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BCG BOSTON CONSULTING GROUP

THE BUSINESS CASE FOR A UN TREATY ON PLASTIC POLLUTION

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The Ellen MacArthur Foundation

The Ellen MacArthur Foundation was launched in 2010 with the aim of accelerating the transition to a circular economy. Since its creation, the charity has emerged as a global thought leader, putting circular economy on the agenda of decision-makers around the world. The charity's work focuses on seven key areas: insight and analysis; business; institutions, governments, and cities; systemic initiatives; circular design; learning; and communications.

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Disclaimer

This report has been produced by a team from the WWF, the Ellen MacArthur Foundation and BCG, which take responsibility for the report's contents and conclusions. While companies calling for a UN treaty in the accompanying manifesto and further experts consulted have provided significant input to the development of this report, their involvement does not necessarily imply endorsement of the report's contents or conclusions.

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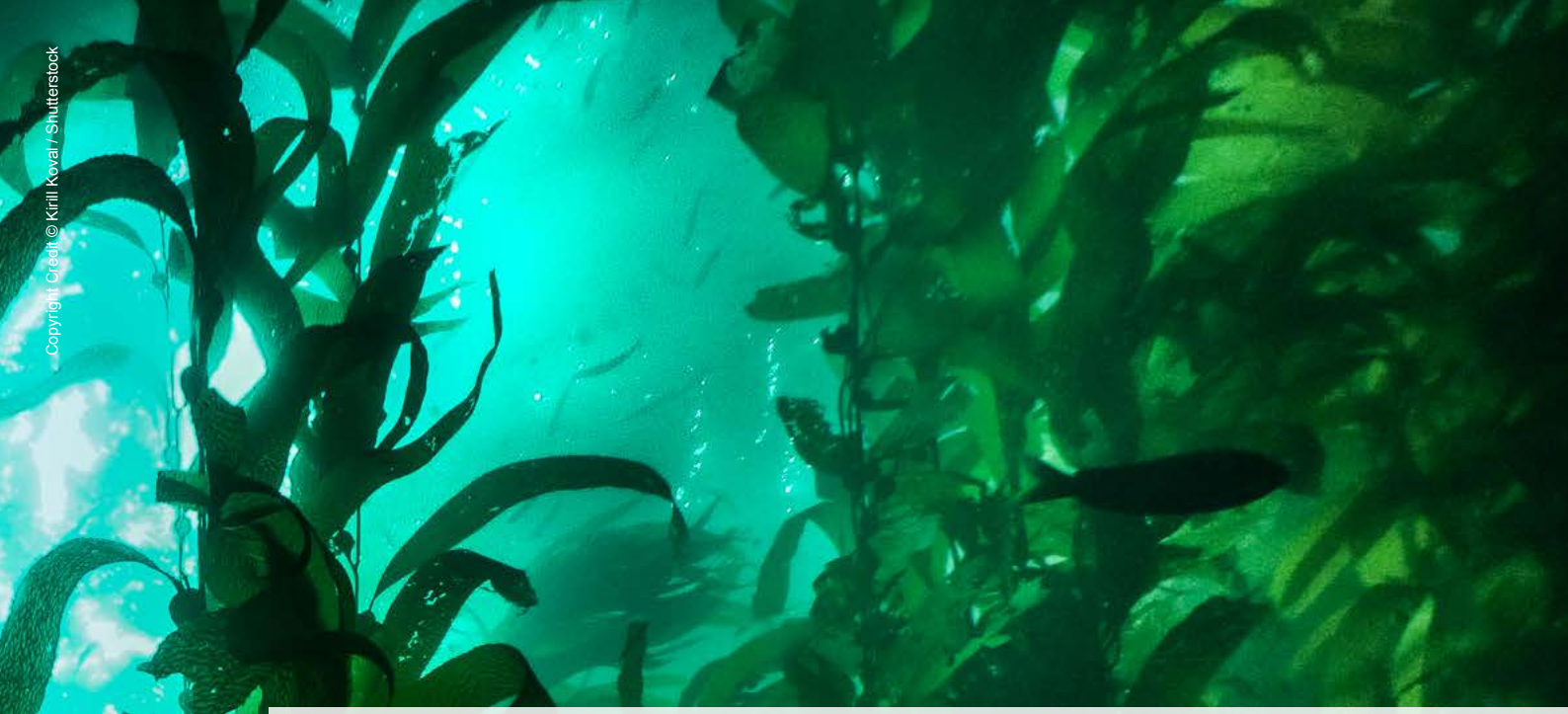

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THIS REPORT IS A COLLABORATION BETWEEN WWF, THE ELLEN MACARTHUR FOUNDATION AND BCG.

OUR CALL FOR A UN TREATY ON PLASTIC POLLUTION

Cristianne Close
Global Leader, Markets Practice,
WWF International

The issue of plastic waste is only decades old, and yet the impact on nature, in particular the ocean, is huge. The absence of an effective systemic response has hindered progress, threatened sustainable economic growth, and has direct consequences on the environment and wildlife. With this study we are presenting a business case for supporting a new global treaty on plastic pollution. One that sets global measurable targets that governments, business and consumers can contribute to achieve.

Dame Ellen MacArthur
Founder & Chair of Trustees,
Ellen MacArthur Foundation

Addressing the global plastic pollution crisis requires a concerted approach to create a circular economy for plastic. A global treaty on plastic pollution would complement and enhance existing voluntary action. By setting out global goals and binding targets, together with action plans and consistent measurement, it would provide the framework needed to urgently solve this crisis. We encourage members of the UN Environment Assembly to develop an ambitious global treaty to accelerate the transition to a circular economy for plastic, in which it never becomes waste nor pollution.

Jesper Nielsen
Leader of Social Impact &
Sustainability Practice in Western
Europe, Africa & South America,
Boston Consulting Group

Many businesses are making progress on the issue of plastic pollution, both through publicly visible initiatives, and in their hard work behind the scenes. Governments are also engaging on the topic, yet there is an opportunity to set a more coordinated enabling framework. A new UN treaty on plastic pollution could reduce regulatory inefficiencies, enhance investment planning, and help businesses scale their efforts. This report sets out a compelling case for businesses in the plastic value chain to support a global agreement—we hope governments take it forward as a priority.

EXECUTIVE SUMMARY

Plastic is a material with exceptional properties. Along with being versatile, inexpensive and durable, it brings significant benefits to society—from enabling the effective transport of goods to reducing food waste to protecting human health during critical crises, such as the COVID-19 pandemic. However, its durability also presents a challenge, particularly when it leaks from the value chain and becomes pollution. Plastics can persist in the environment for hundreds of years, causing harm to nature and people. Currently, more than 11 million metric tons of plastic are flowing into the ocean each year and there is no sign that leakage rates are slowing. Indeed, the global volume of plastic entering the ocean is forecast to triple over the next 20 years. Unless all sectors are able to work together to eliminate unnecessary and problematic plastic, shift to reuse models, radically increase recycling levels and stop the leakages in the current system, plastic will continue to pollute ecosystems and result in significant ecological, social, and economic harm.

BUSINESSES' SOCIAL LICENSE TO OPERATE IS UNDER PRESSURE

The rapid accumulation of plastic pollution in ecosystems also impacts businesses. Public awareness of the issue is growing, and recent surveys identify it as one of the most important environmental threats. Many companies are facing increased reputational risks as more and more consumers demand effective responses from businesses across the plastic value chain. Moreover, employees are increasingly looking to work for firms with a positive purpose, investors are expecting firms to manage their plastic footprint responsibly, and regulators are promoting policies and legislation aimed at tackling the problem. It is no longer a question of whether regulation is coming, but what regulation is coming.

MULTIPLE EFFORTS ARE ALREADY UNDERWAY

Both the number of voluntary multi-stakeholder initiatives and the number of national regulations to address plastic pollution have more than doubled in the last five years. The world's largest fast-moving consumer goods (FMCG) companies rank tackling plastic packaging waste as a top sustainability issue, and media coverage of their efforts has increased eightfold since 2016.

YET, THE PLASTIC POLLUTION TIDE KEEPS RISING

The COVID-19 pandemic has increased uncertainty for consumers, businesses and policymakers, but the core issues were already evident before the pandemic. Four systemic barriers hinder progress:

1. Voluntary initiatives have laid the foundation in many areas but lack sufficient support and scale to drive system change
2. The current plastic regulatory landscape is heterogeneous and many regulations typically do not cover the full plastic value chain and often fail to target the fundamental problem drivers
3. The lack of basic harmonized data at global, national and business levels limits the ability to monitor progress and evaluate the effectiveness of current measures
4. Significant structural capability gaps exist in critical markets that lack basic infrastructure and the systems to keep plastic in circulation after initial use

Despite the rapidly growing scale of the environmental challenge, and the transboundary nature of its impact on the ocean, plastic pollution lacks a dedicated international legal framework, which is how many other comparable international environmental issues are governed.

A GLOBAL PROBLEM NEEDS A GLOBAL RESPONSE

Given the urgency and scale of the challenge, and the need to amplify current efforts, a new and more ambitious approach is required. A UN treaty on plastic pollution, whereby governments commit to a coordinated set of actions and policies, could catalyze a comprehensive global effort to address the problem at scale, and help put the world on a path toward a circular economy for plastics. It would establish the international framework for both governments and companies to move decisively in the right direction. The objective of such a treaty should be to eliminate plastic leakage into the ocean by a specific date. Critical elements of the treaty should include:

1. Harmonized regulatory standards and common definitions across markets
2. Clear national targets and action plans that aggregate to deliver on the treaty's overarching objective
3. Common reporting metrics and methodologies across the plastic value chain
4. Coordinated investment approaches to support infrastructure development in key markets and innovation

THE BUSINESS CASE FOR A UN TREATY IS CLEAR

A UN treaty on plastic pollution would benefit businesses as well as the environment. It can create a level playing field across the plastic value chain, accelerating industry transformation and existing voluntary initiatives. Specifically, a UN treaty would:

1. Help reduce operational complexity and compliance risk across markets
2. Enable businesses to plan investments while managing the costs of compliance scanning
3. Simplify reporting across the plastic value chain, bringing greater transparency to more effectively measure progress and manage reputational risk
4. Coordinate actions across the plastic value chain, improving the prospects for meeting ambitious corporate commitments

OUR CALL TO ACTION

Leading global companies are calling for action in conjunction with this report. We invite more businesses to join these companies in publicly endorsing this message, calling on all member states of the United Nations to commence negotiations on a global treaty on plastic pollution. The need for action is urgent, as is the need for governments and businesses across the plastic value chain to work together at an unprecedented scale. There is no time to waste.

Find out more at www.plasticpollutiontreaty.org

01.

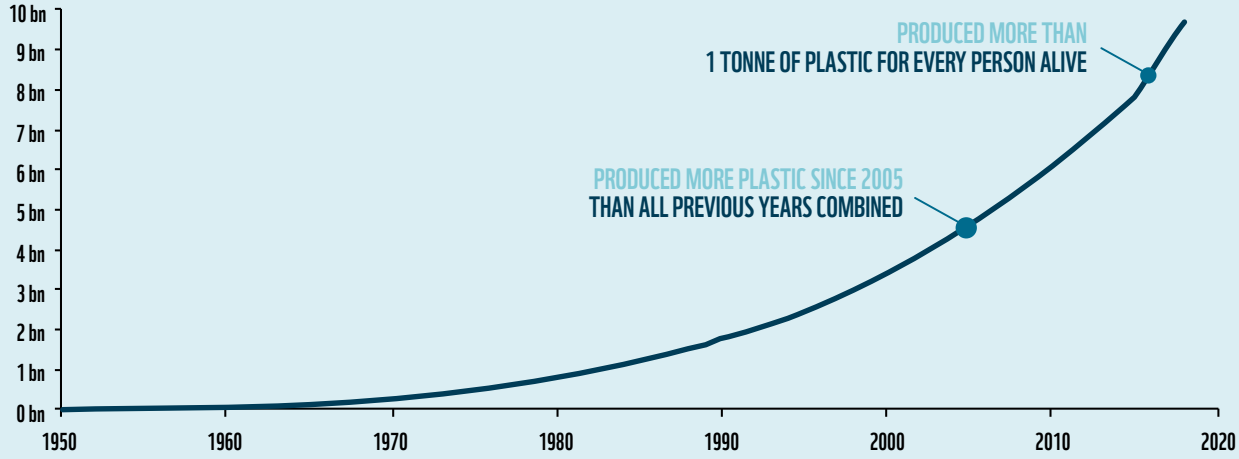
PLASTIC POLLUTION IS A MAJOR, GROWING PROBLEM FOR BOTH THE ENVIRONMENT AND BUSINESSES

PLASTIC POLLUTION IS A SIGNIFICANT AND ESCALATING ENVIRONMENTAL PROBLEM

To date, 75% of all plastic ever produced has become waste, and volumes are rising quickly.[1] The global production of plastic increased to over 450 million metric tons in 2018 and, based on present growth rates, is projected to more than triple by 2050.[2] Plastic has low production costs and unique properties, which makes it an excellent material for a wide range of applications, including for fast-moving consumer goods. The largest use market for plastics is packaging; in 2018, approximately 36% of all primary production of plastic was used for packaging.[3] In addition, plastic packaging typically has a very short "in-use" lifetime (often around six months or less). Some items are even used and disposed of within a few hours (e.g., single-use plastic cups, plates, takeaway containers, carrier bags). Packaging is therefore the dominant generator of plastic waste, responsible for 46% of the global total in 2018.[4] As much as 32% of this waste is "mismanaged"[5] —meaning that it is either uncollected, dumped, littered or disposed of in uncontrolled landfills—and thus likely to become pollution. In a business-as-usual scenario, global mismanaged plastic waste is forecast to triple by 2060.[6]

Plastic has experienced a dramatic increase in production and is increasingly polluting the environment

Cumulative global plastic production (in billion metric tons) 1950–2018[i]



PLASTIC MOSTLY BECOMES WASTE

75%

of plastic cumulatively produced since 1950 is waste[ii]

PLASTIC WASTE IS DISCARDED IN THE ENVIRONMENT

1/3

of plastic waste is mismanaged and at risk of polluting the environment[iii]

AND ACCUMULATES IN THE OCEAN

>150

million metric tons of plastic are estimated to be in the ocean[iv]

WITH SIGNIFICANT IMPACTS ON WILDLIFE

914

species affected by plastic debris, including all sea turtles[v]

THREATENING THE WHOLE FOOD CHAIN

12 of 25

top global sea fishing species were reported to contain microplastics in 2017[vi]

i. *Geyer et al. (2017); UNEP (2020);* ***ii.*** *World Bank (2018);* ***iii.*** *Mismanaged waste is defined as material that is either littered or inadequately disposed of, including in dumps or open, uncontrolled landfills. Estimate is calculated on the basis of data from Jambeck et al. (2015);* ***iv.*** *Jambeck et al. (2015);* ***v.*** *Through entanglement and/or ingestion. Kühn et al. (2020);* ***vi.*** *Barboza et al. (2018).*

> *We need a healthy environment. Where should we grow our food if our island drowns in the garbage? Where should we live if there is no space?*
>
> Plastic Wise Group of Women in Solomon Islands[14]

As highlighted in the latest literature, more than 11 million metric tons of plastic enter the ocean every year.[7] While estimates vary, largely due to limitations in existing data, plastic is undoubtedly among the top ocean pollutants. The top 10 most commonly found items in international coastal clean-ups are all made of plastic.[8] And of the 82 million pieces of waste collected over the last five years, over half of the identifiable items were plastic packaging.[9]

Plastic pollution accumulates in the ocean, where it can persist for centuries. It is estimated that plastic bottles can take up to 450 years to disintegrate, and fishing lines as much as 600 years.[10] Due to oceanic currents, plastic can be moved and transported around the world, underlining the transboundary nature of the problem. Plastic waste washes up on coastlines, has been shown to accumulate in ocean gyres,[11] and has even been found in the deepest ocean trenches.[12] Moreover, plastic pollution has now also been found in the Arctic sea ice,[13] as well as in remote wilderness lands.

Plastic pollution has negative economic, climate and social impacts

MULTIPLE ECONOMIES BEAR HIGH PLASTIC POLLUTION COSTS

Marine plastic pollution could cost the world economy up to **$2.5 tn a year, equivalent to France or UK GDP**

After a short first-use cycle, **95% of plastic packaging material value is lost**

PLASTIC POLLUTION AMPLIFIES CLIMATE CHANGE

Mounting scientific proof that plastic pollution may **reduce the oceans' carbon absorption capacity**[i]

By 2050, plastic will take up **10–13% of the total carbon budget**[ii]

PLASTIC POLLUTION ALSO HAS UNINTENDED SOCIAL IMPACTS

Incineration and open burning of plastic waste **releases polluting gases into the air and soil**

Plastic litter can block waterways and drains, causing **flooding and increasing risk of disease**

i. *Oceans are the world's largest natural carbon sink, having absorbed 30–50% of atmospheric carbon produced since the start of the industrial era;* ***ii.*** *Based on 1.5°C scenario.*
Sources: Beaumont et al. (2019); World Bank (2018); EMF (2016); Sjollema et al. (2016); FAO (2020); WHO (2016); US EPA (2016); R20 (2017); Verma et al. (2016)

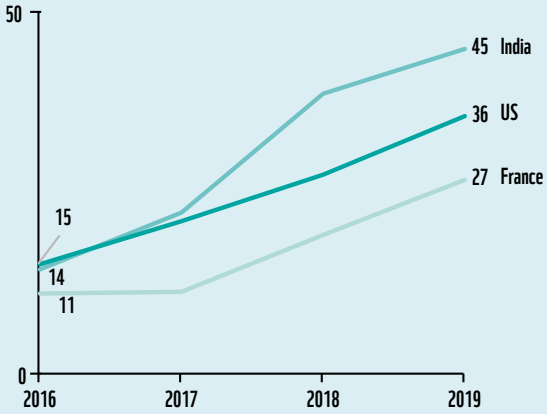
PUBLIC AWARENESS OF PLASTIC POLLUTION IS GROWING

The issue of plastic pollution is ranked among the top three environmental concerns globally.[15]
With growing scientific evidence of the environmental and social impacts of plastic pollution, public interest in the topic has spiked in recent years: Google trend news searches for plastic have seen a dramatic increase across markets, with a clear inflection point in 2017.[16] Plastic is now viewed as the most negative material used for consumer goods items, with 65% of global consumers associating it with ocean pollution and 57% deeming it harmful.[17] Plastic pollution comes second only to climate change in global surveys of the most pressing environmental concerns, and it ranks first in Asia.[18]

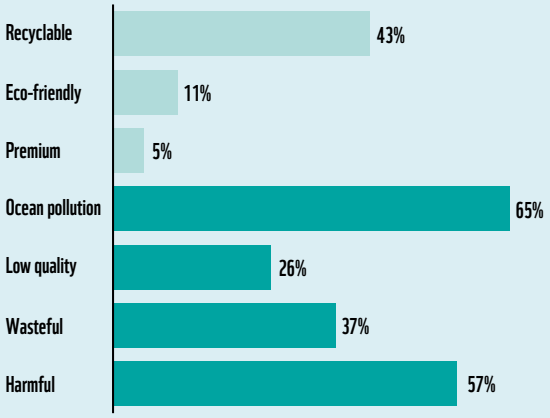
Public interest in plastic pollution has grown in recent years, and is among top concerns globally

Public awareness of plastic pollution continues to grow

Interest over time[i] for Google trend news searches[ii] since 2016

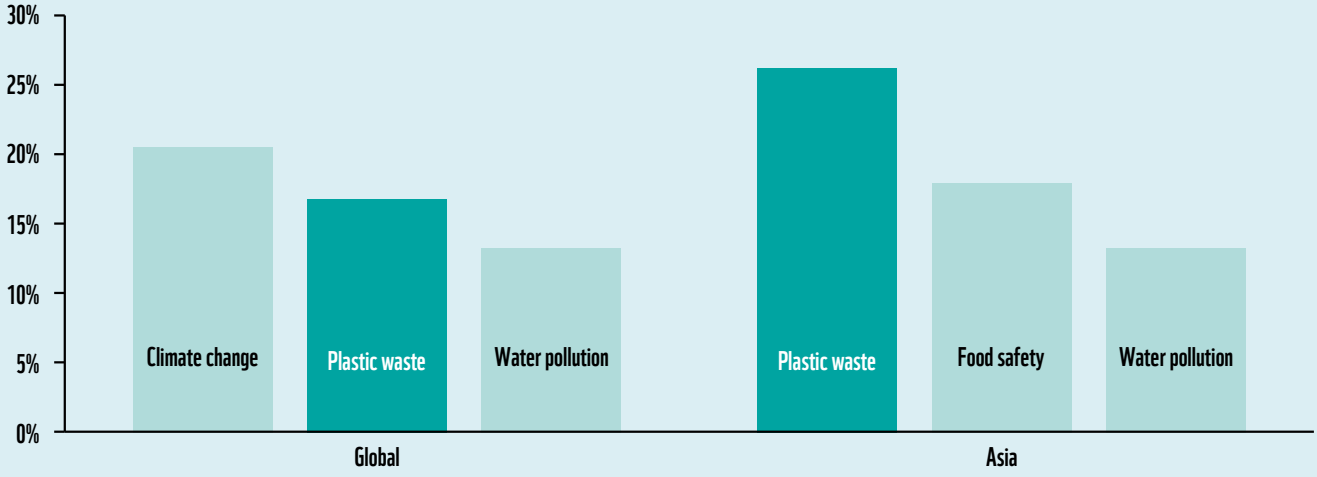


Perception of plastic packaging—global consumer survey (Feb 2020)[iii]



Among top 3 environmental concerns globally

Top environmental concerns—global survey with 64k respondents (2019)



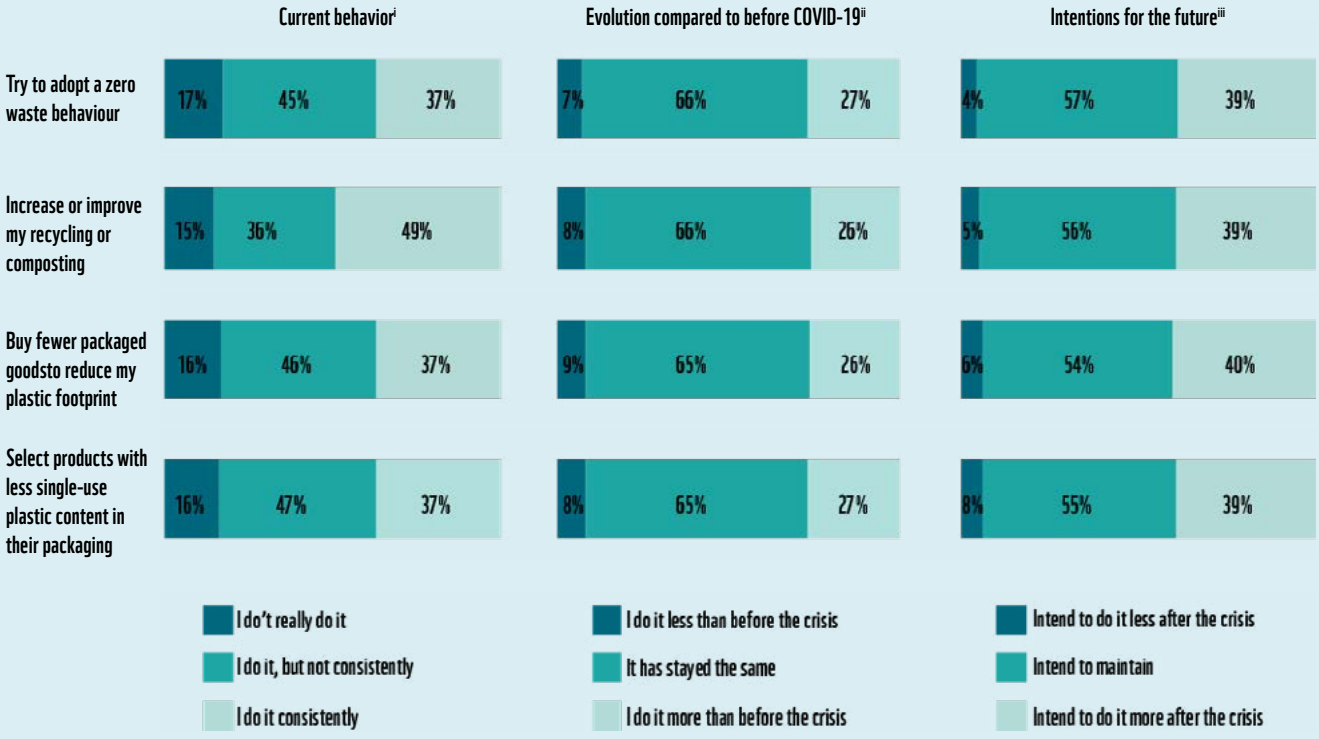
i. Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. A score of 0 means there was not enough data for this term; ***ii.*** *Search on "plastic" in the US and India, "plastique" in France;* ***iii.*** *Plastic ranks third to metal and glass on all surveys.*
Sources: Google trends news searches; BCG Custom Survey, proprietary data (Feb 27, 2020) with 15,620 consumers in 9 countries; Kantar/GfK survey of 65k people in 24 countries (2019); BCG analysis

According to a recent BCG survey, plastic is now viewed as the most negative material used for consumer goods items, with 65% of global consumers associating it with ocean pollution and 57% deeming it harmful.

Adrien Portafaix, Partner and Associate Director, Social Impact Practice, Boston Consulting Group

As society's perception of plastic deteriorates, consumers are also starting to change their behavior. With "zero-waste" now trending in many communities, people across the globe are looking to reduce their plastic footprint, including by reducing consumption, increasing recycling and selecting products with no or less single-use plastic packaging.[19] Interestingly, initial data indicate that the COVID-19 pandemic has reinforced intentions to reduce plastic pollution and waste. Along with personal behavior changes, consumers are also looking to companies to lead this process.

As society's perception of plastic deteriorates, consumers are changing their behaviors



i. Question: "How would you describe your current behavior on the following statements?" ; ii. Question: "How did this change compared to before the COVID-19 crisis?"; iii. Question: "How do you intend to modify this in the future after the recovery from the crisis?"
Source: BCG Survey on COVID-19 and the Environment, run from May 20 to May 28, 2020, across Brazil, China, France, India, Indonesia, South Africa, UK, US (N=3,249).

PLASTIC POLLUTION BUILDS PRESSURE ON BUSINESSES' SOCIAL LICENSE TO OPERATE

REGULATIONS TAKING EFFECT MANDATE THE SHIFT TO MORE SUSTAINABLE PLASTIC

137

countries with regulations on single-use plastic in place or planned[i]

CONSUMER EXPECTATIONS TOWARDS SUSTAINABLE PLASTIC ARE RISING RAPIDLY

72 %

of global consumers are willing to pay up to 10% more for eco-friendly packaging[ii]

EMPLOYEES ARE INCREASINGLY LOOKING FOR A FIRM WITH A POSITIVE PURPOSE

76 %

of millennials consider ESG commitments in job searches[iii]

INVESTORS ARE DIRECTING CAPITAL TO COMPANIES WITH FOCUS ON SUSTAINABLE PRACTICES

x2

growth in ESG Assets under Management (AuM) vs. traditional AuM (US CAGR 2014–18)[iv]

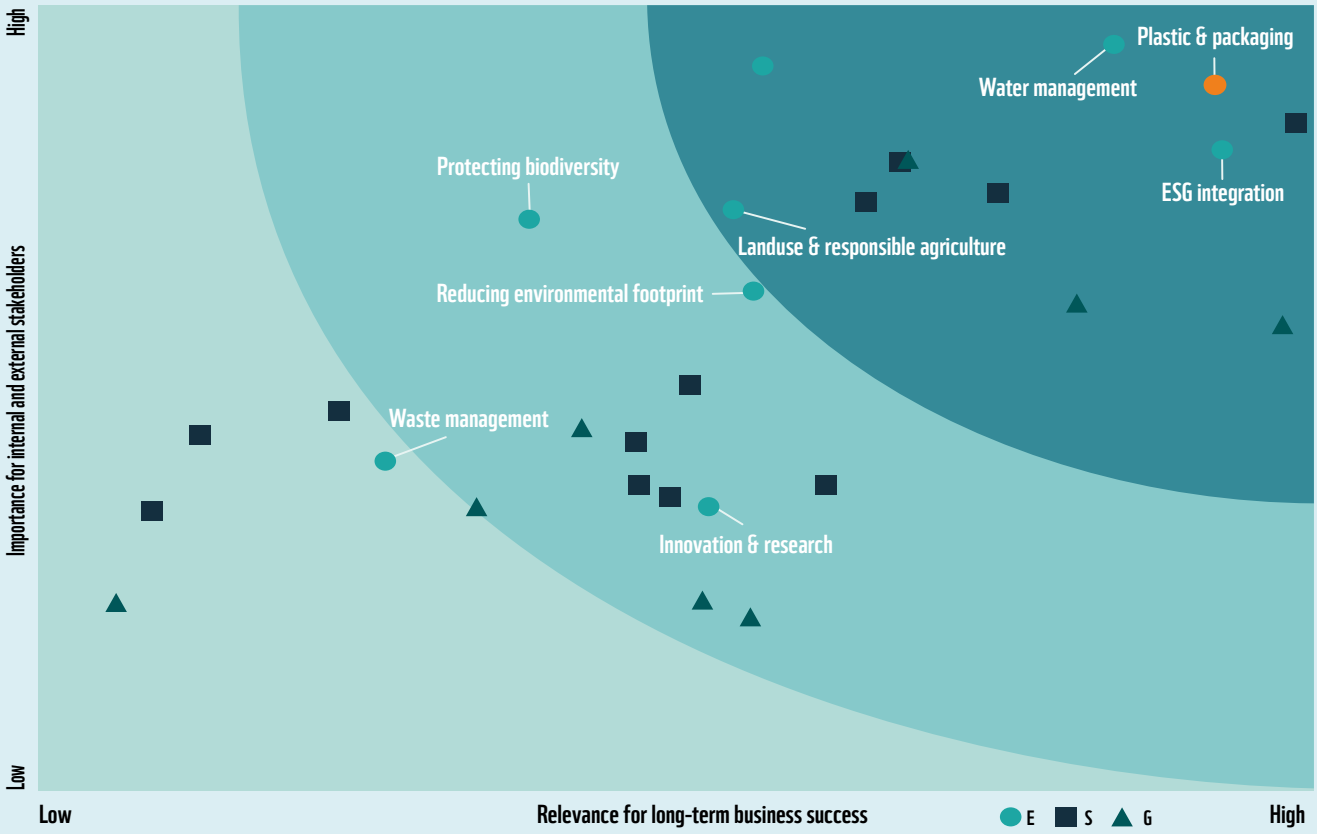
i. By 2020, in place or planned. "Planned" includes countries with regulations coming into force in 2021. Duke University (2020); Press research;
ii. BCG Consumer Survey (2020);
iii. Cone Communications (2016);
iv. ESG = Environmental, social and governance; AuM = Assets under Management; Assumed fixed exchange rate = $/€ 0.9. Global Sustainable Investment Alliance (2018)

A RISING STORM COMPELS BUSINESSES TO ACT NOW AND REIMAGINE SUSTAINABILITY FOR PLASTIC

> *Over the last few years we have seen growing public demand for action on plastic pollution, and because of this, governments and industries have begun showing real leadership.*
>
> Cristianne Close, Global Leader, Markets Practice, WWF International

Plastic packaging is among the top environmental, social and governance (ESG) issues for FMCG companies.[i] In recent years, top corporate users of plastic packaging have started rethinking their value proposition and evolving their business models to secure competitive advantage in line with the principles of a circular economy. Plastic and packaging are identified across major FMCG companies as one of the most significant ESG issues to address,[20] important for both internal and external stakeholders and relevant for long-term business success.

Plastic is the number one ESG topic major FMCG companies are attempting to address



i ESG (environmental, social, and governance) are three key factors used when measuring the sustainability and ethical impact of an investment in a business or company.
Sources: Top 10 major food and beverage and consumer packaged goods company 2019 annual sustainability reports & resources; BCG analysis.

02.

INITIATIVES TO ADDRESS THE ISSUE ARE MULTIPLYING, BUT MANY BARRIERS TO SUCCESS REMAIN

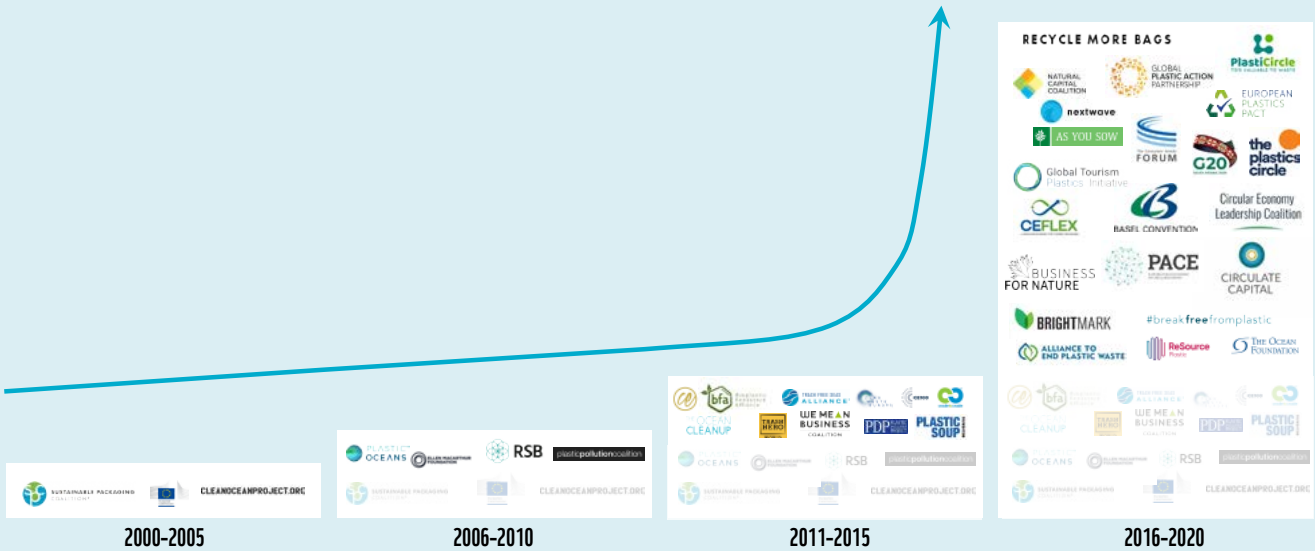
VOLUNTARY INITIATIVES ARE BUILDING MOMENTUM, BUT REGULATION IS REQUIRED TO SCALE

The number of international initiatives to fight plastic pollution has more than doubled in the last five years. With public awareness of plastic pollution growing, so has the number of non-governmental organizations (NGOs), business-led organizations and industry coalitions aiming to tackle the problem. This includes, for instance, NGO-coalitions like Break Free From Plastic, as well as voluntary initiatives such as the New Plastics Economy Global Commitment and WWF's ReSource: Plastics. Launched in October 2018 by the Ellen MacArthur Foundation in collaboration with the UN Environment Programme (UNEP), the New Plastics Economy Global Commitment marked a turning point in multi-stakeholder engagement. With over 500 signatories to date, it unites businesses and other stakeholders behind a common vision of a circular economy, defining concrete 2025 targets to address plastic pollution. In addition to bringing together many of the world's leading companies around a shared set of targets, the Global Commitment has helped to find alignment on common reporting standards and definitions, which are gradually becoming the industry norm.

A circular economy is a regenerative system, functioning within planetary boundaries and driven by renewable energy, that replaces the current linear take-make-dispose industrial model. Materials are instead maintained in the economy and resources are shared, while waste and negative impacts are designed out.

The media is taking note. Today, almost all of the top 50 FMCG companies are undertaking plastic packaging initiatives,[21] in many cases in partnership with leading NGOs around the world. These initiatives include everything from the launch of fully recyclable products to investments in recycling infrastructure. Awareness of these efforts is also growing: the number of news and media articles covering plastic sustainability initiatives has increased eightfold in the past four years.[22]

The number of international plastic waste initiatives has more than doubled in the last five years...



Source: BCG analysis; Note: List of logos is indicative, and may not be exhaustive.

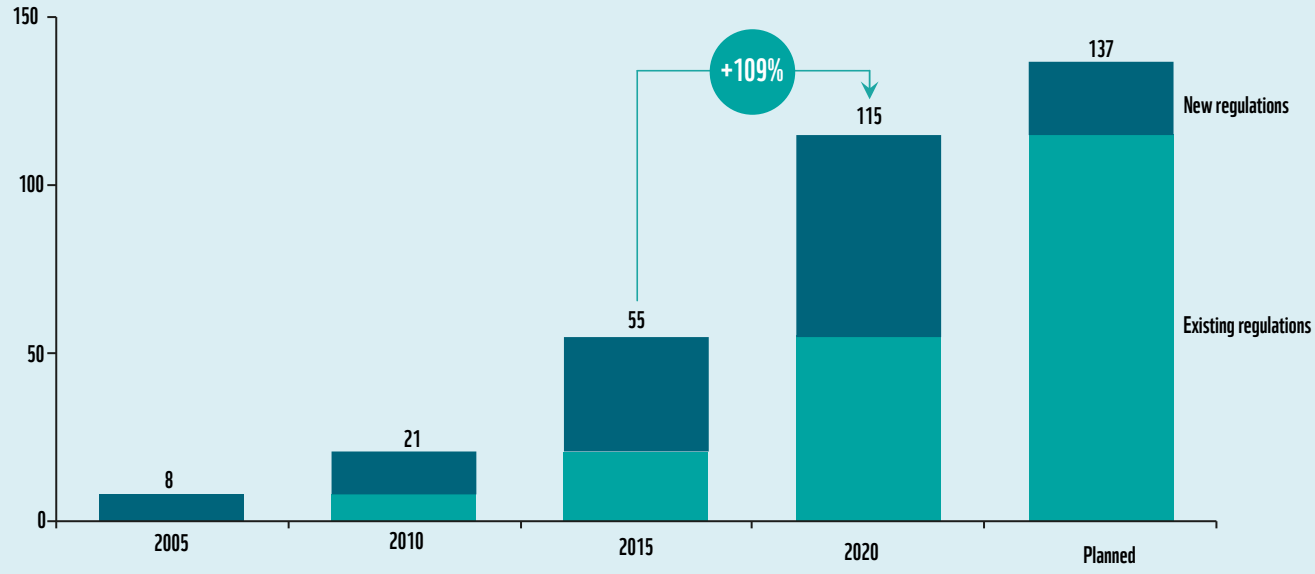
Initiatives like the New Plastics Economy Global Commitment have catalyzed corporate commitment and action, but regulation is required to drive change across the entire system. Over 200 businesses accounting for over 20% of global annual plastic packaging use have signed on to 2025 targets under the New Plastics Economy Global Commitment. The reach, pace of change and impact are significant. Voluntary initiatives will continue to be important, with frontrunners raising the levels of ambition and pioneering rapid responses to the challenge. However, voluntary initiatives will never be able to capture the millions of companies across the world using plastic packaging. Although progress has been made in addressing the global plastic challenge, current commitments by governments and industry will reduce the annual volume of plastic flowing into the ocean by only about 7% by 2040.[23] Thus, voluntary initiatives alone cannot drive the system change required. They must be complemented by regulatory action to develop an enabling environment and level the playing field for all businesses.

PLASTIC POLLUTION IS INCREASINGLY REGULATED AROUND THE WORLD

The number of countries implementing regulations on single-use plastic items has more than doubled over the past five years. These include national bans or taxes on plastic bags or other single-use items such as plastic straws and cutlery. Such regulations were already adopted in at least 115 countries around the world by 2020. And an additional 22 countries have declared their intention to enforce similar regulations in 2020 or 2021.[24] Today, the 137 countries that have passed or planned to adopt plastic regulations by 2021 represent 6.6 billion people (86% of global population and 93% of GDP). Regulators are also increasingly adopting instruments to encourage consumers to return, recycle or reuse plastic. As of 2018, 20 countries had implemented a deposit return scheme (DRS), and an additional 6 had publicly declared their intention to do so before 2022.[25] Regulators are also starting to address microplastic pollution. In 2015, the United States enacted the first national policy solely targeting microplastics with the "Microbead-Free Waters Act."[26]

Regulations on single-use plastic have more than doubled in the last five years...

countries adopting single-use plastics regulations



Note: Includes countries with significant subnational regulations (e.g., Argentina, Australia, Brazil, Canada, US); "planned" includes countries with regulations coming into force in 2021.Sources: Duke University's Nicholas School of the Environment, 2020, The Plastics Policy Inventory; UNEP, 2018, Legal limits on single-use plastics and microplastics; UNEP, 2018, Single-use plastics: A roadmap to sustainability; Knoblauch et al., 2018, Developing Countries in the Lead—What Drives the Diffusion of Plastic Bag Policies?; press research; BCG analysis.

Initiatives are also multiplying at the subnational level. Numerous regulations, at state and even city level, have been enacted in countries such as Argentina, Australia, Brazil, Canada and the United States, most of which address plastic bag use, followed by microplastics from land-based sources.[27] In Australia, for instance, bans on single-use plastic bags have been implemented in all jurisdictions except New South Wales.[28]

Attempts at transboundary alignment are starting, with Europe playing a leading role. In recent years, the European Commission has been developing its strategy toward a circular economy for plastics, with the goal of making all plastic packaging placed on the EU market reusable or recyclable in a cost-effective manner by 2030.[29] In 2018, the Packaging and Packaging Waste Directive was also updated, introducing a binding target to increase plastic packaging recycling to 55% by 2030.[30] And in 2019, a new directive on certain single-use plastics introduced new EU-wide rules to target the 10 single-use plastic products most often found on Europe's beaches, as well as lost and abandoned fishing gear—which combined constitute 70% of all marine litter items found in the EU.[31]

BUT MOST EXISTING POLICIES ARE MISALIGNED WITH MAJOR PROBLEM DRIVERS

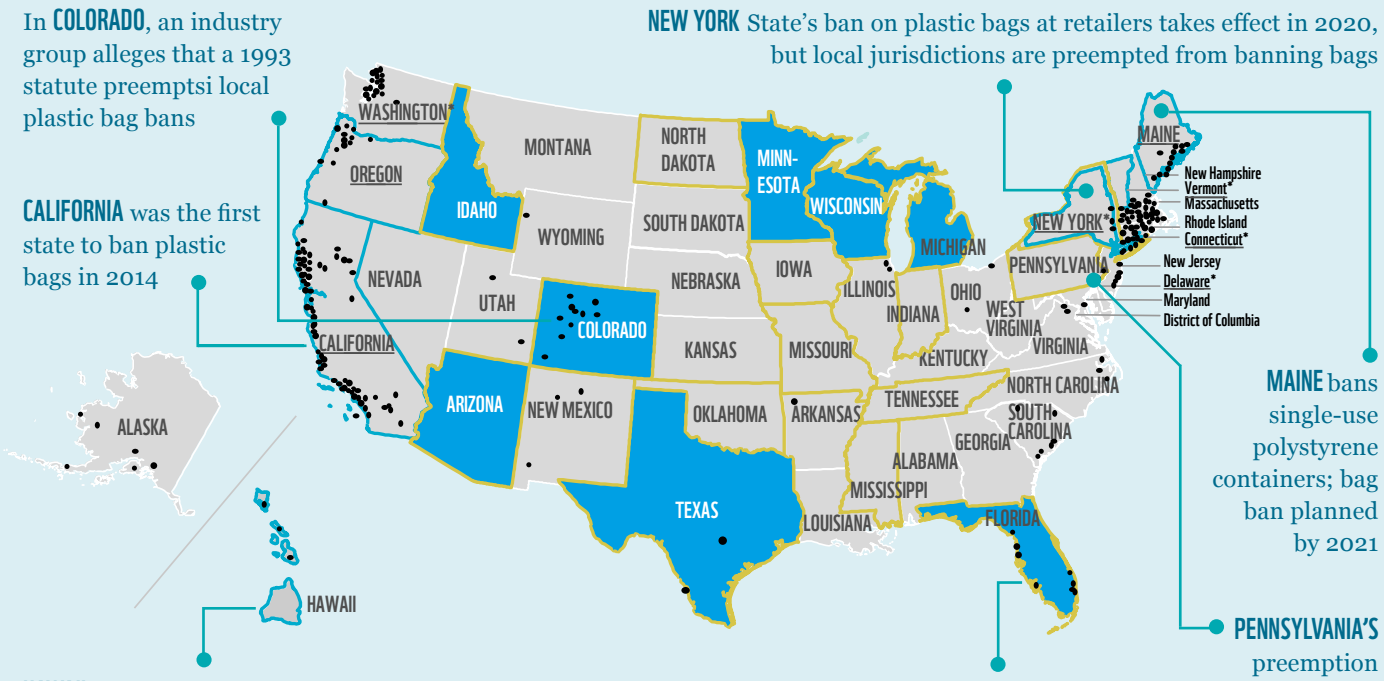
In 60% of the countries which have some form of plastic-related legislation, regulations only address single-use plastic bags.[32] While emblematic of the plastic pollution problem, single-use plastic bags are only a small part of the issue. In beach clean-ups, for instance, single-use plastic bags constitute only around 7% of items found.[33] Current legislation therefore does not tackle the bulk of items responsible for plastic pollution, or the negative environmental effects of plastic more broadly. Only 48 countries (25%) have more than just a plastic bag policy in place. These include bans, taxes or fees on plastic bottles, which account for a further 10% of items found in beach clean-ups, as well as DRS and extended produced responsibility (EPR) systems. However, only 17 countries (9%), which together only account for an estimated 6% of the total plastic leakage into the ocean, have policies covering more than half of the waste items found in beach clean-ups.[34]

Only one of the top 20 plastic leakage countries has put in place plastic legislation covering more than 50% of marine plastic waste items. Current policies are not aligned with the major marine plastic leakage drivers. Jambeck et al. (2015) found that 20 countries were responsible for 83% of total mismanaged plastic waste. Among these 20 countries, only one, Sri Lanka, which accounted for an estimated 5% of global mismanaged waste,[35] has regulatory measures in place covering more than half of the items found in beach clean-ups.[36] Furthermore, seven countries in the top 20 do not even have an official national plastic policy document.[37]

Even where legislation exists, effectiveness is unclear, and implementation challenges remain. Bans are the most frequently used form of plastic regulation, though these are sometimes found to be ambiguous and present loopholes to be exploited. Legislation has also proved challenging to implement in many countries with limited law enforcement, financial, staff or technical capabilities, or a lack of cultural alignment with legislation. Bangladesh's ban on polythene bags from two decades ago, for instance, was never properly enforced.[38] More broadly, there is significant uncertainty regarding the effectiveness of different policy instruments, and there is no global system in place to provide independent and scientifically based effectiveness evaluations. Currently, only 7% of policies have been subject to peer-reviewed assessments.[39]

The current legislative landscape is extremely heterogeneous, both between and within countries, making it complex for businesses to navigate. As a case in point, there are seven different definitions of what a single-use plastic bag is around the world, depending on micron thickness.[40] In France, for instance, bags with less than 50 microns in wall thickness are banned, while in Tunisia, the limit is 40 microns. Even within single countries, entirely different approaches are sometimes taken by regions or even cities; this is particularly apparent in the United States, as shown below, where the complexity of the current legislative landscape is exacerbated by the fact that a number of jurisdictions have prohibited the introduction of certain types of plastic legislation (ban on bans, or preemption laws).[41] It is thus becoming increasingly difficult for businesses to navigate the maze of heterogeneous regulations, at global, national and even subnational levels.

Regulations deployed are heterogeneous, even within countries, as illustrated by the United States



Note: Status as a of June 2020. Adapted from map produced by National Geographic (https://www.nationalgeographic.com/environment/2019/08/map-shows-the-complicated-landscape-of-plastic-bans/). The term "preemption" indicates that laws have been enacted to prevent the introduction of bans (local or state-wide) on plastic products (ban on plastic policy). See also note 41.
Source: Plastic Pollution Coalition; plasticbaglaws.org; Surfrider foundation; Waste Dive; Press research; BCG analysis.

> *It usually takes us three years to develop a product from design to market. Any legislative changes developed and implemented in less time than that create a significant cost burden for us.*

Director of a global consumer packaged goods company

Unpredictable plastic regulations make it challenging for businesses to plan effective responses. Across the world, plastic regulations are being introduced at a rapid pace, which reflects a growing sense of urgency about the issue. And while many of these measures have yielded positive results, unpredictable regulations, coupled with a lack of coordination at national and international levels, can make it difficult for companies to plan effective longer-term responses to the problem. While there is a clear need for urgent legislative action, for businesses, meaningful change can better be achieved if policy measures form part of a predictable legislative pipeline.

> *Major businesses have resources, but there is no way that smaller companies can abide by these fast-changing regulations in time.*
>
> Packaging director at a global food and beverage company

> *The Colombian government adopted a constructive and collaborative approach, reaching out to the industry to work out the best possible EPR system together.*
>
> Sustainability director at a global beverage company

BASELINE DATA IS LACKING, HAMPERING THE ABILITY TO REPORT AND TRACK PROGRESS

Only 68% of countries have a national waste agency and only 39% publicly report waste data.[42] And, even where waste data is reported, calculation methods and definitions vary from one country to another, making it difficult to aggregate and compare. As a result, current plastic waste figures rely on inconsistent and incomplete data, with a high degree of extrapolation, and with no agreed baseline or standardized methodology. The fact that the best scientific estimates of plastic in the ocean range widely reflects our current incapacity to assess and track the impact of plastic along the full value chain and across markets.[43]

Lack of data limits the ability to report and track progress accurately. Companies calculate their plastic waste footprint by aggregating data from a multitude of suppliers and customers. However, the data comes in different formats, is often incomplete or in some cases unavailable. If it's challenging and costly for leading FMCG companies to demonstrate that their investments to reduce plastic pollution have a quantified positive impact, it's also difficult to differentiate leaders from laggards, weakening the incentives to innovate. The UN Principles for Responsible Investment (UNPRI) recognize that "plastic waste poses significant reputational risks, especially for the food, beverage, and retail sectors [...] and that standard definitions are needed so investors can understand, interpret, and compare data."[44]

> *There are no consistent plastic monitoring metrics across countries or even cities, so we rely on partial data from customers. As a result, the costs of reporting on plastic have more than doubled in the last 10 years.*
>
> Corporate audit director at a global food and beverage company

KEY GEOGRAPHIES LACK BASIC WASTE MANAGEMENT AND TREATMENT CAPACITIES

20 countries are estimated to be the source of 83% of total mismanaged plastic waste.[ii, 45] An effective response to the plastic pollution problem requires new approaches across the entire value chain for plastics. It seems clear, however, that in many countries and communities around the world poor waste management is a key driver of the problem. In addition, several of these countries are also recipients of plastic waste traded from other geographies.[46] Focused efforts in these countries represent an immediate opportunity to address large-scale leakage of plastic into the ocean. The best available data show that among the 20 countries that contribute the most to marine plastic leakage, as little as 32% of the plastic waste is properly managed, on average. For the estimated five largest contributors to global mismanaged plastic waste, this figure is lower than 25%.

> *To improve the waste management in our community, we need to build facilities, to educate people on waste segregation, to set a strict no-littering policy, and to implement waste collection systems.*
>
> Residents of Donsol, Philippines[47]

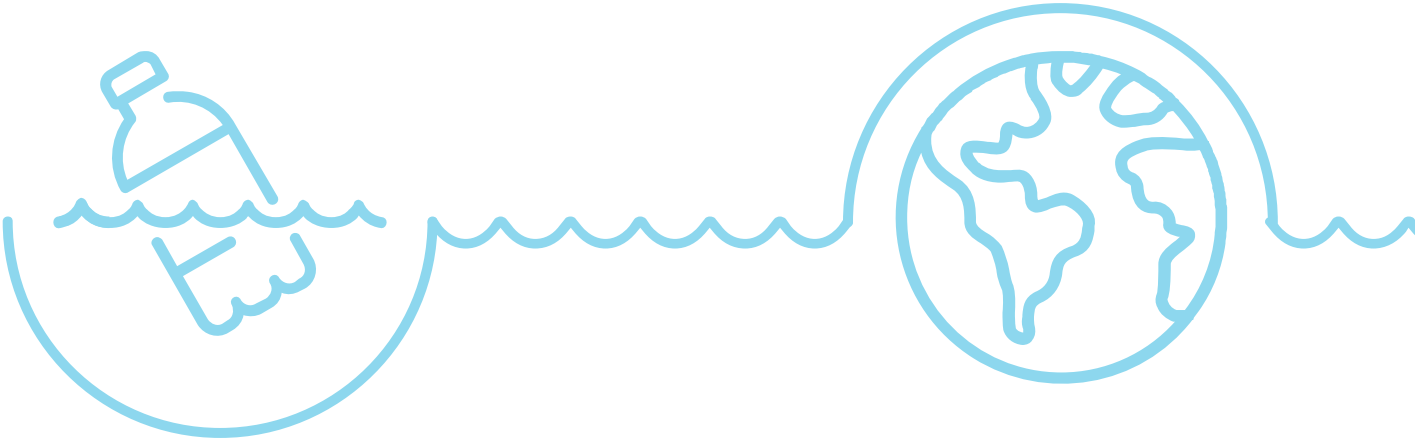
ii "Mismanaged" refers to waste left uncollected, openly dumped, littered, or managed through uncontrolled landfills. See Jambeck et al. (2015).

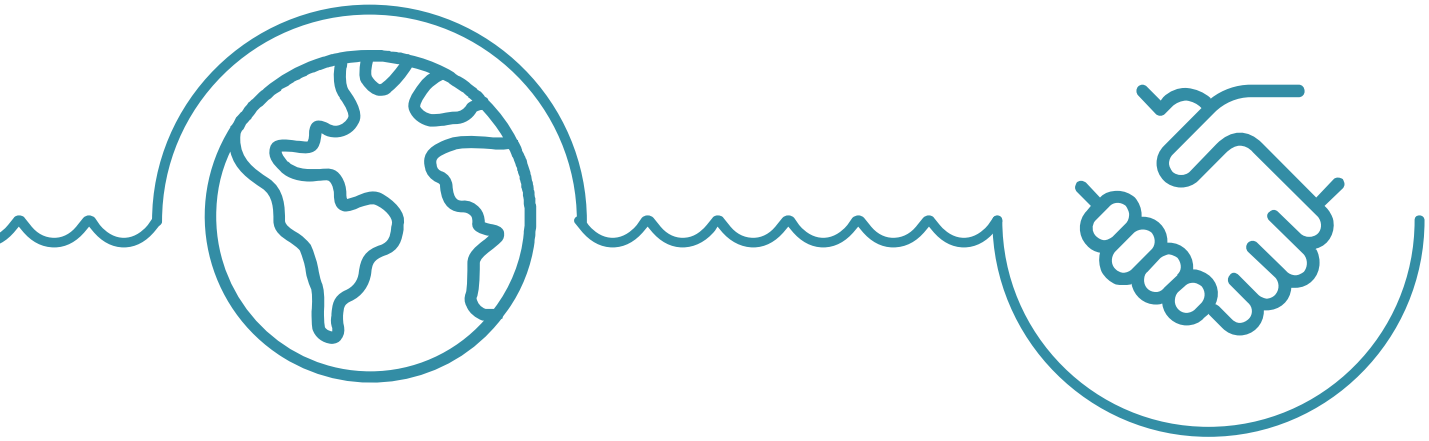
THE COVID-19 PANDEMIC IS INCREASING UNCERTAINTY IN BUSINESSES' AND REGULATORS' AGENDAS REGARDING PLASTIC POLLUTION

Demand for single-use plastic is rising sharply, but consumers still care about sustainability. Sanitary measures have sparked demand for single-use plastics in the health, food, and shipping sectors. Still, consumers' demands around sustainability is rising, amidst mounting scientific evidence linking the COVID-19 outbreak to biodiversity loss.[48]

Some companies have halted plastic reduction initiatives, but leading companies are committed to build back better. In March 2020, amidst potential hygiene concerns, some major coffee chains paused filling reusable containers in favor of single-use receptacles.[49] By the third week of April 2020, oil prices had dropped by 72% from the same period in 2019, affecting the business case for recycled plastics.[50] In addition to depressed recycled material values, the recycling industry has been further stressed by lockdowns, social distancing, and some operational incapacities brought on by the COVID-19 pandemic. However, despite these setbacks, historically strong sustainability performers are doubling down on their engagements. In addition, new CEO-led initiatives have emerged to foster a sustainable post-COVID-19 world: over 50 CEOs and institutional leaders have called for commitment to a circular economy when building back better;[51] and, in France, over 90 top CEOs called for "sustainability at the heart of economic recovery."[52]

Several governments have suspended plastic legislations, but others are looking to build back greener. In response to sanitary and hygiene concerns, many regulators across the world have paused or delayed bans, taxes, or fees on plastic items as well as recycling initiatives. For instance, the UK ban on single-use plastic straws, stirrers and cotton buds was pushed back by five months;[53] in the US, more than 100 cities and states suspended their curb-side recycling programs during the pandemic.[54] However, several governments aim to build on the lessons from COVID-19 to promote more sustainable regulations. The issues with current waste management systems were made apparent, especially in the health sector, where needles, gloves and masks were not properly disposed of.[55] "Plastic waste linked to the COVID-19 crisis reminds us that if we want a clean ocean, it starts with clear sidewalks," said the French Minister for the Environment.[56]





PLASTIC POLLUTION LACKS A DEDICATED GLOBAL AGREEMENT

Other environmental issues of similar scope with transboundary impacts and international problem drivers are regulated by global agreements. Climate change, ozone depletion, marine pollution from ships, mercury pollution. Over the years, regulators from all over the world have rallied to address the challenges humans have posed to the planet. And to date, no environmental issue of magnitude has been significantly addressed without an international legally binding treaty. For instance, without the 1987 Montreal Protocol on Ozone-Depleting Substances, the ozone layer would likely have been reduced to about one-third of its pre-industrial size by 2065.[57] Plastic pollution is widely recognized to be a major, global environmental problem, and yet we lack an international legal instrument specifically designed to address it.

Compared to other global environmental challenges, plastic pollution markedly lacks a global agreement

	Characteristics			
ENVIRONMENTAL ISSUE	DETERIORATING ENVIRONMENTAL TREND	NEGATIVE TRANSBOUNDARY IMPACTS	INTERNATIONAL PROBLEM DRIVERS	GLOBAL AGREEMENT?
Trade in threatened species	✔	✔	✔	✔
Marine pollution from ships	✔	✔	✔	✔
Ozone depletion	✔	✔	✔	✔
Biodiversity decline	✔	✔	✔	✔
Desertification	✔	✔	✔	✔
Importing hazardous chemicals	✔	✔	✔	✔
Persistent organic pollutant impacts	✔	✔	✔	✔
Mercury pollution	✔	✔	✔	✔
Climate change	✔	✔	✔	✔
Plastic pollution	✔	✔	✔	✗

Note: "Deteriorating environmental trend" refers to trend at the time a global agreement was proposed; some issues have multiple global agreements
Source: BCG analysis

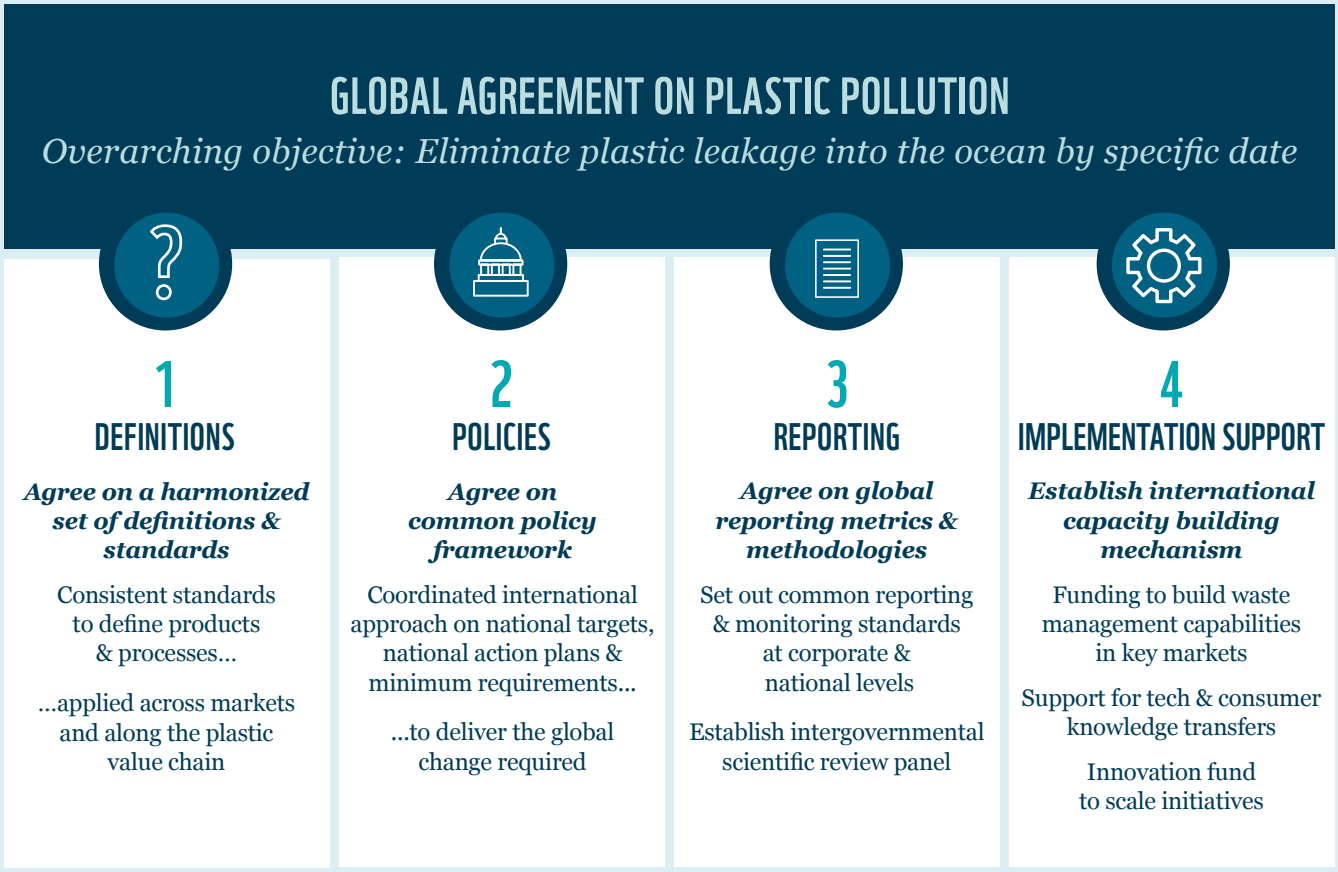
03.

A UN TREATY CAN ADDRESS THESE BARRIERS AND BENEFIT BUSINESSES

COORDINATION IS REQUIRED TO DRIVE SYSTEM CHANGE

A UN treaty on plastic pollution can create the enabling conditions to eliminate plastic leakage into the ocean. Defining the overarching objectives, including a time-bound goal with a specific date, is in itself a critical first step, as illustrated by progress made in adopting the 1.5°C target in the climate change space. Momentum toward a UN treaty on plastic pollution is already building, notably under the auspices of the United Nations Environment Assembly (UNEA). Although its details would be subject to negotiations by UN member states, an effective UN treaty on plastic pollution could be instrumental in addressing the four key barriers identified above: fragmentation and lack of scale in voluntary initiatives, misalignment of regulations, lack of data and structural capability gaps.

Four potential components of a global agreement on plastic pollution proposed



Harmonized regulatory standards and common definitions across markets. International agreements typically contain definitions relevant for the interpretation of the treaty, which is a key element in efforts to align national policies among states. A UN treaty on plastic pollution could provide clear definitions of key terms such as packaging, single-use, recyclable and reusable. Existing international agreements, including the Basel and Minamata Conventions, along with the New Plastics Economy Global Commitment and the EU directive on single-use plastics, have developed definitions for some of these key terms and provide a strong foundation for a UN treaty on plastic pollution.[58] A set of globally agreed definitions and standards would support a harmonized legislative landscape, thus addressing the current issues of fragmented and ineffective policies.

Clear national targets and action plans that aggregate to deliver on the treaty's overarching objective. To drive change at scale, it remains critical to establish a common regulatory framework clearly specifying what each state is obligated to do, or to refrain from doing, as part of a collective effort to tackle the plastic pollution problem. Current policies, regulations and industry actions are already moving in this direction and would serve as the foundation for a comprehensive global agreement. This could include specific limitations on certain single-use plastic products (e.g., cutlery, straws) or labelling requirements on products (e.g., tobacco filters, beverage cups).[59] In addition, the new treaty could specify certain targets (e.g., maximum rates of discharge into the ocean or minimum rates of separate collection) to be reached by a certain time (e.g., 2030 or 2040). The treaty could also require each state party to develop national action plans tailored to its specific context—an obligation found in a range of existing international treaties, including the Montreal Protocol, the Paris Agreement on climate change and the Convention on Biological Diversity. The World Economic Forum's Global Plastic Action Partnership has also promoted the development of National Plastic Action Plans which could be used as a model for national-level plastic policy development.[60]

Common reporting metrics and methodologies across the plastic value chain. As of today, there is no agreed international method for calculating discharge rates of plastics by country.[61] The development of such a calculation method would be key to establish baselines against which progress can be measured. In most international environmental treaties, states are required to submit regular national reports to foster transparency, accountability and verifiability. National reports also generate confidence among parties in the implementation of the treaty.

As part of the reporting and monitoring component of a new treaty, the establishment of a dedicated scientific body could also be considered. Currently, a broad range of plastic pollution research is being undertaken around the world, and there has been a sharp increase in scientific studies on this issue in recent years. But no system is in place for ensuring that the scientific knowledge is structured, reviewed and presented to states as a basis for action. Such scientific bodies have been established for a number of other international treaties and issues in the past, of which the best known is the Intergovernmental Panel on Climate Change (IPCC).[62]

Coordinated investment approaches toward infrastructure development in key markets and innovation. To catalyze national implementation of, and compliance with, the new treaty in as many states as possible, a set of institutional structures and other collective arrangements should be established. These would be aimed at distributing technological and financial resources between countries in a cost-efficient and equitable manner, including through a dedicated financial mechanism that states would be required to contribute to, based on an agreed formula. Funding would be contingent upon treaty participation and compliance and would be aimed at supporting implementation of the national action plans and strategies. In addition, financial resources could be allocated to innovation and research into alternative materials or technologies. Finally, the implementation support system could also include structures or arrangements for the transfer of expertise and know-how, and for sharing of best practices that parties could draw on as they design their national strategies and action plans. Public funding on this topic is already flowing (e.g., through German, Norwegian and UK development programs); this treaty would seek to better coordinate these flows and enhance their effectiveness.

EACH ELEMENT OF THIS PROPOSED TREATY WOULD BRING SIGNIFICANT BENEFITS TO BUSINESSES

Reduced supply chain and compliance complexity across markets. The current plastic pollution regulatory landscape is heterogeneous between and within countries. It is increasingly complex and costly to navigate for companies. A UN treaty would enable companies to reduce their supply chain costs by harmonizing product and packaging standards across markets and facilitating compliance to a consistent set of policies. Although some businesses may be wary of the prospect of globally applicable standards and requirements, a study by the European Commission found that the costs to business of international environmental legislations were typically lower than anticipated. For the Montreal Protocol, for instance, administrative compliance costs for the chemical industry were eventually as low as one-fortieth of the cost initially predicted.[63]

> *It can be hard to keep up on the latest developments in the plastic governance space. A global agreement would be immensely beneficial, as it would help put an end to the current haphazard system.*
>
> Head of compliance at a global food and beverage company

Stabilized policy framework to plan investments and reduce compliance scanning costs. Currently, fast-changing and unpredictable plastic regulations result in high compliance scanning costs and complexity for companies. A UN treaty would provide a common policy framework with targets and action plans, giving companies long-term visibility and stability to plan and invest. Indeed, international agreements have provided platforms for innovation in the past: the three years following the introduction of REACH regulations on hazardous chemicals saw an 86% increase in patents, while the Montreal Protocol triggered rapid innovation in refrigerant technology at a cost 2.5 times lower than predicted.[64]

Simplified reporting across the plastic value chain and greater transparency to better manage reputational risks. An agreed-upon set of reporting metrics could be applied consistently across geographies and industries—trickling down from the national to the corporate scale. Additionally, harmonized reporting would increase transparency and help manage reputational risks, which is significant given that up to 75% of a company's value is tied to its reputation.[65]

In recent years, sustainable investment has drastically increased, with ESG Assets under Management (AuM) growing twice as fast as traditional AuM.[66] Investors are also increasingly focusing on plastic pollution, with a 340% increase in earning calls mentioning "plastic waste" over 2017–18 and increasing appeals for companies to disclose their plastic impact.[67] The UNPRI's Plastic Investor Working Group currently consists of 29 global investors representing US$5.9 trillion in assets.[68] On other environmental issues such as climate change, all stakeholders benefit from converging on a common standard, which improves the consistency, transparency and understandability of reported information. It enables them to both comply and reduce the cost of compiling data.[69]

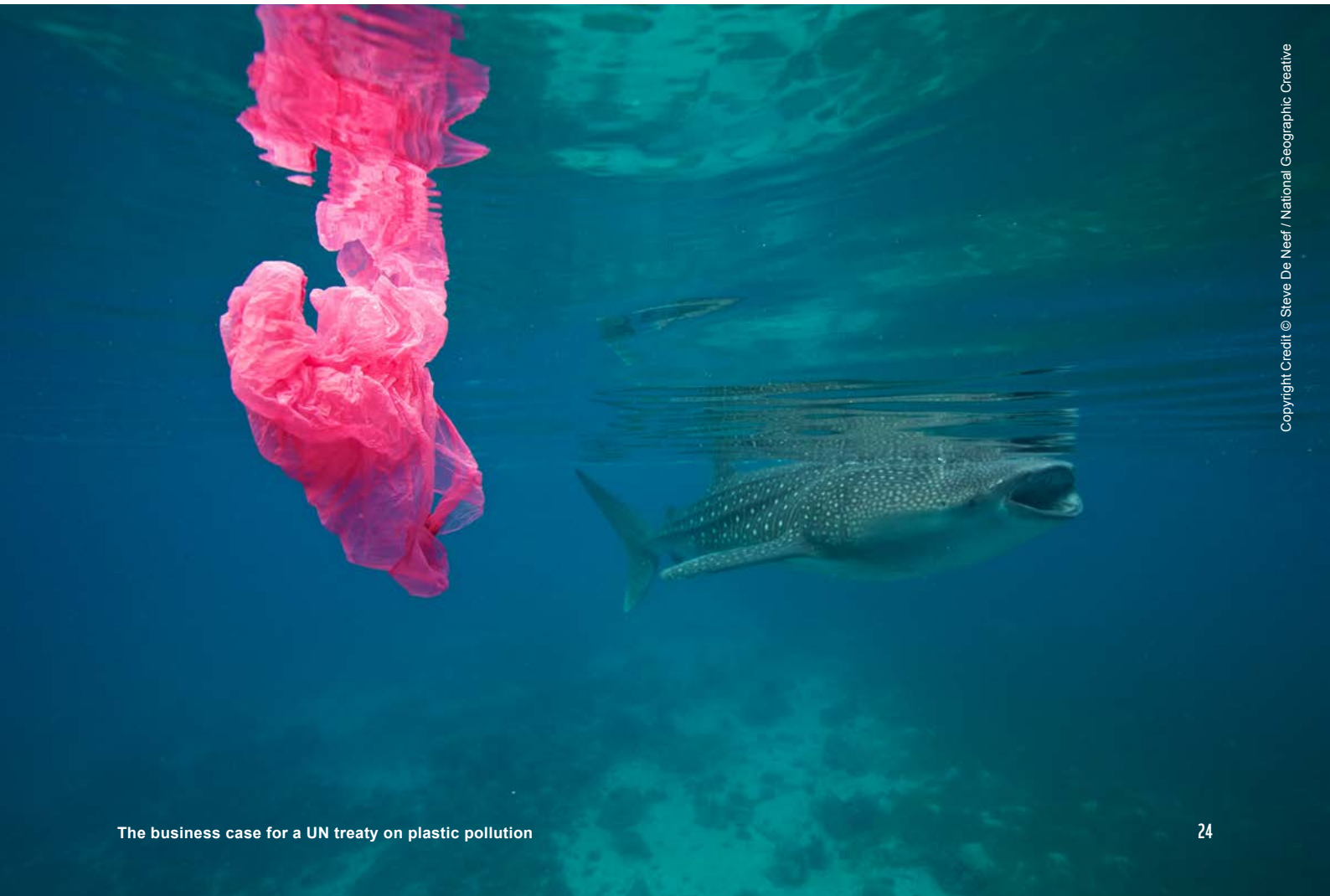
> *The Montreal Protocol gave a strong market signal to move toward alternative refrigerants. It provided long-term visibility, which built a solid platform for businesses to invest and innovate as they knew the market would be stable.*
>
> Strategy director at a global food and beverage company

> *If companies knew exactly which metrics to track globally and had to report them for fear of fines and penalties, the whole value chain would gather the necessary and most accurate data.*

Compliance director at a global food and beverage company

Improved coordination across the value chain enables more circular business models and the achievement of corporate commitments. Several plastic commitments made by major companies rely on a number of elements across the value chain that they alone cannot control—from waste collection at scale to significant increases in the use of post-consumer recycled plastic content in the packaging they buy.

Although many companies already invest heavily in trying to meet their commitments, they need broader systemic changes to succeed. According to one estimate, the investment required to reduce plastic leakage by 65% in five critical markets—which would nearly halve global leakage—is US$5 billion per year.[70] This is too much for individual companies or even groups of companies to invest, but at a global scale, it represents as little as 3% of the total international development aid flow in 2019.[71] The French government alone will invest >US$5 billion on climate action in developing countries in 2020 as part of the Green Climate Fund.[72] A UN treaty could provide the framework needed to ensure that sufficient funds are mobilized and that investments to improve waste management capabilities in key markets are prioritized by large donors.

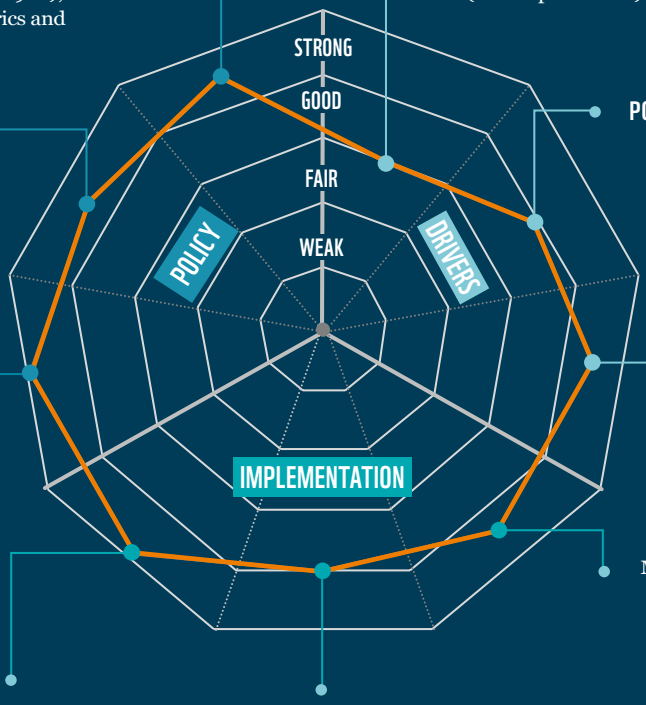


GLOBAL AGREEMENTS HAVE CATALYZED JOINT ACTION ON OTHER ENVIRONMENTAL PROBLEMS

An analysis of the key success factors from the Montreal Protocol gives grounds for confidence that a UN treaty on plastic pollution will be effective. While plastic pollution has specific traits, lessons can be drawn from how other environmental issues have been addressed. The 1987 Montreal Protocol, which was vital to tackle the problem of ozone layer depletion, is one of the most lauded international environmental agreements of modern times.[73] Its success rests on a broad set of interlinked factors, and while some of these have proven difficult to replicate, there are similarities with the plastic pollution issue that suggest it can serve as a model of inspiration.

In the lead-up to the negotiation of the Montreal Protocol, public awareness of the ozone problem was rising, and consumer expectations shaped the priorities of governments and companies. This trend was reinforced by a growing body of scientific evidence, documenting the severity and urgency of the problem, as seen with plastic today. As a result, political commitment also increased, with several countries introducing national regulations on chlorofluorocarbons (CFCs) in the late 1970s, though not in a uniform or comprehensive manner: while Canada, the US and most Nordic countries banned non-essential CFC aerosols, the Netherlands only required warning labels on aerosol spray cans.[74] Heterogeneous, fast-changing and unpredictable regulations translated into rising costs for businesses, which is also the case for plastic today.

Key success factors of the Montreal Protocol give grounds for confidence with plastic pollution



ACHIEVABLE: Specific, measurable, and realistic reduction targets; cutback of 50% to be achieved within 12 years (from 1986); clear, simple, and agreed-upon metrics and calculation methods

FAIR: Open, transparent process; stakeholders engaged and consulted consistently; national contexts and capacities taken into account, under common but differentiated responsibilities principle

FLEXIBLE: Step-by-step approach from Convention to the Protocol; procedures to make changes over time (e.g., expand list of controlled substances, shorten timeframes) were written into the Protocol

PARTICIPATION & COMPLIANCE: Incentivized through trade restrictions with non-parties; entry-into-force required 11 countries representing two-thirds of global ODSs consumption

SCIENTIFIC EVIDENCE was mounting and considered sufficiently strong to merit precautionary measures (unacceptable risk) but scientific consensus was reached only after negotiations started

POLITICAL COMMITMENT, with national policies already in place in certain countrives (e.g., US, Canada, Nordic countries), but uncoordinated and insufficient to solve the problem

PUBLIC AWARENESS of the severity and urgency was rising; consumer expectations shaped the priorities of governments and companies

RESOURCE MOBILIZATION: Multilateral fund to assist developing states in meeting their obligations; cooperation to promote technical assistance required by the Protocol

MONITORING & REPORTING: Self-reporting on production, consumption, and trade in controlled substances required by Protocol; annual national data since 1986 openly available; a scientific panel was set up to monitor impact of ODSs and inform decisions about collective policy responses

Sources: Adapted from Centre for Public Impact; Morrissette (1989); Barrett (2003), Benedick (1991), BCG analysis

Recent intergovernmental processes and initiatives provide a strong basis for accelerating the development of a UN treaty on plastic pollution. In 2017, the United Nations Environment Assembly established an ad hoc open-ended expert group (AHEG) on the issue of marine litter and microplastics.[75] Since then, the need for a new UN treaty to tackle the issue of marine plastic pollution has been a central element in the discussions, and more than 2/3 of UN member states have now publicly expressed a willingness to consider the option of a new global treaty.[76] A quarter of UN member states have even explicitly called for such a treaty to be negotiated.[77]

04.

JOIN LEADING BUSINESSES CALLING FOR A UN TREATY ON PLASTIC POLLUTION

SUPPORT THE CALL FOR A UN TREATY ON PLASTIC POLLUTION

Scientists and academics are increasingly calling for a UN treaty.[78] Civil society organizations have publicly supported the call for a new global agreement to address the issue of plastic pollution.[79] Governments and regional governmental bodies have made public statements about the need for a UN treaty.[80] And the almost 2 million signatories to the WWF Plastics Petition for a global legally binding agreement clearly highlights the concern from citizens around the world to address this issue.[81] However, some corporate users of plastic packaging have been absent from these discussions, and it is time their voice is heard.

A manifesto signed by many of the world's leading companies in support of a UN treaty on plastic pollution has been published alongside this report. To join this group and raise your voice, visit **www.plasticpollutiontreaty.org**.

The case is clear. The calls for a treaty on plastic pollution—from citizens to businesses to UN member states—are growing louder. At the upcoming UNEA-meeting in 2021, member states will have the opportunity to commence negotiations on a treaty on plastic pollution. Governments must act fast and decisively. There is no time to waste.

> *We underscore the urgent need for a global agreement to address plastics and microplastic pollution.*

CARICOM Heads of State, St. John declaration, July 2019

> *We commit ourselves to supporting global action to address plastic pollution, […] including […] the option of a new global agreement on plastic.*

African Ministers of Environment, Durban Declaration, November 2019

> *[We stress] the importance of stepping up global actions for preventing the leakage of plastic litter […] into the environment, and in particular the oceans, including through the consideration of an international agreement to address plastic pollution.*

EU Member States in Council Conclusions on Oceans and Seas, November 2019

Like many other contaminants, plastic pollution is not constrained by borders. It migrates via air and water currents in and out of parts of the oceans that are beyond national jurisdiction. Because plastic pollution does not observe borders, neither should policy. To measurably reduce emissions of plastic pollution, we need an international agreement with defined reduction targets, signatories, methods of reporting progress and a global fund.

Chelsea Rochman, University of Toronto

Across the international policies agreed over the last two decades, none include a global, binding, specific, and measurable target to reduce land-based sources of plastic pollution. From our review of the research on various policy responses to the plastic pollution problem, researchers have consistently recommended an international treaty to help fill this gap.

Amy Pickle and John Virdin, Duke University Nicholas Institute for Environmental Policy Solutions

A UN treaty could demonstrate the determination of countries and major stakeholders to tackle plastic pollution, openly recognizing it as one of the major global challenges of our times threatening sustainable development: as our recent research demonstrates, there is no time to lose—this seminal work is a major step forward for a much needed statutory international collaboration.

Dr Costas Velis, University of Leeds and Leader of ISWA Marine Litter Task Force

We hope your institution will join with the millions of people around the world supporting this treaty. The plastic pollution crisis was created in a single lifetime and can be ended in a single decade. But only if we act now, together.

Cristianne Close, Global Leader, Markets Practice, WWF International

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24 Rachel Karasik et al. (2020) "20 Years of Government Responses to the Global Plastic Pollution Problem: The Plastics Policy Inventory," NI X 20–05. Durham, NC: Duke University, https://nicholasinstitute.duke.edu/articles/duke-analysis-offers-systematic-look-state-policies-around-world-address-oceanic-plastic UNEP (2018), "Legal limits on single-use plastics and microplastics," https://wedocs.unep.org/bitstream/handle/20.500.11822/27113/plastics_limits.pdf?sequence=1&isAllowed=y; UNEP (2018), "Single-use plastics: A roadmap to sustainability," https://wedocs.unep.org/bitstream/handle/20.500.11822/25496/singleUsePlastic_sustainability.pdf?sequence=1&isAllowed=y; Doris Knoblauch, Linda Mederake and Ulf Stein (2018), "Developing Countries in the Lead—What Drives the Diffusion of Plastic Bag Policies?" https://www.mdpi.com/2071-1050/10/6/1994/pdf; press search; BCG analysis. Results include 10 countries with significant federal/municipal regulations; "planned" includes 9 countries with regulations coming into force in 2021.

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33 Waste items collected in beach clean-ups is taken as proxy for marine pollution. Although items also accumulate in ocean gyres and sink to the bottom of the ocean, it is the best available data.

34 Plastic bags, bottles and other plastics comprise 63% of waste items collected in beach clean-ups between 2015 and 2019 (Ocean Conservancy, 2020).

35 Note that in a separate study by Lebreton and Andrady (2019), where a different waste dataset was used (Waste Atlas instead of World Bank data), Sri Lanka is estimated to account for only 0.22% of total global mismanaged plastic waste. This considerable discrepancy can in part be ascribed to variations in the calculation methods (Jambeck et al. (2015) do not include areas >50 km from the coast), but it also highlights the inconsistencies and limitations of existing data when it comes to establishing baselines and measuring progress towards reduced discharge rates. See also Borelle et al. (2020), "Predicted growth in plastic waste exceeds efforts to mitigate plastic pollution", Science 18 Sep 2020: Vol. 369, Issue 6510, pp. 1515-1518, https://science.sciencemag.org/content/369/6510/1515.

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