UNIVERSITY OF PORTSMOUTH
GLOBAL PLASTICS POLICY CENTRE

Response to the call for written submissions prior to INC-3

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Introduction

The Global Plastics Policy Centre (University of Portsmouth, UK) is an independent knowledge broker to support effective plastics policymaking in government and the private sector. The Centre provides evidence-based policy support at the interface of government, businesses, citizens, and researchers, including supporting the process to develop a legally binding instrument to end plastic pollution. The numbering used in our submission reflects the numbering used in *the call to ensure ease of use by contact group leads.*

Contact Group 1:

1. Information on definitions of, e.g. plastics, microplastics, circularity

Circularity or a 'circular economy' aims to keep materials, products, packaging and their value contained within the economy for as long as possible, prolonging their life through effective durable design, reuse and as a last resort, safe recycling practices, reducing their rate of disposal, greenhouse gas emissions and pollution[1]. Reusing products and packaging is critical to the transition to a circular economy that operates within planetary boundaries. Reuse systems can be defined as comprehensive systems designed for the multiple rotations of reusable packaging which remains within the ownership of the system and is loaned to the consumer[2]. Reuse should be considered as a system which requires the recovery of the reusable item, reverse logistics, cleaning, refilling and redistribution.

An effective **reuse system** in practice will help to eliminate plastic leakage by a significant reduction in the frequency of products reaching their end-of-life, prevent further demand for virgin production, and reduce waste management costs and resultant greenhouse gas (GHG) emissions. Any reusable item should also exceed its sustainability break-even point, contain no chemicals of concern and have safe end-of-life disposal options readily available, such as recyclable into the same or equivalent item. See section 2c for further information on the design requirements for effective reuse and circularity strategies.

[1] Lendal, A., & Lindeblad Wingstrand, L. (2019). Reuse Rethinking Packaging. Ellen MacArthur Foundation.

[2] Global Plastics Policy Centre. (2023). Making reuse a reality: A systems approach to tackling single-use plastic pollution. Revolution Plastics, University of Portsmouth, UK.

2. *Information on criteria, also considering different applications and sectoral requirements, including:*

a. Chemical substances of concern in plastics

Chemicals of concern are found in many food packaging materials, and transferring these chemicals requires further investigation and monitoring. Health, safety and hygiene standards, including operation guidelines, washing protocols, packaging requirements and avoidance of chemicals of concern, should be addressed in the Treaty. Some of the common chemicals of concern still used in plastic production are as follows:

- Chemical additives leach out of plastic products such as; Phthalates and Bisphenol A (BPA)
- Manufacturing and incineration cause production dioxins and potent carcinogens
- Incineration and burning methods forming polycyclic aromatic hydrocarbons (PAHs)
- Nonylphenol and paraffins

For example, recent research into plastic remains from burning events (pyroplastics) have found hazardous chemicals and toxins such as the formation of combustion-derived polycyclic aromatic hydrocarbons (PAHs)[3]. Long term exposure to PAHs is associated with reduced lung function, asthma, lung disease, cardiovascular disease, endocrine disruption and cancer risks . Findings have shown that the plastic nurdles examined for PAH content have exceeded levels suitable for plastic consumer goods, which could suggest the need for these burnt plastic items to be included in the definition of 'hazardous waste'. Our research team has been conducting preliminary research on the release of microplastics and associated toxicants from simulated open-burning events and open-air cooking practices using plastic waste, to understand the potential negative impacts on the environment and human health in LMICs.

Health impacts of open waste burning

Open and unregulated burning of plastic waste is a common practice in low-and-middle income countries in the home and at municipal and informal land dump sites. Unregulated household waste burning also occurs to a lesser extent in the Global North[4]. Burning is used to reduce volumes of waste and to prevent infestation by pests, including vermin and mosquitoes that carry risk of disease transmission[5]. Open burning poses significant risks to environmental and human health, yet there is a lack of evidence regarding the impacts of plastic waste burning on the health of affected communities, including waste pickers and informal settlement dwellers.

[3] James, B. D., Reddy, C. M., Hahn, M. E., Nelson, R. K., de Vos, A., Aluwihare, L. I., ... & Bera, G. (2023). Fire and Oil Led to Complex Mixtures of PAHs on Burnt and Unburnt Plastic during the M/V X-Press Pearl Disaster. *ACS Environmental Au.*

[4] Ramadan, B. S., Rachman, I., Ikhlas, N., Kurniawan, S. B., Miftahadi, M. F., & Matsumoto, T. (2022). A comprehensive review of domestic-open waste burning: recent trends, methodology comparison, and factors assessment. *Journal of Material Cycles and Waste Management*.

[5] Ferronato, N., & Torretta, V. (2019). Waste mismanagement in developing countries: A review of global issues. *International journal of environmental research and public healt*h.

In informal settlements and other poverty-stricken communities, plastic waste is often used to provide fuel for cooking, lighting and heating in the home[6].

1 billion people, including 350–500 million children, live in informal (slum) settlements; however, the consequences of poor air pollution for the respiratory health of people living in these settlements remain largely unknown. The Tupumue project (Kiswahili for 'let us breathe') compared asthma symptoms and air pollution exposures in children from two adjacent areas of Nairobi, Kenya: 1) the informal settlement of Mukuru and 2) the neighbouring more affluent planned housing estate of Buruburu. Tupumue appears to be the first study to compare asthma symptoms and air pollution exposures in children from informal settlements with children from more affluent urban areas. 2373 children aged 5-18 participated in the study: 1277 from Mukuru and 1096 from Buruburu[7]. Research methods included questionnaires, air quality monitoring and spirometry testing. The results showed that children from Mukuru had increased risk and severity of asthma symptoms ('current wheeze' and 'trouble breathing') compared to children from Buruburu. This increased risk was associated with exposure to indoor and outdoor air pollution.

Measurement of fine particulate matter PM2.5 concentrations in homes and schools showed that **PM2.5 exposures in both communities exceeded the WHO recommended limit, with Mukuru school children suffering double the exposure of their Buruburu counterparts. Moreover, Mukuru schoolchildren were more likely to report exposure to 'vapours, dusts, gases, fumes', refuse burning within sight of the home,** adult smokers, burning mosquito coils and solid cooking fuels, while Buruburu schoolchildren were more likely to live close to major roads. However, regardless of community, significant adverse associations were observed with exposure to air pollution. After adjustment for age, sex, household asset wealth score and community, 'current wheeze' was adversely associated with self-reported exposure to 'vapours, dusts, gases, fumes', **refuse burning within sight of the home**, adult smokers in the home and burning of mosquito coils in the home. The global plastics treaty presents a critical opportunity to grow the body of evidence regarding the impacts of burning plastics on respiratory health and to eliminate practices which release hazardous and toxic gases, particulates and microplastics into the environment.

c. Design e.g. for circularity, reuse

[6] Muindi, K., Kimani-Murage, E., Egondi, T., Rocklov, J., & Ng, N. (2016). Household air pollution: sources and exposure levels to fine particulate matter in Nairobi slums. *Toxics*.

[7] Meme, H., Amukoye, E., Bowyer, C., Chakaya, J., Das, D., Dobson, R., ... & Devereux, G. (2023). Asthma symptoms, spirometry and air pollution exposure in schoolchildren in an informal settlement and an affluent area of Nairobi, Kenya. *Thorax.*

The Global Plastics Treaty provides an opportunity for the widespread introduction of large- reuse schemes. This will be facilitated by setting a clear definition of reuse systems and systems requirements, data collection, standardisation, washing protocols, and packaging requirements. Reuse systems could then develop in a coordinated, connected, and scalable format worldwide, rather than the siloed, isolated approach we see today. Global reuse system guidelines introduced through the Global Plastics Treaty would guide the introduction and operation of reuse systems. We propose that an effective transition to reuse, in which reusable packaging becomes a norm across multiple sectors, requires:

- Leadership and advocacy for upscaling reuse systems.
- A system-wide solution that requires a coherent policy approach from government, across industries, sectors, and geographies to provide a favourable environment for public and private sector investment.
- Internationally consistent reuse standards including an agreed definition of reuse, hygiene and safety standards, and the standardisation of packaging design (including the size and shape of reusable packaging, labelling, and tagging).
- An inclusive and collaborative approach to ensure an accessible, affordable and just transition to reuse, involving all stakeholders and beneficiaries, with equity, inclusivity and transparency as key considerations to ensure no adverse consequences.
- Raising public/consumer awareness of reuse systems to encourage support for, and adherence to, reuse systems, and to reduce reluctance to engage with reuse systems.
- Development of reuse hubs that service the needs of reuse systems through providing collection, washing, replenishment, and redistribution services, along with robust data collection systems to ensure accurate monitoring of reuse system performance.
- Resource pooling and multi-stakeholder cooperatives to build the capacity and efficiency for upscaling all reuse systems, while providing local employment opportunities, including for informal waste workers.

There are clear benefits to transitioning to reuse systems. The environmental benefits include lower GHG emissions from reduced extraction, production and end-of-life management, reduced pollution and damage to ecosystems. The advantages for consumers include reduced waste packaging, waste costs, and litter. Reuse can add economic value by unlocking new revenue streams and creating a potentially valuable high-quality recyclate. The importance of using third-party logistics in reuse systems introduces further advantages such as scalability, collaboration, and reduced infrastructure and packaging costs for individual companies. In addition, pooling of packaging provides flexibility and can manage changes in demand more efficiently. Collaboration is important in this area, as developing reuse system logistics requires knowledge sharing across many stakeholders who are currently operating in silos with less understanding of processes outside their area of responsibility.

Reuse can be applied to all sectors of currently using single-use packaging systems. For example, reuse systems can be tailored for application to food and drink on the go, fast moving

consumer goods (FMCG), home and personal care packaging, bottled beverages, business to business (B2B) and e-commerce delivery systems, and in closed system venues and events [8].

Our findings strongly suggest that the transition to reuse systems can begin immediately in settings that require the least infrastructure change, least new investment, and least consumer behaviour change, such as in closed systems. Complex reuse systems, with multiple end-of-use points will require additional investment in infrastructure. The development of global reuse standards is critical, as the absence of standards is inhibiting investment, allowing fragmented approaches to persist, and preventing small businesses from engaging in larger scale reuse systems. The Global Plastics Treaty presents a key opportunity to set out the foundations of reuse systems.

4. Potential sources of release of microplastics (applications and sectors).

The open burning of domestic waste is contributing to climate change and plastic burning specifically has a variety of serious negative health implications, releasing a cocktail of dangerous chemicals often referred to as POPs (Persistent Organic Pollutants)[9]. POPs released from plastic burning can cause cancer, neurological damage and thyroid and respiratory disruption in humans[10]. Literature is scarce on microplastic release from plastic burning. This is significant as microplastics will increase the amount of particulate matter in the air, itself a health hazard, and may also act as a vector for POPs into human receptors, directly (inhalation) and indirectly (into receiving waters and cropland and then into the food chain).

Contact Group 2:

1. To consider the potential role, responsibilities and composition of a science and technical body [to support negotiation and/or implementation of the agreement]

We propose that the definition of "science" be clarified to include all methods of developing and types evidence relevant to the negotiation and implementation of the agreement. Whilst scientific evidence is critical to supporting the negotiation and implementation of the agreement, it is also important to consider economic, social, cultural, and more practice-based evidence (such as evidence focused on policy evaluation). There is widespread recognition that tackling the global plastics crisis requires inter-and transdisciplinary evidence. **In recognition of the broad evidence-base needed to support the agreement,**

[8] Global Plastics Policy Centre. (2023). *Making reuse a reality: A systems approach to tackling single-use plastic pollution*. Revolution Plastics, University of Portsmouth, UK.

[9] Wiedinmyer, C., Yokelson, R. J., & Gullett, B. K. (2014). Global emissions of trace gases, particulate matter, and hazardous air pollutants from open burning of domestic waste. Environmental science & technology.

[10] Verma, R., Vinoda, K. S., Papireddy, M., & Gowda, A. N. S. (2016). Toxic pollutants from plastic waste-a review. Procedia Environmental Sciences.

an "Evidence and Technical Body" might be a more appropriate title. As part of the role of this body, we propose the creation of an open-access platform dedicated to sharing all forms of evidence. This platform could serve as a collaborative space for all relevant bodies to contribute and refine information relevant to the negotiation and implementation of the agreement. **The evidence and technical body would need to focus on the global** scale to support harmonised approaches to evidence collection and synthesis. However, regional groupings may be helpful for considering national circumstances, challenges, and to give more space to traditional and indigenous knowledge.

A significant contribution of the evidence and technical body is to inform effective plastics policy making. This encompasses conducting and sharing impact assessments that evaluate the benefits, disadvantages, and unintended consequences of specific policy mechanisms and how to implement them in a manner appropriate to the local context. This should also include legal, institutional, social and economic assessments of policymaking. **The evidence and technical body can play a pivotal role in monitoring the treaty's progress.** Independent assessment of progress against the goals of the agreement using agreed indicators will be critical in tracking the agreement's effectiveness. The proposed body could collect input from experts, academics, and indigenous knowledge sources, thereby enhancing the comprehensiveness and credibility of monitoring efforts. Collaborations with universities and research institutions worldwide would further strengthen the credibility of assessments of the agreement's progress.

Independent knowledge brokers, such as universities, can bridge the gap between evidence-based insights and practical applications, aiding policymakers in making informed decisions. The following recommendations on the role of knowledge broker institutions are based on the outcomes of series of interviews following each INCs 1 and 2 undertaken by the Global Plastics Policy Centre with a wide range of actors and stakeholders including national delegations and negotiators, industry representatives, NGOs, the informal waste sector, and other academic bodies involved in the Treaty process. According to interviewees, the role of independent evidence providers, particularly in the context of an evidence and technical body should include:

- Defining plastic pollution and identify a threshold of what it means to "end plastic pollution".
- Using robust methods, gather expert opinions, including indigenous knowledge, to identify effective local and national approaches for addressing key issues, supported by evidence for validation or challenge when needed.
- Delivering information and resources in a format that resonates positively with both policymakers and the public.
- Assisting capacity-limited countries and governments by offering synthesized information on effective measures related to plastics, policy, and research. Acting as a bridge between policy and science, the body should identify funding and effort priorities through key synthesized figures.
- Providing principles on how scientific knowledge can be used before and after negotiations.

- Establishing a coordinated network that people can use to access specific knowledge or exchange information and organise events where key actors can discuss practical solutions.
- Offering evidence-backed narratives and pathways tailored to the context of advanced and emerging economic situations in countries within the framework of the plastics treaty.
- Providing research support and evidence on the environmental, human health, and economic effects of removing subsidies in the plastics industry, reducing plastic production, and redesigning the plastics system.

A successful global treaty will be dependent on a range of complementary interventions being applied across the whole of the plastics life cycle (March et al, 2022; Diana et al, 2022). Each intervention will affect different stakeholders in different ways. Treaty negotiations should therefore include open and equitable discourse with representation from diverse stakeholder groups, including all relevant academic research disciplines, industry, civil society and policy makers. However, evidence and reporting from INC2 suggests that this is not currently the case[11]. Universities are well positioned to play an important role in the treaty process, with potential to provide evidence-based research and fact checking, and independent non-partisan thought leadership. However, it is very difficult for universities to secure access to the Intergovernmental Negotiating Committee meetings[12]. Improving the accessibility for academic institutions offers an opportunity for inclusivity which could aid progress towards a meaningful and solutions-focused treaty.

2. To consider potential scope of and guidance for National Action Plans [including optional and/or suggested elements]

The Global Plastics Policy Centre has undertaken a substantial body of work on National Action Plans (NAPs) and their effectiveness, both in the context of plastics and the treaty, as well as in other environmental application areas[13]. The prevalence of NAPs stems from their potential as catalysts of action that facilitate coordination between and within national governments and converting global or regional commitments to national action. Similar approaches are found in existing international or multilateral agreements such as the Paris Agreement and the Stockholm Convention. However, the adoption of NAPs does not always guarantee

[11] https://plasticspolicy.port.ac.uk/wrapping-up-the-2nd-session-of-negotiations-for-a-global-plastics-treaty/

[12] Bethanie Carney Almroth et al. Obstacles to scientific input in global policy. Science 380,1021-1022(2023).DOI:10.1126/science.adi1103

[13] March, A., Nieminen, L., Arora, H., Walker, T.R., Shejuti, S. M. , Tsouza, A., and Winton, S. (2023). Effectiveness of national action plans | Global Plastics Treaty Policy Brief. Global Plastics Policy Centre and Dalhousie University. https://plasticspolicy.port.ac.uk/research/national-action-plans

effectiveness as they often rely on voluntary commitments and lack enforcement mechanisms.[14,15]

National action plans are typically ineffective in their current form

In a range of international environmental agreements with collective targets, the impact of NAPs and similar approaches has been severely hampered by:

- Uncoordinated efforts, and inconsistent definitions and metrics;[16,17]
- Mandates requiring the production of NAPs but which do not specify their content;[18]
- Unmonitored implementation and a lack of accountability resulting in uncertain effectiveness;[19,20] and
- Lack of transparency, funding, and legislative support for NAP objectives.[21,22]

Most government-delivered plastic pollution NAPs have been published relatively recently (after 2017) and lack consistent data collection and monitoring, which means there is very limited evidence to evaluate their effectiveness[23]. Thus, little evidence exists as to whether NAPs can simultaneously curb nation-specific plastic pollution issues while effectively contributing to global targets for ending plastic pollution. Applying NAPs with uncertain effectiveness and a lack of monitoring is problematic. There are two particular risks of applying NAPs:

1. Low-ambition and isolated actions by member states can result in collective action that fails to meet global goals, as appears to be the case with the delivery of the Paris Agreement;[24] and

[14] Ammendolia, J., & Walker, T. R. (2022). Global plastics treaty must be strict and binding. *Nature*, *611*(7935), 236.

[15] Global Plastics Policy Centre. (2022). *A global review of plastics policies to support improved decision making and public accountability*. March, A., Salam, S., Evans, T., Hilton, J., and Fletcher, S. Revolution Plastics, University of Portsmouth, UK.

[16] Ibid.

[17] Weikmans, R., Asselt, H.V., & Roberts, J.T. (2020). Transparency requirements under the Paris Agreement and their (un)likely impact on strengthening the ambition of nationally determined contributions (NDCs). *Climate Policy*, *20*(4), 511-526.

[18] Ibid.

[19] Ibid.

[20] Global Plastics Policy Centre. (2022). *A global review of plastics policies to support improved decision making and public accountability*. March, A., Salam, S., Evans, T., Hilton, J., and Fletcher, S. Revolution Plastics, University of Portsmouth, UK.

[21] Ibid.

[22] Charani, E., Mendelson, M., Pallett, S. J., Ahmad, R., Mpundu, M., Mbamalu, O., ... & Holmes, A. H. (2023). An analysis of existing national action plans for antimicrobial resistance—gaps and opportunities in strategies optimising antibiotic use in human populations. *The Lancet Global Health*, *11*(3), e466-e474.

[23]Global Plastics Policy Centre. (2022). *A global review of plastics policies to support improved decision making and public accountability*. March, A., Salam, S., Evans, T., Hilton, J., and Fletcher, S. Revolution Plastics, University of Portsmouth, UK.

[24] Mayer, B. (2016). The relevance of the no-harm principle to climate change law and politics. *Asia Pacific Journal of Environmental Law*, *19*(1), 79-104.

2. Decreasing the impact of NAPs through national targets not based on internationally consistent baseline data or monitoring metrics.[25,26]

Whilst the adoption of NAPs with voluntary commitments or lacking enforcement mechanisms have been identified as weak in other international or multilateral agreements,[27] NAPs have been widely supported in early discussions in INC-1. Within the 67 member states and international groupings that contributed to the 'Options' document there was a strong preference towards NAPs, with 85% of submissions supporting NAPs (Table 1). Despite the support for NAPs, there is a lack of evidence of their effectiveness in tackling plastics pollution.

Table 1. Support for NAPs expressed in the total 67 member state and country group submissions to the UNEP INC Secretariat in response to the 'Potential options for elements' UNEP paper (February, 2023).

Country Classification	Total submissions	National support for NAPs expressed in submissions
High income countries	17	17 (100%)
Upper-middle income countries	20	15 (75%)
Lower-middle income countries	16	14 (87.5%)
Low-income countries	7	6 (85.7%)
Unclassified*	7	5 (71.4%)
Total	**67**	**57 (85.1%)**

* Including country groups and alliances

The primary justification for a NAP approach in the submissions was that implementation can be tailored to national circumstances, hence NAPs would be convenient, and contextually relevant for each state. Additionally, NAPs are included in the UNEP 'elements' template for submissions to INC-2.

National Action Plans should be significantly revised to ensure effectiveness

NAPs require remodelling and the inclusion of the following key enablers to support their successful implementation:

[25] Global Plastics Policy Centre. (2022). *A global review of plastics policies to support improved decision making and public accountability*. March, A., Salam, S., Evans, T., Hilton, J., and Fletcher, S. Revolution Plastics, University of Portsmouth, UK.

[26] March, A., Roberts, K. P., & Fletcher, S. (2022). A new treaty process offers hope to end plastic pollution. *Nature Reviews Earth & Environment*, *3*(11), 726-727.

[27] Ammendolia, J., & Walker, T. R. (2022). Global plastics treaty must be strict and binding. *Nature*, *611*(7935), 236.

1. NAPs should be legally binding, supported by national legislative and institutional frameworks.

- A mandatory requirement for NAPs could be for member states to devise a legal and institutional framework to facilitate NAP implementation.
- Having legally binding NAPs provides a mechanism to hold countries accountable for their commitments and prevents some countries from evading their responsibilities while others take significant actions.
- Legal obligations help to ensure that countries continue their actions beyond short-term political cycles, providing greater certainty and continuity in addressing plastic pollution.

2. NAPs should have stringent compliance measures to ensure member state commitments within NAPs are met.

- The delivery of a NAP should not be the sole mandatory requirement of nations under the plastics treaty but should indicate *how* nations will comply with treaty requirements, in their national context.
- The Treaty could define a selection of measures linked with its objectives, which would form a foundation for NAP actions and commitments (see Key Enabler 5), while driving national progress.
- The compliance and delivery of NAPs must be supported by robust monitoring and effectiveness evaluations at the national and global levels (see Key Enabler 2).
- Compliance mechanisms could take the form of penalties for non-compliance, or incentives for compliance.

3. NAPs should have robust monitoring, evaluation, reporting and sharing of data.

- Accountability requires full transparency and disclosure. Consistent mandatory national monitoring and reporting is critical to achieving effective NAPs.
- There should be a globally agreed baseline or reference year and a timeline to assess progress against.
- A transparent mechanism for the assessment of national actions, based on standardised and periodic reporting and peer review is recommended.
- Self-reporting is unlikely to be sufficient, therefore a dedicated, independent review body is recommended.
- Reporting by both governments and the private sector should be well communicated and open access to increase transparency and allow for lessons to be shared amongst stakeholders.

4. NAPs should be revised according to a mandated timeline to formalise the input of new knowledge and adaptation to policy successes or failures.

- Experiences of measures implemented through NAPs, including legislation, regulations, and policies, should be shared amongst nations to allow for collaborative learning and adaptation (Key Enabler 2).
- NAPs should function as living documents and be regularly revised, using the lessons learned from other countries.
- NAPs should have progressive staged targets as developments in capacity, infrastructure, technology and innovation allow for improved plastic pollution reduction.

- Increasing ambition is strongly linked to the principle of non-regression, urging nations to sustain and enhance progress.

5. NAPs should be supported by technical and financial assistance for implementation and compliance, through a dedicated fund.

- Technical and financial assistance will support the implementation of NAPs, especially for nations with limited capacities. This includes 1) technical assistance for NAP implementation and compliance, 2) guidance and tools to support national target setting and delivery, and 3) support for data collection to ensure alignment of standards and methodologies.
- Support could be provided through an expert science-policy group in collaboration with international development organisations.
- NAPs should specify financial and technical arrangements at the national level, including identifying technology transfer needs and offers.

6. NAPs should include national targets and implementation measures aligned to the global treaty.

- Global goals, supported by nested national, regional, sector or solution-specific targets can be a rallying call for, and a driver and measure of, internationally consistent action.
- NAPs can be effective country-driven instruments for implementation as they recognize national circumstances and link them with the core obligations and goals of the treaty.
- However, NAPs should be coordinated at the global level rather than being disconnected individual plans.

7. To identify options to mobilise and align private and innovative finance (including in relation to matters at 24(e) and the proposed Global Plastic Pollution Fee (GPPF))

Evidence from the Global Plastics Policy Centre on financing opportunities described in Section II 24(e)

Section II, 24(e) in the Options Paper (UNEP/PP/INC.2/4)[28] urges the INC to consider financing the Treaty implementation through "*new, additional, stable, accessible, adequate, timely, and predictable flows of financial resources*"[29]. Among the ways of financing, the Options Paper further suggests the exploration of national or global "*innovative and other financing opportunities*" to support the Treaty implementation, with an emphasis on utilising resources

[28] UNEP (2023). Potential options for elements towards an international legally binding instrument, based on a comprehensive approach that addresses the full life cycle of plastics as called for by United Nations Environment Assembly resolution 5/14 | Document UNEP/PP/INC.2/4 https://wedocs.unep.org/xmlui/bitstream/handle/20.500.11822/42190/UNEP-PP-INC.2-4%20English.pdf?sequence=13&isAllowed=y

[29] See page 13 of UNEP (2023).

from private sector actors in the plastics supply chain[30]. **Based on the research conducted by the Global Plastics Policy Centre, we reflect on the potential opportunities and considerations for, *a)* plastic fees, taxes or levies, *b*) EPR systems, *c)* product charges, and *d)* plastics credit schemes.**

a) Plastic fees, taxes or levies

The Options Paper identifies the option for the Treaty to "*implement a fee, tax or levy on plastic production, use or disposal to generate revenue that would finance initiatives to reduce plastic waste.*" Our research indicates that, for plastic taxes to be effective in the upstream and production stages, they should be implemented i) in consultation with the relevant stakeholders, ii) with robust enforcement and monitoring, and iii) with a phased approach, or gradually increasing the tax over time[31]. Plastic taxes in the upstream and production stages can also benefit from accompanying phased bans[32], and incentives for industry to facilitate transitions towards more sustainable alternatives and substitutes[33]. Although such transitions can balance the market for operators that already produce alternative or substitute materials and products[34], any alternatives require careful examination to identify any unintended consequences associated with their adoption.

b) EPR systems

The Options Paper describes the potential EPR systems whereby the Treaty could "*set up an EPR system that requires plastic producers and importers to take responsibility for their products throughout their life cycle, from production to disposal, to incentivize collection and sorting, including by informal waste pickers, to initiate investment in recycling facilities, and to fund studies of advanced recycling and material recovery methodologies.*" Our research on producer accountability measures, including EPR systems on a national scale, shows that several enablers need to be in place for such systems to perform effectively. The enablers include clear labelling on products; integration of EPR measures into existing plastic waste management policies than implementing them in isolation; collaboration between EPR-implementing companies and recycling facilities; communication with, and upskilling of, relevant stakeholders; financing through the private sector with additional financial support from national governments; and national consistency between EPR systems (if several of them are in operation)[35]. With these enablers in place, EPR systems can achieve high collection rates (up to 95%) thus reducing plastic pollution in the environment[36]. EPR systems are also a way to

[30] See page 14 of UNEP (2023).

[31] Global Plastics Policy Centre. (2022). *A global review of plastics policies to support improved decision making and public accountability*. March, A., Salam, S., Evans, T., Hilton, J., and Fletcher, S. Revolution Plastics, University of Portsmouth, UK. https://plasticspolicy.port.ac.uk/wp-content/uploads/2022/10/GPPC-Report.pdf

[32] Ibid.

[33] Liu, Nguyen and Ishimura, 2021

[34] Thang, 2019; Tong et al., 2021

[35] Global Plastics Policy Centre. (2022). *A global review of plastics policies to support improved decision making and public accountability*. March, A., Salam, S., Evans, T., Hilton, J., and Fletcher, S. Revolution Plastics, University of Portsmouth, UK. https://plasticspolicy.port.ac.uk/wp-content/uploads/2022/10/GPPC-Report.pdf

[36] Ibid.

apply the "polluter pays" principle within the Treaty, given that most of the funding for such systems originates from the private sector[37].

c) Product charges

The Options Paper describes potential product charges whereby the Treaty could "*introduce charges on specific plastic products, such as single-use items, to encourage a reduction in their use or increased use of more sustainable alternatives. The revenue generated could be used to finance initiatives aimed at reducing plastic waste.*" Our research on product charges imposed solely on retailers or consumers indicates that, for product charges to perform effectively at the point of distribution and consumption, such measures should i) be implemented in a phased way to ensure transitions among retailers and consumers to more environmentally friendly alternatives; ii) result in sustainable long-term financing for implementing the charges, retained revenue for retailers; and iii) have transparent monitoring and evaluation coupled with robust enforcement[38]. Product charges can further be used to precede plastic product bans as a way of preparing consumers for reduced future availability of certain products.

d) Plastic credit schemes

The Options Paper describes the potential credit schemes whereby the Treaty could "*use credit schemes to finance initiatives that reduce plastic waste. The credits would be generated by projects that reduce greenhouse gas emissions, such as recycling, and sold to companies and governments to offset their carbon footprint*." Plastic credits, akin to carbon credits, are purchased by businesses from project developers who engage with informal waste collectors to address plastic waste issues. However, these systems come with significant drawbacks that raise concerns about their effectiveness and impact. Based on our research, the following issues collectively diminish the viability of plastic credits as an effective solution for plastic waste management:

- Plastic credits do not ultimately encourage a reduction in production of plastics as purchasing credits can give the impression of offsetting environmental impact, potentially undermining efforts to reduce plastic use.
- Our evidence demonstrates that upstream interventions are more effective at reducing plastic pollution than downstream approaches, and plastics credits would only attempt to manage pollution, not prevent its occurrence.
- Plastic credit systems my only shift plastic waste from one location to another, rather than reducing its overall impact.
- At present, there is no globally accepted definition of a measurable and verifiable unit of plastic credit that represents a specific amount of collected and recycled plastics. This absence makes it challenging to ensure consistency and accountability within plastic credit schemes.

[37] Ibid.

[38] Global Plastics Policy Centre. (2022). *A global review of plastics policies to support improved decision making and public accountability*. March, A., Salam, S., Evans, T., Hilton, J., and Fletcher, S. Revolution Plastics, University of Portsmouth, UK. https://plasticspolicy.port.ac.uk/wp-content/uploads/2022/10/GPPC-Report.pdf

- Dependence on the informal waste sector in plastic credit schemes poses significant risk to workers. While these schemes offer opportunities, they also expose informal waste collectors to fluctuating prices for recyclables and intermediary waste aggregators. This reliance raises concerns about transparency, credibility, and potential exploitation.

These issues collectively raise doubts about the overall effectiveness and sustainability of plastic credit schemes as a solution to plastic pollution.

9. To identify capacity building and training needs for each Member.

At present, much of our approach to dealing with plastic pollution is operating with only partial information, which constrains effective action and the scale up of transferable actions. Based on our ongoing plastics policy evaluations and research, the policy-related capacities most urgently needed can be broadly categorised into three areas: 1) policy evaluation; 2) transparency and disclosure; and 3) policy development and formulation.

Capacity for policy evaluation

Our research has identified an overwhelming lack of monitoring and evaluation on the effectiveness of plastics policies, with 35% of the policies we have evaluated having insufficient evidence about their effectiveness or performance[39], and a further 20% of policies with a severely limited evidence base from which effectiveness can be established. Significantly improved evaluation and monitoring are needed. From a capacity-development perspective, this includes:

- **Improved systems for collecting data on all aspects of the plastics life cycle** including plastic production, consumption, waste generation, recycling rates, reuse rates, disposal, and pollution levels. This may involve collaboration between government agencies, private sector, and research institutions. While the lack of evidence should not prevent immediate action, the generation of an evidence base of consistent and high-quality information would represent a significant step towards informed national and global action to tackle plastic pollution.

- **Harmonised evaluation frameworks and metrics** are useful for achieving consistency and comparability in data collection and analysis. It enables better policy design through evidence-based approaches, streamlines resource utilisation, fosters accountability, facilitates collaboration and knowledge sharing, identifies data gaps, supports long-term

[39] Global Plastics Policy Centre (2022) March A., Salam, S., Evans, T., Hilton, J., Fletcher, S. (editors). Global Plastics Policy Centre Website. Revolution Plastics, University of Portsmouth. https://plasticspolicy.port.ac.uk/

monitoring, and helps strike a balance between standardisation and flexibility. Agreement is needed on a harmonised suite of metrics to report and measure progress toward national and global targets. Ideally, these should be simple to understand, offer a direct relationship to policy goals, and reflect the full plastics life cycle.

An alternative approach is to harmonise plastics reporting with existing data collection and reporting obligations for other international bodies and agreements, such as the Basel Convention, World Trade Organisation, and Sustainable Development Goals. However, these metrics do not capture even the basic qualities of the plastics economy such as total plastic made, total plastic used, total plastic recycled, or total plastic leakage. It is therefore clear that existing metrics alone cannot be used to monitor national and global progress towards ending plastic pollution. The development and adoption of harmonised metrics and evaluation frameworks may present challenges, particularly concerning the diversity of plastics-related issues across different regions. Policymakers need to strike a balance between standardisation and flexibility, acknowledging local variations and needs while ensuring that overall objectives are met. Additionally, ongoing collaboration and engagement with relevant stakeholders are crucial in the development and implementation of such frameworks to ensure that they are comprehensive, relevant, and effectively implemented.

Capacity to strengthen transparency and disclosure

In combination with clear reporting metrics, there is a requirement for full public and private sector transparency and disclosure around key aspects of the plastics economy. This includes:

- **Efficient mechanisms for sharing information** related to plastic production, consumption, waste management practices, and pollution levels. This involves creating accessible databases and platforms that allow various stakeholders, including government agencies, industries, NGOs, and researchers, to contribute and access relevant data. Training programs can be implemented to ensure that personnel responsible for data management have the skills to collect, process, and share information effectively, securely and according to harmonised protocols.

- **Developing and implementing reporting standards** are necessary to ensure consistency and comparability of data across member states. Capacity is needed to establish clear guidelines and templates for reporting plastic-related information, specifying what data should be collected, how it should be measured, and the frequency of reporting. Training and support can be provided to relevant stakeholders, including government officials and industry representatives, to ensure adherence to these reporting standards.

- **Enhanced public understanding of action on plastic pollution** is needed to effectively communicate plastics policies, their objectives, and progress to the public. This involves training communication teams within government agencies to design and implement public information campaigns. A strong example of effective dissemination of policies can be seen in the case of Rwanda's bag ban where announcements on

flights into Rwanda were made asking visitors to refrain from bringing plastic bags, ensuring that all incoming passengers are aware of the ban, increasing the effectiveness of the policy.

Capacity for policy development and formulation

To create meaningful policies, member states need enhanced capacity to develop and formulate robust and comprehensive plastics policies. This includes capacity development to:

- **Define clear and measurable policy objectives** that align with the goals of the global plastics treaty. These objectives should outline specific targets and timelines and be measurable. Using time bound and quantitative goals that align with monitoring and evaluation schemes provides a means of holding policymakers accountable for meeting agreed goals. Time bound and quantitative goals are currently missing from 75% of the plastics policies we have evaluated, which makes assessing policy success extremely difficult.

- **Integrate plastics policies with the broader national policy context.** Coherence between policies ensures a more holistic and effective approach to plastic waste reduction. Capacity building is essential to train policymakers and relevant government officials in understanding the interconnections between plastics policies and broader environmental goals. Workshops and training programs can facilitate cross-sector collaboration and coordination, ensuring that plastics policies are aligned with waste management strategies, circular economy initiatives, and overall environmental objectives.

- **Design policies for flexibility and adaptation** in an ever changing global and national context. Training in scenario planning and risk assessment can help anticipate potential challenges and allow for agile adjustments in response to changing circumstances or new information.

- **Integration of monitoring and evaluation into policies** is necessary to ensure that these activities are accounted for, recognised, and funded. Capacity building should focus on training policymakers to integrate monitoring and evaluation components directly into plastics policies to ensure effective assessment and evidence-based decision-making are baked-in to plastics policies.

- **Capacity to support early stakeholder engagement in plastics policy making** is a recurring theme in our policy evaluations. Early and frequent stakeholder consultations are a key enabler for policy success. Training in inclusive decision-making processes, communication, and negotiation can facilitate meaningful collaboration with various stakeholders, including private sector actors, NGOs, local communities, and academia.