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## Filling the Gaps in the Global Governance of Marine Plastic Pollution

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**H**umankind cannot survive without a healthy ocean, but our collective actions are rapidly destroying the ocean resources that sustain us. Marine pollution is one of the key elements that contributes to the degradation of this shared, interconnected, and largest ecosystem of the Earth. However, marine pollution governance is not homogeneous. Some pollution sources, such as wastewater discharges from a ship, are managed under a global organization and distinct methods can be applied, such as controlling the amount of discharge, or filtering certain pollutants. Other sources, such as marine plastic pollution, lack global governance. Also, marine plastic pollution is a life-cycle issue that transcends national borders. Changes at various levels, such as the choice of raw materials, production, consumption, and end-of-life processes, can dictate the efficacy of tackling this grave challenge. But how do we best accomplish this goal?

Among the myriad of threats to ocean health, marine plastic pollution presents a challenge that is truly multidimensional. Since Leo Baekeland invented the first fully synthetic plastic in 1907, our lives have progressively become intricately entwined with the material. While offering wide-ranging benefits to consumers, the negative societal, economic, and ecological costs associated with plastic have become significant, and the severe impacts continue to accelerate. In addition, microplastics are pervasive and not only impact biodiversity but also have potential human health implications.

Marine plastic pollution damages impact a wide range of commercial sectors (e.g., shipping, tourism, fisheries, etc.)

as well as ecosystem functions of biodiversity. The damages can be “direct” (e.g., the increased costs to conduct business) and “indirect” (e.g., negative impacts on biodiversity, human health, and productivity in various marine sectors). The costs to address such impacts are high. For example, the United Nations (UN) Environment Assembly of the United Nations Environment Programme (UNEA), the highest-level decision-making body on the environment in the world, estimated in its 2017 assessment of marine plastic pollution (2017 UNEA Assessment) that damages to the environment (exclusive of the costs on environmental function damages) are at least \$8 billion per year at the global level. In addition, one study found that there is an annual loss of \$500 billion to \$2.5 trillion in the value of the benefits derived from marine ecosystem services. N. J. Beaumont et al., *Global Ecological, Social and Economic Impacts of Marine Plastic*, 142 *Marine Pollution Bull.* 189 (2019).

The 2017 UNEA Assessment explains that a comprehensive study that provides reliable data on the cost estimates of direct and indirect damages and a clear identification of the industries involved (e.g., producers, waste/wastewater treatment, shipping, fisheries, aquaculture sectors, etc.), as well as the relationship with the final impacts of the pollutants, is not available. However, it is clear that a vast number of stakeholders are involved and that the problems are severe, long-term, global, and in need of an urgent and sustained response.

To achieve transformative changes, multilevel life-cycle analysis is necessary. The origin of marine plastic pollution starts from the choice of raw materials, and subsequently involves the

design of the product (including additives), production, consumption, and end-of-life processes. From the private sector to government, numerous entities and populations contribute to the massive problem. Marine plastic pollution is also transboundary in nature because the materials can travel across national boundaries via the interconnected ocean.

## Rationale and the Proposed Scope of a Global Binding Treaty

In terms of governance measures, legal instruments and institutional frameworks at the global, regional, national, and subnational levels play important roles in combating marine pollution. Indeed, numerous agreements and various institutional arrangements exist. However, some subject matters (e.g., governance of marine biodiversity areas beyond national jurisdiction) may benefit from a global, integrated, and coordinated action. Candidate problems are multidimensional and transboundary in nature with existing gaps in legal and institutional arrangements where sectoral and fragmented governance measures are ineffective. Marine plastic pollution arguably falls into such a category.

The 2017 UNEA Assessment identified significant gaps in existing legal and policy frameworks at the international, regional, and subregional levels. It concluded that a fragmented approach to governance is insufficient to tackle the global marine plastic pollution. The assessment focused on a holistic view to improve governance. The following three broad elements were considered: (i) aim to prevent pollution, (ii) protection of biodiversity and species, and (iii) regulation of the manufacture, use, and disposal of chemicals and waste. Based on extensive analysis, the Assessment suggested that a “hybrid approach” that provides “a new global architecture with a multilayered governance approach, combining legally binding and voluntary measures,” can be a platform to facilitate an international body (i.e., an existing or new body) that coordinates and strengthens governance measures under various instruments; an integrated approach to governance by incorporating principles from various Sustainable Development Goals, including goals for sustainable cities and communities, chemicals management, reductions in production of waste and pollution, as well as protection of the marine environment; and a comprehensive global strategy that takes into consideration industry innovation, best available science, and a platform for multi-stakeholder collaboration. 2017 UNEA Assessment at 87–91, 15–16, 105, 124–27.

As for a possible structure of the treaty, UNEA suggested that the architecture could be guided by the six Rs: rethink, refuse, reduce, reuse, repair, and recycle. Prevention would be the primary objective, followed by measures for reuse, recycling, recovery, and disposal, if any. UNEA also pointed out that the proposed global governance approach could be tailored to the life cycle of plastic products: (1) design, production, and consumption; (2) waste management services; and (3) recovery from the environment. In consideration of the unique set of challenges presented by microplastics (e.g., nanoparticles that break down from macro plastic materials), recommendations included a stand-alone section that addresses matters such as global standards, targets, and reporting requirements. UNEA also emphasized

collaboration between and among stakeholders, such as intergovernmental and regional organizations as well as considerations for existing agreements, frameworks, and organizations that make up the current fragmented approach to governance of marine plastic pollution. UNEA Assessment at 105–106.

In addition to the clauses often found in multilateral environmental treaties (i.e., objectives, principles, definitions, signature, entry into force), UNEA’s recommendations focused on standards and measurements. For example, for prevention, control, and removal measures, its suggestions included minimum standards and binding targets. The treaty could also address calculation methods for agreed targets and measurements for the production, consumption, trade, and reduction processes. All these measures would create a set of standards and norms that could lead to a paradigm shift in the way plastic materials are woven into the fabric of our lives around the world. Further, UNEA recommended a clearinghouse mechanism that would capture the data and information generated from the new treaty. UNEA Assessment at 106–12, 114–15.

UNEA also proposed various measures to ensure transparency and accountability. For example, processes on compliance, noncompliance, monitoring, assessment, and reporting were recommended. To ensure that governance is based on the best available science, a review process that focuses on science, control measures, and effectiveness was included. Transboundary effects of marine plastic pollution may be tackled through improved information exchange, through regional and international cooperation, as well as through the meeting of the parties. Further, to ensure that the treaty addresses consumer behavior, UNEA added stakeholder engagement, enhancement of public awareness, and education provisions. To leave no one behind, UNEA mentioned a clause on countries in need of differential treatment, such as small island developing states and developing countries. UNEA Assessment at 112–15, 118–19.

Numerous experts support the idea of an international binding agreement, and discussions at UNEA continue on the fate of an integrated global approach. In addition, momentum continues to grow among various regional groups and member states toward this global architecture. Such partnerships and collaborative work may galvanize the necessary political will to move forward toward a new global binding treaty. But the question of the content, structure, and negotiation processes remains undecided.

## Lessons Learned from the High Seas Treaty Negotiations

The areas beyond national jurisdiction cover nearly 70% of the ocean. This largest biodiversity region of the Earth is degrading at an unprecedented level due to the cumulative impacts of human activities, including climate change. To try to turn the tide, after more than a decade of studies and preparation among UN member states and other stakeholders, the UN General Assembly adopted a resolution in 2018 to host a two-year intergovernmental conference for the member states to draft an international legally binding instrument under the UN Convention on the Law of the Sea on the conservation and sustainable use of marine biodiversity beyond national jurisdiction

(High Seas Treaty). The negotiations were to be concluded in April of 2020, but due to the COVID-19 pandemic, the General Assembly has requested that the final session take place August 16–27, 2021 (A/75/L.39).

## The meaning of “not undermine” in the High Seas Treaty is significant because it could dictate the fate of an institutional arrangement (i.e., whether there would be a global body) and, if it is to be created, the scope of such an arrangement.

The existing governance of the areas beyond national jurisdiction is fragmented, representing a sectoral approach (i.e., shipping, fishing, etc.). By contrast, the draft High Seas Treaty aims to foster a healthy ocean by ensuring that the interconnected marine biodiversity is protected in an integrated and coherent manner. The High Seas Treaty features four core technical elements: area-based management tools including marine protected areas, environmental impact assessments, marine genetic resources and the question of benefit sharing, and capacity building and technology transfer. Also, a bucket of “cross-cutting issues” is under discussion that includes, among other matters, consideration of creating a science and technical body that would be part of an institutional arrangement.

Activities in areas beyond national jurisdiction are carried out by diverse stakeholders with different agendas, capacity, and regulatory obligations, if any. With the increase in population, the Organisation for Economic Co-operation and Development projects that the economic activities related to the ocean are projected to more than double by 2030. It is imperative that a robust High Seas Treaty has a clear set of requirements and guidelines based on the best available science. It also accounts for considerations for traditional knowledge and cultural practices, with the collective goal to ensure ocean health under the ecosystem-based approach and the precautionary principle.

The High Seas Treaty and a possible treaty on marine plastic pollution differ in subject matter and scope. However, given the global and binding nature of the High Seas Treaty and the objective to address a fragmented governance approach on marine plastic pollution, the High Seas Treaty may provide some insights. To that end, four select points will be discussed: the relationship between and among agreements, a science and technical body, a clearinghouse mechanism, and funding. The

topics discussed below are of great importance for both treaties to ensure an integrated and a cohesive approach, transparency, accountability, and stakeholder engagement.

As with areas beyond national jurisdiction, current governance of marine plastic pollution occurs under various agreements, frameworks, and organizations, each representing its own mandate and geographical location. One difference with marine plastic pollution is that the life-cycle aspect of such pollution means that land, as well as marine biodiversity within and beyond national jurisdiction, would need to be addressed.

Broadly speaking, there are three separate governance categories that address specific aspects of marine plastic pollution: pollution, biodiversity and species, and chemicals and waste. Under the “pollution” category, organizations such as the International Maritime Organization and Regional Seas Programme govern certain aspects of pollution. Under the “biodiversity and species” category, agreements such as the Convention on Biological Diversity and the UN Fish Stocks Agreement are relevant. For chemicals and waste, the Stockholm Convention on Persistent Organic Pollutants and the Bamako Convention are two examples that address some aspects of marine plastic pollution.

The complex web of agreements, frameworks, and organizations that cover these categories of marine plastic pollution raises the question of how a global binding treaty would complement existing governance measures. Such a question has pervaded the negotiations of the High Seas Treaty. The draft text of the High Seas Treaty, Article 4 (Relationship between this Agreement and the Convention and relevant legal instruments and frameworks and relevant global, regional, subregional, and sectoral bodies) is intended to address this concern. However, the language in subsection 4.3—“This Agreement shall be interpreted and applied in a manner that [respects the competencies of and] does not undermine relevant legal instruments and frameworks and relevant global, regional, subregional, and sectoral bodies”—and specifically the meaning of the phrase “not undermine,” has been the subject of disagreement among countries.

The meaning of “not undermine” in the High Seas Treaty is significant because it could dictate the fate of an institutional arrangement (i.e., whether there would be a global body) and, if it is to be created, the scope of such an arrangement. The High Seas Treaty’s draft text has a distinct section on institutional arrangement, including a conference of the parties, a secretariat, and a science and technical body. While the 2017 UNEA Assessment does not elaborate on the specific roles and responsibilities of an institutional arrangement, it indicates that some type of an international body (new or existing) would be necessary to, at a minimum, coordinate and strengthen the ongoing efforts under the existing international, regional, and subregional legal and policy frameworks. UNEA Assessment at 125. Further, the Assessment states, “[a] new international legally binding agreement could complement, *without undermining* or duplicating, existing instruments.” UNEA Assessment at 105 (emphasis added). Therefore, the rationale and the outcome of the text of the High Seas Treaty would give invaluable insights.

Another aspect in the High Seas Treaty that may be of interest is the concept of a science and technical body. The draft text of the High Seas Treaty creates the Science and Technical Body

(STB) in Article 49. Although the roles and responsibilities of the STB are still under discussion, it is to play an advisory role to the Conference of the Parties (COP) to ensure that the COP's decision is informed with the best available science. The STB could also contribute to fostering capacity building and transfer of marine technology. Because the High Seas Treaty has various technical elements, the STB will need multidisciplinary expertise, including expertise in traditional knowledge of indigenous peoples and local communities. The current draft text also takes into consideration gender balance and equitable geographic distribution of its members.

As with a robust High Seas Treaty, an effective and efficient marine plastics pollution treaty will need a clear set of requirements and guidelines based on the best available science with the collective goal of ensuring ocean health. With so many varying interests, it will be important that the decision-makers are adequately informed and impartial; this is especially true in the context of marine plastic pollution because it is a life-cycle issue. Indeed, a diverse and inclusive STB could ensure that the COP's decisions are objective, impartial, and not based on the perspectives of only like-minded experts. Diversity and inclusion are particularly crucial when a decision could impact a vast number of populations around the world in significant ways.

Careful consideration of various factors will maximize the STB's potential. First, criteria that ensure the representation of diverse experts and practitioners in the STB's membership are imperative because those who provide input will dictate the outcome of the STB's advice. Second, a transparent decision-making process for choosing the members will ensure that the composition criteria were adequately applied. Third, the scope of the STB's work—its roles and responsibilities—will need to be carefully examined. One of the STB's essential functions could be to provide “checks and balances” in the COP's decision-making process to ensure that political motivation is not overriding the goal to protect ocean health. Therefore, the elements that will be under the purview of the STB will be a critical factor in the COP's ability to be objective and impartial. Fourth, the work allocation process will need to ensure that the work designation is not biased (e.g., preferential treatment for certain disciplines solely based on the perception of superiority). Fifth, the STB will consist of experts and practitioners from various disciplines who will need to work through differences in opinion or approaches. The more diverse the STB, the more difficult it will be to reach a consensus. Effective processes will be necessary to ensure that the STB members work synergistically while maintaining the integrity of the best available science and honoring traditional knowledge and other stakeholders' perspectives so that they can achieve the best option to foster ocean health. Sixth, an analysis of how best to mobilize and sustain adequate funding to operationalize the STB will allow representatives from resource-scarce countries and communities to participate fully.

The High Seas Treaty could also inform the marine plastic pollution treaty's mechanism for openly sharing information. In Article 51 of the draft text of the High Seas Treaty, a clearinghouse mechanism is created to serve this purpose. It is intended as a “one-stop shop” of all relevant information and data arising from the High Seas Treaty. The content of such a

mechanism could range from data and information on environmental impact assessments to information and data related to the access and benefit sharing of marine genetic resources. The mechanism could also be used to promote capacity building and transfer of marine technology, as well as to link global, regional, subregional, national, and sectoral clearinghouse mechanisms and other databases, repositories, and gene banks. The draft text takes into consideration the question of transparency, while providing due regard for confidentiality and addressing the special circumstances of small island developing states. Finally, the draft text provides options for the organization that would manage the clearinghouse mechanism.

The 2017 UNEA Assessment also suggested that a new marine plastic pollution treaty could include some type of a clearinghouse mechanism. Such a mechanism would focus on facilitating transparency so that countries, both developed and developing, can best comply with their obligations. For example, the mechanism may include data on plastic pollution, recovery, and removal. Such data could set national and regional baselines and targets, with minimum standards for data collection to address quality and reporting standards. The clearinghouse mechanism could also be designed so that information would flow from national to regional inventories and ultimately to the global clearinghouse mechanism.

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Establishing a global clearinghouse mechanism for an agreement requires careful consideration on efficiency and advancement in technology. Any treaty would need to ensure that the text is sufficiently nimble to ensure that it is “future proof,” and thus able to evolve with the rapid advancement in information technology and maximize the use of existing resources. As discussed in *Technology, Data and New Models for Sustainably Managing Ocean Resources* by J. Leape et al. (2020), we are experiencing an exponential growth in data. To maximize the collection, sharing, and application of data, the paper emphasizes that addressing balkanization of data is imperative: We need to look toward open and automated data access—in

essence, the creation of the ocean Internet of Things (IoT). How future clearinghouse mechanisms would fit into a global architecture of an ocean IoT will be a critical question.

Finally, both treaties address the question of funding, a critical factor in the effective implementation of any agreement. In the High Seas Treaty, the draft text dedicates a stand-alone section (Part VII) to financial resources and a possible funding mechanism, acknowledging its importance in the implementation. The draft text focuses on various sources of funding, including a voluntary trust fund and a special fund (mandatory and voluntary contributions). Importantly, the funds take an inclusive approach to sources, opening doors for nongovernmental organizations and natural and juridical persons, as well as through public-private partnerships. Such an approach ensures that there would be adequate, predictable, and sustained funding for the institutional arrangement (i.e., administrative activities) and capacity building and technology transfer to countries with resource needs. As similar considerations are raised for a marine plastic pollution treaty, the outcome of the High Seas Treaty's approach to financial resources and a funding mechanism should be of great interest.

### All Hands on Deck

A global governance approach to marine plastic pollution has potential, but it is not without challenges. In fact, the development of a binding global treaty could take a number of years due to various factors, including the wide range of stakeholders, the binding nature of such an agreement, complexity of the issues, and the consensus-based negotiations. The effectiveness of a global marine plastic treaty will also depend on the design and the level of stakeholder engagement in the negotiation process. Further, as with any global agreement, the participation of a critical mass of states, as well as robust implementation, enforcement, monitoring, reporting, and review at the national and subnational levels, will dictate the level of success of a

treaty. For example, reviews at the global level on the progress (or not) of the measures implemented could determine if and what refinements would be required to maximize the positive impacts of a new global architecture.

Therefore, the hybrid option provided in the 2017 UNEA Assessment has great appeal. It prioritizes an urgent undertaking of voluntary measures and, in parallel, the development of a treaty. Indeed, immediate to short-term measures need not wait for a global treaty and could complement various initiatives. For example, increasing investments in research, education, and partnerships could be a critical bridge between now and when (or if) there is a global treaty on marine plastic governance.

Our current love affair with plastic as we know it must end. The ocean is degrading at an unprecedented pace, and unless there are meaningful changes throughout the world, we are projected to have more plastic than fish in the ocean by 2050. Marine plastic pollution also presents equity issues, where developing countries suffer disproportionate negative impacts, particularly the small island developing states that rely heavily on marine resources. Plastic waste also impacts impoverished countries because waste is shipped to such countries, where the materials exacerbate poverty. It will take unwavering commitments from a vast number of people to change our day-to-day behavior toward a more sustainable lifestyle. But we have the tools, experiences, and wisdom to take action. It is incumbent on each and every one of us to do our part in protecting the ocean that sustains our lives. To that end, the legal community plays an important role in creatively using the rule of law to enable transformative changes for the current and future generations. ♻️

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