainable alternatives	as defined and listed in [annex] except where the Party has a registered exemption for the relevant product(s)	n/a	n/a
4	Each Party shall	to eliminate or not allow	the production, sale, use, distribution, import or export of		plastics products		containing intentionally added microplastics	as defined in [annex] except where an exception is specified in part IV of annex B		

### 3.5 Option 5 - Voluntary approach

Table 7 provides the mapping of option 5 based on the 12 conditions for effective global control of chemicals and polymers of concern in plastics. Text in green indicates that the condition is met, text in orange signifies that the condition is met but under dispute, and text in red denotes that the condition is not fulfilled. Paras 3 and 4 are specific to problematic and avoidable plastic products and intentionally added microplastics and have, therefore, not been analysed. Option 5 addresses only 2 of the 12 conditions and exclusively for polymers, without incorporating any obligations directly for chemicals. Therefore, it presents a notably weak foundation for negotiations.

#### *Strengths of option 5*

- **Scope (polymers) (#6):** This option includes taking action to regulate polymers.
- **Global criteria (hazard) (#7):** The development of global criteria is intended to address polymers “with potential adverse impacts on human health or the environment”, which implies that use of a hazard-based approach.

#### *Challenges of option 5*

- **Binding obligation (#1):** No mandatory obligations are provided, instead focus is on voluntary measures to regulate polymers.
- **Strict elimination (#2):** Focus is on regulation rather than elimination.
- **Full life cycle (#3):** Lacks a full life cycle approach, nor does the text specify any life cycle phases.
- **Scope (NIAS) (#4):** The regulation of chemicals does not encompass their presence, thus focus is solely on intentionally-added substances.
- **Scope (groups of chemicals) (#5):** Limited scope to address chemicals or groups of chemicals, as “chemicals of concern used in the plastics industry” are only to be addressed through existing MEAs.
- **Global lists (#8):** The absence of a global list of priority chemicals and polymers hampers accountability and action on key environmental and health threats.
- **Target dates (#8):** This option does request the provision of target dates, explained by the absence of global lists.
- **National plans (#10):** No reference is made to national plans, which could serve as a valuable tool for proactive planning and communicating both existing measures (such as inventories) and future strategies.
- **Rules for permitted use (#11):** This option does provide rules for permitted use, explained by the absence of global lists.
- **Non-listed chemicals (#12):** This option does encourage action on non-listed chemicals, explained by the absence of global lists.

**Table 7.** Mapping of option 5 of Part II.2 of the revised draft based on 12 conditions.

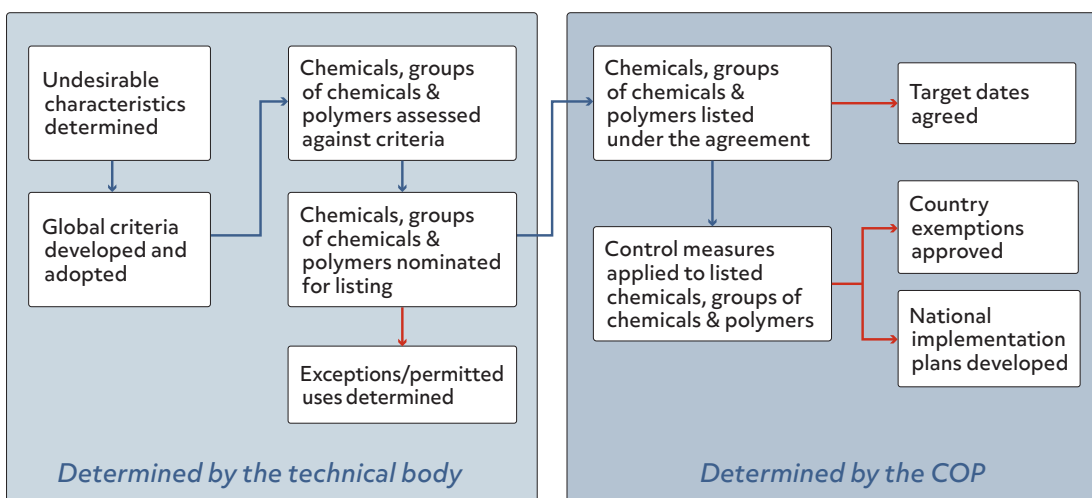
Para	1. Binding obligation	2. Strict elimination	3. Full life cycle	4. Scope (NIAS)	5. Scope (groups of chemicals)	6. Scope (polymers)	7. Global criteria (hazard)	8. Global lists	9. Target dates	10. National plans
1	Parties shall decide at the governing body on	n/a	n/a	n/a	chemicals of concern used in the plastics industry	n/a	based on criteria defined in Annex A that should be regulated by the Stockholm and Rotterdam Conventions, according to their objectives	n/a	n/a	n/a
2	Parties are encouraged	to regulate	n/a	n/a	n/a	polymers	with potential adverse impacts on human health or the environment based on criteria contained in annex A, which shall include the uses of the best scientific evidence	n/a	n/a	n/a
3	Parties are encouraged	to gradually reduce	the use of		plastics products		that are problematic and avoidable identified on the basis of relevant parameters, and based on the availability, accessibility and affordability of sustainable alternatives			
4	Each Party shall take the necessary measures	to regulate	the use of		plastic products		containing intentionally added microplastics		except where an exception is specified in part IV of annex B.	

### 3.6 Governance elements

Paragraphs 5 and 6 of option 4 address governance specifically and are discussed separately in this subsection. While governance elements have not been included in any other options, they are relevant and applicable to all of them and should be included whichever option or combination of options is agreed. The paragraphs read as follows:

- **Para 5:** The Science, Technology and Economics Panels (STEPS) shall recommend to the Conference of the Parties by its first meeting, a list of the characteristics of hazardous, problematic, and avoidable chemicals, polymers or plastic products referred to in paragraphs 1 to 4 above. In preparing these recommendations, STEPs shall consider sound scientific, socioeconomic, and sociocultural assessments and the availability of safe, accessible, efficient, economically feasible, environmentally friendly and sustainable substitutes, including those based on the knowledge and practices of Indigenous Peoples and local communities.
- **Para 6:** STEPs shall recommend to the governing body at each session, chemicals, polymers, or plastic products, their associated targets and timelines on the Annexes listed in paragraphs 1 to 4 above.

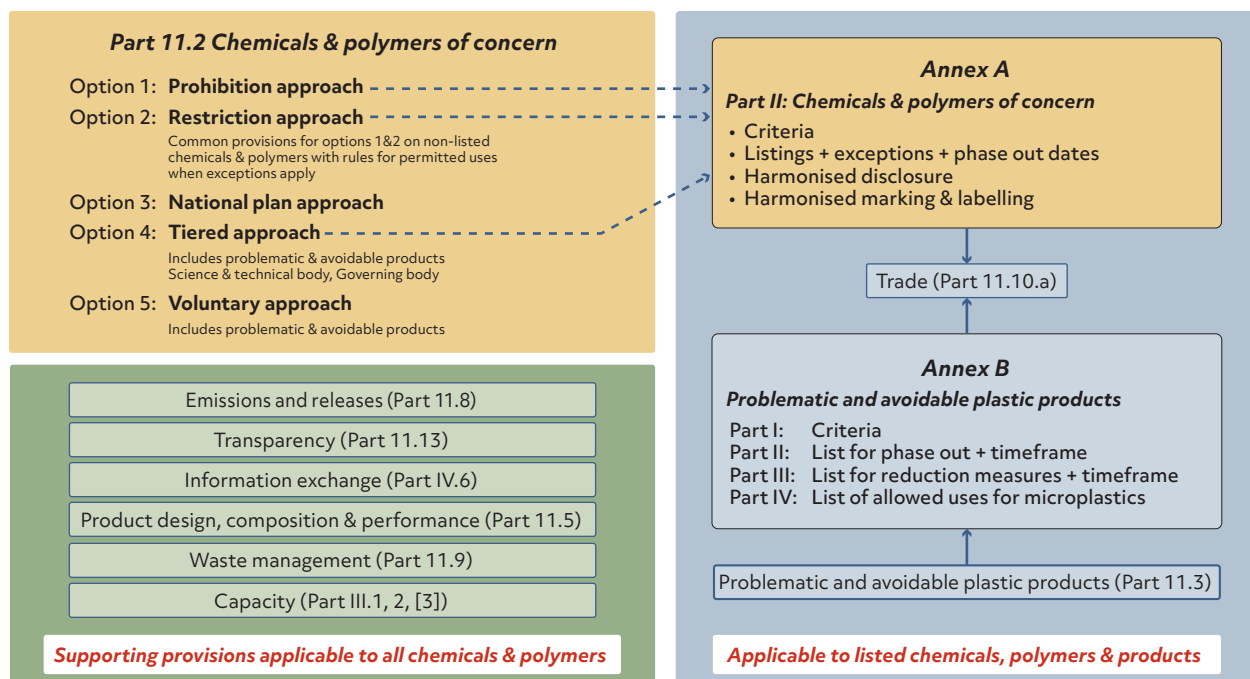
The paragraphs allocate specific roles for both the scientific and technical body and the governing body to ensure a science based mechanism for reviewing and listing of chemicals and polymers of concern. The governance mechanism provides the glue to help understand and link the core obligations of Part II.2. In other words, it helps to understand how the 12 conditions that are examined in this section can together provide a pathway for efficient and scientifically grounded global control of chemicals and polymers of concern used in plastics. Figure 1 shows how the criteria, listings and control measures are connected, both through action that will be determined by the possible scientific and technical review committee and the Conference of Parties (COP).



**Figure 1.** The relationship between criteria, listings and control measures.

## 4. Balancing Part II.2 with key related sections of the revised draft

This section aims to highlight the measures in other key provisions of the draft instrument as they relate to the global regulation of chemicals, groups of chemicals and polymers of concern. These provisions are summarised with a tendency towards the strongest measures for that section. In some cases, this represents a merging of options and bracketed text presented in the related section. A discussion is included that highlights the balance for each key related section with Part II.2 and considers areas that must be prioritised should Part II.2 be weakened in negotiations.



**Figure 2:** Sections applicable to listed and non-listed chemicals, polymers and products.



## Emissions and releases (Part II.8)

### **Box 3: Summary of provisions in Part II.8 on emissions and releases that support implementation of Part II.2**

- Each party shall eliminate emissions and releases of plastic polymers, chemical pollutants, and plastic products, including microplastics across their life cycle.
- Includes pellets, flakes & powders from production, storage, handling and transport.
- Governing body to adopt guidance at first session.

#### *Areas of priority on emissions and releases if Part II.2 is weakened:*

- If chemicals and polymers of concern are not listed for regulation or regulation thereof is not adequate, Part II.8 must aim to eliminate emissions and releases of such substances. This is possibly more challenging to accomplish at the global level and may distribute the obligation beyond producers and manufacturers.
- Emissions and releases are closely linked to product design, composition and performance (Part II.5) whereby products can be designed to eliminate/minimise emissions and releases of chemicals and polymers of concern.
- Part II.8 must not be reduced to macro- and microplastic emissions only as per option 5 of Part II.8, which refers to plastic products and product waste, including microplastics waste.
- The scope of this section must include all chemical and polymer releases, not only those chemicals, groups of chemicals and polymers of concern listed in the Annex.
- Part II.8 must not be based on listed sources of emissions identified in Annex E (as per options 2 and 4 of Part II.8). A comprehensive listing of sources would take time to establish, possibly requiring proposals to be submitted to a technical body supported by appropriate information, for consideration by the COP. However, a listing with timeframes could be supplemented with a general obligation to prevent and eliminate all emissions and releases.
- Part II.8 must not be limited by technical feasibility and accessibility of alternative plastics and plastic products.
- Part II.8 must not be limited to socio-economic impacts, national circumstances, capacities.
- Part II.8 must not be limited to chemicals and polymers of concern that are already governed under other MEAs.

## 4.1 Trade (Part II.10)

### Box 4: Summary of provisions in Part II.10 paragraph a on trade that support implementation of Part II.2

*Paragraph a: Trade in listed chemicals, polymers and products*

Each Party shall not **export**:

- a listed chemical, group of chemicals or polymer **referred to in Part II.2** for use in plastic production or incorporation into a plastic product; or
- a plastic product containing any such chemical or polymer,
- except where production and use is permitted and with the prior informed consent of the importing State.

Each Party exporting a listed substance or product containing them, shall:

- establish an export permit requirement and obtain prior informed consent from the importing State, together with its assurances that:
  - a. once imported, they will be used in a manner consistent with the conditions contained in part II of annex A, and
  - b. managed in a safe and environmentally sound manner throughout its life cycle.
- require the **exporter** to:
  - c. provide to the importing State and the importer complete harmonized information about the composition of the exported substance or product and associated hazards to human health or the environment, based on the harmonized disclosure requirements contained in annex A
  - d. mark and label the exported substance or product according to relevant harmonized labelling requirements contained in annex A.

Each Party shall not **import**:

- a chemical, group of chemicals or polymer referred to in Part II.2
- a plastic product containing any such chemical or polymer
- products not meeting standards established in Part II.5 on product design
- except for the purposes of use permitted under this instrument, or for the purpose of their safe and environmentally sound disposal.

In case of export to, or import from, a **non-Party** to this instrument, each Party shall apply the provisions of this article, on a non-discriminatory basis.

*Areas of priority on trade if Part II.2 is weakened:*

- Trade-related measures can target international supply chains to restrict or promote particular substances and/or products, thereby playing a key role in preventing plastic pollution globally (Sugathan & Birkbeck, 2023).
- Paragraph a. is limited to those chemicals, polymers and products that are listed in Annex A and B.
- If the stronger options of Part II.2 are weakened or not selected, the export and import controls are also weakened where they refer to Part II.2 listings, particularly if global listings are not agreed to at all.
- It is important to include non-Parties (OP5 bis) as for other MEAs to strengthen global compliance.
- Harmonised information is necessary to ensure the proper operationalisation of paragraph b. on the transboundary movement of plastic waste for the exporting Party must require the exporter to: “Provide to the importing State and the importer complete information about the composition of the exported waste, including its contents in **polymers, chemicals** and plastics, and any associated hazards to human health or the environment, based on the relevant **harmonized disclosure requirements contained in annex A**, including safety data sheets, as relevant;” and to “Mark and label the exported waste in accordance with the relevant **harmonized labelling requirements contained in annex A.**”
- Transparency in trade of chemicals and polymers is required to enable safe and environmentally sound management of plastic waste.
- To assist exporters of plastic waste to meet requirements for harmonised information on chemical and polymer composition, the following are needed:
  - 1) **Transparency in trade** of chemicals and polymers (as per Part II.10), and
  - 2) **Transparency by producers** of primary and secondary plastics and importers [and exporters and business throughout supply chains to provide harmonized information on the [[hazardous] chemical composition of [all] plastics and plastic [products], type and quantities of polymers produced, the type and quantities of chemicals used in production] and traceability of chemicals[, polymers] (as per Part II.13, option 1.a) and the plastic contents (as per Part II.13, option 1.b).

## 4.2 Transparency (Part II.13)

### **Box 5: Summary of provisions in Part II.13 on transparency that support implementation of Part II.2**

Each Party shall

- Require producers of primary and secondary plastics and importers and exporters (business throughout supply chains) to provide
  - e. globally harmonized information on the chemical composition of all plastics and plastic products,
  - f. type and quantities of polymers produced,
  - g. type and quantities of chemicals used in production, and
- Make such information available in a publicly accessible database
- Ensure the traceability of chemicals, polymers and the plastic contents of products,
- Establish [digital tracking, traceability,] marking and labelling requirements
- Ensure mandatory disclosures from large and transnational businesses, including the financial sector on their activities, risks, opportunities, dependencies and impacts and financial flows from all sources related to plastic pollution.

#### *Areas of priority on transparency:*

Transparency is a key measure to provide the necessary information to track progress towards safe and circular plastics, as well as the protection of human and environmental health. Robust transparency measures will be required no matter which formulation of Part II.2 is achieved but will be particularly important should Part II.2 be weak. That the transparency provisions in Part II.13 remain broad is necessary because:

- Knowledge of uses and functions of chemicals and polymers will assist in assessing permitted/essential uses for inclusion in listed exceptions (possibly by application).
- The transparency requirements of Part II.13 apply to all chemicals and polymers, as opposed to the provisions common to options 1 and 2 of Part II.2, which apply to permitted production or use of a regulated chemical, group of chemicals or polymer listed in part II of Annex A. Making the transparency requirements applicable to all chemicals and polymers is necessary for the proper implementation of the no data, no market, principle.

- The requirement for producers/importers/exporters/businesses to provide 1) information on the chemical composition, 2) types and quantities of polymers produced and 3) type and quantities of chemicals used in production is particularly important if Part II.2, as it applies to listed chemicals, groups of chemicals and polymers, does not include criteria and listings.
- This information to be provided by producers/importers/exporters/businesses on chemical composition and types and quantities of chemicals and polymers, together with mechanisms for traceability, marking and labelling, will assist Parties in meeting obligations of disclosure when exporting plastic waste, as per Part II.9.

Disclosure by businesses on risks is an important contribution to monitoring compliance with Part II.2, as well as highlighting potential chemicals, groups of chemicals and polymers for assessment against the criteria. Full disclosure by businesses must be made publicly available to assist researchers, as well as developing countries in meeting transparency requirements, as illustrated in Figure 2.

Transparency and traceability are crucial to global governance of chemicals and polymers associated with plastics. By making obligations related to transparency and traceability “subject to national circumstances,” many reasons can be given for not meeting such obligations. However, if these requirements are 1) harmonised at the global level, 2) mostly delivered by producers, and 3) supported by chemical simplification, the provisions for transparency and traceability do not need to be weakened. This will allow for targeted assistance to be provided to those countries in need of additional capacity.

It should be noted that the transparency provisions currently included in part II.13 only provide for intentionally added chemicals and not non-intentionally added substances (NIAS), unless “presence” is included in the provision. Testing for presence of chemicals could require testing across the life cycle, including by recyclers to reestablish chemical composition (e.g. leachate from recycled polymers).

Transparency, disclosure and traceability are addressed in various sections of the revised draft. Table 8 summarises the key areas across the life cycle, with information exchange as a cross-cutting area.

**Table 8:** Summary of provisions for transparency, disclosure and traceability across the plastics life cycle

Section	Applicable to	Provision
Production <b>(Part II.13)</b>	All Parties to require of producers of primary & secondary plastics, importers, exporters, businesses throughout supply chain	<ol style="list-style-type: none"> <li>1. Globally harmonized information on [hazardous] <b>chemical composition</b> of [all] plastics and plastic [products].</li> <li>2. Type &amp; quantities of polymers produced, <b>type &amp; quantities of chemicals</b> used in production, made available in a publicly accessible database.</li> <li>3. Ensure <b>traceability</b> of chemicals and polymers.</li> </ol>
Trade (upstream) <b>(Part II.10a)</b>	Exporting Parties	<ol style="list-style-type: none"> <li>1. Where export of listed substances is permitted, export requires PIC of importing State.</li> <li>2. Export permit required to ensure use is consistent with Annex A, Part II.</li> <li>3. Track types, volumes and destinations of all exports.</li> <li>4. Harmonized information on composition of chemical, polymer or product &amp; associated hazards, based on harmonized disclosure in Annex A.</li> </ol>
Product Design <b>(Part II.5)</b>	All Parties	<ol style="list-style-type: none"> <li>1. Maintain certification procedures &amp; labelling requirements for plastics and plastic products produced within its territory and available on its market.</li> <li>2. Based on design and performance criteria and other related elements contained in Annex C, Part I.</li> </ol>
Rules for Permitted Uses <b>(Part II.2)</b>	All Parties to require of producers and importers	<ol style="list-style-type: none"> <li>1. Provide to government authorities complete information on <ul style="list-style-type: none"> <li>• associated hazards to human health or the environment</li> <li>• implications for their safe use, recyclability and disposal</li> </ul> </li> <li>2. Appropriately mark and label them.</li> </ol> <p><i>Note: Applies only to listed substances and only to options 1 and 2 of Part II.2.</i></p>
Trade (waste) <b>(Part II.10b)</b>	All Parties to require of exporters	<ol style="list-style-type: none"> <li>1. Complete information on composition of waste: <ul style="list-style-type: none"> <li>• contents in polymers, chemicals and plastics</li> <li>• associated hazards based on harmonized disclosure as per Annex A</li> </ul> </li> <li>2. Mark &amp; label waste as per harmonized labelling requirements in Annex A.</li> </ol>
<b>Cross-cutting</b>		
Information exchange <b>(Part IV.6)</b>	All Parties	<ol style="list-style-type: none"> <li>1. Research</li> <li>2. Plastic pollution <ul style="list-style-type: none"> <li>• Sources</li> <li>• Exposure</li> <li>• Risk management</li> <li>• Reduction options</li> </ul> </li> </ol>



### 4.3 Information exchange (Part IV.6)

#### **Box 6: Summary of provisions in Part IV.6 on information exchange that support implementation of Part II.2**

Each Party shall:

- Facilitate and undertake exchange of information relevant to the implementation of the instrument, including on:
  - Research and technologies
  - Sources of plastic pollution
  - Human and fauna and flora exposure to plastic pollution
  - Associated risk management and pollution reduction options.
- Designate a national focal point for the exchange of information under this instrument, including for prior informed consent of importing States under Part II.10 on trade.

*Areas of priority on information exchange if Part II.2 is weakened:*

- To assist countries with less capacity to manage risk appropriately, the exchange of research could include sharing of results from hazard and risk analyses of chemicals, groups of chemicals and polymers of concern, including alternatives and non-plastic substitutes. Research on the social and economic impacts of alternatives and non-plastic substitutes could also be shared.
- The definition of plastic pollution must include chemicals, groups of chemicals and polymers of concern to ensure these are included in the exchange of information on sources of plastic pollution, as well as human, fauna and flora exposure and associated risk management and reduction options.
- Prior informed consent of importing states as per Part II.10 on trade includes information about the composition of the exported waste, including its contents in **polymers, chemicals** and plastics, and any associated hazards to human health or the environment, based on the relevant **harmonized disclosure requirements contained in annex A**, including safety data sheets, as relevant” and to “Mark and label the exported waste in accordance with the relevant **harmonized labelling requirements contained in annex A.**” Complying with trade requirements will be less onerous if information on sources of plastics pollution, exposure and risk management information is made readily available to all parties through an exchange mechanism.

- .As per Part II.10 on trade, for exporters of plastic waste to meet requirements for harmonised information on chemical and polymer composition, the following are needed:
  - 1) **Transparency in trade** of chemicals and polymers (as per Part II.10), and
  - 2) **Transparency by producers** of primary and secondary plastics and importers [and exporters and business throughout supply chains to provide harmonized information on the [[hazardous] chemical composition of [all] plastics and plastic [products], type and quantities of polymers produced, the type and quantities of chemicals used in production] and traceability of chemicals[, polymers] (as per Part II.13, option 1.a) and the plastic contents (as per Part II.13, option 1.b).

#### 4.4 Product design, composition and performance (Part II.5)

##### **Box 7: Summary of provisions in Part II.5 on product design, composition and performance, paragraph a, that support implementation of Part II.2**

###### *Paragraph a: Product design and performance*

Each Party shall:

- Take measures to promote product performance to enhance the circularity of plastic products, including packaging, and improve the composition of plastics and plastic products, with a view to:
  - Reducing demand for and use of primary plastic polymers, plastics and plastic products and associated chemicals
  - Increasing the safety, durability, reusability, refillability, repairability [in practice] and refurbishability of plastics and plastic products, as relevant, and their capacity to be repurposed, recycled [at scale and in practice] and disposed of in a safe and environmentally sound manner upon becoming waste;]
  - Minimizing releases and [emissions][leakages] from plastics and plastic products

Each Party shall:

- Require plastics and plastic products produced within its territory and those available on its market to comply with:
  - the minimum design and performance criteria and other related elements contained in part I of annex C,
  - where relevant, sector- or product-specific criteria and elements,
  - within the timeframe defined in that annex.
- The criteria should be harmonized distinguishing between design for reduction, reuse, recycling of plastic products and packaging.

*Areas of priority on product design, composition and performance if Part II.2 is weakened:*

To complement elimination of chemicals, groups of chemicals and polymers of concern, a key contribution to protecting human health and the environment long term, is the design of products that promotes the use of safe and sustainable chemicals and polymers, while reducing emissions and releases of plastic pollution across the life cycle. Criteria for product design could reduce the use of non-listed chemicals and polymers in applications where the use of such chemicals or polymers increases risk to human health or reduces the circularity of the product.

- Part II.5 must not be reduced to “Subject to their national plan and based upon national circumstances and capabilities.”
- Part II.5 must not be reduced to national measures as in Sub-option 2, in which “Each Party [should][shall] adopt [sustainable product] design and performance criteria and [regulatory schemes].”
- Part II.5 must not be reduced to “Subject to its national plan and based upon national circumstances and capabilities” as for option 2.

As above, to be effective, such measures must be mandatory and globally harmonised. To achieve compliance and assist states with differing circumstances, the instrument should look to provide sufficient resources, not reduce ambition. (See Box 11 below for further on capacity and financing).

**Box 8: Summary of provisions in Part II.5 on product design, composition and performance, paragraph c, that support implementation of Part II.2**

*Paragraph c: Use of recycled plastic contents*

- Each Party shall require plastics and plastic products produced within its territory and those available on its market to contain minimum percentages of safe and environmentally sound post-consumer recycled plastic, as per part III of annex C.

Areas of priority on recycled plastic contents if Part II.2 is weakened:

- While increased use of recycled content can help drive a move towards more sustainable and circular economies and reduce the need for primary polymers, the potential for recycled content to contain hazardous and harmful materials (including chemicals and polymers of concern) must be noted.
- The inclusion of “safe and environmentally sound” implies elimination/minimisation of chemicals, groups of chemicals and polymers of concern. It will, however, be difficult to qualify “safe and environmentally sound” without criteria against which to assess hazard. The definition of “safe”, and the application of this provision, must be such as to ensure adequate protection of human and environmental health.

**Box 9: Summary of provisions in Part II.5 on product design, composition and performance, paragraph d, that support implementation of Part II.2**

*Paragraph d: Alternative plastics and plastic products*

- Each Party shall ensure that alternative plastics and plastic products are:
  - safe, environmentally sound and sustainable,
  - based on the minimum design and performance criteria and other related elements contained in part I of Annex C,
  - including distinct sustainability criteria for: (i) bio-based plastics, (ii) biodegradable plastics and (iii) compostable plastics.
- The criteria shall build on a full life cycle analysis and take into account their potential for environmental, economic, social and human health impacts, including food security.

*Areas of priority on alternate plastics and plastic products if Part II.2 is weakened:*

- The inclusion of ‘safe, environmentally sound and sustainable’ implies elimination/minimisation of chemicals, groups of chemicals and polymers of concern. This requires the development of criteria against which hazard can be assessed to allow for qualification of ‘safe and environmentally sound.’

## 4.5 Problematic and avoidable plastic products (Part II.3)

**Box 10: Summary of provisions in Part II.3 on problematic and avoidable plastic product that support implementation of Part II.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].

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.

*Areas of priority on problematic and avoidable plastic products if Part II.2 is weakened:*

- Part II.3 applies to plastic products listed in Annex B, based on criteria to be determined and outlined in Annex B.
- Listings will depend on the criteria developed, which may include non-recyclability resulting from chemicals or polymers used in the production of plastic products and presence of hazardous chemicals or polymers in these products.
- Criteria to determine problematic plastics could capture non-listed chemicals and polymers.
- The inclusion of chemicals and polymers of concern in criteria to determine problematic plastic products is important, particularly should chemicals and polymers of concern not be regulated in a specific and robust manner in part II.2.

## 4.6 Waste management (Part II.9)

### **Box 11: Summary of provisions in Part II.9 on waste management that support implementation of Part II.2**

Each Party shall take effective measures on safe and environmentally sound waste management of plastic waste, including handling, sorting, collection, transportation, storage, recycling, recovery, and final disposal of plastic waste.

*Areas of priority on waste management if Part II.2 is weakened:*

- “Safe” implies chemicals, groups of chemicals and polymers of concern have been removed from production, or that strong disclosure of chemicals in products and associated hazards are shared, together with clear labelling, to ensure safe handling, sorting, collection, transportation, storage, recycling, recovery and final disposal.

## 4.7 Capacity (Part III.1, 2 and [3])

**Box 12: Summary of provisions** in Part III.1, 2, [3] on financing, capacity building and technology transfer that support implementation of Part II.2

### **Financing mechanism and resources**

- Enable developing country Parties and Parties with economies in transition to meet the agreed full incremental costs of implementing measures which fulfill their obligations under this instrument.
- Each Party shall take measures to make finance flows consistent with ending plastic pollution, and related risks to human health and the environment by:
  - Decrease/phasing out financial flows from all sources towards activities that result in emissions and releases to the environment from plastics and plastic products across the life cycle, including microplastics; and
  - Increase financial flows from all ... sources, towards activities that prevent or reduce emissions and releases to the environment of plastics and plastic products across the life cycle.

### **Capacity-building, technical assistance and technology transfer**

- Parties shall promote and facilitate innovation and investment in pursuit of new technologies and innovative solutions and shall facilitate access to essential technologies.

### **[3.] Technology transfer**

- Parties shall promote and facilitate the development, transfer, diffusion of and access to up to date, environmentally sound technologies addressing plastic pollution.
- A cooperation mechanism is hereby established. The cooperation mechanism shall provide for:
  - A clearing-house platform to enable Parties to access, provide and disseminate information with respect to activities taking place pursuant to the provisions of this instrument;
  - Assist Parties to identify their needs for cooperation in science, technology and innovation regarding the provisions of this instrument;
  - Facilitate the matching of capacity building needs with the support available and with providers for the transfer of technology, and facilitate access to related know-how and expertise;
  - Facilitate scientific, technical and technological cooperation to meet these identified needs;
  - Promote training activities for the benefits of Parties that are developing countries.



*Areas of capacity to strengthen if Part II.2 is weakened:*

- Obligation and requirements for financial assistance will depend on the measures adopted in the final instrument. This includes the point in the life cycle where regulation is targeted, which may influence which Parties are responsible for implementation (see Section 3).
- Developing countries may require additional resources to conduct research into hazards and risks of products placed on their markets, ensure traceability of chemicals and polymers, conduct socio-economic studies, adopt legal reforms, implement border controls, comply with marking, labelling and disclosure requirements and comply with certification schemes, amongst other obligations.
- Technologies to assist countries in detecting chemicals, groups of chemicals and polymers of concern will be important to comply with requirements to ensure products placed on the markets of Parties are safe, environmentally sound and sustainable, and to test for compliance with certification schemes.
- A clearing-house platform can assist in disseminating information broadly and quickly, thereby assisting countries in conducting research and understanding the safety and sustainability of plastic products, materials and wastes placed on their market, imported or exported.
- Without harmonisation of transparency, disclosure and traceability of chemicals and polymers across global supply chains, complemented by a clearing-house platform, it will remain an insurmountable burden on individual States to track and regulate plastic products placed on their markets, making it near impossible to ensure a safe and circular life cycle for plastics and associated chemicals. As such, capacity building for transparency, disclosure and traceability is vital, and efforts to reduce such requirements, including by reference to “national circumstances” is harmful to achieving the objectives of the instrument.



## 5. Conclusions

This report has highlighted 12 conditions to be met to provide a robust and comprehensive mechanism within the plastics instrument to govern chemicals, groups of chemicals and polymers of concern at the global level. These conditions could be further grouped into those that are fundamental to the core mechanism for governing chemicals, groups of chemicals and polymers, and those that support and strengthen the core mechanism. Thus, conditions 1-8 could be considered higher priority, forming the core of the mechanism, namely:

1. Binding obligation,
2. Strict elimination,
3. Full life cycle phase,
4. Scope (NIAS),
5. Scope (groups of chemicals),
6. Scope (polymers),
7. Global criteria (hazard), and
8. Global lists.

Conditions 9-12 could be considered as provisions that further support and strengthen the mechanism:

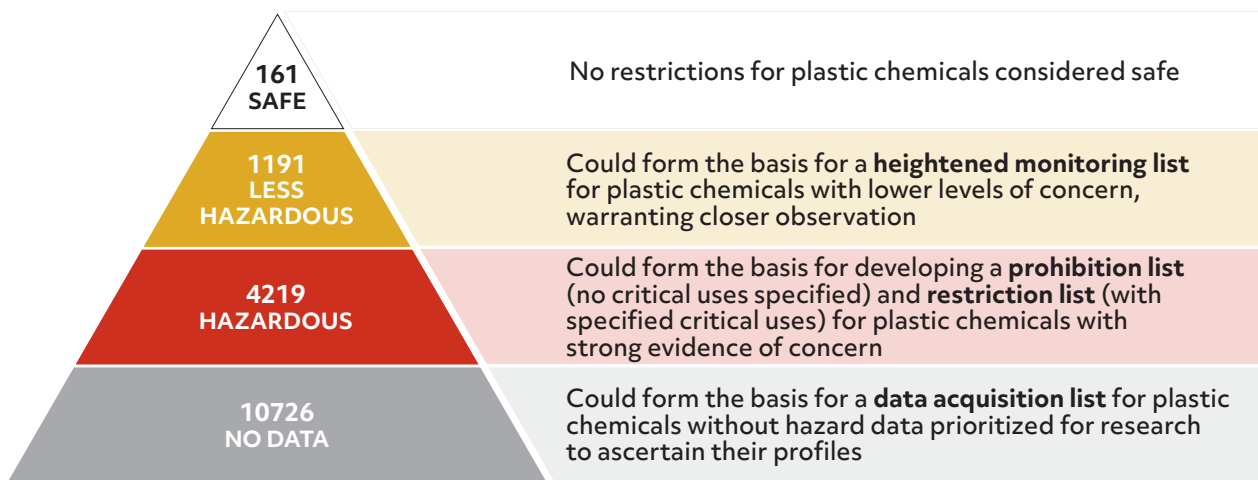
9. Targets dates,
10. National plans,
11. Rules for permitted use, and
12. Non-listed chemicals.



The following recommendations are proposed as guiding principles, which become particularly relevant if Part II.2 and Part II.3 on problematic and avoidable products were to be combined:

- It is important to account for **non-listed chemicals and polymers**, including NIAS, which are presently proposed for inclusion only through voluntary reporting obligations.
- Separate **global criteria** sets should be developed for 1) chemicals, groups of chemicals and polymers of concern and for 2) problematic and avoidable plastic products.
- **Global listings** should be developed for chemicals, groups of chemicals, and polymers, categorizing them by their level of control. This approach would leverage existing hazard data to guide a hazard-centric approach for regulating chemicals. By blending risk assessment components, the approach could accommodate the critical uses of certain chemicals when no alternatives are available (Figure 4). Central to this approach are the prohibition and restriction lists, which are subject to scientific and technical review prior to official listing by the governing body. By adopting a start and strengthen approach, listing could initially focus on select groups of chemicals (e.g bisphenols and phthalates), and gradually expand to incorporate a larger number of chemicals. These lists should be separated from lists for problematic plastic products and avoidable plastic products.
- **Exceptions** may be developed and agreed upon for temporary exemptions for prohibited and restricted chemicals as well as for essential uses for restricted chemicals. Moreover, certain rules for permitted use (#11) when exceptions apply may need to be considered for substances specifically. The role and support of the possible Science, Technology and Economics Panels (STEPs) will be important in this regard.





**Figure 4:** A hazard-centric approach for listing chemicals, detailing the quantity of chemicals within each category based on the State of the Science of Plastics chemicals (PlastChem, 2024).

The process of 1) listing of chemicals, groups of chemicals and polymers, and 2) assessment of exceptions to associated regulations can be **less costly and lengthy** through strong provisions for:

- Chemical simplification;<sup>8</sup>
- Grouping of chemicals;<sup>9</sup>
- Transparency on the chemicals and polymers used;
- Transparency on the functions of chemicals and polymers used to assist in determining permitted uses in support of listings, and
- Reduction in problematic plastic products.

8 For possible criteria for chemical simplification, see PlastChem, 2024. State of the science on plastic chemicals Identifying and addressing chemicals and polymers of concern. Online: <https://plastchem-project.org>.

9 For a possible mechanism for grouping of chemicals, see PlastChem, 2024. State of the science on plastic chemicals Identifying and addressing chemicals and polymers of concern. Online: <https://plastchem-project.org>.

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*Image: "Falling Sky" by Rozanna Johnson*



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