

## D I A L O G U E

# MANAGING MARINE LITTER

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### SUMMARY

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Marine litter is human-created waste that has been discharged into the marine environment, including glass, metal, plastics, and other debris. According to data compiled by the United Nations, the equivalent of a garbage truck filled with plastic is dumped into the ocean every minute—more than 8 million metric tons per year. On November 11, 2019, the Environmental Law Institute hosted an expert panel that explored recent U.S. legislation to target marine litter, the economic impacts of marine litter, and examples of successful international marine pollution agreements and regulatory collaborations. Below, we present a transcript of the discussion, which has been edited for style, clarity, and space considerations.

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**Carl Bruch** (moderator) is Director of International Programs and a Senior Attorney at the Environmental Law Institute.

**Carole Excell** is Acting Director of the Environmental Democracy Practice at the World Resources Institute.

**K. Russell LaMotte** is the Managing Principal at Beveridge & Diamond PC.

**Adena Leibman** is currently Senior Oceans Policy Manager at the Environmental Defense Fund, and at the time of this discussion was Natural Resources Counsel and Appropriations Manager in the Office of Sen. Sheldon Whitehouse (D-R.I.).

**Carl Bruch:** We have a very distinguished panel today to discuss the topic of marine litter. They highlight a diversity of approaches for addressing the issue.

To start, I would like to introduce Russell LaMotte, who is the managing principal of Beveridge and Diamond. He helps global companies navigate in national environmental regulatory regimes and product compliance. Russ served for more than 10 years as an international lawyer in the U.S. Department of State representing the U.S. government in designing, negotiating, and implementing most of the major multilateral environmental and ocean agreements.

Second, Carole Excell is acting director of the World Resources Institute's (WRI's) Environmental Democracy Practice and the project director for The Access Initiative, working on access to information, public participation, and justice issues around the world. Previously, she was the coordinator for the Freedom of Information Unit of the Cayman Islands government in charge of ensuring the development and effective implementation of the Cayman Islands' Freedom of Information Law.

Third, we will hear from Adena Leibman. Adena is the natural resources counsel and appropriations manager at the office of Sen. Sheldon Whitehouse (D-R.I.), where

she pursues environmental conservation and awareness through science, law, and policy. Adena previously served at the Ocean Conservancy, among other roles across government, education, and nonprofit sectors.

Before we go into the different legal approaches that are being adopted at different levels, I would like to provide some context. As of 2016, 280 million tons of plastic materials are manufactured every year.<sup>1</sup> About one-third of these plastics are single-use.<sup>2</sup> More than eight million tons of plastic every year enter the marine environment causing an estimated \$8 billion in damage to marine ecosystems.<sup>3</sup>

Plastics are approximately 90-95% of marine litter.<sup>4</sup> About one-half of the plastic waste is packaging.<sup>5</sup> As countries and localities and international efforts are trying to address marine litter, they are focusing particularly on single-use plastics. These include a variety of products that are typically used once before being thrown away or recycled, including everything from plastic bags to straws, cutlery, cups, and food packaging. There are some important questions about what to do with, say, medical packaging that is used only once, as it can be difficult to find non-plastic substitutes.

In addition to the question of which source of plastic to focus on, there is the question of how. There are diverse

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1. PLASTICSEUROPE, ASS'N OF PLASTICS MANUFACTURERS, PLASTICS—THE FACTS 2017, available at [https://www.plasticseurope.org/application/files/5715/1717/4180/Plastics\\_the\\_facts\\_2017\\_FINAL\\_for\\_website\\_one\\_page.pdf](https://www.plasticseurope.org/application/files/5715/1717/4180/Plastics_the_facts_2017_FINAL_for_website_one_page.pdf).
  2. Plastics Facts, *Sustainability and Life Cycle*, <https://www.plasticsfacts.com/life-cycle> (last visited Jan. 8, 2020); but see EarthDay.org, *Fact Sheet: Single Use Plastics*, <https://www.earthday.org/fact-sheet-single-use-plastics/> (estimating single-use plastics at approximately one-half).
  3. Press Release, U.N. Environment Programme, UN Declares War on Ocean Plastic (Feb. 23, 2017), <https://www.unenvironment.org/news-and-stories/press-release/un-declares-war-ocean-plastic-0>.
  4. José G.B. Derraik, *The Pollution of the Marine Environment by Plastic Debris: A Review*, 44 MARINE POLLUTION BULL. 842-52 (2002).
  5. Matt Leonard, *Packaging Makes Up Nearly Half of Plastic Waste*, SUPPLY CHAIN DIVE, Mar. 26, 2019, <https://www.supplychaindive.com/news/packaging-largest-segment-half-plastic-waste/551243/>.

approaches that countries and localities have adopted. Some of these are command-and-control bans. Some of them are taxes or user fees. We see them happening at different levels: international; national, in the United States and elsewhere; and at the state and municipal levels around the world.

Russ is going to talk mostly about what is happening internationally. Carole will talk more about what is happening in other countries and at the national level. Adena is going to talk mostly about what is happening in the United States at the national level.

**K. Russell LaMotte:** I'm going to give an overview of what's happening primarily in the international space. I'm going to focus on, first, the only globally legally binding action that's taking place with respect to plastic in the marine environment, which is a newly adopted control on trade in plastic waste. I'm going to talk about some of the implications of that. Then, I'm going to talk about some of the other pending United Nations (U.N.) initiatives that go beyond trade in plastics to look at some of the impacts, some of the control measures that Carl highlighted, and then if there's time, I'll touch on some voluntary industry initiatives that are worth people being aware of.

Starting with the trade controls, these have been adopted under the Basel Convention.<sup>6</sup> The Basel Convention is one of the oldest multilateral environmental agreements. It's also one of the, I'd say, "least dynamic" is maybe a charitable way of putting it. It's been kind of a sleeper of a convention to be honest. But that's changing now with the adoption of an amendment<sup>7</sup> to add controls on plastic wastes, which has really enlivened the Basel Convention and increased its relevance for today.

At a high level, the Basel Convention imposes controls on the transboundary movement, or trade, in hazardous waste. It applies to waste that is going for disposal, but it also applies to waste that is moving for recycling operations. It defines "waste." It defines "hazardous waste." The core obligation under the Basel Convention is a regime of prior informed notice and consent before controlled waste can move transboundary. Among Parties there's a mechanism for prior informed consent.

There is a suite of other obligations that also apply to controlled wastes that are being moved under the Basel Convention. There's an obligation to ensure that those wastes are managed in an environmentally sound way. There's an obligation to take illegally shipped, improperly shipped, waste from the country of destination back to the country of origin. We've seen some of that taking place in shipments between the Philippines and Canada, a very high-profile bilateral issue between the two countries. It

also imposes a variety of documentation requirements, movement documents, that have to accompany the waste, and insurance requirements, all of which increase the cost and burdens associated with the movement of waste that are controlled under the Basel Convention.

The Basel Convention is also relevant because it serves as a platform. It's the foundation and model for most of the world's waste laws. Countries have taken what the Basel Convention says is hazardous waste, what is waste, how waste should be managed, and plugged that into their domestic laws. It's very influential around the world as a source for information, guidance, and legislation at the national level.

It also imposes controls on trade with non-Parties, basically a prohibition on trade with non-Parties. Guess who's a non-Party at the Basel Convention? The United States has not ratified it. Actually, this is an unusual position. The Basel Convention has received the advice and consent of the U.S. Senate, but the United States has never ratified the Convention because of some relatively small gaps in implementing legislation that would need to be closed in order for the United States to meet its obligations. But right now we, along with Haiti, are the two non-Parties to the Convention. The rest of the world is a Party to this regime. As a non-Party though, Parties to the Convention cannot trade in covered waste with the United States. We'll come back to the significance of that in a moment.

The Basel Convention is a pretty blunt instrument. You're either controlled waste or you're not controlled. What's a controlled waste? Well, hazardous wastes certainly are controlled under the Basel Convention. That's what it was primarily designed to cover. That's what everybody usually thinks of when they think about the Basel Convention. Hazardous wastes are defined in the treaty and then, if the waste is hazardous under a country's law, that also counts as a hazardous waste for purposes of that trade.

But the Basel Convention also includes a category called "other wastes." These are specified in Annex II of the Convention.<sup>8</sup> Right now, there are only two entries on Annex II: household wastes and residue from incineration of household wastes. So, it looks like there is this other category of wastes that are controlled that are not hazardous, and that's true. But "other wastes" are controlled in exactly the same way hazardous wastes are under the Convention. That's what I mean when I say it's a blunt instrument. You're either controlled or you're out. And that's relevant when we get to plastics.

Let's talk about plastics. What does all of this have to do with marine plastic litter? Before this past May, plastics under the Convention were uncontrolled. They were basically deemed to be nonhazardous waste. Nonhazardous waste is not controlled under the Basel Convention. As part of the response to the crisis in marine plastic litter, in July 2018—in part driven by the perception of significant concern about plastic in the marine environment, but also in part driven by the concerns about the stoppage of trade

6. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, Mar. 22, 1989, 1673 U.N.T.S. 57 [hereinafter *Basel Convention*]. [Editor's Note: Russell has counseled companies in the chemical manufacturing sector relating to the Basel Convention's treatment of plastics.]

7. Amendments to Annexes II, VIII, and IX to the Basel Convention, *available at* <http://www.basel.int/TheConvention/ConferenceoftheParties/ReportsandDecisions/tabid/3303/ctl/Download/mid/22087/Default.aspx?id=9&ObjID=22064>.

8. Basel Convention, annex II, at 55.

flows to China, which had imposed its own import ban beginning in 2018 on most plastic waste imports—Norway proposed an amendment to the Basel Convention.<sup>9</sup> This is not the only, but one of the few amendments that have been considered for the Basel Convention.

Norway proposed flipping the presumption under the Convention, which is currently that most plastic waste is not controlled, to most plastic wastes *will be* subject to controls under the Basel Convention. Now the Basel Convention, as I mentioned, is not the most dynamic instrument. I think most observers anticipated that this proposal, which does affect a major volume of international trade, would be subject to potentially years of negotiation. E-waste has been under negotiation in the Basel Convention for 20 years. This is not a nimble instrument, which is also true of almost all multilateral environmental agreements. We were anticipating that the amendment proposal would be under review for perhaps 3-5 years.

Well, most observers were wrong. The Norwegian amendment was modified, but not dramatically, and adopted last spring. It will enter into force on January 1, 2021. It is the most significant overhaul change in the Basel Convention in 30 years.

So, what does it do? What's the impact of this change? It divides plastic waste into three categories. First, hazardous plastic wastes are explicitly controlled. (Basically, these were controlled previously in theory, but the amendment makes it explicit.) If you have a hazardous constituent and you exhibit hazardous characteristics, you're hazardous. That's controlled.

Second, nonhazardous wastes; it dramatically shrinks what it takes to be considered nonhazardous plastic waste under the Convention. Basically, what they're saying is you need to be a single polymer stream of certain polymers that are deemed to be recyclable. Resins and polymers that are deemed to be recyclable, if they are destined for environmentally sound management and they are unmixed and uncontaminated, are nonhazardous plastic waste. Or if it is mixed plastic waste, as long as there are only three separate polymers: polypropylene, polyethylene, and polyethylene terephthalate, or PET. You can have mixtures of plastic wastes move as nonhazardous if they're those three polymers only and if they are then separated before recycling. Those are narrow categories.

Every other category of plastic waste now will have to move as "other waste." Remember, "other waste" is controlled just like hazardous waste. So, we are about to see a brand new imposition of controls on the transboundary movement of plastics around the world. There are a bunch of ambiguities in terms of what lands in that nonhazardous plastic waste category. Those terms have not been defined. "Destined for environmentally sound recycling of plastics," we don't know what that means. "Almost free from contamination," we don't know what that means.

9. The proposals are set out in Annex I to document UNEP/CHW.14/27, while Annex II to the same document shows in tracked changes the proposed amendments to the current texts of Annexes II, VIII, and IX. An explanatory note, in the six languages of the United Nations, from Norway is set out in document UNEP/CHW.14/INF/18.

But this is the landscape that will govern trade in plastic waste going forward.

What are some of the implications of this? In the Basel Convention world at least, it is a dramatic change. First of all, the most obvious substantive change is that trade in plastics is going to be transformed. And that's not a small thing. Trade in plastic waste is estimated between \$5 billion and \$10 billion a year, which is a sizeable trade.<sup>10</sup> It's also going to mean that because of these new controls, restrictions on transboundary movement, the countries that were exporting the bulk of their plastic waste that had been collected—the European Union, the United States, Australia, Japan—are going to have to find new ways of managing that plastic waste.

That's going to require major new investments in recycling infrastructure and that, in turn, provides a tremendous opportunity for new technologies and innovation in the field of chemical recycling. We need a chemical recycling process that can handle mixed streams of plastic through thermal and chemical treatment to depolymerize plastic waste, bring them back to their original monomers, and then allow them to be repurposed. That technology exists but is still in its early days and still under development, and will involve significant investments here in the United States, in Europe, and in Asia.

There's also a potential significant impact on the United States as a non-Party because countries that are Party to the Basel Convention will not be able to trade most plastic waste with the United States unless we have set up a separate agreement with those countries. And the Basel Convention allows that. There is such an agreement under the Organisation for Economic Co-Operation and Development (OECD), but that is in the process of being negotiated as to what extent the Basel Convention controls will be brought into the OECD agreement, and to what extent we can continue to trade even among our OECD partners plastic waste from the United States or plastic waste into the United States that's imported for these recycling facilities. That remains to be seen within the OECD.

Will the Convention with this amendment solve the marine plastic litter problem? No. Definitely not. To be fair, nobody sold it that way. First, although trade in plastic waste is significant, it's not the primary source of losses into the environment. Although most collected plastic waste is exported out of the countries that I mentioned, we don't collect most of our plastic waste. So, we're only talking about a minority of plastic waste to begin with. Most of it is never collected for recycling.

Will the Basel Convention amendment help to reduce losses to the marine environment from that waste that has been collected and traded? Maybe. We'll see. The idea here is that these controls will help reduce the introduction into the environment of the waste trade that has been diverted from China to other Southeast Asian countries. It is true that those countries—Indonesia, Malaysia, Thailand, Vietnam—do not have strong waste manage-

10. Amy L. Brooks et al., *The Chinese Import Ban and Its Impact on Global Plastic Waste Trade*, 4 SCI. ADVANCES (2018).

ment infrastructures. They do have a history of diversion to the environment.

I haven't seen any data about the degree to which the trade that got diverted from China is ending up in the marine environment. That data frankly was not part of the discussion in the Basel Convention negotiations. But it could have an impact. It could help to control it. At least it will minimize the waste that flows to those Southeast Asian countries in the near term.

But the impact on the marine plastic litter issue as a whole is likely to be relatively minor. That's because most of the source of the marine plastic litter problem is the failure to collect and manage waste in a small handful of countries, mostly in Asia—China, Indonesia, Malaysia, the Philippines.<sup>11</sup> In the ones that I mentioned, that failure to control and manage is not going to be affected, directly at least, by the Basel Convention. In fact, in the long term, there is a potential downside to the Basel Convention's new controls. That's because a solution to the plastic waste crisis is going to require, as I mentioned, massive investments in recycling infrastructure and new innovation in these technologies.

It does not make sense to distribute that infrastructure and technology into every U.N. Member country. It only makes sense to do those investments in particular locations that can serve as hubs to receive and process regional waste. Imposing controls and restrictions on the ability to move waste transboundary is going to be an inhibition on the ability to do that and could over time reduce available flows of feedstock to those new facilities and that new infrastructure and, therefore, inhibit the ability to provide demand for recycled content, which hopefully we will see more of. So, the substantive impact of the Basel Convention remains to be determined.

Another implication, though, in the short term is a co-benefit. We have a framework, a global agreement that has actually done something about plastic waste focused on the marine environment. That provides a place for countries to talk in a constructive way. One of the things that they did in addition to this amendment was to create a partnership that is a multi-stakeholder forum for industry, governments, academics, and international organizations to focus on these issues and collaborate building on successful partnerships that were done for electronic waste in the past under the Basel Convention. Japan and Norway are putting resources and political effort into that.<sup>12</sup> Hopefully, that will bear some fruit in the short term outside of the regulatory requirements of the Convention.

They're also doing technical guidelines on environmentally sound management and plastic recycling. That could be a very useful forum for sharing of technical information particularly around these new emerging technologies

relating to chemical recycling. Those are two good places where we could see positive short-term impacts of the Basel Convention that are not directly related to the text of the amendment.

Third, another implication, which is political, is that we now have had a U.N. organization adopt a decision on plastics. They did it in less than one year. That is really striking, at least in the field that I work in. You don't see that kind of pace and scale and change and level of ambition move that quickly. That, I think, is maybe a harbinger of things to come on the international level, but also maybe a reflection of the public concern with these issues that could spill over into what we see happening at the domestic level.

I'm going to mention one other area of activity at the international level that is under way at the U.N. Environment Assembly (UNEA). The Basel Convention does not cover a number of the control measures that Carl flagged. It doesn't cover prohibitions or controls on single-use plastics. It doesn't impose design elements on recyclability, at least directly. It doesn't impose mandatory extended producer responsibility (EPR) schemes. It doesn't directly affect the introduction of microplastics into the environment.

So, there's a suite of issues that are not covered under the Basel Convention directly. Those are being negotiated instead in the context of the UNEA, which meets every other year. There is an ongoing push, driven by some countries and resisted by the United States and others, to use that forum as a platform to start a mandate for a new treaty focusing on plastics that would cover all the control measures that I mentioned earlier that are not currently covered by the Basel Convention.

That was hotly debated at the last UNEA meeting, UNEA 4, in March.<sup>13</sup> There was no agreement to proceed with a mandate to negotiate a new instrument. There was agreement on resolutions affecting single-use plastic, encouraging countries to take steps toward reducing single-use plastics and a variety of other measures. But a mandate to launch a treaty negotiation has not yet been approved, and there is no ongoing negotiation about a treaty. There is a series of discussions about identifying a clearinghouse of activity that's happening in the U.N. system, like mechanisms to share information, and another multi-stakeholder forum that was set up under UNEA, but there's no current process that is aimed at negotiating a new plastics agreement globally. There is a process that is debating that question, whether we should launch a new multilateral environmental instrument on plastics. We'll know more about that over the next 1.5 years as those negotiations continue.

**Carole Excell:** I'm going to give you a sense of the work that I've been doing over the past two years looking at the global response, looking particularly at what countries are doing to deal with the global recognition of the extent of the issue of plastic in the marine environment and plastic

11. See ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, IMPROVING PLASTICS MANAGEMENT: TRENDS, POLICY RESPONSES, AND THE ROLE OF INTERNATIONAL CO-OPERATION AND TRADE, Fig. 3 at 5, <https://www.oecd.org/environment/waste/policy-highlights-improving-plastics-management.pdf>.

12. See Report of the Conference of the Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal on Its Fourteenth Meeting, ¶¶ 128-130, UNEP/CHW.14/28 (2019).

13. Report of the United Nations Environment Assembly of the United Nations Environment Programme on Its 4th Session, U.N. Doc. A/74/25 (Mar. 11, 2019).



as marine litter. I'll talk about one study that WRI did in 2018,<sup>14</sup> looking at legislation around the globe that regulates single-use plastic and microbeads. I'll also discuss the current work that I'm doing, which goes into more detail about the regulatory approaches that countries are using, and giving them a sense of guidance on how to think about the different regulatory approaches on dealing with single-use plastic.

I'm going to provide a broad overview of where we see developments in countries around the world. I'll start off by saying that, when I started the work that we do with the U.N. Environment Programme on looking at the regulation of single-use plastic, I, as an environmental lawyer, couldn't even wrap my mind around all the different types of legislation that is used to regulate plastic, plastic pollution in particular.

When we started the study, if I had known what I knew after, I probably would have asked for a longer time to do the study and probably more money. Because in doing the study, we really discovered that there's a whole host of legislation that countries are using to try to deal with the issue of plastic pollution. It ranges from manufacture and production bans, or import bans—so banning that kind of trade—to product standards—setting specific standards for a specific type of product. It could be a standard for a straw or cutlery or cups, and so on. You could think of all the different plastic products that you could set product standards for in more specific legislation, which is a type of EPR. It could include a deposit refund scheme that deals with bottles, or taxes, levies, fees, or subsidies.

When you look at how countries are regulating, even one country may have legislation that falls under all of these or some of these varieties. It's only when we did the global study in 2018 that we recognized, and many environmental lawyers who were doing it with us recognized, the wide range of the types of legislation that exist. That in itself you can see why some countries have made progress while others haven't because it requires of course multiple types of institutions to agree on what needs to be done, a policy approach, and then pass legislation under very different types of legislation to deal with what they see as their national plastic pollution problem.

Quite clearly, what we've seen over the past couple years is that there has been a huge increase in regulations; governments literally have said that their people are so concerned about this issue of plastic pollution. You can see it in the range—a huge rise in the number of national-level pieces of legislation that have been passed, including legislation that is trying to help meet the Sustainable Development Goals. Because plastic pollution has also been recognized as an issue, it needs to be addressed to ensure that we have a marine and ocean environment that is a healthy one. That has also really pushed this increase in regulation.

The data in our study is up to date as of June 2018, which means it's no longer up to date. But at that time, we came up with a bunch of basic findings from this global study, which included us looking at legislation all over the world. I will review the top-level findings from the study.

We found that many countries had led the regulation on plastic bags, with 127 countries actually having specific legislation on plastic bags. It's kind of an entry-level way to saying "we're doing something about plastic." It has been for many countries, including in Africa interestingly. We found that 27 countries had enacted legislation banning specific products, things like straws or cups that are plastic or certain types of plastic. Similarly, we found that countries have instituted taxes on things like the production of plastic bags. And of course, there are many countries and city-level regulations as well that charge fees, for example.

We also found that 63 countries have mandates to EPR, or deposit-refund schemes. Those are more comprehensive pieces of legislation that require the producer to bear the responsibility for their product and ensure take-back; or, to look to improve their product so that it doesn't require so much work on the recycling end. In other words, to improve how the product is made. That was very interesting to know, that those 63 countries have taken this kind of step, which is seen as a more progressive approach to share the burden of collecting plastics, not only by government, but the producers also do so. There were also only eight countries that had established bans on microbeads. That gives you the essence of the report.

We did maps as well, which we thought would give people a sense of where there are different progressions regionally in terms of different things, including EPR laws. Still, we think that there's not enough growth, for example, in EPR systems that meet the producer responsibility in enough countries. Because only 63 countries have EPR systems. EPR systems doesn't mean that they have all types of producers of all types of plastics covered under those systems. It could mean that they only have certain types of producers covered under those systems as well.

As I learned when I was doing this work, the devil is really in the details. There's progress on certain types of plastic, but with one product or the other, certain countries have more comprehensive approaches. But even with those, if you dig deep enough, you'll find that they may not be on all types of plastic. The production of plastic has not been reduced. It's going to continue to increase. But the regulation and the means of regulation of it has taken advances in different areas and not in others.

I wrote a blog post after we released the report, called "127 Countries Now Regulate Plastic Bags. Why Aren't We Seeing Less Pollution?"<sup>15</sup> which went into more detail; even in countries that have bans on plastic bags, many of them have exemptions. Many of them have difficulties dealing with other countries bringing in plastic bags and people bringing them in illegally. It's never as simple as it

14. WRI & U.N. ENVIRONMENT PROGRAMME, LEGAL LIMITS ON SINGLE-USE PLASTICS AND MICROPLASTICS: A GLOBAL REVIEW OF NATIONAL LAWS AND REGULATIONS (2018), available at [https://wedocs.unep.org/bitstream/handle/20.500.11822/27113/plastics\\_limits.pdf](https://wedocs.unep.org/bitstream/handle/20.500.11822/27113/plastics_limits.pdf). The report provides a long list of data of where countries are at on the issue as of June 2018.

15. Carole Excell, *127 Countries Now Regulate Plastic Bags. Why Aren't We Seeing Less Pollution?*, WORLD RESOURCES INST. (Mar. 11, 2019), <https://www.wri.org/blog/2019/03/127-countries-now-regulate-plastic-bags-why-arent-we-seeing-less-pollution>.

seems. Even if you put legislation in place, you still have to implement and enforce it. Countries have found varying degrees of issues in dealing with the implementation aspect of laws. There are solid waste management systems that need to be able to handle the new legislation that's put in place.

There are all of these issues that, when you look at legislation, you can't just look at it and say, oh, we've made tremendous progress because we've had an increase. You really need to look at what's happening in each country and the context in which this legislation has been put in place and really how they are dealing with the implementation. We really found in doing this global study that there has not been enough work done looking at the impact of the legislation in many of these countries. There are some studies that come out, but actually tracking and monitoring this legislation and letting the public know how it's going has not been something that we've seen enough work being done on. I think that's the next phase of what we need to see in terms of implementation of new regulations in different countries.

In the work that we're doing now in supporting and providing guidance to countries on what to think about in terms of different regulatory approaches when it comes to particularly single-use plastic, we have found that the literature basically says there are three types of approaches that countries are using to regulate the issue of plastic pollution. They're using regulatory instruments—things like bans, regulation of production or manufacturing, and regulation of how the retailer/manufacturer deals with plastic. We're also seeing countries of course that are using economic instruments like charges or levies, and EPR approaches such as providing incentives for return of products, or incentives for production of new types of products. Also, we've found some countries focus on using information to influence peoples' buying habits.

We've also seen many hybrid approaches. Many countries are using all three approaches or mixing them depending on the context of their particular problem. How these approaches are working, that too we really have not found enough literature to describe what works when in each country and why they chose different pathways. Not enough work has been done on that to give us a greater sense of whether a country's legislation is the best on EPR plus taxes and levies, or if it only works because it has informational requirements with taxes and levies. That's the next generation of work that really needs to be done.

But what is really interesting, and I want to talk about in terms of approaches, is that Ocean Conservancy just released a new study that talks about how governments really need to put in place policy to guide their legislative approach.<sup>16</sup> The fact that this study is just coming out now is really interesting. In fact, many countries have not really thought through some of these kinds of policy objectives when they're looking at legislation. In so many countries

we see that a country only creates legislation on plastic bags and then four years later is looking to do legislation on plastic bottles. They just pick products and then move on to the next one almost like a chain reaction rather than thinking of comprehensive plastic legislation, but more policy approaches or objectives will be very useful in the future when countries are looking at regulating plastic.

They can think about whether measures are needed to improve waste management or measures that can reduce the supply of plastic. Think about how to improve the quality of plastic so it can actually be recycled. Governments need to think about things like demand for post-consumer plastics in planning legislation. I think when we start seeing countries looking at this in a very deep way, you'll see new forms of legislation being adopted from what we've seen in the past.

Also, what I've learned in doing some of this work is that countries don't fit into neat boxes. There are some countries that are very small and are both producers and importers. So, they have to think about the production that they do internally, plus what they import. There are other countries that only import, so when they're thinking of putting in place legislation, they have to think as an importing country: if I ban certain products, what is the impact on my country because I don't produce plastic? There are varying nuances that countries need to start thinking about in terms of developing legislation that fits into their context.

What I've learned as well in terms of regulation of plastic is the level of institutional coordination that is needed to actually address the huge range of types of plastics that you need to think about in terms of regulating their import or export. You have to think about production, retail, and use of a variety of products. You have to think about waste management and disposal. You have to think about governance, compliance, and enforcement. That is a huge challenge in thinking about comprehensive development of plastic legislation because it touches on all those areas.

What we found is that most countries, with the exception of the European region, which has harmonized legislation, find it very difficult to think through all of these areas with all the overarching hierarchical approaches—what we have in the European Union, which has much more comprehensive legislation or directive on single-use plastic than any other region out there. There will be many challenges, I think, going forward in developments of legislation.

**Adena Leibman**<sup>17</sup>: I'm a staffer about 2.5 miles from here, over on Capitol Hill. I've been working on the marine debris issue in this current capacity for a little over four years. I think one thing to take away from Russ' and Carole's presentations is the incredible uptake and enthusiasm and passion that has come into this issue, the rate at which things are coming to fruition at the U.N. and then the Basel Convention. This is kind of unprecedented.

We're seeing a similar reflection on Capitol Hill. The pace of interest that spans the bipartisan political spec-

16. OCEAN CONSERVANCY, *PLASTICS POLICY PLAYBOOK: STRATEGIES FOR A PLASTIC-FREE OCEAN* (2019), <https://oceanconservancy.org/wp-content/uploads/2019/10/Plastics-Policy-Playbook-10.17.19.pdf>.

17. Editor's Note: For purposes of this discussion, Ms. Leibman was speaking in her personal capacity, not as a representative of Senator Whitehouse.

trum of people who are willing to be partners and work on this issue is very impressive. There's a real opportunity and momentum behind this issue and a lot of people at the state, local, and federal levels are trying to take advantage of the momentum while we have it.

I'm going to give you a sketch of the landscape of some recent legislation at the national level—what's going on right now on Capitol Hill—and a sketch of what's happening at the state and local levels, and how those are all influencing each other. I'll mention a couple coalitions focused on the issue. This will paint the landscape of what we're operating under right now while trying to get something done.

If there's a silver lining to marine plastic litter, it is that it is such a visceral and tangible visual issue, unlike climate change, which is another obviously critical environmental issue we are trying to create action on in the federal realm. For starters, there's absolutely zero chance you can say it's not man's fault. Right? You can't say nature has natural fluctuations of plastic uses. It's our fault. It's 100% our responsibility. I think it creates more of an incentive for people to come to the table.

So, in 2006, legislation was passed to create the National Oceanic and Atmospheric Administration (NOAA) Marine Debris Program and establish the Interagency Marine Debris Coordinating Committee to try to work across agencies that are all engaged on this issue, such as the U.S. Environmental Protection Agency, which is in charge of waste management<sup>18</sup> and water infrastructure in the United States. It also includes coordination with the U.S. Fish and Wildlife Service. That kind of coordinating body was formed then.

That legislation was amended in 2012.<sup>19</sup> We did a couple of things. We gave more specifications to what the NOAA Marine Debris Program should be working on, kind of the breadth of issues that the U.S. Congress hopes that they would take under their wing. It also started looking at the severe marine debris event situation, how we define that, and how we respond to it.

In 2015, the Microbead-Free Waters Act<sup>20</sup> came into being. The Act put a ban on facial cleansers containing plastic beads. We're starting to phase those out of existence. There was a lot of industry support that helped us get over the finish line. That acceptance of knowing it is necessary really helped pave the way, but even then drove a divided Congress to make that happen.

And 2018 was when we started getting a little more personal, to me, on things that I directly worked on. The Save Our Seas Act<sup>21</sup> was signed into law in October 2018. This was a broadly bipartisan bill that reauthorized the NOAA Marine Debris Program. We did work on defining severe marine debris events and allowing NOAA to respond to that. We had things in mind, like the tsunami from Japan that brought a lot of waste all at once to the United States;

how do we more quickly activate cleanup and partnerships, and how do we have states participate in that process?

The rest of the bill is a "sense of Congress." It planted the seeds for what we think are the important issues in this area. Looking at U.S. trade influence, how do we use our trade influence to put more pressure on the issue, and what areas do we think are important for more investment and research?

A sense of Congress is really just a recommendation. It doesn't have a requirement for the president or agencies to execute. It's more like Congress thinks it would be a good idea if you could check this out. The bulk of the Save Our Seas Act was under that umbrella, but it was very important as a convening vehicle that brought together this bipartisan group of senators and congressmen into the fold of the marine debris issue.

We had a broad coalition of support. We consulted with academic researchers. We consulted with industry and had support from that sector. We consulted with nongovernmental organizations (NGOs) and had support from that sector. As my boss sometimes says, marine debris is a happy space of bipartisanship on the Hill in the landscape that is not very happy a lot of times. We had really successful bipartisan hearings in the Senate Environment and Public Works Committee (EPW). Very rarely do we have a happy environment-focused bipartisan hearing. That committee is pretty divisive because we cover issues like the Endangered Species Act and climate change and clean water. So, usually we don't have a very happy kind of *kumbaya*, let's-work-together environmental hearing, but we did on the marine debris issue, which is a novelty.

We had bipartisan hearings in the Commerce Committee, and we also had another EPW hearing on marine debris. I think Save Our Seas was an initial test of whether this is something that Congress can work on together even in our divided political times, and the answer was a pretty resounding yes. It even resulted in a surprise signing by the president with press in the room. It was the pre-show to the Kanye West visit, if you remember that interesting day. But it gave a flash point that in the Donald Trump Administration, among environmental issues, this is one that they were willing to take up.

I think there's been a disconnect between some of the public remarks from the president during that signing and other high-level officials on how the United States actually is behaving in the U.N. assembly<sup>22</sup> or other international bodies. That kind of helped make clear points about what we intended and where we see this issue going. We introduced the Save Our Seas 2.0 Act<sup>23</sup> this summer. It's built on the foundation of the first Save Our Seas Act, but it's a much bigger beast, so to speak.

In the Senate, there are four bills, and one bill in the U.S. House of Representatives. The big bill is S. 1982. It has three separate titles, one of which is focused on our

18. 33 U.S.C. §§1951 et seq.

19. H.R. 1171, 112th Cong. (2012).

20. Pub. L. No. 114-114, 129 Stat. 3129 (2015).

21. Pub. L. No. 115-265, 132 Stat. 3742 (2018).

22. See Sandra Laville, *US Accused of Blocking Ambitious Global Action Against Plastic Pollution*, GUARDIAN, Mar. 15, 2019, <https://www.theguardian.com/environment/2019/mar/15/us-accused-of-blocking-ambitious-global-action-against-plastic-pollution-un-conference-environment>.

23. S. 1982, 116th Cong. (2019).



domestic programs. It looks at the NOAA Marine Debris Program, creating a foundation and a trust fund to support it, creating a “genius prize” for the innovation of new materials and development, things like that.

The second title is focused on the international piece. It sets the official U.S. policy with the goal of holding the U.S. administration’s line when they are representing the United States at these meetings. It also directs the State Department to start looking at a new international agreement, to take the first steps to consider who our partners would be and what would be in an international agreement dealing with land-based plastic waste that moves into the ocean.

Then, there’s a third piece about looking at improving our domestic waste infrastructure, especially with everything going on with the global plastic trade waste situation. The United States has relied on exporting our recyclable materials to other countries to deal with, and we’ve really let our infrastructure fall to the back burner. So, there is a call for investment into our domestic waste infrastructure as well as water infrastructure to deal with microplastics in our drinking water and wastewater.

In the Senate, we benefit from the fact that bills get referred to just one committee for the most part, but we volunteered to introduce each title as its own bill—those are the three subsequent bills—to make sure each committee of jurisdiction had its chance to take ownership of this issue, once again broadening the reach of the issue. We had a markup in the EPW. It all went through by voice vote. We didn’t even have a recorded vote. People just let it go. We had a markup in the Senate Foreign Relations Committee. The same thing, by voice vote. We’ll have a markup on the third piece of the bill, the Commerce Committee piece, on Wednesday.<sup>24</sup>

After that, this pretty significant piece of marine debris legislation will have made it through three Senate committees. We introduced the bill this summer. So, once again, this is one of those flash points of the speed and the motivation to work on this issue. After we work on the Senate, the House will be another issue. It’s been referred to seven committees there. They do not benefit from the single referral like we do, so that will be another beast.

Over in the House, so far, there’s another bill called the PLASTICS Act.<sup>25</sup> I give them huge props for that acronym, creating a meaningful title. That is just going to be in the House Foreign Affairs Committee, but we also have the Save Our Seas 2.0 Act that we’ll have to align with the separate bill with just that single committee referral focusing on that international component.

Sen. Tom Udall (D-N.M.) and Rep. Alan Lowenthal (D-Cal.) recently put out a discussion draft.<sup>26</sup> Their bill

is looking more at the EPR side, is more focused on the plastics production piece of the equation, and includes a national container deposit; prohibiting certain single-use plastics; setting mandatory recycled content; putting a tax on carryout bags; making sure local laws are allowed to continue happening; and limiting new plastic facilities. This bill is coming into shape in Congress to fill in that part of the conversation. That’s at the federal level, and I’ll return to it when I talk about the larger state of play of how all these fit together.

To give a quick sense of what’s happening at the state and local levels, there’s a lot of activity. In D.C., we have the Styrofoam ban in place. We have the \$0.05 levy on plastic bags. There’s a lot of variety. There is a small portion of states that have bottle deposits. There are state-level bans on some single-use plastic. There’s a lot of local-level activity also, especially if you look at coastal communities. They seem to be the initial areas of uptake for looking at single-use plastic bans, straw bans, and things like that.

Some states have a state ban on local bans. The bans on bans. These are the ones where at the state level they decided not to prohibit any of these materials. They have actually passed a law saying local municipalities can’t do any differently. Even if a city wanted to put together a straw ban, these states have prohibitions on that activity. So, obviously, there is a lot of variety, which is, I think, part of the reason there’s more focus on the national conversation of how we find a cohesive way to deal with our plastic at the federal level.

What does the world look like if you are someone trying to work on legislation at the local, state, or federal level? What are you contending with? What can you be complementing out there? Russ had mentioned that there are corporate efforts going on out there. If you look at the corporate community, there are a number of coalitions and kind of self-imposed proposals to either increase recyclable content and with materials invest in a circular economy model or support one of these coalitions.

For example, there’s the Trash Free Seas Alliance, which is a group of nonprofits and corporations that are working on this issue. That organization supported the work at the National Center for Ecological Analysis and Synthesis, which supported Dr. Jenna Jambeck’s work for her 2015 paper,<sup>27</sup> which I’d like to give credit to for really catalyzing the modern movement and passion. I think you can’t go to a marine debris presentation without hearing her statistic that eight million metric tons of plastic enter the oceans from land in one year. It’s obligatory at this point.

There’s the Alliance to End Plastic Waste, which is a global corporate-focused alliance. Their goal is to raise \$1.5 billion in the next five years. Most of that will be invested into the waste management recycling infrastructure piece of the equation. There’s Circulate Capital, which is also funded from the corporate sector. Their goal is to be kind of the initial investment to start up some of these organizations that also focus on increasing recycling waste manage-

24. It later went by voice vote in the Commerce Committee as well, with two recorded “no” votes.

25. Partnering and Leveraging Assistance to Stop Trash for International Cleaner Seas Act, H.R. 4636, 116th Cong. (2019).

26. Press Release, Tom Udall, Senator for New Mexico, Udall, Lowenthal Seek Input on Landmark Legislation to Address the Global Plastic Waste Crisis (Oct. 31, 2019), <https://www.tomudall.senate.gov/news/press-releases/udall-lowenthal-seek-input-on-landmark-legislation-to-address-the-global-plastic-waste-crisis>.

27. Jenna R. Jambeck et al., *Plastic Waste Inputs From Land Into the Ocean*, 347 SCIENCE 768 (2015).



ment or other types of innovation to address the problem. It's partnering with the U.S. Agency for International Development (USAID) as a lone guarantor. The United States has lent its support that way to that initiative.

As I mentioned, there are also individual corporate pledges. I was at the Our Ocean Conference with the senator and some examples there of pledges include the following: PepsiCo pledged to have 25% recycled content by 2025; Unilever made a pledge to collect and process more plastic than they sell by 2025; and the American Beverage Association, outside of Our Ocean, also pledged some of their members, like Dr. Pepper, and Pepsi and Coke are also establishing increased recycled content goals as well.<sup>28</sup>

There are also different company startups that have emerged to help deal with marine debris. Perhaps you've seen commercials for 4ocean bracelets; there's the Ocean Bottle; there's Costa sunglasses. These are organizations that are directly purchasing or collecting plastic waste out of the ocean to convert into usable materials back into consumer goods and creating awareness during the process. There are companies, like Dell or Adidas, that pledged to have at least one product line using marine debris, and again, there is an awareness piece to it as well.

There are a number of NGO coalitions and individual NGOs working on this issue from different angles. There's the Break Free From Plastic coalition, which focuses more on the plastic reduction side of the equation. There are other NGOs that are focusing more on the corporate partnership or the research side. It is exciting to see a lot of activities in the nongovernmental and nonprofit world around this issue.

There's a great opportunity for additional research. Another uniqueness to this issue is that, as a recovering scientist-turned-lawyer, I find it really cool to see science matter, especially so immediately. It's very difficult to see other issues where there is such an immediate trust and investment into what the science is telling us and having that guide where we're going. Like the Jambeck paper, for example, or the work by Kara Lavender Law and Chelsea Rochman.<sup>29</sup> There's this whole universe of marine debris and plastic experts whom I think have amazing influence in this area in the best way possible. People really care what the science is saying and where it's directing us, and I think that's something we can really take advantage of.

There are still a lot of gaps where we don't really understand this whole universe. There's still a lot more research to be done. For example, I'm wearing a fleece jacket today on purpose. Microfibers are a big part of the equation that I think is just starting to gain more attention and traction. The Outdoor Industry Association, which represents the folks who make a lot of the fleece and other materials, are taking it upon themselves to try to figure out how we

determine a standardized shed count or shed scale so we as consumers can make judgments on what type of clothing we want to buy based on if it sheds more or less.

Some countries have required, for example, filters on washing machines to capture some microfibers. The United States has not so far. Is that something that we want to look into on the federal legislation side to mandate something similar? There are still a lot of questions on the microfiber side that we have to figure out before we can make those legislative decisions. That's another big research area that we still need to invest some more time and money into.

There's a lot of enthusiasm for this issue at the state and federal levels. I think there's a lot of opportunity for it to be a nonpartisan/bipartisan issue. Does that mean we can do everything tomorrow? Probably not. I don't think there is that much political will behind the issue where we can turn the valve off on plastics tomorrow, but I think there's a lot of push from both sides of the aisle to do something meaningful. There's a lot of pressure from consumers and constituents to do something on the issue, and there's a lot to take advantage of right now to keep the conversation going.

It's been exciting to see in Congress this unique partnership come together, for example on the Save Our Seas bills. My boss, a Democrat from Rhode Island, a small state, has partnered on this with Sen. Dan Sullivan, a Republican from the largest state in the country, Alaska. They are complete opposites in many ways, but they have come together and have unified on working on this marine debris issue.

The Senate Oceans Caucus, which was formed in 2011, in its initial formation identified marine debris as one of the priority issues it wants to work on. That caucus has now grown to 41 members—so almost half of the Senate has signed on to say they want to work on oceans and they want to work on marine debris. It has added a great sense of importance to the issue as well.

There are a lot of things to look at. We are in a divided political time. We have a Republican Senate, a Democratic House, and a Republican president. The main way legislation happens in the Senate is it has to pass by unanimous consent. That puts a limitation on what you can do. There just isn't time in the calendar to have floor votes on a lot of pieces of legislation. So, your clearest path to victory is it has to be something that can get to the Senate floor and no one will be opposed to it. Obviously, that constrains the window of where you can move progress.

But I think Save Our Seas 2.0 builds on Save Our Seas. There's been momentum on the issue. We're seeing additional work going on. Ghost gear is another thing that is not addressed in some of this other work going on. There are other people working on that issue. The plastic pollution and marine debris issue is a huge multifaceted problem that requires a multifaceted and multisectoral solution. I think we're getting there. The question will be how quickly, who our partners are going to be and what that path looks like, what models and examples from other countries we can apply here, and how we keep the local and state efforts motivated and how they influence each other. There's a lot of remaining questions, but a lot of excitement

28. American Beverage Ass'n, *Getting Every Bottle Back* (Aug. 16, 2019), <https://www.ameribev.org/education-resources/blog/post/getting-every-bottle-back/>.

29. See SEA Semester, *Dr. Kara Lavender Law*, [https://www.sea.edu/academics/faculty\\_detail/dr\\_kara\\_lavender\\_law](https://www.sea.edu/academics/faculty_detail/dr_kara_lavender_law) (last visited Jan. 8, 2020), and Rochman Lab, *Research*, <https://rochmanlab.com/research/> (last visited Jan. 8, 2020).

and enthusiasm and opportunity to take advantage of from where I'm sitting.

**Carl Bruch:** Thank you. We will now take a few questions.

**Audience Member #1:** I'm interested in waste management infrastructure and capacity in the countries where most of the waste is entering the oceans, particularly in developing countries. My question is, among institutions, private or public, who is doing the best work to provide technical assistance in those developing countries to improve waste management? Also, in terms of funding, are we providing enough funding, whether from public development budgets or private philanthropic or corporate funding? Is that something that needs more attention, both the capacity to do the work and the funding to do the work?

**Adena Leibman:** I'll give credit to USAID. It's doing a lot of the development from the U.S.-level work on the issue. They don't have a direct mandate to work on marine debris, but they do have a waste management program and a human health program. They've been very creative in finding ways to trickle in marine debris and plastic pollution to a lot of their areas, waste management being the most obvious. So, I say the USAID, even under the current Administration, is extremely enthusiastic about this issue and has been doing good work.

Some of the groups I mentioned, like the Alliance to End Plastic Waste, are kind of targeting the Southeast Asia region. Circulate Capital is as well. I think a lot of these corporate investments have pre-identified that that region is where they want those dollars to flow. It's in the early stages, so we don't know exactly what those products will look like or how effective they will be, but I think there is a target in that area from a lot of these different efforts. So, to be determined. But I think other countries pledged also. I think Norway has been doing work in Southeast Asia. There's interesting work going on, but a lot of it is too early to know how effective it has been or will be.

**Carole Excell:** The Global Environment Facility has also provided funding to some specific countries on this issue. I think it is an area that they're going to continue to invest in. The question is, now that you have this ban on waste going to China, how do these countries deal with their own waste? They used to receive all of these wastes as well. Of course, their infrastructures or facilities to receive waste from other countries and deal with their own waste were never up to the capacity to be able to deal with it. So now, with these new rules coming in as well, we'll see. Will that also change things, when they may not be able to take all of these foreign wastes and they just have to concentrate on their own waste?

I think one of the issues is there is the tap; that is the production of plastics of so many different types that has not been turned down really anywhere. Even in our study from June 2018, there were so few countries that regulate the production of plastic or the import of plastic into the

country. That, of course, if you have a developing country, is going to cause a problem once you allow any product to come in or any type with no controls really on how much comes in and how your small facilities can deal with the wave of products that are allowed to come into your countries. It's an interesting question around how to make that balance happen.

**Audience Member #2:** I'm interested in who is tracking the trends in national movement of plastic waste. Is it going to be public in any part of these negotiated instruments so that people will know where it's being shipped, where it's being transshipped to, that kind of thing?

**K. Russell LaMotte:** I can answer that. Before I do, let me add my two cents on the first audience question to emphasize that, at least in my view, that question is really the most important question. If the goal is to turn off the tap of plastic waste in a way that begins to have an impact on improving the flow of marine litter to the marine environment, I think the focus really should be less on production of plastics than on the management of plastic wastes. When you begin to tinker with the production of plastics, you have to think comprehensively. One thing we have not talked about is a broad assessment of alternatives and what the life-cycle impacts of those alternatives to plastics are because of the value that plastics do create including on things like greenhouse gases.

The real impacts, if we're focused just on the marine environment, are from a handful of countries in East Asia and Southeast Asia that do not manage their waste. Plastic wastes generated in those countries go directly into the marine environment. I think the need to focus as a priority on building up that infrastructure really is the first stage. It's not to diminish the importance of all these other initiatives, but it is to say that, if the bang for the buck is the biggest in that sector, the question is are we directing enough resources at that. The right resources with the cooperation of those countries really is the top priority for solving this problem in the long run.

To respond to the question about trade and plastic waste flows, those are tracked. Plastic waste is a commodity. There are world customs organizations with harmonized system codes that apply to plastic waste. They are a little bit blunt in the sense that they don't provide a lot of specificity about the different types of polymers that are moving, but there is some differentiation. Those are tracked by the U.N. and other organizations that track trade. There's very good data that's available on trades and trade flows in plastic waste.

There is an interesting study from last summer that was published by researchers from the University of Georgia that looks at that data and looks at the changes in waste flows since China imposed its import ban. You can see a dramatic change just in 1.5 years since that change took place. Once the Basel Convention prohibitions or restrictions required controls take effect in January 1, 2021, thereafter we will be able to get good data on how the trade in plastic waste is changing.

**Audience Member #2:** So, they will be tracking in greater detail the granularity of the harmonized system?

**K. Russell LaMotte:** I don't think so. I don't think that there is any. I'm not aware of any initiative to impose more specificity and granularity in that harmonized system for tariffs, but the data that are already there are pretty good. It gives you a pretty good sense of where this stuff is moving, and it is publicly available.

**Audience Member #3:** I have a question on the role of multinational organizations at the smaller level than the U.N. system. The European Union has been very active on the plastic pollution front. There's been some interesting discussions in Southeast Asia. I've read some stuff about the Association of Southeast Asian Nations trying to get a handle on it. But I'm curious what the panelists think about the role of smaller multinational units in terms of looking at the problem in a transboundary way in the smaller system than the U.N. system.

**Carole Excell:** Just a little reflection on the previous question first. When we look at the countries that put into place EPR, which requires the producer to think through the life cycle of the product and ensure that they are addressing all the disposal requirements, it's mostly developed countries that have put that into place. So, to me, I think it's very challenging to believe that most developing countries will be able to put in EPR legislation really quickly. That's just my thought seeing how long it takes to ensure that legislation passes in many countries.

So, to expect, for example, a country in Asia to put in place an EPR system to require companies that send in their products to help pay for the infrastructure or for their own companies to pay for the infrastructure that is needed I think will take a long time. That's when we talk about is there enough money to do the infrastructure in Asia and who should be paying for that.

Right now, governments in Asia have not been able to pay for proper services, obviously, which is why there is all this leakage. So, who pays? Should it be Pepsi that pays, or locally owned producers of soft drinks or the plastic materials? Who pays for it? Whenever people say the problem is in Asia and we need to build infrastructure, who needs to pay for it is my next question. Legislation can help you figure out who pays for it, but it is not a solution for every country.

To get to your question, which I hope I'm answering, I've been thinking about this issue. In the Caribbean, for example, we could not expect every Caribbean country to have recycling facilities for all types of plastic products to be able to deal with the amount of plastic waste that is produced and then released into the environment.

So, how do you think about regional approaches where one or two countries are kind of designated to be the country that tries, for example, to increase the amount of products that can be recycled throughout the region, and who pays for that? How do you build a system that allows us to think about institutions and governance and post-use

of these products and which ones can be used in a comprehensive way? It will need a U.N. structure to deal with it. I do think that we need this focus on having an international mechanism, some sort of international agreement to enable us to deal with the complexity of this problem and with the numerous types of products, the number of companies, and the number of countries that have different aspects of that.

I just think right now if we don't see that moving forward, you will see each country doing what I've seen in the study we did, which is pass the plastic bag ban or deal with cutlery next or plastic bottles, but not be able to have the infrastructure to deal with ensuring there's a demand for recycling and to make sure that the plastic they get can be recycled. It's a lot to expect individual small countries to be able to do all of that, so I think those are things that need to be sorted out.

While I think these industry programs are great, I'm not sure they're connected to the country or regional issue in a way that has yet been made to work. A U.N. agency in theory should be thinking about how we connect industry initiatives, local initiatives, and global initiatives. I think that's where that role fits in.

**Carl Bruch:** With all the activity at the national level, we don't see anything at the Organization of American States or East African Community?

**Carole Excell:** You do. You are starting to see it. In Africa, there is a new regional initiative on plastic legislation,<sup>30</sup> but it is not thinking of comprehensive plastic, like comprehensive plastic legislation for all these countries' infrastructure problems. Money. I don't think there is yet enough of that kind of holistic thing. I think there's individual efforts that are starting to go on in specific areas, but it's difficult to think of it holistically. Even for countries to think of it holistically.

**Adena Leibman:** I think, as you mentioned, ASEAN has had conversations. The Asia-Pacific Economic Cooperation has. Regional development banks present another opportunity to free up some of that capital and keep the regional focus. The G7 and G20 have had conversations about this in trying to set these goals for Members to hit. So, not getting into the weeds of how you do it, but at least getting a pledge on the table of promising to work on this issue. There are conversations happening. There's more opportunity to think creatively about looking at the regional fisheries management organization as an opportunity to force the plastics conversation. It goes a little bit more directly.

It's difficult to know—I don't know if anyone is doing the analysis—what real tangible results came from those conversations. There are a lot of countries saying, yes, this is important and I will work on it. But that doesn't happen. There's a lot in keeping the pressure on. Part of the rea-

30. Press Release, African Union, High Level Working Session on Banning Plastics in Africa; Towards a Pollution-Free Africa (Feb. 10, 2019), <https://au.int/en/newsevents/20190210/high-level-working-session-banning-plastics-africa-towards-pollution-free-africa>.



son to bring it back domestically and why in Congress we are trying to keep the momentum going on this issue is to force the hand of the United States in these conversations when they are participating; to add that pressure at home to keep being a good, helpful participant in these conversations and put the U.S. weight behind action. I think that's why in Congress we are trying to keep momentum happening; keep bills becoming law; keep the key people at the table, both Republicans and Democrats. Industry, NGOs, and researchers keep the conversation happening so there is no gap in pressure on the U.S. leadership to come into these conversations with different bodies and try to keep momentum happening.

**Audience Member #4:** Adena, I appreciate all the work you have done over the years on all of this. But I think you know that there are a lot of groups that don't think that this version 2.0 is going to do anything to help turn off the tap, let alone actually contribute to climate change at every step. Especially with support for more incineration, waste energy pyrolysis, and incentives for funding that. So, my question is, how do we actually go upstream? Help turn off the tap? Provide incentives and funding for alternatives, refills, different materials to really make a quicker change? Because, to channel Greta Thunberg, we've got 10 years to redirect the *Titanic*.

Plastic pollution is contributing to those challenges at every step of its existence, from extraction to waste management. The extraction and the creation of those products are primarily the result of U.S. and European companies' work. So, if the waste management issue is in Southeast Asia or where we focus on with our tax dollars, we're not really doing anything to solve the bigger problem.

**Adena Leibman:** There's nothing in the bill that funds incineration or other technologies. In the original S. 1982 as introduced, it had a National Academy of Sciences study on pyrolysis gasification and those technologies to understand them better. In the current version that came up in EPW and will see a markup in Commerce, there's zero mention of those technologies. Just to clarify.

**Carole Excell:** To agree with you on many of the things that you said, I think that's where there is a great deal of difficulty in trying to get the word out to governments and trying to help them understand what alternatives they should consider. I was at the UNEA meeting and many of the governments were saying they don't know what alternatives to use, they don't know which ones are good and can actually be compostable or are good alternatives. They have things that are developed locally that they could consider, but they don't know if they're safe to use in supermarkets or safe for food.

So, there is still a big gap in understanding how to think about alternatives and the impacts of using those alternatives at scale. Also there is this huge pressure, of course, from the industry, which is not itself looking into alternatives in a way that gives governments a "really care" message about how to. If this company is thinking about these

alternatives, how do I embrace that? I think there's a big gap still in that area.

Work is not happening fast enough on ensuring that there could be more legislation on standards that has already done these types of assessment and gives you a sense of what to do. I don't know who is tracking in that space. But in our work that we've already done, we've seen that there is some movement about looking at standardization of products and trying to create alternatives that work.

We did see in the global study that some countries actually provided incentives for using alternatives, which we thought was very interesting. We highlighted the countries that have put in place legislation that requires the use of non-plastic bags and use of local material and provides incentives for companies to develop these local materials. But I think that is still such a small percentage of the number of countries out there that actually have legislation that promotes that. Because they are the leaders in terms of legislation, it's going to take a region like the European Union putting forth something in the space and thinking through this issue for us to see some change globally. Really looking to the European Union to provide some guidance on how they're thinking through this issue is going to be key.

**Audience Member #5:** What form is an international treaty on plastic waste most likely to take?

**K. Russell LaMotte:** I should emphasize that built into that question is an implicit assumption there will be an international treaty on plastic waste. I think that's still very much an open question. So, that's the first point. There is not yet agreement internationally that there is a need for a new international instrument as opposed to reliance on the existing instruments, making the most of what we already have and building from there. Let me say this: if there is a new agreement, the form of the instrument will flow from the content of the instrument. The content of the instrument, again, is very much the subject of some debate.

Even if there were an agreement to move forward on an instrument, you've heard some discussion even in this room about whether the focus should be on improving resources for collection and prevention of leakage to the environment or whether the focus should be on pushing controls further upstream. Whether we are dealing with essentially a financing and capital-building infrastructure regime or something that is concentrating on a whole class of products will very much determine the nature of the instrument that is ultimately developed, if there is even an agreement or a need to set in new instruments. So, I'm not sure I can answer the question at this stage given the very nascent stage of those developments or of those discussions around that topic.

**Audience Member #6:** What is the role of fishing gear in this problem, and how can it be addressed?

**Adena Leibman:** I think there is a lot of fishing gear out in the oceans entangling wildlife and sinking on ecosys-

tems. It is a problem. If you follow the North Atlantic right whale issue, entanglement has been a huge part of that conversation. Not all of it is lost fishing gear. Sometimes, it's the whales running into actively used fishing gear. I think there's been investments in the United States into improving technology to go ropeless. For example, keeping on the right whale and lobster interaction issue, I think that's another area where innovation is critical.

In other parts of the world that do not have rigorous enforcement of their fisheries laws, if you talk to the average fisherman, he does not want to lose the gear. It's an expensive part of the business to keep their nets and to keep their lines going. Very rarely do they want to lose their gear. If they're being chased by an enforcement procedure, they may cut the line to get rid of it. Sometimes, it's just lost in natural disasters or in other ways or getting ensnared in something and torn apart. But most fishermen in the world do not want to have their gear just get dropped out into the ocean.

What do you do about it? It's a similar thing to some of the plastics we're talking about. In that it's more kind of consumer-facing since we use it every day, so how do

you add a traceability piece to it? Is there a way to require markings on fishing fleets? So, if a piece of plastic netting is found, we can trace it back to what fishery it came from and what country. There can be some responsibility built into that. How do we innovate with the gear itself? Is there a way to use some sort of plastic replacement that is less harmful if it ends up in the environment, but is still durable enough to endure the conditions that fishing gear is put under. That's a difficult question for material engineers and others to figure out.

There's a lot of interest and a lot of work to be done in that area. I think it is usually separated out from the other conversation because most of us are not on a daily basis interacting with fishing gear. It's kind of its own world. It's a separate group of industries that you work with versus the single-use plastic, consumer-facing packaging materials that all of us are more familiar with. They're kind of detached and separated, but they're part of the one global issue. We're trying to merge those conversations as more actions are taken, especially on the regional level. The conversations about how we deal with plastic in general in the ocean include a lot of different things now.