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Beyond Existing Legislated Efforts to Control Single-Use Plastics: A Proposal for Ending Fossil-Fuel Subsidies and Standardizing Single-Use Plastic Packaging

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SYMPOSIUM

BEYOND EXISTING LEGISLATED EFFORTS TO CONTROL SINGLE-USE PLASTICS: A PROPOSAL FOR ENDING FOSSIL-FUEL SUBSIDIES AND STANDARDIZING SINGLE-USE PLASTIC PACKAGING

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INTRODUCTION

Plastic, the wonder substance, is ubiquitous and problematic. Researchers estimate, globally, industries have produced 8.3 billion metric tons of plastic since the advent of the miracle material.¹ Today,

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plastic production continues unabated.² One estimate suggests plastic production might expand from 311 million tons in 2014 to over 1.6 billion tons by 2050.³ The long-term consequences of unfettered plastic production and disposal are unknown.⁴ Still, the evidence of short-term impacts on the environment is alarming—particularly for the ecosystem and human health. In 2012, the Convention on Biological Diversity reported marine litter, consisting primarily of plastics, damaged or killed at least 663 different marine species.⁵ Mountains of plastic litter create blockages in sewer systems, increasing the risk of redistributing plastic into the environment during flood events.⁶ Increasingly, scientists discover plastic embedded in the food chain, including the existence of low-density polyethylene plastic, which serves as a vector for bioaccumulative and toxic substances in the marine food chain.⁷ The agriculture industry

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1. Roland Geyer et al., *Production, Use, and Fate of all Plastics Ever Made*, SCI. ADVANCE (July 19, 2017), <https://advances.sciencemag.org/content/3/7/e1700782> (Estimating 12 billion tons of plastic litter in landfills and the environment by 205).

2. ELLEN MACARTHUR FOUND. ET AL., *THE NEW PLASTICS ECONOMY — RETHINKING THE FUTURE OF PLASTICS* 24 (2016), https://www.ellenmacarthurfoundation.org/assets/downloads/EllenMacArthurFoundation_TheNewPlasticsEconomy_Pages.pdf.

3. ELLEN MACARTHUR FOUND. ET AL., *THE NEW PLASTICS ECONOMY—RETHINKING THE FUTURE OF PLASTICS & CATALYSING ACTION* 18 (2017), https://www.ellenmacarthurfoundation.org/assets/downloads/publications/NPEC-Hybrid_English_22-11-17_Digital.pdf.

4. *Id.*

5. SECRETARIAT OF THE CONVENTION ON BIOLOGICAL DIVERSITY ET AL., *TECHNICAL SERIES NO. 67 IMPACTS OF MARINE DEBRIS ON BIODIVERSITY: CURRENT STATUS AND POLITICAL SOLUTION* 9 (2012), <https://www.cbd.int/doc/publications/cbd-ts-67-en.pdf>.

6. See Fredric M. Windsor et al., *A Catchment-Scale Perspective of Plastic Pollution*, 25 *GLOBAL CHANGE BIOLOGY* 1207, 1210–15 (2019); see also *Plastic bags clogging Bangkok's sewers complicate efforts to fight floods*, STRAITS TIMES (Sept. 6, 2016, 04:11 PM), <https://www.straitstimes.com/asia/se-asia/plastic-bags-clogging-bangkoks-sewers-complicate-efforts-to-fight-floods>.

7. Chelsea M. Rochman et al., *Ingested Plastic Transfers Hazardous Chemicals to Fish and Induces Hepatic Stress*, SCI. REP. 3, Nov. 21, 2013, at 2, <https://www.nature.com/articles/srep03263.pdf>.

abundantly uses plastic; specifically, organic crops use plastic film mulching to reduce weeds.⁸ The long-term implications of plastic, chemical exposure in food chains remains understudied.

Policy intervention is necessary, but no singular solution to turn off, or even more crucially, reverse the plastic tap exists. Some semblance of a legal effort, regulatory or otherwise, is a requisite to reduce the global, plastic addiction that is disproportionately contributing to long-standing negative social and environmental outcomes.

This Article aims to review several existing categories of legislative efforts related to single-use plastic packaging and suggest three legal interventions in support of a circular economy for plastics. There is a need for additional legislative action—at the global or regional level—to provide consumers with more responsible choices from the food, beverage, and personal hygiene packaging industry. Although some businesses promise to launch new packaging in response to the plastic debris challenge,⁹ private companies will likely champion piecemeal change, which will prolong the period before conventional plastic production decreases.






Unlike many other long-standing environmental problems, mass plastic pollution is a more recent phenomenon, occurring in the last seventy years.¹⁰ In the past decade, interest in regulating plastic,

8. Erik Kobayashi-Solomon, *Feeding The World With Plastic*, FORBES (May 24, 2019, 08:55 AM), <https://www.forbes.com/sites/erikkobayashisolomon/2019/05/24/feeding-the-world-with-plastic/?sh=1759ff785ada> (Highlighting the value of using “plasticulture” to enhance production but noting that as of 2019 there were at least 55,000 tons of used agricultural plastic in Florida which were being disposed of in landfills).

9. Jillian Ambrose, *The end of plastic: New plant-based bottles will degrade in a year*, GUARDIAN: ENV'T (May 16, 2020, 08:05 AM), https://www.theguardian.com/environment/2020/may/16/the-end-of-plastic-new-plant-based-bottles-will-degrade-in-a-year?utm_term=RWRpdG9yaWFsX0dyZWVuTGlnaHQzMjAwNTIw&utm_source=esp&utm_medium=Email&CMP=greenlight_email&utm_campaign=GreenLight.

10. See ORG. FOR ECON. CO-OPERATION AND DEV., ENVTL. POL'Y PAPER NO. 12, IMPROVING PLASTICS MANAGEMENT: TRENDS, POLICY RESPONSES, AND THE ROLE OF INTERNATIONAL CO-OPERATION AND TRADE 2 (Sept. 2018) (Until 1950, the types of plastic other than Bakelite were generally unknown.).

specifically single-use plastic packaging, has expanded.¹¹ Common single-use packaging includes the following types of plastic resins:¹²

| Material: | Examples of Uses: |
|--|--|
| Polyethylene Terephthalate- PET  | Beverage bottles, packaging trays |
| High Density Polyethylene- HDPE  | Milk bottles, shampoo bottles, yogurt containers |
| Low-Density Polyethylene- LDPE  | Grocery bags, packaging films, containers |
| Polypropylene- PP  | Microwave dishes, potato chip bags, bottle caps |
| (Expanded) Polystyrene -PS  | Plates, coffee cups, food trays |

Approximately 36% of global plastic production is single-use packaging, with the U.S. being the largest generator of plastic packaging on a per capita basis.¹³ Further, plastic recycling and recovery rates are discouragingly low.¹⁴ One model estimates 79% of all plastic produced is burned, landfilled, or released into the environment.¹⁵ Because plastic pollution became an increasingly

11. See generally U.N. Env't Programme, *Legal Limits on Single-Use Plastics and Microplastics: A Global Review of National Laws and Regulations* (Dec. 5, 2018) [hereinafter UNEP, *Legal Limits on Single-Use Plastics and Microplastics*] (Single-use plastic is any plastic generally designed to be used once before being disposed or potentially recycled. These include thin plastic grocery bags, take-away containers, beverage bottles, most food and personal use packaging materials, and some industrial plastics such as "plastic mulch.").

12. *Id.* at 47.

13. U.N. Env't Programme, *Single-Use Plastics: A Roadmap for Sustainability*, at 4-5, U.N. Doc. DTI/2179/JP (2018) [hereinafter UNEP, *Single-Use Plastics: A Roadmap for Sustainability*].

14. See *id.* at 7.

15. *Id.* at 6.

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visible and understandable problem for the public, engagement from legislators and parliamentarians in regulating single-use plastics was high until the COVID-19 pandemic, which provided an unexpected boost to the plastic industry—especially single-use plastics.¹⁶

I. EXISTING LEGISLATED EFFORTS TO REGULATE SINGLE-USE PLASTIC PACKAGING

As of 2020, encouragingly, more than sixty countries and many municipalities have some government-managed legal mechanisms in place to address the peril of increased plastic in the environment.¹⁷ This section will discuss the various approaches countries implemented to reduce waste associated with single-use packaging. Such approaches involve changing either consumer or industry behavior (e.g., promote recycling or ban products).

Notably, the leaders of the Global South, facing public health crises associated with unmanaged plastic waste, are driving much of the regulatory action around single-use plastics with the more recent contributions from the European Union (EU).¹⁸ Both consumers and plastic producers oppose legal interventions.¹⁹ Consumers are concerned with hygiene and convenience; while actors in the plastic industry worry about maintaining profits.²⁰ Although one of the major producers and users of single-use plastics, the United States is one of the few countries to have no coordinated federal response to the

16. Laura Tenenbaum, *The Amount Of Plastic Waste Is Surging Because Of The Coronavirus Pandemic*, FORBES (Apr. 25, 2020, 01:58 PM), <https://www.forbes.com/sites/lauratenenbaum/2020/04/25/plastic-waste-during-the-time-of-covid-19/#7e9753bd7e48>.

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

18. See Jennifer Clapp & Linda Swanston, *Doing Way with Plastic Shopping Bags: International Patterns of Norm Emergence and Policy Implementation*, 18 ENVTL. POL. 315, 318-321 (2009), .

19. Sharon Lerner, *How the Plastics Industry Is Fighting to Keep Polluting the World*, INTERCEPT (July 20, 2019, 4:30 AM), <https://theintercept.com/2019/07/20/plastics-industry-plastic-recycling/>.

20. *Id.*

problem as of 2020.²¹ Some of these interventions, particularly individual bans, are difficult to implement due to limited enforcement, and more recently, the COVID-19 public health crisis.²²

Existing legal interventions designed to change the behavior associated with single-use plastic pollution include (1) fees and levies; (2) extended producer responsibilities; (3) bans; and (4) private environmental responses.²³

A. Fees and Levies

In trying to address environmentally undesirable behavior, economists struggle with how to price environmental “bads.”²⁴ Certainly, in a world where the market works, more or less, changes in pricing should influence consumer behavior.²⁵ This has been the theory within industries that undermine the public health where “sin taxes” on products, such as cigarettes, are intended to restrict consumption.²⁶

21. Congressional bills have been proposed but were on hold in mid-2020 as a result of the COVID-19 pandemic. Senator Tom Udall of New Mexico and Representative Alan Lowenthal of California proposed the Break Free from Plastic Pollution Act in February 2020 (H.R. 5485 116th Congress) calling for a national “bottle bill” and a requirement for companies that produce and sell food service and plastic packaging to pay for waste collection. Colin Staub, *Legislation pushing national bottle bill hits Congress*, PLASTICS RECYCLING UPDATE (Feb. 12, 2020), <https://resource-recycling.com/plastics/2020/02/12/legislation-pushing-national-bottle-bill-hits-congress/>.

22. Lorraine Woellert, Catherine Boudreau, & Nick Juliano, *Plastics in the time of pandemic*, POLITICO: THE LONG GAME, <https://www.politico.com/newsletters/the-long-game/2020/05/26/plastics-in-the-time-of-pandemic-489320> (last updated May 26, 2020, 01:10 PM).

23. See discussion *infra* Section I.D.

24. See generally Stale Navrud, *Economic Valuation of Environmental Amenities Negatively Affected by Chemical Exposure: Key Insights and Challenges from Environmental Economists and Ecotoxicologists*, SCH. OF ECON. & BUS., NORWEGIAN UNIV. OF LIFE SCI. (2019).

25. Emmanuel S. Asamoah & Miloslava Chovancova, *The Influence of Price Endings on Consumer Behavior: An Application of the Psychology of Perception*, 59 ACTA UNIV. AGRIC. ET SILVIC. MENDEL. BRUN 29 (2011).

26. See, e.g., Pearl Bader, David Boisclair, & Roberta Ferrence, *Effects of Tobacco Taxation and Pricing on Smoking Behavior in High Risk Populations: A Knowledge Synthesis*, 8 INT’L J. ENVTL. RES. & PUB. HEALTH 4118, 4119 (2011).

Furthermore, in the realm of resource consumption, a variety of pricing schemes exist to encourage behaviors, which conform to less-resource intensive uses. For example, in some municipalities, electricity pricing varies depending on when resources are used and the level of demand on the energy generation systems.²⁷ Likewise, water pricing will depend on the quantity consumed with increasing premiums placed on consumption of water for non-essential uses.²⁸ Similar pricing systems have been introduced as an attempt to empower consumers to reduce individual waste. Most of these laws impose a fee or levy on retailers or consumers intended to expose some of the hidden costs associated with the proliferation of single-use plastic. In a market of “full impact” pricing, there are three key points at which a levy might be imposed on single-use plastics depending on the political strength of the policymakers and the goodwill of the public.

First, a government can impose a levy at the production time on any domestically manufactured, single-use plastic. This would include grocery packaging, parcel packaging, disposable takeaway containers, cups, toiletries, and other items unlikely to be reused before the structural integrity of the item is damaged.²⁹ At the time of production, governments might choose to levy fees on certain types of plastic materials such as those that are nearly impossible to recycle.³⁰ For example, such materials may include multi-layered plastic laminates, or specific items the government would like to see the

27. *Electricity explained: Factors affecting electricity prices*, U.S. ENERGY INFO. ADMIN., <https://www.eia.gov/energyexplained/electricity/prices-and-factors-affecting-prices.php> (last visited Nov. 8, 2020).

28. *Pricing and Affordability of Water Services*, U.S. ENV'TL PROTECTION AGENCY, <https://www.epa.gov/sustainable-water-infrastructure/pricing-and-affordability-water-services#:~:text=The%20per%2Dunit%20charges%20for,a%20utility's%20peak%20demand%20periods> (last visited Nov. 8, 2020).

29. See, e.g., Gene Jones, *Recovering Agricultural Plastics: Obstacles and Opportunities*, WASTE ADVANTAGE MAG. (Sept. 1, 2018), <https://wasteadvantagemag.com/recovering-agricultural-plastics-obstacles-and-opportunities/> (discussing how almost no plastic mulch is recovered for recycling).

30. See, e.g., ULPHARD THODEN VAN VELZEN, LISANNE DE WEERT & KARIN MOLENVELD, *FLEXIBLE LAMINATES WITHIN THE CIRCULAR ECONOMY*, (WAGENINGEN UNIV. & RES. 2020), <https://edepot.wur.nl/519019>.

industry shift away from, such as thin plastic bags.³¹ However, historically, government regulators have not favored levies at the time of production. South Africa is one country that introduced a levy on manufacturing. The government collects twelve cents per plastic bag manufactured in licensed factories, which is paid to the South African Revenue Authority.³² The number of bags produced after an original levy of three cents per bag in 2004 continued to increase annually.³³

In determining how a levy does or does not change a behavior, it is important to consider South Africa's experience. First, the taxes may have been imposed to encourage changes to alternative materials. Although taxes have increased over 200% for bags in South Africa, the increase in taxes appears to operate as a financial license to continue production and a social license to consume.³⁴ Second, despite bags increasing in price, current purchase levels have yet to return to pre-levy purchase levels, suggesting the levy may have actually been counterproductive to reducing plastic production.³⁵ While there may not be causality between the tax and record numbers of bags being consumed, interestingly, a tax that aimed to curb growth in the industry appeared to accelerate industry growth between 2009 and 2011. Perhaps this trend can be attributed to better accounting practices associated with the collection of the levy, but twelve years after the introduction of the levy, consumers purchase nearly a billion more plastic bags annually.

Governments can also introduce levies at the time when a bag or packaging material is purchased. Either the consumer or the retailer may pay for the levy. The idea is to ask the "user" of the bag or package to carry the cost associated with the use. In a system where the levy is intended to reduce waste, the levy can also fund environmental waste management. Furthermore, in a system where the levy is intended to assist with an industry transition, the levies might

31. *Id.* at 5.

32. Lynley Donnelly, *Death or taxes for polluting plastic*, MAIL & GUARDIAN: BUS. (Apr. 2019), <https://mg.co.za/article/2019-04-18-00-death-or-taxes-for-polluting-plastic/>.

33. *Id.*

34. *See id.*

35. *See id.* (Noting an increase from around 1.25 billion carrier and flat plastic bags being purchased in 2005 to almost 2.5 billion bags in 2017. 2013 marked the high point of bag purchases with 4 billion bags being purchased.)

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be reinvested into development and production of less environmentally harmful plastics. Levies on consumers are typically quite popular because they do not directly interfere with the interests of the plastic industry; instead, such levies leave the decision to use or not use to consumers.

Finally, levies can be introduced after a bag or packaging material is used, and when the items have become waste. For example, a consumer might be charged a fee for any plastics not easily recyclable. In theory, this approach is an excellent “polluter pays” approach, but it would require a high level of knowledge on the part of both the consumer and the waste-disposer. Introducing a levy after a single-use plastic already served its purpose may fuel perverse behaviors with consumers who elect to improperly dispose of waste to avoid fees.

In Europe, levies are popular. For example, levies on lightweight bags help member states comply with the requirement to limit thin plastic bag consumption to no more than forty bags per capita by 2025.³⁶ Governments introduce levies through a combination of public-private agreements and government laws.³⁷ For example, in 2016, the Austrian government signed a voluntary agreement with major trade companies and environmental protection organizations to create a levy on plastic bags.³⁸ In some cases, however, levies have been met with resistance. In Indonesia, the introduction of a levy on plastic bags in twenty-three cities led to some pushback from both the plastic industry and consumers.³⁹ Likewise in Hong Kong, China, a proposed fifty cents (six U.S. cents) tax on plastic carrier bags was decried as a “regressive tax.”⁴⁰

There is no standard approach regarding the levy amount placed on single-use plastics or on what member states must do with the

36. Directive 2015/720, of the European Parliament and of the Council of 29 April 2015 amending Directive 94/62/EC as regards reducing the consumption of lightweight plastic carrier bags, 2015 O.J. (L 115) 11, 13 (EU).

37. See generally UNEP, *Single-Use Plastics: A Roadmap for Sustainability*, *supra* note 13.

38. *Id.* at 21.

39. *Id.* at 33.

40. Alex Tam & Sai Kung, *Government's plastic bag levy is a regressive tax in disguise*, S. CHINA MORNING POST, <https://www.scmp.com/article/645298/governments-plastic-bag-levy-regressive-tax-disguise> (updated July 15, 2008, 12:00 AM).

collected levies. Allegedly, levies changed consumer behavior in some areas.⁴¹ However, there is a mix of results. In 2007, an Irish study found a 94% reduction in plastic bag usage after a fifteen euro cents (seventeen U.S. cents) levy was introduced in 2002.⁴² In contrast, researchers in Botswana found an existing bag levy from 2007, which had initial success, failed to have a long-term positive impact on reducing plastic bags in the environment.⁴³ Consumers were aware of the purpose of the bag levy but did not change their behavior.⁴⁴ Although the monies from levies were meant for the government, the Botswanan retailers kept these fees because there was no mechanism to ensure transfer to the government.⁴⁵

The chart below illustrates various approaches states have implemented regarding who pays and how much is paid for a levy.⁴⁶

41. Asamoah & Chovancova, *supra* note 25.

42. Frank Convery et al., *The most popular tax in Europe? Lessons from the Irish plastic bags levy*, 38 ENVTL & RESOURCE ECON., 1, 7 (2007) (the study was conducted through questionnaires, interviews, and telephone conversations).

43. Patricia K. Mogomotsi et al., *Plastic Bag Usage in a Taxed Environment: Investigation on the Deterrent Nature of Plastic Levy in Maun, Botswana*, 37(1) WASTE MGMT. & RES 20, 24 (2018); Johane Dikgang & Martine Visser, *Behavioral Response to Plastic Bag Legislation in Botswana*, ENV'T FOR DEV. INITIATIVE, May 2010, at 1, 10-11 (finding a decrease in the use of plastic bags after 18 months of a levy but noting that the low-income retailer saw an increase in use of plastic bags even after the levy was increased by 50%).

44. Mogomotsi, *supra* note 43, at 24.

45. Gaone Marumoloa, *Gov't to Ban Retail Plastics*, MMEGI ONLINE: BUS. (Apr. 5, 2017), <https://www.mmegi.bw/index.php?aid=67958&dir=2017/april/05>.

46. For consistency and comparison, the monetary units were converted to U.S. Dollars. UNEP, *Legal Limits on Single-Use Plastics and Microplastics*, *supra* note 11, at 37-40. (The data in the table is compiled based on data from Table 16 and 17.); See *Still Finding Excuses? Time for Europe to Act Against Plastic Bag Pollution*, SURFRIDER FOUND. EU (2018), https://surfrider.eu/wp-content/uploads/2018/07/still_finding_excuses_web.pdf (European Union & Cambodia); Janet Larsen & Savina Venkova, *The Downfall of the Plastic Bag: A Global Picture*, EARTH POL'Y INST. (May 1, 2014), <http://www.earth-policy.org/mobile/releases/update123> (Bulgaria); *Plastic Shopping Bag Charging Scheme*, EPD.GOV.HK, https://www.epd.gov.hk/epd/english/environmentinhk/waste/pro_responsibility/env_levy.html (last visited Nov. 29, 2020) (Hong Kong); Vento Saudale, *Indonesian Cities Now Charging Shoppers for Plastic Bags*, JAKARTA GLOBE (Feb. 21, 2016), <https://jakartaglobe.id/news/indonesian-cities-now-charging-shoppers-plastic-bags/> (Indonesia); *Reducing Plastic Bag Use in Israel*, ISRAEL MINISTRY OF ENVTL

| Country | Payor | Levy (in USD) |
|--|--|--|
| Andorra | Consumer | 12 cents per bag manufactured from a minimum of 80% recycled plastic 18 cents per bag manufactured from a minimum of 80% recycled plastic |
| Bosnia-Herzegovina | Retailers | cents for a bag |
| Bulgaria | Manufacturers | 33 cents per bag (2018, excludes commonly used bags that are 25-50 microns) |
| Cambodia | Retailers | 9 cents for a bag |
| China/ Hong Kong | Retailer/ Retailer | Fee is set by retailer but must not be less than the cost of manufacturing/ 6 cents for a bag |
| Cyprus | Retailer | 6 cents plus VAT |
| Denmark (first tax to be levied on bags) | Consumer (supermarkets) and Retailer (for other shops) | 32 cents to 55 cents per bag |
| Greece | Retailer | 8 cents |
| Indonesia | Retailers in 23 cities | 1 cent to 37 cents |
| Ireland | Retailers | 26 cents |
| Israel | Retailer | 3 cents |
| Malaysia | Retailer | 1 cent |

PROTECTION,

http://www.sviva.gov.il/English/env_topics/Solid_Waste/Pages/Supermarket-Bags.aspx (last visited Nov. 29, 2020)(Israel); Subang Jaya, *DPM: 20 sen plastic bag charge to be extended to all businesses starting 2022*, MALAYMAIL (Oct. 26, 2019, 03:37 PM), <https://www.malaymail.com/news/malaysia/2019/10/26/dpm-20-sen-plastic-bag-charge-to-be-extended-to-all-businesses-starting-202/1803999> (Malaysia); *Price of plastic carrier bags in England to double to 10p next year*, BBC NEWS: UK, <https://www.bbc.com/news/uk-53968502> (last visited Nov. 29, 2020)(England).

| | | |
|----------------|--------------|--|
| Netherlands | Retailer | No specified fee but recommended fee is 30 cents |
| Poland | Retailer | 6 cents for any bag larger than 15 microns (exception for very thin bread bags). |
| Portugal | Retailer | 12 cents per bag |
| South Africa | Manufacturer | 12 cents per bag |
| United Kingdom | Retailer | 13 cents per bag |

Generally, states are not willing to extend the levies on bags to other single-use plastic items.⁴⁷ However, when introduced, the levies conceptually offer both a regulatory effort to price externalities and an opportunity to implement a form of the polluter/user pays principle.⁴⁸ If the levies are effectively collected by states or municipalities and put into recycling efforts or education campaigns, the levies may be sufficient for changing community behavior. However, if the levies are not collected systematically from the retailers, which may be especially difficult for small retailers, the levies are less likely to provide an incentive for reducing single-use plastic. In fact, some retailers may even view the levies as additional revenue opportunities for stores. Ultimately, changing “automatic” consumer behavior requires a shift in the consumer’s mindset.

Some consumers—like the ones paying high levies—may view the fees for bags as a form of moral licensing, justifying their use of single-use plastic. Although the average consumer’s willingness to pay was calculated as two Euro cents per plastic bag in Ireland, the actual levy was set at fifteen Euro cents.⁴⁹ Still, the Irish government raised the levy to twenty-two Euro cents after the average number of plastic bags per capita increased from twenty-one bags between 2002-

47. See generally UNEP, *Legal Limits on Single-Use Plastics and Microplastics*, *supra* note 11.

48. See Matt Simon, *Should Governments Slap a Tax on Plastic?*, WIRED, (Aug. 4, 2020), <https://www.wired.com/story/should-governments-slap-a-tax-on-plastic/#:~:text=The%20idea%20behind%20the%20tax,churning%20out%20single%2Duse%20plastics>.

49. Convery, *supra* note 42, at 3.

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2005 to thirty-one bags per capita in 2006.⁵⁰ Arguably, this increase raises some concerns about fairness and equity. More affluent consumers are easily able to sustain undesirable consumer behaviors while poorer residents bear a greater burden for the same undesirable choices. In this sense, the tax favors the wealthy who may have more choices available in terms of access to reusable shopping bags than the poorest residents of Ireland.

The tax and levy approach primarily focuses on “downstream” consumer choice.⁵¹ A different approach, as described below, focuses less on the consumer and more on the “upstream” wholesale/retail⁵² component of the supply chain.

B. Extended Producer Responsibilities

The intent of extended producer responsibility (EPR) is to identify a point along the supply chain that can manage externalities associated with production.⁵³ In managing externalities, the EPR shifts the burden back to the producer to implement upstream changes in design, which in turn would increase the durability and decrease the adverse impacts of the product.⁵⁴ For more durable products, like electronics, where plastic parts might be more readily reused during production, this approach would reduce pressure on public consumers to find appropriate disposal.

The EPR model that ideally stewards products from “cradle to cradle”⁵⁵ is likely to function better with some business models than others. For example, a commercial model based on consumers leasing items from the manufacturers and paying for the ongoing service,

50. UNEP, *Single-Use Plastics: A Roadmap for Sustainability*, *supra* note 13, at 46-47 (noting that the maximum levy permitted in Ireland for single-use plastic bags will be 70 Euro cents).

51. Convery, *supra* note 42, at 10.

52. *Id.* at 5.

53. See generally ORG. FOR ECON. CO-OPERATION AND DEV., EXTENDED PRODUCER RESPONSIBILITY: UPDATED GUIDANCE FOR EFFICIENT WASTE MANAGEMENT (2016) (ebook)[hereinafter OECD, EXTENDED PRODUCER RESPONSIBILITY].

54. *Id.* at 37-40, 67.

55. See generally WILLIAM McDONOUGH & MICHAEL BRAUNGART, CRADLE TO CRADLE: REMAKING THE WAY WE MAKE THINGS (Northpoint Press, New York 2002)

rather than for the good itself, might encourage a shift to higher quality goods. Such model may also reduce pressure to recover products. A lease-based model would transform the design of certain types of products. Businesses could redeploy engineers to build consumer goods intended to last decades instead of cheaply manufacturing this year's "new" model that meets consumer expectations of price points. Since 2001, EPR schemes have been gaining popularity with both public and private sectors, supporting 65 EPR schemes related to packaging.⁵⁶ These programs include deposit-refunds, product take-backs, and recycling targets.⁵⁷

One example of a public sector EPR scheme is France's mandatory fees on packaging materials, charging companies based on the weight of packaging materials and the number of packaging units.⁵⁸ Companies receive a "carrot" of credits for containers with either reduced or easily recyclable packaging materials. To provide a "stick" of deterrence, companies are charged packaging material fees for packaging that have no readily available recycling channels.

An EPR approach is substantially more difficult to incorporate into practice for single-use disposable plastics given the costs of private collection and government compliance and enforcement. At least one economic region is in the midst of attempting to deploy EPR policies for otherwise disposable plastics. The European Union is piloting an effort to require all EU countries to introduce EPR for plastic packaging by 2025 and achieve a recycling target of 50% packaging, compromising 65% of the weight of packaging waste.⁵⁹ Under a theory of common but differentiated responsibility, the EU assigned Greece, Ireland, and Portugal assigned longer time frames to

56. OCEAN CONSERVANCY ET AL., *PLASTICS POLICY PLAYBOOK: STRATEGIES FOR A PLASTIC-FREE OCEAN* 55, (2019), <https://oceanconservancy.org/wp-content/uploads/2019/10/Plastics-Policy-Playbook-10.17.19.pdf> [hereinafter OCEAN CONSERVANCY, *PLASTICS POLICY PLAYBOOK*].

57. UNEP, *Legal Limits on Single-Use Plastics and Microplastics*, *supra* note 11, at 3.

58. OECD, *EXTENDED PRODUCER RESPONSIBILITY*, *supra* note 53, at 171, Table 5.3.

59. European Parliament and Council Directive 94/62/EC of 20 December 1994 on Packaging and Packaging Waste, art. 6, 1994 O.J. (L 365) 10, 13-14 (EC), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31994L0062&from=EN>.

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achieve recovery targets.⁶⁰ While the requirement for producers to take back, and presumably recycle or reuse the packaging is promising, the set target of recycling only 50% of any recovered packaging is unambitious. It leaves a large share of packaging to be burned or landfilled.

The EU expects each state to design an EPR scheme to reduce waste.⁶¹ As currently designed, it is expected producers will implement EPR for a variety of single-use packaging, including food containers and plastic carrier bags by December 31, 2024.⁶² The options include “an acceptance of returned products and of the waste that remains after those products have been used, as well as the subsequent management of the waste and financial responsibility for such activities” or “the development, production and marketing of products that are suitable for multiple use, that are technically durable and that are, after having become waste, suitable for proper and safe recovery and environmentally compatible disposal.”⁶³ The EU has a separate directives focused on redesigning single-use beverage containers to incorporate more recycled material, improving the collection of containers, and implementing EPR schemes such as deposit-refunds.⁶⁴

The effectiveness of existing EPR directives is controversial. A 2005 study examining EPR observed a decrease in packaging waste after the EU implemented the Packaging Waste Directive

60. *Id.*

61. *See infra* discussion regarding different directives implemented by the European Parliament.

62. Directive 2018/852, of the European Parliament and of the Council of 30 May 2018, Amending Directive 94/62/EC on Packaging and Packaging Waste, art. 7, 2018 O.J. (L 150) 141, 149-150 (EU), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32018L0852> (Referencing the EU Waste Directive) [hereinafter Directive 2018/852].

63. Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on Waste and Repealing Certain Directives, art. 8, 2008 O.J. (L 312) 3, 12 (EU), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32008L0098>.

64. *See generally* Directive 2019/904 of the European Parliament and of the Council of 5 June 2019 on the Reduction of the Impact of Certain Plastic Products on the Environment, 2019 O.J. (L 155) (EU) [hereinafter Directive 2019/904] <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L0904&from=EN>.

(“Directive”).⁶⁵ However, the study suggests the Directive itself was not the catalyst for most of the reductions because half of the EU states already had reductions in place before the Directive.⁶⁶ This raises legitimate questions about the relationship between normative shifts and regulatory efforts. When regulations simply reflect existing norms—instead of developing new standards—the regulatory mechanism simply codifies the existing standards.

Whether the regionwide EPR schemes will operate effectively for dispersed single-use packaging is an open-ended question. Presumably, some companies will strive to have reusable packaging while others may strengthen the deposit-return schemes or “bottle bills.” It is also possible certain industries will invest in broader EPR schemes. In South Africa, the manufacturers of PET bottles support a voluntary EPR scheme.⁶⁷ PET recycling companies are able to reduce litter and generate jobs by working with consumers and municipalities on removing PET bottles from waste stream and diverting waste for reprocessing.⁶⁸ The EPR fees, paid by container producers who purchase PET resin, fund the PET recycling efforts.⁶⁹ These programs appear successful. PET bottle recycling increased from 16% in 2007 to 65% in 2017.⁷⁰

While EPR schemes are gaining traction worldwide, there are practical concerns. Some of the larger industry players fund “producer responsibility organization” (PRO) for many existing EPR schemes,

65. PIRA INT’L ET AL., STUDY ON THE IMPLEMENTATION OF DIRECTIVE 94/62/EC ON PACKAGING AND PACKAGING WASTE AND OPTIONS TO STRENGTHEN PREVENTION AND RE-USE OF PACKAGING (2005), https://ec.europa.eu/environment/waste/studies/packaging/050224_final_report.pdf.

66. *Id.* (Attributing the Directive as the catalyst for 8% of total packaging recovery.)

67. PET RECYCLING CO. S. AFR., PET INDUSTRY WASTE MANAGEMENT PLAN, SHARED-COST PLAN 4 (PETCO NPC ed., 2018), https://static1.squarespace.com/static/54b408b1e4b03957d1610441/t/5ba4cef1f9619a23ee295c46/1537527545092/201809_PETCO+IndWMP+Shared+Cost+Plan+rev00.pdf [hereinafter PET RECYCLING CO.,PET INDUSTRY WASTE MANAGEMENT PLAN].

68. *Id.*

69. *Id.*

70. *Id.*

both mandatory and voluntary.⁷¹ One concern is businesses, those that fail to contribute to PRO's operation, will freeride on the investments of other companies striving to achieve higher packaging recyclability. This becomes an issue of scale.

Some EPR systems are socially and environmentally problematic. For instance, the United Kingdom relies on "plastic credits" system such as "Packaging Recovery Notes."⁷² Researchers discovered recyclers were offshoring up to 63% of the packaging materials under a system where accredited recyclers would supply packaging manufacturers.⁷³ In many instances, packaging has been exported to countries without adequate waste management systems in the Global South, creating new waste crises that require vigilant monitoring from local governments.⁷⁴ Policymakers have raised concerns about whether certain types of EPR schemes, such as deposit-return schemes, may destabilize social livelihoods.⁷⁵ If deposits are high enough to change consumer behavior and lead to more returns of packaging materials to, for example, grocery stores, informal independent waste collectors will no longer have "raw materials" to fund their livelihoods. Companies are experimenting with different approaches, including "in-kind" refunds like Nestle's Indian program, which gives one packet of noodles in exchange for a deposit of ten empty packets.⁷⁶

The EPR schemes are promising but their success likely relies on contributions from both the public and private sectors. While programs like South Africa's voluntary recovery of PET containers should be applauded, a quarter of PET containers remain

71. OCEAN CONSERVANCY, PLASTICS POLICY PLAYBOOK, *supra* note 56, at 56-58.

72. *Id.* at 66; *see generally* PRN's Explained, RECYCLEPAK, https://www.recycle-pak.co.uk/PRNs_Explained.htm (last visited Dec. 12, 2020).

73. OCEAN CONSERVANCY, PLASTICS POLICY PLAYBOOK, *supra* note 56, at 66.

74. *See, e.g.,* Naaman Zhou, *Malaysia to send up to 100 tonnes of plastic waste back to Australia*, GUARDIAN (May 29, 2020, 03:30 AM), <https://www.theguardian.com/world/2019/may/29/malaysia-to-send-up-to-100-tonnes-of-plastic-waste-back-to-australia>.

75. *See generally* Anne Scheinberg, et al., *From Collision to Collaboration—Integrating Informal Recyclers and Re-use Operators in Europe: A Review*, 16 L. & POL. 15, 16-34 (2018).

76. OCEAN CONSERVANCY, PLASTICS POLICY PLAYBOOK, *supra* note 56, at 65.

unmanaged.⁷⁷ To address this problem, France aims to have 100% of containers recycled by 2025.⁷⁸ Achieving this goal, however, will require systemwide changes in public regulation and private management of packaging. The policy recommendation for harmonized packaging standards at the end of this article will make a substantial contribution to advancing EPR efforts.

C. Bans

Many governments introduced bans for either the use of specific plastic materials or the production, retail, or export of certain types of single-use plastic.⁷⁹ From a legal perspective, a ban is advantageous because it is a bright-line rule mandating regulated entities to reduce a negative externality. If there is adequate political will, coupled with a capacity to enforce, a ban offers an easy legal intervention as long as the products subject to a ban are easily identifiable.

Bans or prohibitions on products are common legal tools for protecting the health and welfare of a population.⁸⁰ The legislature generally proposes a ban when it deems a product hazardous, such as certain classes of pesticides.⁸¹ Bans may also be introduced as a precautionary measure if there is evidence of expected harm.⁸² Additionally, countries may issue bans as a form of political protest speech.⁸³ Depending on its subject matter, a ban can lead to social

77. PET RECYCLING CO., PET INDUSTRY WASTE MANAGEMENT PLAN, *supra* note 67, at 4.

78. THE REPUBLIC OF FRANCE, 50 MEASURES FOR 100% CIRCULAR ECONOMY 3, (2018), <https://www.ecologique-solidaire.gouv.fr/sites/default/files/FREC%20anglais.pdf>.

79. See generally UNEP, *Legal Limits on Single-Use Plastics and Microplastics*, *supra* note 11.

80. See, e.g., Bans on sale of tobacco to youth or leaded fuel.

81. Nathan Donley, *The USA Lags Beyond other Agricultural Nations in Banning Harmful Pesticides*, 18 ENVTL. HEALTH 1, 3 (2019), (noting that the US continues to allow application of 72 pesticides banned in the EU, 17 pesticides banned in Brazil, and 11 pesticides banned in China).

82. See, e.g., California's statewide vaping ban prohibiting the use of e-cigarettes in workplaces and other public spaces.

83. See, e.g., Assemb. B. 1887, 2015 Reg. Sess. (Cal. 2015) (the California Legislature has banned state-funded travel to U.S. states that have laws that discriminate against LGBTQ individuals).

polarization. Especially in relation to single-use plastics, there are arguments that plastic bans will have a sizable impact on poorer communities because they rely on single-use packages to obtain household consumables.⁸⁴

Bans may be appropriate where more elastic economic stimuli such as levies are insufficient to change consumer behavior. In theory, a ban should reduce certain types of waste generation and potentially catalyze new, environmentally friendly alternatives that serve the same functions as plastic packaging. The types of packaging bans introduced vary depending on the member state. In 2019, the EU introduced a regionwide ban on certain single-use plastics as part of its European Strategy for Plastics in a Circular Economy.⁸⁵ Calling for an economy based on “re-usable products and re-use systems,” Directive 2019/904 particularly aims to reduce marine litter and “those single-use plastic products that are found the most on beaches in the Union as well as fishing gear containing plastic and products made from oxo-degradable plastic.”⁸⁶ Notably, Directive 2019/904 was identified as “*lex specialis*”—in case of a conflict within EU law, the New Directive preempts former Waste Directives.⁸⁷ A number of plastic objects—certain cutlery, straws, beverage stirrers, polystyrene containers, and cotton swabs—will be phased out of the EU as part of a ban.⁸⁸ For other single-use plastic items—lightweight plastic carrier bags, food packets, food and certain beverage containers—the member states are likely to develop EPR schemes instead of implementing a ban.⁸⁹ Lastly, for items such as single-use beverage bottles, the EU requires harmonization in standards. This includes keeping caps and lids attached to containers during use and having all PET bottles contain at least 25% recycled plastic by 2025 and 30% recycled plastic by 2030.⁹⁰ Part II will discuss harmonized standards

84. *See generally* Zhou, *supra* note 74 (These arguments are present particularly in Global South).

85. Directive 2019/904, *supra* note 64.

86. *Id.* at Preamble 2, 7.

87. *See generally* Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on Waste and Repealing Certain Directives 2008 O.J. (L 312) 3.

88. Directive 2019/904, *supra* note 64, at art. 5, Part B.

89. *Id.* at art. 8, Part E.

90. *Id.* at art. 6.

as a potentially useful method for reducing some of the drivers of the current plastic crisis.

There is a fair degree of diversity in terms of what current single-use plastic bans cover. Eighty-three countries adopted some form of a ban on free retail distribution of certain plastic bags, and approximately sixty-one countries have banned manufacturing and/or import of certain plastic bags.⁹¹ In addition, around twenty-seven countries banned some form of specific single-use plastic for sale or production.⁹² These bans differ qualitatively. Some bans are expansive in terms of prohibited items (e.g. cutlery, straws), while others are more narrowly tailored to particular weights of specific types of plastics (e.g. low density polyethylene).⁹³ Some bans carry heavy penalties.⁹⁴ Most bans have extensive exceptions such as permitting continued use of lightweight plastic for meat and vegetable packaging.⁹⁵ Although the existence of numerous exceptions undermines the governments' abilities to truly manage the existing plastic production, these exceptions have pragmatic reasons.

Uneven enforcement or non-enforcement of the law is a recurring challenge for a number of single-use plastic bans.⁹⁶ Particularly, enforcement officials face issues of consumer entitlement when implementing these laws at the consumer and retail level with some consumers vocally believing they have rights to continued access to plastic.⁹⁷ Some controversial enforcement has taken place at the

91. UNEP, *Single-Use Plastics: A Roadmap for Sustainability*, *supra* note 13, at 27-43.

92. *Id.*

93. *Id.*

94. *See, e.g.,* Kimiko de Freytas-Tamura, *Public Shaming and Even Prison for Plastic Bag Use in Rwanda*, N.Y. TIMES (Oct. 28, 2017), <https://www.nytimes.com/2017/10/28/world/africa/rwanda-plastic-bags-banned.html> (Rwanda's ban makes it illegal to import, produce, use, or sell plastic bags.).

95. *See, e.g.,* UNEP, *Single-Use Plastics: A Roadmap for Sustainability*, *supra* note 13.

96. *34 Plastic Bans in Africa/ A Reality Check*, GREENPEACE.ORG (May 19, 2020), <https://www.greenpeace.org/africa/en/blogs/11156/34-plastic-bans-in-africa/> (Africa has the most single-use plastic bag bans of any region with 34 of the 54 States having based some form of ban. 16 of the 34 States with bans have yet to introduce enforcement regulations.)

97. *See e.g.,* Alison Bevege, *Australian supermarkets work to prevent 'bag rage' as plastics ban takes effect*,

manufacturing and retail levels.⁹⁸ This, however, has not reduced plastic use among some groups who have instead turned to smuggling plastic across national borders.⁹⁹ In some places with a single-use plastic bag ban on the books, the law offers at best weak enforcement possibilities as some larger businesses may consider the penalties as the cost of business.¹⁰⁰

Theoretically, bans can be powerful regulatory tools to pressure the market to make systemic changes. For any government attempting to implement a ban, ideally, there must be a strong information campaign to help communities understand the ban's justification. Moreover, the ban must consistently be implemented across communities. In a curious assertion of legislative authority, a number of sub-national entities in the United States created an antidemocratic "counter-ban" by putting a statewide ban on local municipalities restricting the distribution of plastics.¹⁰¹

Each of the interventions addressing single-use plastics described thus far are generally public interventions requiring legislative or executive authority. In addition to these regulatory interventions, private companies have been responding to public concerns through supply chain efforts.

REUTERS (June 30, 2018), <https://www.reuters.com/article/us-australia-environment-plastics/australian-supermarkets-work-to-prevent-bag-charge-as-plastics-ban-takes-effect-idUSKBN1JR158> (Describing customer backlash as a reason for an Australian market delaying implementation of a bag tax).

98. See Lerato Mogoatlhe, *Arrest of 3 Kenyan Vendors Caught with Plastic Bags is Sparking Outrage Over Inequality*, GLOB. CITIZEN (Feb. 24, 2020), <https://www.globalcitizen.org/en/content/3-vendors-arrested-in-kenya-for-using-plastic-bags/>.

99. Joe McCarthy, *Smugglers Threaten to Undermine Kenya's Plastic Bag Ban*, GLOB. CITIZEN (May 16, 2018), <https://www.globalcitizen.org/en/content/kenya-black-market-for-plastic-bags/>.

100. See, e.g., *Philadelphia's Single Use Plastic Bag Ban*, CLEANPHL.ORG, <https://cleanphl.org/plasticbagban/> (last visited Nov. 29, 2020) (Philadelphia City Council adopted a plastic bag ban with weak enforcement provisions of a maximum of \$300 for a repeat offender of the plastic ban.)

101. Samantha Maldonado et al., *Plastic bags have lobbyists. They're winning.*, POLITICO (Jan. 20, 2020, 08:11 AM) <https://www.politico.com/news/2020/01/20/plastic-bags-have-lobbyists-winning-100587>.

D. Private Environmental Governance-Supply Chain

Private environmental governance includes “actions taken by non-governmental entities that are designed to achieve traditionally governmental ends such as ... reducing environmental externalities.”¹⁰² For single-use plastics, corporations that sell and/or use them in their products are in an optimal position to efficiently redesign these products because they can place demands on the supply chain. To decrease environmental externalities, companies are committing to increasing recycling, reducing packaging, and changing packaging materials. In 2019, to reduce single-use plastic and increase recycling, Unilever publicly committed to eliminating 100,000 tons of plastic packaging by 2025, increasing the use of recycled plastic, and investing in the recycling of 600,000 tons of plastic packaging.¹⁰³ As for changing packaging materials, the Coca-Cola company announced in March of 2020 a prospective partnership with a company designing biodegradable plant-based packaging for possible release of new packaging in 2023.¹⁰⁴ This was only after the company was identified as “the most polluting brand” for single-use plastic waste, and then curiously defended its three million tons of plastic packaging production on the basis that people want plastic bottles.¹⁰⁵ Another

102. Michael P. Vandebergh, *Private Environmental Governance*, 99 Cornell Law Review 129, 146 (2013).

103. *Unilever announces ambitious new commitments for a waste-free world*, UNILEVER (Jul. 10, 2019), <https://www.unilever.com/news/press-releases/2019/unilever-announces-ambitious-new-commitments-for-a-waste-free-world.html>.

104. Jillian Ambrose, *The End of Plastic? New Plant-Based Bottles will Degrade in a Year*, GUARDIAN (May 16, 2020, 08:05 AM), https://www.theguardian.com/environment/2020/may/16/the-end-of-plastic-new-plant-based-bottles-will-degrade-in-a-year?utm_term=RWRpdG9yaWFsX0dyZWVuTGlnaHQzMjAwNTIw&utm_source=esp&utm_medium=Email&CMP=greenlight_email&utm_campaign=GreenLight (describing a bottle that will degrade in one year in an industrial composter and after several years in normal outdoor conditions).

105. Daniel Thomas, *Davos 2020: people still want plastic bottles, says Coca-Cola*, BBC NEWS: BUS. (Jan. 21, 2020), <https://www.bbc.com/news/business-51197463>.

examples is IKEA's transition from single-use plastic packaging to "MycoComposite," a packaging material made from mushrooms.¹⁰⁶

Multi-stakeholder groups such as the Ellen MacArthur Foundation and the United Nations Environment Programme initiatives are supporting these schemes through soft commitments, such as the "New Plastics Economy Global Commitment."¹⁰⁷ Initiated in October 2018, the Global Commitment includes as signatories 200 businesses representing 20% of global plastic packaging use, sixteen governments, and twenty-six financial institutions.¹⁰⁸ These entities made commitments to eliminate "problematic or unnecessary plastic packaging through redesign, innovation, and new delivery models."¹⁰⁹ The corporate buy-in on the initiative is considerable with "all consumer packaged goods, retail, and packaging producing signatories, 123 in total [c]ommitted to making 100% of their plastic packaging reusable, recyclable or compostable by 2025."¹¹⁰ Signatories publicly disclosed plastic reduction and recycling targets and agreed to have their progress reviewed publicly.¹¹¹

Private environmental governance by some of the largest consumer goods and retail companies to achieve the "Global Commitment" could be instrumental to the corporate sector as a whole to make systemic changes in packaging. The challenge in relying exclusively on private environmental governance strategies is the long-term accountability. Each company reports its own progress towards achieving "new plastic economy" goals, and none of these reports are audited.¹¹² Because the major consumer companies

106. See generally Andrea Steffen, *IKEA Starts Using Compostable Mushroom-Based Packaging For Its Products*, INTELLIGENT LIVING (June 6, 2019), <https://www.intelligentliving.co/ikea-mushroom-based-packaging/>.

107. See generally ELLEN MACARTHUR FOUND.. ET AL., *NEW PLASTICS ECONOMY GLOBAL COMMITMENT* (June 2019), <https://www.newplasticseconomy.org/assets/doc/GC-Report-June19.pdf>.

108. *Id.* at 4.

109. *Id.* at 5.

110. *Id.* at 11.

111. *Id.*

112. *Id.* at 15.

producing plastic are not benefit corporations¹¹³ that can pursue other efforts beyond maximizing share value, from a corporate governance perspective conflicts may arise between shareholders and corporate leadership over the appropriate level of investment in sustainability.

While experts make the case for long-term sustainability efforts,¹¹⁴ fossil-fuel derived plastics remain cheap packaging materials when, as has historically been the case, disposal costs are not factored into their use by consumer goods manufacturers. While increasing numbers of EPR schemes may change how companies calculate packaging costs, there are still many corporations that are not participating in global commitment initiatives but use single-use plastic.¹¹⁵ This is particularly true for industries where there is limited public scrutiny, for example, the use of “plastic mulch” by both convention and organic agribusiness.¹¹⁶ Government leadership is critical in enhancing corporate efforts to shift markets towards more environmentally benign packaging. The final section offers three essential and conceptually simple strategies to reduce problematic single-use plastics. For these strategies to be successful, international harmonization and cooperation will be necessary.

II. FINDING COMMON CAUSE: GLOBAL STANDARDIZATION OF LEGAL STRATEGIES

There is an assortment of current legal responses to the plastic problem at both domestic and sub-domestic levels ranging from product bans to taxes to ignoring the problem, such as bans on bans.

113. Benefit corporations commit to “higher standards of purpose, accountability and transparency.” BENEFIT CORP., <https://benefitcorp.net/what-is-a-benefit-corporation> (last visited Nov. 7, 2020).

114. See generally Andrea Peiffer & Martin Haustermann, *The Business Case for Natural Capital Assessment*, GLOB. NATURE FUND (2018) http://www.business-biodiversity.eu/bausteine.net/f/8506/GNF_BusinessCase_Natural_Capital.pdf?fd=3.

115. Cf *Global Commitment: A circular economy for plastic in which it never becomes waste*, ELLEN MACARTHUR FOUND., <https://www.newplasticseconomy.org/projects/global-commitment> (last visited Nov. 22, 2020) (showing the participating companies).

116. See, e.g., Lisa Elaine Held, *Organic Farming Has A Plastic Problem. One Solution Is Controversial*, NPR (June 7, 2019, 07:00 AM), <https://www.npr.org/sections/thesalt/2019/06/07/729783773/organic-farming-has-a-plastic-problem-one-solution-is-controversial>.

While a proliferation of approaches might be beneficial, there may be fundamental gaps between systems that undermine the ability of a member state to achieve better outcomes with its policies restricting plastics. Africa's example shows the complexity of creating plastic policies in a vacuum without recognizing the challenges inherent in cross-border trade.

Several states in Africa passed bans on plastics out of concern for food security and livelihoods. For example, Mauritania, a livestock-based economy, imposed its ban after discovering that 70% of cattle and sheep in its capital city were dying from plastic consumption embedded in digestive systems.¹¹⁷ Until 2015, one of Mauritania's neighboring states, Senegal, opted for a levy on plastic bags rather than a ban—leaving open at least one conduit for plastic trade.¹¹⁸ Cross-border cooperation is essential for adequate monitoring and enforcement but potentially difficult to implement when states have different laws. State A, a state with no ban, may argue for purposes of transport efficiency that its manufactured plastic should be permitted to transit through State B, a state with a bag ban, in order to reach destination State C, a state without a ban. A country like State B may have customs authority to prohibit shipments. However, when custom officials are expected to apply a range of different laws, depending on the destination of this product, potential conflicts may arise over interference with trade. For instance, a custom officer may turn back a shipment, or there could possibly be an undesired and opportunistic leakage of prohibited products into State B's market.¹¹⁹

Given the global reach of plastic, the international community is at a point where harmonization is increasingly essential both for

117. *Mauritania bans plastic bag use*, BBC NEWS: AFR. (Jan. 2, 2013), <https://www.bbc.com/news/world-africa-20891539>.

118. Anna Pujol-Mazzini, *Senegal to crack down on huge plastic waste by enforcing law*, REUTERS, <https://cn.reuters.com/article/instant-article/idUSKCN1UO1OH> (last visited Nov. 7, 2020) (As of 2019, Senegal is following Kenya's leads in creating punitive fines for manufacturers and retailers. The Senegalese government intends to fine shopkeepers up to 50,000 CFA francs (\$85) for distributing plastic bags and domestic manufacturers of bags will risk six months in prison or 20 million CFA francs (\$34,000) in fines.).

119. DIRECTORATE-GENERAL FOR RESEARCH AND INNOVATION (EUROPEAN COMMISSION) ET AL., *A CIRCULAR ECONOMY FOR PLASTICS – INSIGHTS FROM RESEARCH AND INNOVATION TO INFORM POLICY AND FUNDING DECISIONS* 145 (M. De Smet and M. Linder, eds. 2019).

production and recycling. In a laissez-faire world where there is no concerted cooperation, unless plastic production becomes rationalized, single-use plastics will continue to flood the market. This is due to a lack of consideration given to the externalities associated with plastic production. As evidenced by the numerous civil society groups and youth activism found in nearly every country,¹²⁰ there is wide-spread public support to change how the plastic industry operates. Bans reflect community and national frustration with the irresponsibility of industries that produce consumer products and have legacies that last long beyond a single use. In Europe, institutional commitment is boosting policy, research, and design efforts to achieve a long-term circular economy.¹²¹

This concluding section proposes two major interventions offering a viable transition to an economy where single-use plastics do not pose a chronic environmental and public health threat. First, fossil fuel production subsidies need to be eliminated, and these subsidies should be shifted to other viable packaging materials that protect human health without endangering environment. Second, robust regional or international standards need to be negotiated to limit available packaging materials to a few types of packages that can be widely reused, effectively recycled, or composted. Given global trade remains a significant link between states, and a large amount of single-use plastic travels global trade routes, it is also time for a global negotiation to end harmful subsidies and create shared product standards to either enhance reusability or simplify recyclability.

A. *Remove Fossil Fuel Subsidies*

The proliferation of cheap single-use plastic for the packaging industry is a byproduct of cheap fossil fuels. The petrochemical

120. See Brandon Pytel, *Youth Activists Protest Plastic Industry*, CLIMATE ACTION (July 24, 2019), <https://www.earthday.org/youth-activists-protest-plastic-industry/>; *17 NGOs Fighting Plastic Pollution*, RAPTIM: SERV. (Apr. 14, 2018), <https://www.raptim.org/17-ngos-fighting-plastic-pollution/>.

121. See generally Directive 2018/852, *supra* note 62; *Circular Economy – Overview*, EUR. COMM’N: EUROSTAT, <https://ec.europa.eu/eurostat/web/circular-economy> (last visited Dec. 13, 2020) (“A circular economy aims to maintain the value of products, materials and resources for as long as possible by returning them into the product cycle at the end of their use, while minimising the generation of waste.”)

industry is the sister industry of the oil and natural gas industry. In the United States, cheap natural gas from hydraulic fracturing creates conditions for large production of “natural gas liquids,” in particular ethane, that are considered waste in the fuel production system.¹²² In Europe, naphtha from oil refining, which comprises between one-sixth and one-third of oil production, forms a cheap feedstock for ethylene.¹²³ Essentially, the “upstream” oil and gas industries subsidize “downstream chemical production.”¹²⁴ This is a “win-win” for the fossil fuel industry because members of the fossil industry are able to market products that were otherwise part of waste streams.

While the fossil fuel industry is already under scrutiny for its contributions to greenhouse warming, particularly in the energy generation and transport sector, society places less attention on how maintaining its status quo enables the continued expansion of the plastic industry.¹²⁵ Just as oil and gas extractives gave a little more than lip service to truly diversify energy production until the Paris Agreement was adopted,¹²⁶ little consideration has been given to how the existing plastic industry might re-envision feedstocks for its products. In fact, the plastic industry attempted to divert the public’s attention for the “solution” to single-use plastics to be the advancement of recycling and recovery efforts, not the implementing of changes in production. In the United States, the plastic industries backed the “Realizing the Economic Opportunities and Values of Expanding Recycling (RECOVER) Act” to improve recycling

122. See *Fueling Plastics: Untested Assumptions and Unanswered Questions in the Plastic Boom*, 4 *CTR. INT’L ENVTL. L.*, 2018, at 1, 4, <https://www.ciel.org/wp-content/uploads/2018/04/Fueling-Plastics-Untested-Assumptions-and-Unanswered-Questions-in-the-Plastics-Boom.pdf>.

123. *Id.* at 5.

124. *Id.* at 8.

125. See Rebecca Leber, *Fossil fuel companies are counting on plastics to save them*, *GRIST: CLIMATE* (Mar. 8, 2020), <https://grist.org/climate/fossil-fuel-companies-are-counting-on-plastics-to-save-them/>.

126. See Adam Vaughan, *BP aims to invest more in renewables and clean energy*, *GUARDIAN: ENV’T* (Feb. 6, 2018, 11:01 AM), <https://www.theguardian.com/business/2018/feb/06/bp-aims-to-invest-more-in-renewables-and-clean-energy>.

infrastructure.¹²⁷ For 2020, the United States Environmental Protection Agency (EPA) proposed voluntary national recycling goals to save on regulatory costs.¹²⁸

In 2019, major producers and users of single-use plastic formed the non-profit business “Alliance to End Plastic Waste,” (Alliance) recognizing the environmental threats of plastic while simultaneously touting its values for “freshness and hygiene.”¹²⁹ Attempting to protect status quo production, the corporate-supported Alliance’s financial focus is on “Infrastructure, Innovation, Education and Engagement, and Clean Up.”¹³⁰ The rhetoric assembled on the webpage is narrowly tailored to corporate objectives referring to “transformational change,” and the need to “create value from plastic waste.”¹³¹ There is no mention of any of the companies striving to innovate in developing new, less environmentally problematic packaging materials; the only innovations the Alliance embraces are “in the plastic waste management space.”¹³² While waste management of plastics is a chronic, global problem and requires innovation, the Alliance’s singular focus is convenient for the “value chain” its members have built. One might argue investing in new non-fossil fuel based packaging technologies is too far beyond the technical skillset of the existing Alliance members, but the same argument applies to “sustainable waste management.”

127. *See generally* H.R. 5115, 116th Cong. (2019) (Allocating \$500 million of matching federal funds for states, cities, counties, and tribes to improve collection and processing of recycled materials.).

128. Stephen Lee, *EPA to Set Voluntary Nationwide Recycling Goals*, BLOOMBERG L. (Nov. 15, 2019, 12:17 PM), <https://news.bloomberglaw.com/environment-and-energy/epa-to-set-voluntary-nationwide-recycling-goals>.

129. ALLIANCE TO END PLASTIC WASTE, <https://endplasticwaste.org/home/> (last visited June 2, 2020); *Members*, ALLIANCE TO END PLASTIC WASTE, <https://endplasticwaste.org/members/> (last visited June 2, 2020) (Listing “plastic value chain” members including BASF, Charter NEX Films, Chevron Phillips Chemical LLC, Dow Chemicals, Exxon Mobil, Formosa Plastics, Mitsubishi Chemical Holdings, Mitsui Chemicals, Shell, Sinopec, and Total).

130. ALLIANCE TO END PLASTIC WASTE, *supra* note 129.

131. *Id.*

132. *Projects*, ALLIANCE TO END PLASTIC WASTE, <https://endplasticwaste.org/project/plug-play/> (last visited Nov. 20, 2020).

The Alliance's vision of a "circular economy" as implemented through its existing projects is lopsided. There is no single definition of "circular economy," but there are proposed principles. One of these principles includes the "9 R's" of circular economy: Refuse, Rethink, Reduce, Re-Use, Repair, Refurbish, Remanufacture, Repurpose, Recycle, Recover.¹³³ This list is significant because strategies of refusal, reduction, reuse, and repair are strongly correlated with the "circular economy."¹³⁴ In contrast, recycling and recovery are associated with a linear economy.¹³⁵

The Alliance's glossy projects presented on the website do not address some of the underlying sustainability concerns arising from plastics in the environment. For example, "Renew Oceans" offers a hopeful message of cleaning the ten most polluted rivers in the world through a poverty alleviation program. This program pays waste-pickers to collect plastic waste and install reverse vending machines that offer credit in exchange for plastics which would otherwise enter the river and coastal system; these plastics are then used as a feedstock for energy.¹³⁶ In terms of providing livelihoods and incentives for removing plastic litter, the social sustainability aspect of this project is praiseworthy. However, the environmental aspects of this project raise questions. First, the project does nothing to end the use of unnecessary single-use plastics. In fact, the success of the project depends on a constant source of plastic feedstock. Second, the project's use of low-value plastics for fuel raises its own environmental impact questions. Converting plastic to fuel is a process called pyrolysis.¹³⁷ Presently,

133. *Circularity and Nine 'RS'*, ELLEN MACARTHUR FOUND., https://www.ellenmacarthurfoundation.org/assets/galleries/CEinaction_Activity06-nine-Rs-6R3_from-graham-081217.pdf, adopted from: Potting et. al., *Circular Economy: Measuring Innovation in Product Chains*, PBL (Neth 2017).

134. *Id.*

135. *Id.*

136. *Sea Change in the Ganges*, ALLIANCE TO END PLASTIC WASTE (Nov. 7, 2019) <https://endplasticwaste.org/sea-change-in-the-ganges/>; ALLIANCE TO END PLASTIC WASTE, *IT ALL STARTS WITH COLLABORATION* 15 (2020), <https://corporate.dow.com/documents/science-sustainability/066-00243-01-alliance-to-end-plastic-waste-progress-report-2020.pdf>.

137. AMERICAN CHEMISTRY COUNCIL, *PLASTICS-TO-FUEL & PETROCHEMISTRY ALLIANCE, COMPARISON OF PLASTICS-TO FUEL AND PETROCHEMISTRY MANUFACTURING EMISSIONS TO COMMON MANUFACTURING*

this heating is done with electricity, natural gas, or propane.¹³⁸ During pyrolysis, dust and particulate matter must be filtered while feedstocks are shredded, and air pollutants must be captured during the heating of the pyrolysis vessel.¹³⁹ In addition, vehicle emissions transporting the fuel must be regulated.¹⁴⁰ Pyrolysis requires substantial energy inputs, though it may be less energy than is presently required for mechanical recycling or incineration.¹⁴¹ Third, the regulatory governance of these technical processes may be weak, leading to unnecessary toxic exposure for communities. A failure to achieve regulatory standards capable of protecting public health simply shifts the burden of plastic waste to the community where the pyrolysis plant is located. Fourth, the end result of the pyrolysis will be a form of diesel fuel that releases particulates and greenhouse gases when burned, impacting the public health. The pilot project is in India, where air pollution from diesel vehicles is a major driver of mortality.¹⁴²

*B. Standardize Packaging and Require Landfilling/Incineration
Labelling on Packaging*

A grocery bag from an ordinary supermarket brims with different types of plastics—from plastic beverage bottles wrapped with an extra layer of printed plastic, to yogurt containers, and plastic pouches. Not all of these containers are equally recyclable due to technological barriers. For example, multilayer laminated films such as plastic pouches containing different types of materials (e.g., foil and plastic)

EMISSIONS 2 (July 24, 2017), <https://plastics.americanchemistry.com/Plastics-to-Fuel-Manufacturing-Emissions-Study.pdf>.

138. *Id.* at 3.

139. *Id.* at 4.

140. *Id.*

141. Wan-Ting Chen et al., *Use of Supercritical Water for the Liquefaction of Polypropylene into Oil*, 7 *ACS SUSTAINABLE CHEM. & ENG.* 3749, 3756 (2019).

142. *Majority of air pollution deaths in India linked to diesel vehicle emissions: Study*, *ECON. TIMES*, https://economictimes.indiatimes.com/news/politics-and-nation/majority-of-air-pollution-deaths-in-india-linked-to-diesel-vehicle-emissionsstudy/articleshow/68184315.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst (last updated Feb. 28, 2019).

are physically difficult for recycling operations to separate.¹⁴³ Therefore, they cannot be recycled into components for other plastic products.¹⁴⁴ In other cases, recycling different kinds of materials may prove cost-prohibitive for a small recycling operation. The technology used for recycling rigid plastics is different than the technology used for flexible plastics and requires a recycling center to operate two parallel recycling systems.¹⁴⁵ In practice, larger amounts of materials that might be recyclable are ultimately land-filled.¹⁴⁶

Governments and industries regularly work together to set standards for product safety, functionality, or traceability.¹⁴⁷ Standardized plastic packaging should be implemented at a regional level to meet the recycling capabilities of existing recycling centers within the immediate area where a product is likely to be consumed. It is time for governments to lead these standardization efforts. Industries that are major consumers of single-use plastics, like the food and beverage industries, must also seek uniform approaches to packaging that are less likely to generate consumer waste.

At a minimum, where there is an inadequate waste recovery system, companies should not target markets with packaged goods. For example, there are no adequate means of recycling single-use sachets for various consumer products in the Philippines.¹⁴⁸ However, single-use sachets became very popular after companies, many of

143. Ashley Swinehart, *Is 100% recyclable flexible packaging possible?*, PACKAGING DIG. (Aug. 12, 2014), <https://www.packagingdigest.com/flexible-packaging/100-recyclable-flexible-packaging-possible>.

144. *Id.*

145. DIRECTORATE-GENERAL FOR RESEARCH AND INNOVATION (EUROPEAN COMMISSION) ET AL., *supra* note 119, at 131.

146. Erin McCormick et. al., *Americans' plastic recycling is dumped in landfills, investigation shows*, GUARDIAN (June 21, 2019 01:14 AM), <https://www.theguardian.com/us-news/2019/jun/21/us-plastic-recycling-landfills>.

147. *See. e.g., Physical Infrastructure and Resilience*, NAT'L INSTIT. FOR STANDARDS & TECH., <https://www.nist.gov/industry-impacts/physical-infrastructure-and-resilience> (last visited June 2, 2020) (providing standards on a range of products from cement reference samples to thermal test protocols for firefighter protective equipment).

148. Karen Lema, *Slave to sachets: How poverty worsens the plastics crisis in the Philippines*, REUTERS (Sept. 2, 2020), <https://www.reuters.com/article/us-asia-waste-philippines/slave-to-sachets-how-poverty-worsens-the-plastics-crisis-in-the-philippines-idUSKCN1VO0G3>.

them multinationals, targeted households with limited income.¹⁴⁹ These households were only able to buy very small quantities of consumer products.¹⁵⁰ Major companies selling in a market like the Philippines need to package using alternative materials that can be processed by the existing waste disposal infrastructure.

There is a possibility of pushing EPR and having corporations manage the waste stream associated with their product packaging. However, it is more efficient for governments to regulate responsible packaging to reduce exposure of communities to excess solid waste. While it is possible to revert to less environmentally persistent waste in the form of non-plastic packaging, many new packaging innovations contribute to solid waste pollution. The use of certain plastic containers may carry consumer advantages such as maintaining food freshness or corporate advantages in terms of novel branding, but the long-term public costs of legacy waste management outweigh these private benefits.

A multinational corporation might challenge a national regulation that requires the use of certain types of packaging materials. However, this type of regulation is likely to survive any global trade challenge so long as a government presents the regulation to be “necessary to protect human, animal or plant life or health” and does not arbitrarily restrict trade.¹⁵¹

Governments could also opt to indirectly incentivize certain types of packaging through labelling regimes. For example, a government might mandate clarity about waste disposal through labelling. Among consumers, including educated consumers, there is a great deal of confusion about the recyclability of various types of plastics.¹⁵² A government could mandate consumer goods producers to inform the public about the reusability of various packaging on the label of a product. A sample regulation might require a manufacturer of crackers to state on the front of the package the cardboard is recyclable while

149. *Id.*

150. *Id.*

151. General Agreement on Tariffs and Trade, article XX(b), Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194.

152. Will Date, *Research highlights consumer ‘confusion’ on plastics recycling*, LETSRECYCLE.COM (Jan. 19, 2017), <https://www.letsrecycle.com/news/latest-news/research-highlights-consumer-confusion-on-plastics-recycling/>.

the plastic liner, if disposed of in a municipal waste system, will be landfilled or incinerated. Ideally, the company would also be mandated to provide a telephone line for consumers to offer comments about their packaging concerns. This type of regulation might be enough of a nudge for companies, particularly those marketing in the “green” and organic sectors, to invest in more holistic packaging solutions. A number of public health interventions piloted this labelling solution, including cigarette packages that provide graphic images of emphysema, and front-of-the package labelling for saturated fat, sugar, and salt content.¹⁵³ This type of intervention would increase transparency about solid waste generation but might not change consumer behavior. The preferred option is for companies to work together to create a harmonized set of packaging that complies with circular principle standards for reusability and recyclability.

C. *Global Instrument for Single-Use Plastic Standardization*

In these polarizing times where countries fail to cooperate around public health emergencies, it may seem naïve to suggest the need for a global instrument addressing environmental pressures of single-use packaging. There is, however, global momentum to address the peril of increasing amounts of single-use plastic packaging needlessly entering landfills. In 2015, EU member states adopted the Sustainable Development Goals (SDG) designed to catalyze states to address social inequity and environmental degradation.¹⁵⁴ As part of imagining a different future, the states agreed to dedicate resources to ensuring sustainable consumption and production patterns, including doing “better with less.”¹⁵⁵ As the United Nations articulated,

153. See, e.g., *En jornada histórica el Senado de la República aprueba el etiquetado frontal de advertencia en la Ley General de Salud*, EL PODER DEL CONSUMIDOR (Oct. 22, 2019) <https://elpoderdelconsumidor.org/2019/10/en-jornada-historica-el-senado-de-la-republica-aprueba-el-etiquetado-frontal-de-advertencia-en-la-ley-general-de-salud/> (describing Mexico’s recently approved law to require front-of-package information about whether a produce is high in salt, saturated fats, or sugar).

154. G.A. Res. 70/1, at 14 (Sept. 25, 2015).

155. *Goal 12: Ensure sustainable consumption and production patterns*, U.N.: SUSTAINABLE DEV. GOALS,

“humans have unlimited needs, but the planet has limited capacity to satisfy them. We must try to understand and appreciate the limits to which humans can push nature, before the impact is negative. Those limits must be reflected in our consumption and production patterns.”¹⁵⁶ Several of the targets are particularly relevant to the interventions proposed above. Namely:

12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse...

12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature...

12.C Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities.¹⁵⁷

The two suggestions to reduce fossil fuel subsidies and standardize packaging to improve recyclability directly support these targets. Target 12.C calls for the phasing out of harmful fossil fuel subsidies to industries based on environmental impact. If conservative estimates are correct that in addition to large quantities of indirect subsidies, approximately \$20 billion is given annually to the fossil fuel industry directly (\$4 billion to the coal industry and \$16 billion to

<https://www.un.org/sustainabledevelopment/sustainable-consumption-production/>
(last visited June 2, 2020).

156. *Id.*

157. G.A. Res. 70/1, *supra* note 154, at 22-23.

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oil and natural gas industries),¹⁵⁸ then removal of these subsidies would shift the profitability of producing cheap single-use plastics. Assuming the cost of single-use packaging increased sufficiently to cover the actual environmental costs associated with plastic manufacturing, businesses might seek alternative packaging options. Target 12.8 calls for transparency for consumers. The continued disingenuous use of the resin logos on products with the recycling symbol detracts from transparency. The proposal to provide front-of-packaging information about the actual recyclability of a product offers consumers the information needed to make informed consumption decisions.

Standardization of packaging materials will help member states meet Target 12.5 to “substantially” reduce waste generation. Instead of shipping large quantities of putative recyclable material into landfills, because of the inability to recycle within a particular region, recycling centers will have appropriate feedstock. This will require shifts in supply chains. Companies have already demonstrated their ability to shift supply chains with the rapid adoption of single-use plastic throughout a variety of production systems.¹⁵⁹

An “international framework” will provide assurances to companies and will actually achieve environmentally desirable outcomes in terms of waste reduction. Target 12.4 calls for the “environmentally sound management of all wastes throughout their life cycle, in accordance with agreed international frameworks.” While there is extensive international interest regarding single-use plastic, there have been only limited discussions of actual “international frameworks” around these products’ management. The only “international frameworks” covering plastic waste are the Basel

158. Clayton Coleman & Emma Dietz, *Fossil Fuel Subsidies: A Closer Look at Tax Breaks and Societal Costs*, ENVTL. AND ENERGY STUDY INSTIT. (July 29, 2019), <https://www.eesi.org/papers/view/fact-sheet-fossil-fuel-subsidies-a-closer-look-at-tax-breaks-and-societal-costs> (describing direct subsidies including “Intangible Drilling Costs Deduction,” “Percentage Deduction,” (allowing recovery for declining production) “Credit for Clean Coal Investment,” and “Nonconventional Fuels Tax Credit”).

159. See Courtney Lindwall, *Single-Use Plastics 101*, NAT. RESOURCES DEF. COUNCIL (Jan. 9, 2020), <https://www.nrdc.org/stories/single-use-plastics-101#:~:text=Put%20simply%2C%20single%2Duse%20plastics,wrappers%2C%20st raws%2C%20and%20bags.>

Convention¹⁶⁰ and MARPOL Annex V.¹⁶¹ Under the 2019 Basel Convention amendments to regulate plastic waste, UN members agreed to require prior informed consent for any export of plastic waste that was either difficult to recycle or hazardous.¹⁶² There are opportunities for the working group established by the Basel Convention, the Plastic Waste Partnership, to advance recommendations for standardizing plastic production in conjunction with the existing Household Waste Partnership.¹⁶³ As one of the proposed pilot projects, the Plastic Waste Partnership is to “develop specifications to promote alternatives to single-use plastics.”¹⁶⁴ This is a move in the right direction but neglects the multi-year time lag associated with a large-scale shift from existing plastics to bio-based plastics. Meanwhile, there has to be standardization to meet the needs of the current system and to ensure that existing plastics can be recycled within their immediate communities, without relying on export markets. The newly formed Partnership must consider the possibility of interim steps such as developing a global instrument for standardization that is important for both governments and industries.

CONCLUSION

This contribution has focused on the proliferation of single-use plastics and the various national approaches ranging from levies to bans that countries attempt to implement to cope with issues plastics pose as a persistent source of solid waste. While some of these

160. *See generally* Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal, March 22, 1989, 1673 U.N.T.S. 126 [hereinafter *Basel Convention*].

161. *See generally* Regulations for the Prevention of Pollution by Garbage from Ships, annex V of the Marine Plastic Pollution Research and Control Act [MARPOL], Nov. 2, 1973, 1340 U.N.T.S. 184 (entered into force Dec. 31, 1988) (prohibiting the discharge of plastics and fishing gear from ships into the oceans).

162. Amendments to Annexes II, VIII and IX to the Basel Convention ,May 10, 2019, BC-14/12.

163. *See generally Plastic Waste Partnership*, BASEL CONVENTION, <http://www.basel.int/Implementation/Plasticwaste/PlasticWastePartnership/tabid/8096/Default.aspx> (last visited June 2, 2020).

164. Basel Convention, *Proposal by the Co-Chairs of the Plastic Waste Partnership Working Group on Its Possible Activities*, UNEP/CHW/PWPWG.1/3.Rev.1, at art. II (C) (Feb. 25, 2020).

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responses have had more success than others in changing behavior, like Ireland's bag levy, these approaches have done little to stem the tide of plastic waste. Existing approaches ignore the levers that fuel the flood of single-use plastic filling landfills, fuel incinerators, and, at times, drift into the rivers and oceans. As long as fossil-fuels are cheap, conventional plastics that endure in the environment will continue to be consumed—without factoring in the long-term environmental costs associated with persistence. As long as companies can choose packaging without regard for whether the packaging can be locally recycled or reused, plastic waste will continue to accumulate.

This article offers three, long overdue and modest policy recommendations. First, remove fossil-fuel subsidies that are propping up the continued growth in the single-use plastic industry. Second, seek packaging standardization across the commercial sector that is connected to the communities' capabilities to reuse and recycle. Too many consumer goods enter communities where there is no possibility of either reuse or recycling in support of circular economy principles. Consumers purchase goods with limited awareness of the fate of their waste, thinking the product must be recyclable because of the presence of "resin logos." Even for items that were once frequently recycled, landfilling is becoming more common due to the volatility of recycling markets and a surplus in recycled feedstock supplies with insufficient demand. The final recommended policy is to negotiate a global instrument standardizing plastic production, use, and disposal to assist governments and guide companies. At the end of 2020, the target date for the SDG on responsible production and consumptions calling for environmentally sound management of "all wastes throughout their life cycle, in accordance with agreed international frameworks" will pass. However, there are still ample opportunities for states to achieve harmonization. Some multinational corporations have already made announcements about transitioning to less environmentally harmful packaging. Thus, a global instrument may further bolster these commitments across more global actors.