The Sum of Our Parts

COORDINATED ACTION TO SOLVE OCEAN PLASTIC

Addressing Marine Plastics
A Systemic Approach

UN environment
United Nations Environment Programme

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Ocean Conservancy®

Abstract

The movement to end plastic ocean pollution has grown rapidly in recent years; at this early stage the focus has rightly been on understanding the problem and initiating action. Given the sheer scale of the ocean plastic pollution crisis, a thoughtful, early push towards at least rudimentary cooperation could better direct and maximize the benefit of our collective efforts for meaningful impact. Such cooperation is most effective when three fundamental pieces of architecture are in place – a common narrative, a transparent set of goals and targets, and a way of keeping track of collective success.

Based on analysis of the landscape of existing and emerging initiatives, as well as discussion with leaders of key efforts across different sectors, Ocean Conservancy believes there is a great opportunity and need to put in place these fundamental conditions to ensure effective cooperation and measurable impact to end plastic pollution quickly. In this paper, we analyze the current set of efforts underway and discuss where the movement stands with regard to the necessary architectural elements for cooperation to emerge.

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Photo Credit: Shine Gabienu

Introduction

Plastic pollution of the ocean is now widely accepted as an urgent problem. In an article in Science in 2015, Dr. Jenna Jambeck and colleagues estimated annual ocean plastic inputs at 8 million metric tons and highlighted the dual problem to be solved: too much waste and insufficient waste management (particularly in emerging economies).[1] Those basic insights have launched a dizzying number of initiatives by governments, multilateral institutions, non-profits, corporations across the plastics and waste value chains, financiers and academics.

The massive scale of the ocean plastic pollution crisis requires all these initiatives and more. In order to ensure that the collective results actually produce the impact needed to "bend the curve" of ocean plastic, and, quickly, a basic infrastructure for cooperation and synchronization of efforts is needed. Such cooperation would produce, at least three benefits: (1) ensure that critical gaps are filled across sectors, while reducing duplication, (2) support appropriate prioritization across efforts according to potential impact and with a view to what's necessary to achieve global scale, and (3) increase the likelihood that downstream or short-term efforts reinforce, or at least don't conflict with, efforts pushing towards the broader upstream and systemic changes that are necessary to truly solve this problem.

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The current lack of cooperation leaves us with inefficiencies and missed opportunities. As a movement, we are under-investing in essential pieces, such as efforts to shift the underlying market dynamics that lead to the over production and mismanagement of waste and efforts to monitor the impact of new interventions. Meanwhile, largely duplicative efforts are emerging as more groups and entities develop programs to work on this issue. Given this situation, funders have expressed frustration at how to identify the best places to invest in opportunities. As a whole, there are not yet ways of prioritizing and coordinating across elements of the full solution. There are no established mechanisms for developing a shared set of fundamental data on plastic production, use and waste, nor do we have a way to measure progress against the most important metric: reduction in the tons of plastic entering the ocean. There is not yet a shared view of which strategies matter most in terms of mitigation potential and cost, a prioritization of those initiatives that massively and cheaply reduce plastic leakage. Further, few efforts are currently aimed at a truly global scale.[2] For example, corporate commitments tend to be brand-specific; many Non-Governmental Organization (NGO) campaigns address small-scale geographies or solutions; and public policies have largely targeted unnecessary single-use plastic products, a relatively small component of the overall problem. And finally, some efforts may work at cross purposes to each other. For example, branding and promotion of products made from "ocean bound plastic," if done at scale, could disincentivize investment in appropriate recycling infrastructure (to keep plastic from being "ocean-bound" in the first place), or worse, undermine efforts to reduce unnecessary products, applications or single use formats for plastics to begin with.

While a shift in the direction of greater synchronization could be beneficial, the other end-member of the spectrum – a single global strategy that is orchestrated and coordinated from above – is probably equally inefficient. Too much coordination is needlessly laborious, can suppress the entrepreneurialism and innovation we badly need, and would not adequately allow for the variety of perspectives, values and priorities that are needed to advance on the multiple fronts of this issue. For example, a full solution to the problem of ocean plastic could well require research and development into new materials and technologies that large multi-national plastics makers are best suited to carry out, as well as dramatic shifts in consumer attitudes to demand new/different/fewer products that campaign- oriented civil society groups are best suited to achieve. A singular, fully orchestrated global strategy that respects the values and talents of all the necessary actors may not be possible or desirable. A sweet spot in the middle, one where cooperation is *enabled*, rather than *mandated*, could be the right answer.

Greater cooperation could be enabled with three fundamental pieces of architecture: (1) a broadly shared narrative of the nature of the problem and required solution, (2) an explicit set of goals and sector specific targets and (3) a broadly shared data platform and way of measuring progress and tracking collective success.

The Current State of Affairs

In the fall of 2018 Ocean Conservancy reviewed over 200 major efforts targeting plastic pollution reduction throughout the world across all sectors. Each effort was categorized by initiative type (e.g. analysis, advocacy, convenings, monitoring, policy, scaling), value chain coverage (e.g. collection, consumption, leakage, manufacturing, production, waste management), and strategy (e.g. circular economy, cleanups, consumer education, single-use plastic reduction). Once this analysis was completed, we also stress-tested the findings with a broad group of stakeholders representing multiple sectors – government, the private sector and NGOs. This stakeholder feedback was then incorporated with the findings from the analysis to create a plastics engagement activity map, which is shown in figure 1. Below is a summary of current efforts across sectors and strategies.

Figure 1: Ocean Plastic Activity Map

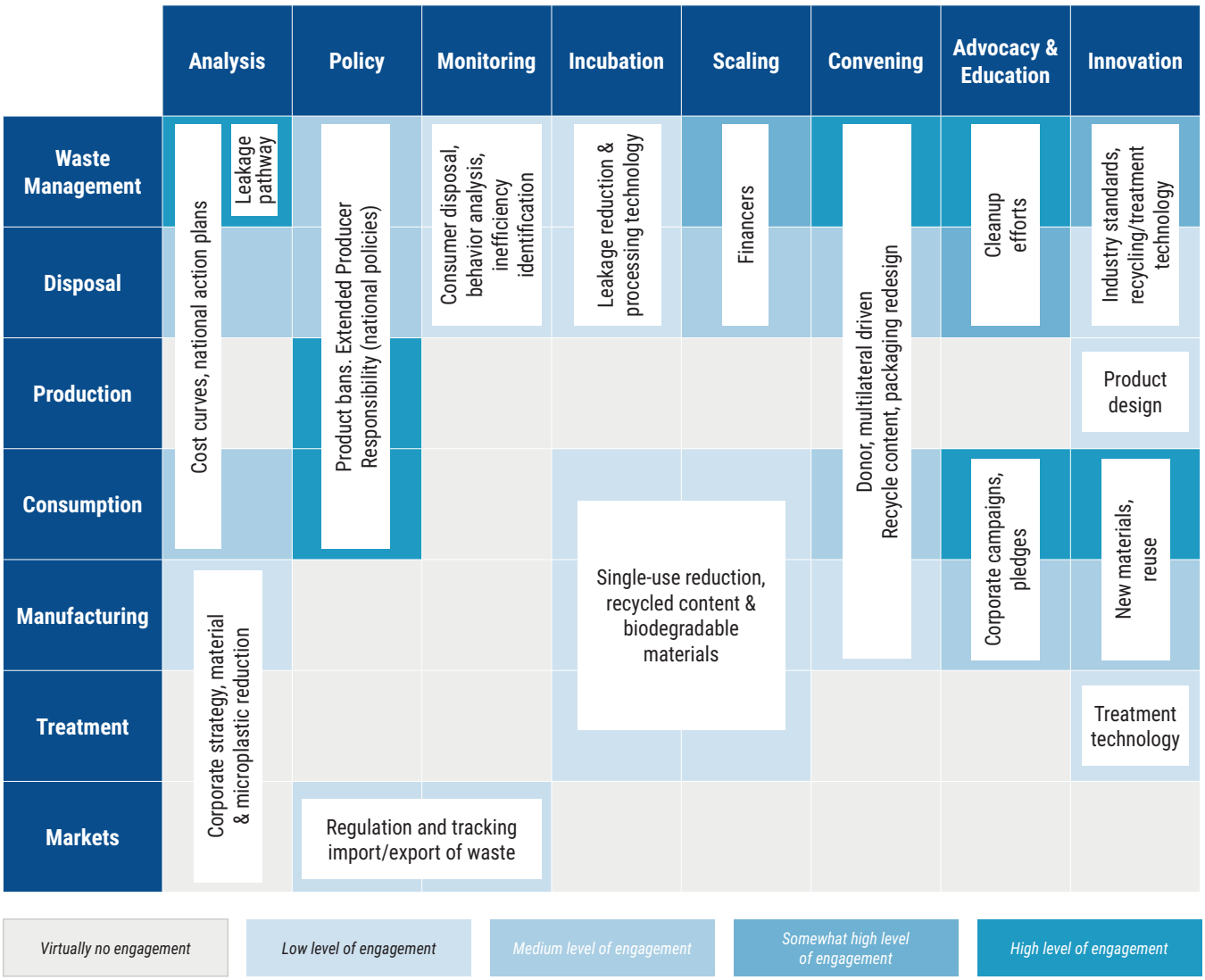

Fig. 1: *A visualization of where the strengths and opportunities for engagement are throughout the waste reduction space. Individual institutions' efforts were categorized by what value chain segment they addressed (y-axis) under which initiative type (x-axis). The common programmatic efforts that fall under each of these categories are displayed in the text boxes. Definitions for each of the row and column headers can be found in the Appendix at the end of the document.*

Photo credit: Courtney Jenkins

As befitting this early stage in the movement, considerable effort is focused on analysis and convening. In the science realm, the number of ocean plastic studies has exploded in recent years. Sparked by a body of scientific inquiry in 2015 including Jambeck et al., [1] different plastic leakage pathways (waste management, lost and abandoned fishing gear, microfibers, rivers, etc.) are being described and tracked at various spatial scales, and the impacts and potential toxicity of plastic throughout the food chain is being studied by an ever-growing number of labs. Several major efforts are underway to determine the mitigation potential and cost of various waste and/or leakage reduction strategies through groups such as the National Socio-Environmental Synthesis Center (SESYNC), the Pew Environment Group and Common Seas. There are discussions among a coalition of corporations to establish a comprehensive and regularly updated data collection and sharing platform to identify and track plastic leakage flows. On the convening side, there have been a great many conferences that have focused on the issue, including Our Ocean, the Economist's World Ocean Summit, multi-lateral convenings such as the G7, United Nations (UN) Environment Assembly, Asia-Pacific Economic Council (APEC), 6th International Marine Debris Conference, the UN ocean conference, etc. Multiple coalitions and platforms have been established to work across sectors including through the World Economic Forum, the World Business Council on Sustainable Development, the Alliance to End Plastic Waste, the New Plastics Economy Global Commitment, the Trash Free Seas Alliance® and others.

At the policy level, national governments have tended to focus on specific bans (bags, straws, expanded polystyrene, etc.) and the exploration of extended producer responsibility (EPR) legislation as a mechanism to engage the private sector in funding public waste management systems. Waste management standards have received some attention in the developing economies, although they rarely are accompanied by financial support required by cities and communities to make these standards happen. Many countries worldwide are having challenges creating a comprehensive policy framework addressing the avoidance, collection and treatment of plastic waste. At a multi-lateral level, bodies like the UN, APEC, G7 and G20 have identified strategies and plans that express a sense of urgency and political will for solutions, but by the nature of these entities, implementation is voluntary. We are just starting to see binding, multi-national policy change with the passage of the EU Single Use Plastics Directive, and amendments to the Basel Convention on the Transboundary Movement of Plastic Waste.

In terms of advocacy, NGOs have launched a number of campaigns aimed at reducing disposable, single-use plastic items, promoting product and material design for a circular economy, and improving waste collection and recycling. There has been a long history of engagement and advocacy from NGOs through beach and waterway cleanups. However, few groups have the capacity to work across the full spectrum of strategies needed to end plastic pollution and instead focus on their niche or area of expertise. This is true for most advocacy issues, but, in this instance, fundamental differences of opinion about what the ultimate solution set looks like and the appropriate approaches to working with other sectors (government, industry and science) limit the ability of NGOs to coordinate across areas of expertise and strategies.

The effort from the corporate sector also suffers from similar lack of unifying strategy. Until recently, most companies remained largely focused on their own plastic footprint. Multiple industry-led collaborations, including the Alliance to End Plastic Waste and collaborative efforts specifically focused on waste in Southeast Asia, are aiming to address the issue from a broader perspective across the value chain. However, in many cases, in order to respond to the growing urgency of the problem, the focus is on action and project initiation with no holistic strategy yet articulated. In some cases, competitive concerns inhibit cooperation that could advance the overall agenda.

To the extent that there is any unifying perspective across corporate efforts, the need to transition to a circular economy is generally identified as the guiding principle. Encouragingly, through the leadership of the New Plastic Economy Global Commitment, many major consumer brands have committed to full recyclability and increasing recycled content within a decade or so, requiring considerable innovation in product and material design. However, adoption timelines can be quite long, and these design efforts are not yet coordinated with governments that can create enabling policies and must develop the infrastructure and collection systems needed to actually realize the circular vision these commitments aim to achieve. New technology will also play a role in a more circular future. Some consumer good companies and plastics producers are investing heavily in new treatment and recovery technology such as sophisticated material sorting and chemical recycling concepts. The exact role these technologies could or should play remains up for debate, but they may well be part of a comprehensive solution set.

Work to aggregate and inspire impact across actors has also begun; a number of platforms have emerged which allow the registration of specific commitments at the national, NGO and corporate levels. Such platforms could enable a holistic assessment of the progress of each initiative as well as the movement as a whole. However, at present these are all voluntary, with a focus on stimulating action rather than the rigorous tracking and verification of the cumulative global impact of these initiatives. They lack ways of aggregating or tracking commitments against a baseline or each other, as well as common metrics to apply across commitments or platforms. Additionally, many firms are wary of making commitments they are not sure they can meet because of infrastructure or technology constraints, thereby limiting ambition towards solving the problem.

Finally, funding and investment across all solutions will be necessary to achieve success. Initial work to understand the nature of the problem and the case for action largely came from philanthropic and corporate sources. In recent years, government and multi-lateral funding has increased significantly, often focused on pilot projects, infrastructure and technical support. Finance institutions like Circulate Capital, USAID, World Bank and GIZ have launched efforts to cover capital expenses, but funds to cover operating expenses for waste collection are critically short.[3] New corporate funding will focus on research and development of new materials, designs and treatment technology, along with cleanup efforts and pilot projects to show concrete, near-term impacts on the problem.

The sheer number of players across these efforts is impressive, with good work proceeding in many priority areas. However, are these efforts enough to solve the massive problem of plastic pollution? At this early stage, we suspect the answer is likely no. Our analysis reveals a lack of focus in two key areas: efforts to address the fundamental market dynamics that lead to over-production and improper management of waste and efforts to measure and track progress of specific interventions, as well as progress against the ultimate measure of success – reduction of plastic reaching the ocean. Further, as discussed above, with a lack of a more synchronized view of the ultimate goals and thematic elements of strategy to achieve them, our analysis suggests that efforts are at present disjointed, duplicative and not yet at the appropriate scale. This is unsurprising at this early stage of awareness on an issue that requires action across multiple sectors, and multiple geographies and commitment at a global scale. As such, our view is that a push towards a more thoughtful approach to rudimentary cooperation could be particularly impactful at this stage.

A Potential Approach to Support Synchronization of Efforts

A basic level of cooperation, one that is enabled rather than mandated, would increase the likelihood of achieving rapid impact at scale – identifying and filling critical gaps, reducing duplication, enabling prioritization across efforts and reducing work at cross-purposes. Typically, successful models of enabled cooperation share three traits:

1. A broadly shared narrative regarding both the nature of the problem and its required solution. This doesn't require a perfect consensus but should reflect the potential contribution of each involved segment;
2. A set of sector-specific objectives and targets leading to an overall goal; and
3. A data platform for the information and analyses that are most essential for solution identification and prioritization, and monitoring and tracking of progress towards said targets and goals.

The following are a few examples of some of the most iconic cross-sectoral success stories, which showcase how pertinent these three conditions are to an initiative's success.

The Montreal Protocol

The Montreal Protocol was an international treaty adopted September 16, 1987, and is the only treaty to ever to be ratified by all 197 UN Member States.[4] It regulates the production and use of Ozone Depleting Substances (ODS) and has been successful by any measure, with a 98 percent reduction of controlled ODS.[5] The Protocol was able to achieve all this by implementing the trifecta of (1) a clearly defined and agreed-upon problem, (2) a clear solution set and (3) goals around which a data-monitoring platform was established to enable transparent target-setting.

The foundation of this international agreement was a platform of transparent and reliable data. In the early 1970s Rowland and Molina linked chlorofluorocarbons (CFCs) to the destruction of ozone molecules, and in 1985 the British Antarctic Survey found a "hole" in the ozone layer over Antarctica.[5] Based on these studies, a data platform was created that identified and prioritized the CFC sources. The clear linkage of source and effect, the availability of viable CFC substitutes, the relative simplicity of the regulatory fix (a ban on CFCs) and the ability to do so on a level competitive playing field created an inescapable logic/narrative which led to a consensus among almost 200 signatories.

By creating a shared narrative around an open data source, the ratifying nations were able to set concise, fair targets, including differentiated responsibilities for developing nations. Progress was tracked through mechanisms which remain in force today – they recently led to the creation and successful ratification of the 2016 Kigali Amendment, which acted on newly available data that found hydrofluorocarbons (HFCs), the replacement to CFCs, are a highly potent greenhouse gas and could offset much of the progress made by eliminating ODS. Again, nearly 200 signatories ratified the amendment and are moving to cut the consumption of HFCs by over 80 percent over the next 30 years.[6]

UNFCCC Sharing Mechanisms

The path of the United Nations Framework Convention on Climate Change (UNFCCC) to Paris has been anything but smooth for over a decade. However, a breakthrough occurred in Paris – made possible by the emergence of a shared set of facts and data, a simple target and a sophisticated registration and monitoring platform. This breakthrough was based on the switch from a traditional, top-down "treaty" to a voluntaristic "national commitment" approach which relies on nationally determined contributions to collectively meet a specified global carbon emission-reduction target. This target is based on the data platform prepared by the Nobel Prize-winning Intergovernmental Panel on Climate Change (IPCC), which is possibly the broadest and most rigorous international scientific synthesis effort ever undertaken, involving thousands of scientific contributors over the past 15 years. The targets emerging from the IPCC data are simple, powerful and accepted by most world leaders – to avoid catastrophe, we need to keep greenhouse gas emissions at or below the level corresponding to a 2-degree Celsius global warming (with a most recent adjustment to 1.5 degrees).

In addition, the UNFCCC was able to provide a commitment platform which reconciled the need for highly reliable tracking and verification of national commitments with the constraints of sovereignty. The national commitments are continually analyzed in the context of evolving knowledge about the accumulation of atmospheric greenhouse gases. This informs the ambition level necessary in subsequent recommitment periods ("ratchets") which allow the parties to the agreement to adjust their commitments to the emerging knowledge.

Closed Loop Fund

An example of a private sector effort at cooperation, the Closed Loop Fund (CLF) was founded in 2014 as a social impact investment fund that provides cities and governments with funding to build integrated recycling systems. It is collectively funded by a pool of consumer-goods companies that benefit from a dedicated, expert-led approach to their recycling investment activities.[7]

This effort is based on a shared belief/narrative among those companies that there is (1) a compelling business case for private sector involvement in the recycling sector, (2) any one company's institutional view, expertise and resource base are too limited to be fully effective, and (3) a collective approach to creating the investment expertise needed is required. The investments are based on an extensive data set of best practice recycling applications and technologies, and investment criteria involve both financial and performance criteria ("bang for the buck"). All investments are extensively tracked as part of the investment and reporting process. This is a relatively new model for a cooperative approach, and as such its ultimate success is yet to be determined. As progress is made, data collected from these projects will not only help track progress but can also inform future investments and project design.

Photo Credit: Kristin Folsland Olsen

Prevalence of the Three Conditions Essential Across the Movement to End Plastic Pollution in the Ocean

To inform our assessment of the prevalence of the three necessary conditions for a synchronized effort to end plastic pollution in the ocean – narrative, objectives and a data platform – and to gauge the level of interest to further develop them, Ocean Conservancy convened a one-day workshop in Washington, DC, in September 2018, with senior representatives from government, the private sector, academia and the NGO community (see Appendix for participant list). The group discussion led to a general (though not universal) consensus that the three conditions outlined above are priorities for further exploration for increasing the impact across all of their individual efforts. However, the discussion at the workshop also showed that while some efforts in these three arenas may be starting, there is still much progress to be made.

Shared narrative. At the moment, there are three different narratives in the ocean plastic space, based roughly around production and use reduction, waste management and circular economy. The production and use reduction narrative takes a strong stance against the proliferation of plastics production and use, especially in the single-use product and packaging context. The waste management narrative focuses on the need for massive investment in collection and disposal systems to keep plastics out of the ocean, especially in the short term, in order to avoid another decade of massive leakage. The circular economy narrative advocates for the decoupling of economic growth from the consumption of disposable products by "designing away waste and pollution," i.e. allowing all materials to be absorbed back into the production stream. Although the full suite of essential reform certainly accommodates all three narratives across different time scales, ideological differences and distrust remain among the groups. Based on the feedback of the workshop participants, our recommendation is that it would be beneficial to develop a synthesis that can tie the core values of each of the three narratives together in a way that helps the participants of each group see their roles as direct pieces of the larger global effort.

Photo credit: Lisa Christensen

Objectives and Targets. Different goals and targets have been formulated by different NGOs and alliances. The Trash Free Seas Alliance® has targeted a 50 percent reduction of plastics entering the ocean by 2025. Corporations are formulating brand-specific targets such as "net zero" pollution. Awareness is increasing that the full solution set to ocean plastics will likely involve multiple strategies, and several efforts are underway to map the suite of strategies and the relative contributions each will need to make for success. SESYNC is working on developing a peer-reviewed, user-friendly tool to model different interventions strategies, also based on a detailed understanding of plastic waste sources and estimates of the potential effectiveness of different intervention strategies.[9] The Pew Charitable Trust is sponsoring intensive work on an ocean plastic "mitigation cost curve." Similar to McKinsey's global greenhouse gas abatement cost curve, this analysis weighs the mitigative capability of each potential initiative/intervention against its cost, and aims to ultimately provide a complete framework for prioritization of effort. And Common Seas has produced a Plastics Drawdown approach that maps plastic waste flows, identifies policy interventions and their effectiveness, and then outlines a "wedges model" to evaluate options.[8] As these are refined and released, the community of actors should aim to develop a broad, widely agreed-upon framework that can account for multi-sectoral targets, culminating in an overall leakage reduction target and a consistent monitoring and tracking platform.

Data Platform for Information and Analyses. A common framework and targets will be most useful only if there is also a platform that can assess and monitor progress. This work would also include developing information on the current baseline of conditions, which is just starting to emerge. Several initiatives are beginning to develop methodologies and protocols for assessing plastic flows and leakages at the national, municipal and industry levels, including efforts by the International Union of Conservation of Nature (IUCN) and UN Environment, as well as several collaborative efforts between industry and civil society groups. Other efforts underway involve the cataloging of beached plastic around the world and the systematic assessment of ocean plastic toxicology. As these efforts mature, work to harmonize and combine different information in order to capture a broad understanding of the global state of plastic pollution and progress towards the goal of eliminating it will be possible. Ultimately these different efforts could lead to the creation of a platform akin to the IPCC, which subjects these data sets to rigorous, broadly respected standards of validation and syntheses.

Photo Credit: Shine Gabienu

The Path Forward

While the discussion amongst workshop participants reinforced our hypothesis that these three foundational elements for cooperation would be beneficial, the path forward remains unclear. First, most of the groups represented are fully engaged in standing up, securing resources for and branding their individual efforts. As these efforts get established and awareness grows of the need for greater cooperation, we are optimistic that efforts to solve the problem of plastic in the ocean will translate to motivation to further develop the three foundational pillars that enable cooperation. Second, the institutional home for developing a shared narrative, identifying shared priorities and targets across the solution strategies, and undertaking a data platform for monitoring and tracking remains unclear today. How would such an undertaking be governed? Would a treaty-based reporting platform be necessary for proper compliance, or could it be based on an entirely voluntary basis? Perhaps a hybrid between the two would be sufficient, laying out a mandatory foundation of minimum data reporting, with higher levels of data quantity and quality as voluntary add-ons? Getting this right will be critical in having the sufficient level of data necessary to understand all efforts taking place globally, while also tracking progress.

Movement towards establishing the basics conditions for cooperation could come from several corners. Actors that are positioned to see across sectors and effort, such as funders, intergovernmental bodies, convening platforms, should consider whether their work can prioritize progress on a shared narrative or establishing baselines and targets. Ongoing discussions about an international treaty or other mechanism should consider setting up the institutional support for goal-setting and monitoring efforts, and give some attention to establishing a narrative that can bring different efforts under the same umbrella. And finally, as more analysis is done on the relative impact of different interventions, and as research advances our understanding of leakage pathways at a more granular level, each actor in this space should consider its own orientation within the broader landscape, and how each of us can contribute to what needs to be a more cooperative, comprehensive effort in order for true impact at the global scale. We have great hope that the ambition and sense of urgency of the increasing number of actors will bring the resources, tools and new models that will eventually solve this problem.

Appendix A: Ocean Plastic Activity Map Definitions

Advocacy & Education – Organizations and initiatives that support numerous aspects of education or social components of production or waste management, including consumer education programs, public awareness campaigns, advocating for policies, etc.

Analysis – Supporting or participating in initiatives aiming to provide more clarity/data on waste management, the waste value chain and/or the success of waste policy

Consumption – The usage of plastic products by consumers, whether the product is manufacturers' raw material usage or the public's consumption of end products

Convening – Any organization, policy or declaration that brings together numerous institutions around a common goal, whether through regular meetings, alliance memberships, shared business practices and policies, etc.

Design – Focuses on the technical design and makeup of plastic products' raw materials, and any efforts to increase recycled or biodegradable content

Disposal & Treatment – Where a product ends up after its initial usage (landfill, recycling, incineration, etc.), and the application of various technologies to plastic polymers to allow for several life cycle iterations

Incubation – Investments or funding initiatives made by investors, corporations, governments or multilateral institutions that support the development of new technologies or new waste management processes in countries lacking sufficient infrastructure

Innovation – Initiatives which support the development of new technologies and alternatives to conventional plastic products

Markets – Actions that influences the value, demand for, trade in and revenue generated around waste

Monitoring – Initiatives that either directly track progress of policies, enforcement, technologies, investment, etc. or work with countries or corporations to help them with their own monitoring practices

Policy – Government legislation or regulations enacted by business to regulate the waste value chain, encourage investment or support waste management. Also applies to organizations actively working with governments to build effective policy

Production – The creation and supply of plastic products into the consumer market

Scaling – Investments, funding initiatives or building projects that take existing technology or in-country pilots and build them to the level required for sustainable self-sufficiency and/or profitability

Waste Management – The entire process of disposal, collection and treatment within the waste supply chain to ensure minimal loss of resources and minimal leakage into the environment

Appendix B: Sum of Our Parts Participants

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