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SUBJECT: Building a Global Plastics Data Partnership to Strengthen Accountability and Accelerate Ocean Plastic Reduction

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Executive Summary

To accelerate progress toward eliminating ocean plastic pollution, The Ocean Cleanup (TOC) should establish a Global Plastics Data and Monitoring Partnership to enhance global accountability and policy coordination. This memorandum evaluates three policy alternatives: 1) let present trends continue; 2) establish a global data and monitoring partnership; and 3) integrate Extended Producer Responsibility (EPR) mechanisms. The criteria used for evaluation include effectiveness, feasibility, cost efficiency, and political and institutional support. Based on these criteria, option two, establishing global data and monitoring partnership, emerges as the most viable alternative. To implement this strategy, TOC should partner with UNEP and other international bodies to create standardized data systems, pilot the platform in high-leakage river basins, and expand global coverage to support monitoring and compliance under the UN Global Plastics Treaty.

Problem

Plastics hold the world in a chokehold. Global plastic production surged, rising from only 2 megatonnes in 1950 to approximately 475 megatonnes in 2022, and with no signs of slowing, is projected to surpass 1,200 megatonnes by 2060.ⁱ This exponential growth has far outpaced global waste-

management capacity, causing vast quantities of plastic to flow into natural systems. Since the onset of industrial production, humanity has created over 8.3 billion tonnes of plastic, and 79 percent has accumulated in landfills or the natural environment, rather than recycled or incinerated.ⁱⁱ

In 2019, an estimated 6.1 megatonnes of plastic entered rivers, lakes, and the ocean.ⁱⁱⁱ Approximately 82% of all ocean plastic arrives via rivers that function as high-efficiency conveyors of land-based waste.^{iv} More than 1,000 rivers account for about 80 percent of global riverine plastic emissions.^v

The consequences of this mass influx of plastics into natural environments are far-reaching. Marine ecosystems face mounting stress from entanglement, ingestion, and habitat disruption; coastal economies suffer tourism and fisheries losses; and microplastics now infiltrate the human body.^{vi} The *Lancet Countdown on Health and Plastics* recently identified plastic pollution as a global health emergency, linking it to toxic chemical exposure, chronic disease, and worsening climate impacts.^{vii}

Despite achieving remarkable milestones, The Ocean Cleanup's current trajectory remains insufficient to achieve its mission of ridding the world's oceans of plastic. In 2024, the organization celebrated the removal of twenty million kilograms of plastic waste from rivers and ocean, a historic accomplishment demonstrating the effectiveness of its Interceptor and offshore systems. According to our own website, up to 2.7 billion kilograms, which is a low estimate, of plastic enters the ocean yearly via river systems.

When measured against the scale of global plastic leakage, our progress represents only a tiny fraction of action needed to halt or reverse ocean plastic accumulation.

Context

Determinants:

Plastic production is at an all-time high and will continue its upward trajectory as a combination of factors has created the perfect storm for increasing demand for plastics: runaway production and plummeting costs, fragmented governance, and insufficient collection and recycling capacity. Low oil and gas prices consistently keep plastic prices low and abundant. Governments and plastic makers consistently focus on

banning the use of individual items such as straws or plastic bags rather than taking a larger stance such as banning all single-use plastics. Many campaigns by plastic producers attempt to pin the responsibility of plastic pollution away from the source of the pollution to individual users of plastic who are tasked with reducing and recycling their own waste while being mindful of their personal “Carbon Footprint.”^{viii}

The actual cost of plastics is externalized and rarely reflected in market prices. These include the human health toll from microplastic ingestion, the degradation of marine ecosystems, and economic losses in coastal tourism and fisheries. Simultaneously, decades of severe overemphasis on the potential of recycling programs have fueled the misconception that plastics can be sustainable. As of 2015, only 9% of all plastic had been recycled, 12% incinerated, and 79% in landfills or natural environments.^{ix}

Policy Environment:

Global awareness of plastic pollution has risen sharply over the past decade, yet most international and national policy frameworks remain insufficient and downstream of production. International negotiations, recycling initiatives, and national policies mark progress, but they have yet to achieve meaningful reductions in plastic pollution. The United Nations Environment Assembly (UNEA) mandated that member states negotiate a legally binding Global Plastics Treaty in 2022 addressing the entire plastic life cycle, from production to waste management with the goal of ending plastic pollution. Negotiations have been slowed by disagreements between petrochemical-exporting nations and developing coastal states over production caps, financial support, and enforcement mechanisms.^x Until the treaty is finalized and ratified, participation remains voluntary, leaving major producers free to flood the market with cheap plastic.

Major Stakeholders:

The UNEP serves as the primary international forum for coordinating action. National and Local Governments hold the authority to ensure proper implementation of pollution prevention policies. Private sector companies are major contributors to and potential funders of plastic-mitigation strategies.

Criteria

To assess potential strategies for increasing the effectiveness of The Ocean Cleanup's ability to combat global plastic pollution, four criteria will be used: effectiveness, feasibility, cost efficiency, and political and institutional support. Each criterion carries the same weight in terms of evaluation of the projected outcome. Each criterion will be assessed and given a score of 1 (poor) to 5 (excellent). Effectiveness measures how well a policy option reduces the volume of plastics entering or remaining in marine environments. Feasibility evaluates the technical, administrative, and logistical practicality of implementing the policy. Cost efficiency assesses the relative economic value of outcomes achieved per dollar spent. Political and Institutional Support gauges how willing governments, industries and NGOs are willing to align with political agendas.

Alternatives & Projected Outcomes

Alternative 1: Let Present Trends Continue.

In this scenario, TOC continues current cleanup operations in select oceans and river basins. Governments sustain limited single-use plastic bans, and the UN Global Plastics Treaty remains in negotiation without enforcement mechanisms. The *effectiveness* of this scenario is poor and therefore receives a score of 1. Global plastic production is projected to rise from 475 Mt in 2022 to 1,200 Mt by 2060, outpacing all removal and recycling efforts.^{xi} The *feasibility* of this scenario is excellent as no change is required at any level and receives a score of 4. The *cost efficiency* of this scenario is fair and receives a score of 2 as maintaining and developing new projects is feasible but relies on donor funding without providing systemic impacts. The *political and institutional support* of this scenario is good and receives a score of 3. Governments and other organizations are not forced to make any changes in policy and consumers are free to continue benefiting from the convenience of cheap plastic. The burden of pollution remains downstream of the producers and in the hands of individual consumers. The projected outcome of letting

present trends continue will be incremental removal of plastic pollution but no reduction of net plastic accumulation.

Alternative 2: Establish a Global Data and Monitoring Partnership

In this scenario, TOC expands its monitoring systems into a global platform in support of the UN Global Plastics Treaty. TOC expands its already existing river and ocean data infrastructure to establish transparent, comparable data on plastic movements worldwide. This allows treaty members to verify compliance and create comprehensive monitoring of pollution patterns to make sure the treaty's goals are met. The platform would integrate data from other organizations, such as UNEP's Global Partnership on Marine Litter (GPML), the World Bank's PROBLUE program, and regional monitoring bodies, creating a unified reporting structure for plastic flows. This system would function similarly to the United Nations Framework Convention on Climate Change's (UNFCCC) Global Stocktake which aims to allow countries to "see where they're collectively making progress towards meeting the goals of the Paris Climate Change Agreement – and where they're not."^{xii} The *effectiveness* of this scenario is good and therefore receives a score of 3. Much like the increased third-party monitoring of carbon emissions which led to greater adherence to regulations, increased monitoring of plastic pollution will have a similar effect on the implementation of policies.^{xiii} The *feasibility* of this scenario is good and receives a score of 3. Most of the data monitoring systems already exist. Carbon monitoring data framework will work as a template for this database. There would have to be significant efforts to unify all the data, and it requires coordination with the UNEP, other NGOs, and governments, which can be cumbersome. It will take time to synchronize up databases worldwide. The *cost efficiency* of this scenario is fair and receives a score of 2 as although startup costs may be high, there are low costs in long-term maintenance. The costs would be shared through partnerships with the UNEP and private sponsors. The *political and institutional support* of this scenario is excellent and receives a score of 4. UNEP's *Turning Off the Tap* (2023) recommends developing global plastics data systems to support treaty implementation.^{xiv} Major governments and NGOs endorse standardized reporting as a prerequisite for accountability.

Alternative 3: Integrate Extended Producer Responsibility (EPR) Mechanisms

In this scenario, TOC partners with governments, and corporations to pilot EPR programs which aim to shift the financial and operational burden of plastic pollution back onto the producers themselves. Under EPR, plastic producers would be required to fund collection, recycling, or verified recovery proportional to their output, internalizing environmental costs. EPR programs have been implemented successfully in the European Union, with the Packaging and Packaging Waste Directive (2018) and Single-Use Plastics Directive (2019). The number of single-use plastics found on European Union Coastlines has dramatically been reduced by 40% since the implementation of the EPR programs.^{xv} The *effectiveness* of this scenario is excellent and therefore receives a score of 4. The *feasibility* of this scenario is fair and receives a score of 2. This requires national legislation, administrative oversight, and creation of compliance systems. There will be vicious pushbacks from corporations who have for years lobbied to make individuals responsible for their own pollution and this policy directly attacks that stance. The *cost efficiency* of this scenario is good and therefore receives a three. EPR shifts the costs of cleanup and recycling to the producers. The downside is that some of these costs may be shifted on to the consumer, raising prices of inelastic goods. The *political and institutional support* of this scenario is fair and therefore receives a two. EPR is supported by the EU, UNEP, and OECD, but faces resistance in petrochemical-exporting nations (e.g., U.S., Saudi Arabia) and among multinational plastic manufacturers. The short-term increased prices that occur for consumers would lead them to oppose this measure on grassroots ‘no tax increase’ platforms.

Table 1: Comparison of Policy Alternatives

Alternative	Effectiveness	Feasibility	Cost Efficiency	Political/ Institutional Support	Average Score
1. Let Present Trends Continue	1	4	2	3	2.5
2. Global Data & Monitoring Partnership	3	3	2	4	3
3. Extended Producer Responsibility (EPR)	4	2	3	2	2.75

Evaluation scale: poor (1), fair (2), good (3), excellent (4)

Recommendation

Based on the comparative evaluation, The Ocean Cleanup should pursue Alternative 2: Establish a Global Data and Monitoring Partnership. This policy option is the most achievable and strategically aligned with TOC's existing technological infrastructure and international partnerships. While EPR mechanisms yield higher long-term reductions in plastic pollution, they depend on protracted legislative and industrial reforms. The data partnership, by contrast, can be implemented in the near term, enhancing global accountability, transparency, and coordination while amplifying TOC's policy influence and funding opportunities.

Implementation

1. The Ocean Cleanup (TOC) will partner with the United Nations Environment Programme (UNEP) and the Global Partnership on Marine Litter (GPML) to establish governance structures, data-sharing standards, and secure initial funding for the global monitoring platform.
2. TOC's technical team, in collaboration with UNEP and the World Bank's PROBLUE initiative, will develop and pilot the data platform in priority high-leakage river systems to standardize monitoring and reporting protocols.
3. Following pilot validation, TOC will scale the platform globally, integrate national reporting mechanisms, and release annual *Global Plastics Accountability Reports* tracking progress toward the UN Global Plastics Treaty targets.

Endnotes

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