

Bankrolling Plastics

**THE BANKS THAT FUND PLASTIC
PACKAGING POLLUTION**



About us

portfolio.earth is a new initiative born out of rising concerns that our finance sector is not taking the human-induced sixth mass extinction seriously and is actively providing capital to sectors that governments and scientists agree is deemed harmful to biodiversity.

portfolio.earth is a collaborative effort - a collective of individuals working with others to take on the finance industry's role in contributing to the destruction of nature.

We aim to bring together diverse voices to amplify the incredible pressure that is mounting upon the finance industry and its role in bankrolling extinction, find new ways to tell this story, and double down on the changes we need to see.

For more information please contact info@portfolio.earth or visit our [website](#)

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Executive summary

Summary

Every minute a truck-full of plastic ends up in our oceans. Governments and scientists agree that the current volume and persistence of plastic pollution is unprecedented in human history. Plastic packaging is the main culprit.

With growing public outcry around the world, companies and governments are slowly waking up. The banks which lend to these companies, and without whom the plastic packaging industry would not function, are co-responsible for creating persistent, harmful pollution. Out of step with reality, and the wishes and concerns of their customers, these banks are silently and indiscriminately financing this toxic and persistent product.

Findings

For the first time, this report analyses the finance banks provided to key companies along the plastics supply chain. The report finds that between January 2015 and September 2019, banks provided loans and underwriting of more than USD 1.7 trillion (equivalent to Russia's GDP) to forty key plastic chain actors. This includes all lending to those companies within this fixed time period.

The total is equivalent to USD 790 million per day in finance to companies with involvement in the global plastics supply chain. While many banks have shown some awareness of the issue, none of the 20 banks which provide the lion's share of funding have developed any due diligence systems, contingent loan criteria, or financing exclusions when it comes to the plastics packaging industry.

This means banks are not acknowledging their responsibility nor taking action to understand, measure, and reduce the impacts of their loans within the plastics value chain.

The banks which provided the bulk of finance included in the report are headquartered in the USA and in Europe. The ten largest financiers were Bank of America, Citigroup, JPMorgan Chase, Barclays, Goldman Sachs, HSBC, Deutsche Bank, Wells Fargo, BNP Paribas and Morgan Stanley. Together, they accounted for 62 per cent of the finance identified.

Demands

To address plastic pollution, a fundamental shift away from business models that depend on single-use packaging towards those that prioritise reuse and more localized supply chains and services is needed.

Banks should make funding of corporate actors within the plastic packaging supply chain contingent on companies implementing best practice.

Governments should stop protecting banks and re-write the rules of finance to hold banks liable for the damage caused by their lending.

Companies must adopt international best practice to reduce the production and use of virgin plastic and increase the reusability of plastic packaging products.

The report finds that between January 2015 and September 2019, banks provided loans and underwriting of more than USD 1.7 trillion to forty key plastic supply chain actors.

Why this matters

Plastic pollution is out of control

Plastics, and the chemicals they are made from, permeate our daily lives. Persistent harmful pollution from plastic packaging has now reached every corner of the planet from the deepest oceans to the top of Mount Everest. The largest contributor of plastic waste is packaging.

Scientists and governments agree that pollution from plastics is 'escalating and accumulating at an 'alarming rate', and the future level of pollution in terms of volume and persistence has 'no previous analogue in human history'.

Worldwide, about 2 million plastic bags are used every minute. Each bag is used on average for 12 minutes, but can take hundreds or thousands of years to decompose. According to the United Nations, ingestion of plastic kills an estimated 1 million marine

birds and 100,000 marine animals every year. More than 90 per cent of all birds and fish are believed to have plastic particles in their stomach. What's more, the average person eats about 100 particles of microplastics in every meal and on average 70,000 particles a year.

Public concern is mounting

A South-East Asian survey commissioned by the United Nations found that 91 per cent of consumers in the region were concerned about plastic waste. In Europe, over 53 per cent of consumers name plastic waste as a major environmental concern. Studies show that nearly half of all consumers worldwide now expect manufacturers to take a lead and campaigns calling for extended producer responsibility are increasingly successful.



Worldwide, about 2 million plastic bags are used every minute. Each bag is used on average for 12 minutes, but can take hundreds or thousands of years to decompose.



Despite public outcry over the serious impacts of plastic pollution, and efforts by some companies within the plastic value chain to reduce their impacts, none of the banks analysed have developed due diligence systems, contingent loan criteria or financing exclusions when it comes to this industry. This means banks are currently not taking responsibility to understand, measure, and reduce the impacts of their loans within the plastics value chain.

Business and government are waking up slowly

This global public outcry led to a set of government and business responses. As of June 2020, it was reported that 69 countries had passed a full or partial ban on plastic bags. Some companies have made comparatively strong commitments to reduce plastic packaging.

Future plastic growth trends are at odd with public opinion

The delivery of companies' commitments have been called into question by environmentalists. What's more, according to the World Economic Forum, the world's leading plastic manufacturers are planning to increase production by almost one-third over the next few years.

Covid-19 has delayed efforts to curb the use of plastics, with policies and legislation being stalled. Disposable masks and gloves are clogging up our rivers and oceans, alongside additional plastic packaging from our food and beverages. Meanwhile, the plastics industry in some countries has used this pandemic to scale up its lobbying, arguing against plastic bans in the name of public health despite push-back from the health sector.

Banks are silent and out of touch with reality

Despite public outcry over the serious impacts of plastic pollution, and efforts by some companies within the plastic value chain to reduce their impacts, none of the banks analysed have developed due diligence systems, contingent loan criteria or financing exclusions when it comes to this industry. This means banks are currently not taking responsibility to understand, measure, and reduce the impacts of their loans within the plastics value chain.

By indiscriminately funding actors in the plastic supply chain, banks have failed to acknowledge their role in enabling global plastic pollution. They have fallen far behind the crowd of other actors that contribute to the plastic pollution crisis.

The largest lenders to the industry

Role of banks in plastic packaging

The movement to end plastic pollution and to ban single-use plastic packaging has become one of the most visible campaigns globally.

A South-East Asian survey commissioned by the United Nations found 91 per cent of consumers in the region were concerned about plastic waste issues.¹ In Europe, more than 53 per cent of consumers named plastic waste as one of their three major environmental concerns, followed by climate change at 44 per cent.²

Despite this, the role of the banking sector in enabling the plastic industry has not been investigated until now.

While financial databases separate out some industry sectors contributing to biodiversity loss, pollution, or climate change, enabling a clear picture of financial flows to them (see Bankrolling Extinction report), plastic packaging is not one of them.

This means that in order to assess the amount of finance linked to the plastic value chain, it is necessary to investigate all lending provided to specific companies within it. This report analyses loans to forty companies which operate within industry sectors linked to the plastic value chain. These companies were chosen from sectors including producers of polymers that are largely used for plastic packaging, plastic packaging manufactures, Fast Moving Consumer Goods (FMCG) companies, and some of the world largest retailers. Together, the ten companies from each supply chain sector make up a significant percentage of their respective markets.

Table 1: Key Actors along the Plastic Packaging Value Chains Included in the Research

PLASTIC RAW MATERIAL PRODUCERS ^{3,4,5,6,7,8,9,10}	PLASTIC PACKAGING MANUFACTURERS ^{11,12,13,14,15}	FMCG COMPANIES ^{16,17,18}	RETAILERS ¹⁹
BASF	Amcor/Bemis	Anheuser -Busch	Ahold Delhaize
Chevron Phillips	AptarGroup	Coca-Cola	Amazon.com
Dow Chemicals	Berry Global	Danone	Costco Corporation
DuPont	Coveris	JBS	CVS Health Corporation
Exxon Mobil	Huhtamaki	Mars	Schwarz Group
Formosa	Reynolds Group	Nestle	Tesco PLC
INEOS	Sealed Air	PepsiCo	The Home Depot Inc
LyondellBasell	Silgan	Procter & Gamble	The Kroger Co.
SABIC	Sonoco	Tyson Foods	Walgreens Boots Alliance
Sinopec	Zhuohai Zhongfu	Unilever	Walmart

By indiscriminately funding actors in the plastic supply chain, banks have failed to acknowledge their role in enabling global plastic pollution. They have fallen far behind other actors that contribute to the plastic pollution crisis.

A number of the companies in Table 1 have made pledges of various strength and detail to address the amount of plastic they produce, use, or sell. A very small subset of companies have made commitments considered more ambitious and impactful. Unilever for instance has promised it will have cut in half its use of virgin plastic²⁰ by 2025 and Nestlé promised to reduce its use of virgin plastics by one third in the same period.²¹

Despite public outcry over the serious impacts of plastic pollution, and efforts by some companies within the plastic value chain to reduce their impacts, none of the banks analysed have made funding contingent on such pledges.²²

By indiscriminately funding actors in the plastic supply chain, banks have failed to acknowledge their role in enabling global plastic pollution. They have fallen far behind other actors that contribute to the plastic pollution crisis.

Key findings

Between January 2015 and September 2020, banks provided loans and underwriting of more than USD 1.7 trillion to these 40 key value chain actors.

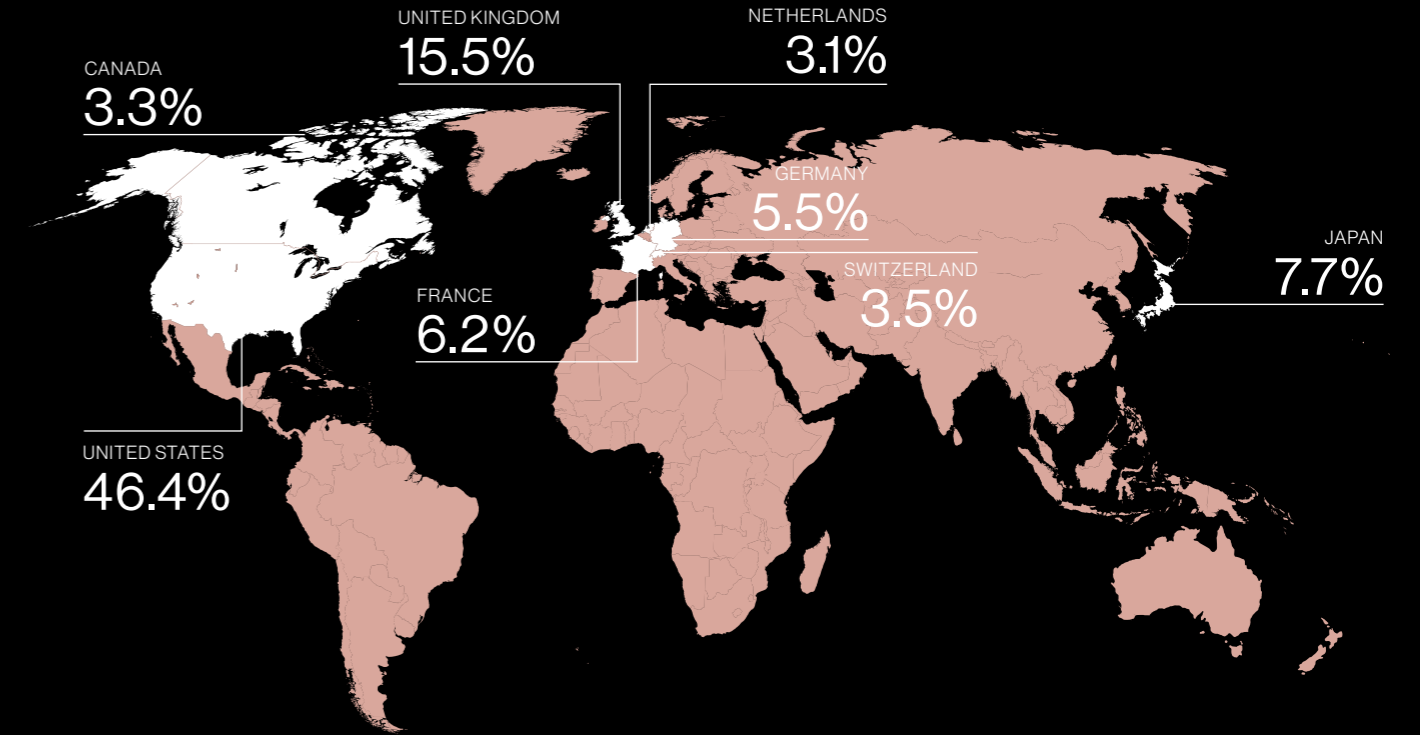
More than eighty percent of this funding (USD 1.4 trillion) came from just 20 banks, out of a total of 265 lenders identified. This suggests a small number of banks can drive global efforts to reduce environmental harm caused by plastic pollution.

Of note also is that the three largest lenders – Bank of America, Citigroup, and JP Morgan Chase – are all headquartered in the United States.

Table 2: Top Twenty Lenders to 40 actors in the Plastic Packaging Value Chain (Jan 2015 - Sept 2020; million USD)

BANK	HQ	LOANS & UNDERWRITING	% OF TOTAL
Bank of America	United States	171,737	10.31%
Citigroup	United States	145,816	8.76%
JPMorgan Chase	United States	143,766	8.63%
Barclays	United Kingdom	117,923	7.08%
Goldman Sachs	United States	97,042	5.83%
HSBC	United Kingdom	96,201	5.78%
Deutsche Bank	Germany	77,398	4.65%
Wells Fargo	United States	74,121	4.45%
BNP Paribas	France	55,852	3.35%
Morgan Stanley	United States	54,211	3.26%
Mizuho Financial	Japan	50,602	3.04%
Mitsubishi UFJ Financial	Japan	43,587	2.62%
Credit Suisse	Switzerland	40,218	2.42%
Société Générale	France	35,775	2.15%
Santander	Spain	33,960	2.04%
SMBC Group	Japan	33,189	1.99%
ING Group	Netherlands	31,084	1.87%
Toronto-Dominion Bank	Canada	23,574	1.42%
NatWest	United Kingdom	22,207	1.33%
Royal Bank of Canada	Canada	21,760	1.31%
Other		295,191	17.73%

Figure 1. Just over 90 per cent of the funding for the 40 key supply chain actors came from banks headquartered in just eight countries.



Nearly half – 46.4 per cent – of the finance was contributed by banks from the United States, followed by the United Kingdom (15.5 per cent), Japan (7.7 per cent), France (6.2 per cent), Germany (5.5 per cent), Switzerland (3.5 per cent), Canada (3.3 per cent), and the Netherlands (3.1 per cent). Overall, banks headquartered in European countries accounted for 38 per cent of the total investment value.

This concentration of finance from banks Headquartered in a few jurisdictions indicates that legislative measures, such as introducing lender liability which holds financiers and investors responsible for the impacts their financing has on biodiversity, could be highly impactful even when initially implemented in a small number of geographic regions.

Efforts of a relatively small number of banks to make funding contingent on the implementation of strong corporate commitments to reduce and replace plastics could have significant positive impacts throughout the value chain.



It is also noticeable that the banks which make up the largest lenders overall are also, with a few exceptions, the key lenders in the individual industry sectors.

This means the efforts of a relatively small number of banks to make funding contingent on the implementation of strong corporate commitments to reduce and replace plastics could have significant positive impacts throughout the value chain.

Figure 2: Top Ten Financiers of Plastic Packaging Supply Chain Sector Companies (Jan 2015 – Sept 2020, million USD)

PLASTIC RAW MATERIAL MANUFACTURERS		PLASTIC PACKAGING MANUFACTURERS		FCMG COMPANIES		RETAILERS	
Citigroup	44,785	Credit Suisse	12,309	Bank of America	67,240	Bank of America	59,089
JPMorgan Chase	41,379	Goldman Sachs	9,822	Citigroup	61,854	Goldman Sachs	53,409
Bank of America	39,263	Wells Fargo	9,383	Deutsche Bank	54,543	JPMorgan Chase	47,876
Barclays	25,091	Citigroup	9,163	JPMorgan Chase	49,312	Barclays	46,197
HSBC	24,776	Bank of America	6,145	Barclays	42,946	Wells Fargo	40,205
Morgan Stanley	16,311	HSBC	5,768	BNP Paribas	38,953	Citigroup	30,013
Goldman Sachs	14,654	JPMorgan Chase	5,199	HSBC	36,704	HSBC	28,953
Mizuho Financial	12,809	Barclays	3,689	Morgan Stanley	26,012	US Bancorp	13,156
Deutsche Bank	12,680	Deutsche Bank	3,457	ING Group	24,579	Mizuho Financial	12,954
SMBC Group	12,675	Morgan Stanley	2,815	Santander	24,261	Mitsubishi UFJ Financial	10,463

Despite broad awareness of the issue and global campaigns to reduce the production of plastic, there is no discernible trend indicating banks are reducing funding of the plastics industry.



The majority of loans and underwriting provided by banks was for the companies within the FMGC (42 per cent of finance) and retail sectors (29 per cent). Polymer producers (24 per cent) and plastic packaging manufacturers (6 per cent) received a much smaller share of the overall finance. This is broadly consistent with the global market value of the latter two sectors being much smaller than the market value of FMGC and retailing companies.

Despite broad awareness of the issue and global campaigns to reduce the production of plastic, there is no discernible trend indicating banks are reducing funding of the plastics industry. This is shown by the graph below that summarises the funding for plastic packaging manufacturers. These companies often operate predominantly within the plastics sector but some of them also produce packaging from other materials such as paper.

Figure 3: Bank Loans to Representatives in Key Industries in the Plastic Packaging Value Chain (Jan 2015 - Sept 2020; million USD)/value chain (Jan 2015-Sep 2020; million USD)

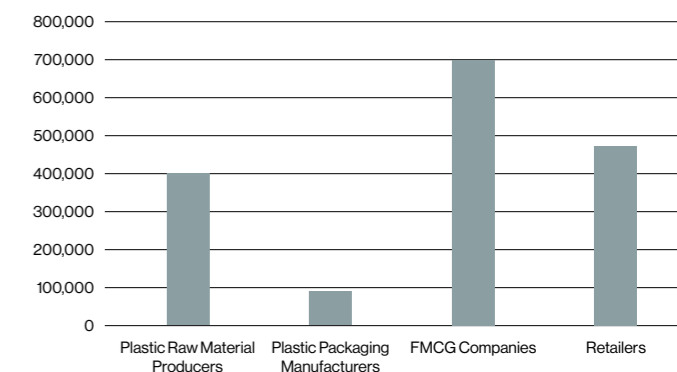
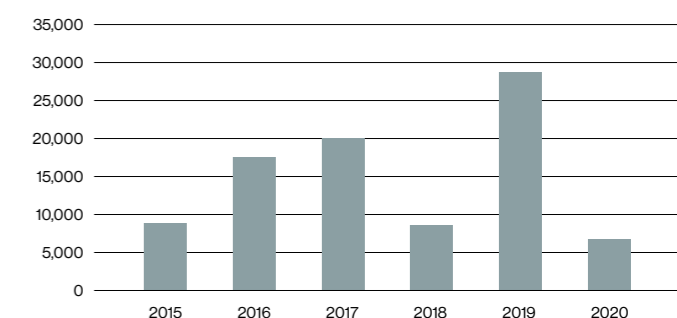


Figure 4: Loans to 10 Key Actors in the Plastic Packaging Manufacturing Sector ((Jan 2015 - Sept 2020; million USD)





The role of banks in reducing plastic waste and fostering a circular economy

While plastics have played an important role in society over the last 70 years and will continue to do so, any plastics which are not recycled end up in the environment, either as uncontrolled pollution or in waste repositories. At the present rate of growth, plastics production is estimated to double within the next 20 years.²³

Bank lending which funds the plastics supply chain in an unsustainable manner contributes to environmental pollution.

In order to reduce the impacts of plastic on biodiversity and to eliminate plastics from the natural environment, landfills, and incinerators, it is imperative that the way we produce, process, and use plastic, and plastic packaging in particular, changes radically. One proposed solution is the wide implementation of a “circular economy”.

In contrast to the current economic model which relies on making, using, and disposing of products, a circular economy promotes a production and consumption model that is restorative and regenerative. It aims to ensure that the value of products, materials, and resources is maintained in the economy at the highest utility and value for as long as possible, while minimising waste generation by designing out waste and hazardous materials.²⁴ A study of seven European nations found that a shift to a circular economy could reduce greenhouse-gas emissions by up to 70 per cent and grow the workforce by about 4 per cent.²⁵

Pollution from plastic packaging has been at the forefront of the debate about the circular economy but there has been little progress to date. Even though numerous companies have made high-level commitments, these are insufficient to dent the production and use of plastic packaging. To achieve this, a much tighter framework which also includes the finance sector will be required.

A limited number of banks have started to adopt policies that allow them to limit investments for other high biodiversity impacting sectors such as fossil fuels, forest products, and some agricultural commodities. However, this has not yet occurred for plastics.

Even though many have demonstrated awareness of the issue,^{26 27} and are planning to reduce plastic in their own office operations, none of the 20 banks that provide the lion’s share of funding within the plastic packaging value chain have developed any due diligence systems, contingent loan criteria, or financing exclusions when it comes to the plastics industry.²⁸ This means banks are currently not taking responsibility to understand, measure, and reduce the impacts of their loans within the plastics value chain.

“

The circular economy is a nothing less than a blue print for a fundamental transformation of our economic system — a transformation that is urgently needed, that is entirely possible, and that is indeed desirable.”

Naoko Ishii — CEO and Chairperson,
Global Environment Facility²⁹

Bank, government and corporate actions and commitments on plastic

How banks should respond

Bank lending which funds the plastics supply chain causes and contributes to pollution of the environment by harmful, persistent plastics. Any plastics which are not recycled, end up in the environment, either as uncontrolled pollution or in waste repositories. To mitigate their role in enabling plastic pollution, banks should:

Align their lending portfolios with public policy on plastic reduction, reusability, recycling and net plastic released to the environment;

Publicly report their historic and ongoing impact through their lending contribution to activities which create plastics waste in the environment.

Cease the financing of new plants using virgin feedstock for the production of single-use plastic packaging for consumer products.

How governments should change the financial rules

To address the problem of plastics pollution, governments should affirm that persistent plastics that end up in the environment, in particular the marine environment, endanger the health of biodiversity and the public welfare of current and future generations. Governments and financial institutions should both recognise that investment in the plastics supply chain without sufficient investment in the plastics value recovery chain (reduction, recovery, re-use and recycling), causes and contributes to this harm. To remedy the problem, governments should:

Extend investor liability for any future environmental or health related legal challenges to those responsible for plastic pollution, especially effects of it entering the food chain.

Introduce a mandatory tax on virgin plastic at the point of importation to or production within a country, in order to raise its price relative to recycled plastics, achieving equivalence by channeling the receipts from the tax into incentives to recover and reuse plastics waste streams. This would require trade related controls to ensure equivalence in imported packaging.

Invest in a new generation of recycled plastics markets by establishing forward contracting arrangements akin to renewable energy feed in tariffs to incentivise investment in modern recycled plastics value chains.

How companies should act

To mitigate their direct role in enabling plastic pollution, companies should adopt international best practise to reduce the production and use of virgin plastic and increased the reusability of plastic packaging products. Banks should make financing of corporate actors within the plastic packaging supply chain contingent on companies implementing best practise.

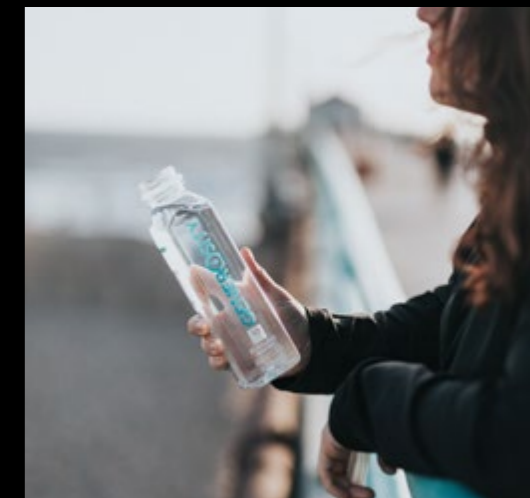


Table 3: Examples of How Bank Funding can be Contingent on Corporate Best Practice for Plastic Packaging Commitments and Action Plans

COMMITMENTS & POLICIES	<ul style="list-style-type: none"> • Commitment to cut in half the production, use, and sale of virgin plastic packaging and related polymers by 2025 • Signing of New Plastics Economy Global Commitment (or equivalent goals) • Commitment to a zero waste, circular plastic packaging economy including extended producer responsibility with extensive take-back programs and support for fiscal measures to make recycled feedstock economically preferred • Development of measurable goals and timelines for absolute reduction of production and use of plastic packaging or polymers for plastic packaging • Explicitly favour reduction and reusability over recyclability
TRANSPARENCY & PROGRESS MONITORING	<ul style="list-style-type: none"> • Commitment to cut in half the production, use, and sale of virgin plastic packaging and related polymers by 2025 • Signing of New Plastics Economy Global Commitment (or equivalent goals) • Commitment to a zero waste, circular plastic packaging economy including extended producer responsibility with extensive take-back programs and support for fiscal measures to make recycled feedstock economically preferred • Development of measurable goals and timelines for absolute reduction of production and use of plastic packaging or polymers for plastic packaging • Explicitly favour reduction and reusability over recyclability



In addition, in order to address global plastic pollution, banks will need to play a much more active role and lay the groundwork for a circular economy and significant reduction in the production and use of single-use plastic packaging.

Finance accountability framework for finance to protect biodiversity

In addition to the recommendations, the Finance for Biodiversity (F4B) Initiative has developed a Finance Accountability Framework to reduce the impact the finance system has on the global biodiversity crisis. The Framework states:

- Financial institutions should take account of citizens' individual and collective biodiversity-related rights and preferences in their financing decisions, with governments clearly defining those rights
- Financial institutions should publicly disclose actual and expected biodiversity impacts and associated risks
- Legal systems should make financial institutions liable for biodiversity impacts
- Governments and public agencies should transparently align all public finance to biodiversity-related policies, goals, and commitments
- Financial institutions should ensure that their activities are consistent with biodiversity-related public policies, goals, and commitments
- The governance of global finance should accept accountability for impacts on biodiversity.



The problem with plastic



Production and waste

The word plastic comes from the Greek *plassein* which means to mould. Plastic is a comparatively cheap, easily formable, hydrophobic, bio-inert material. After World War II, plastics entered and transformed the daily lives of expanding consumer societies around the world. The ability to cheaply produce a material that can be shaped freely allowed people with limited incomes to become prolific consumers.

Plastic packaging also allowed the extension of shelf life of some perishable foods and protected food from contamination. Today, packaging accounts for 42 per cent of global plastic resin (the base of all plastics such as polyethylene) production and³¹ single-use plastic has become the embodiment of a throw-away consumer society.

The properties that make plastic desirable however, also make it one of the most hotly-debated environmental problems. While plant cellulose was the raw material for early plastics, today it is nearly

exclusively made from hydrocarbons derived from the refining of fossil fuels such as oil and natural gas.

Up to 12.7 million tons of plastic enter the ocean every year,³² equal to a truckload of plastic being dumped into the ocean every minute.³³ Without major transformation in how plastic is produced and used, this figure will rise to 29 million tons in the next 20 years.

This is the equivalent of 50 kilograms of plastic on every metre of coastline around the world.³⁴ Concerningly, scientists recently discovered there is ten times more plastic in the Atlantic than previously thought.³⁵

“
Plastics freed us from the confines of the natural world, from the material constraints and limited supplies that had long bounded human activity”

Susan Freinkel, the author of
*Plastic: A Toxic Love Story*³⁶

The impacts of Covid-19 on the use of plastic

The Covid-19 pandemic which began in December 2019 has increased the prevalence of single-use plastics. Thailand's Environment Institute for instance, reported an increase in plastic waste from 1,500 tons to 6,300 tons per day, owing to soaring home deliveries of food. In the UK, illegal waste disposal increased by 300 per cent during the pandemic. Wuhan produced more than 240 tons of waste daily at the height of the outbreak, compared with 40 tons previously.³⁷ At the same time,

necessary single-use plastics used in equipment as gowns, syringes, and gloves provide critical protection from infection in medical facilities and for frontline staff.³⁸ Furthermore, during the pandemic some local and federal governments have pushed back legislations in areas such as deposit schemes for plastic containers³⁹ or temporarily prohibited reusable plastic bags.⁴⁰



In the UK, illegal waste disposal increased by 300 per cent during the pandemic.



Wuhan produced more than 240 tons of waste daily at the height of the outbreak, compared with 40 tons previously.

Impacts on the environment

The largest contributor to global plastic waste is packaging which is responsible for around 47 per cent of all plastic waste generated. This waste impacts biodiversity in multiple ways.

“

If we have any hope of finding ways for seven billion people to live well on planet with finite resources, we have to learn to use our resources efficiently. Plastic bags are neither efficient nor environmentally friendly,”

David Suzuki, the author of *How plastic bags are hurting the environment*.⁴²

Ingestion

Marine species can ingest larger pieces of plastic or become entangled causing death from suffocation or severe injuries. Marine wildlife such as seabirds, whales, fishes, and turtles often mistake plastic waste for prey, and many die of starvation as their stomachs are filled with plastic debris. More than 800 marine and coastal species are affected by marine debris, the vast majority of which consists of plastic.⁴³ In addition, toxic contaminants also accumulate on the surface of plastic materials because of prolonged exposure to seawater. When marine organisms ingest plastic debris, these contaminants enter their digestive systems and the food web.⁴⁴ Up to 9 in 10 seabirds, 1 in 3 sea turtles, and more than half of whale and dolphin species have ingested plastic.⁴⁵

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Habitat damage

Coral reefs are amongst the most biodiverse ecosystems on the planet, but they are extremely fragile and strongly affected by plastic waste. Structurally-complex corals are especially prone to impacts from plastic and it has been estimated that 11.1 billion plastic items were entangled on coral reefs across the Asia-Pacific region in 2010. This number is set to increase 40 per cent by 2025.⁴⁶

When corals come in to contact with plastic, the likelihood of them being affected by disease increases from 4% to 89%



Ghost fishing

Ghost fishing occurs when abandoned, lost, or otherwise discarded fishing gear (ALDFG) continues to indiscriminately trap, entangle, and often kill marine life and affect marine habitat.⁴⁷ It has been estimated that that 5.7 per cent of all fishing nets, 8.6 per cent of all traps, and 29 per cent of all lines are lost around the world each year.⁴⁸

It is believed ghost gear makes up around 10% of plastic pollution in the ocean, and the majority of large plastic in its waters.⁴⁹



Impacts beyond oceans

Up to 80 per cent of plastics are carried into the ocean by rivers which act both as a source and as a sink, preventing a portion of plastic waste from reaching the ocean.⁵⁰ Impacts on biodiversity in rivers are similar to the ocean ecosystem with death and injuries of species due to digestion and entanglement, and the leakage of toxic additives and the accumulation of toxins.⁵¹

Up to 80% of plastics are carried into the ocean by rivers.

Climate change

Aside from direct impacts on biodiversity from plastics, there are also indirect impacts in the form of global warming contributing-greenhouse gas emissions from fossil fuels used for the production of virgin plastics and resins. If plastic production grows as predicted, these emissions could reach 1.34 gigatons per year in 2030 —equivalent to the emissions released by 295 new 500-megawatt coal-fired power plants⁵² and more than the current emissions of Japan.⁵³ It has been argued that if the growth in plastic production continues unchecked, carbon emissions along its lifecycle will reach 56 gigatons by 2050, the equivalent of 14 per cent of the remaining carbon budget globally, threatening the world's ability to meet emission targets.⁵⁴

If plastic production grows as predicted, emissions could reach the equivalent of those released by 295 new 500-megawatt coal-fired power plants and more than the current emissions of Japan.

Biodiversity and microplastics

The effects of plastics on biodiversity are not limited to large and very visible bits of plastic. Evidence is emerging that microplastics (particles smaller than 5 mm) and nanoplastics (particles smaller than 100nm) are also a threat to biodiversity. Scientists observed a decline of approximately 50 per cent in the total number of organisms exposed to both microplastics and macroplastics in comparison to a control group.⁵⁵ Microplastics have also been shown to affect biological growth and reproduction of living organisms⁵⁷ and cause significant damage to populations of soil-dwelling organisms that maintain the fertility of the land.⁵⁸ While there are still significant knowledge gaps regarding the impact these particles have on the environment, they are already present in air, soil and sediment, freshwater ecosystems, oceans, plants, and animals. Microplastics have reached the most remote environments including the polar regions where they have been found on Arctic beaches, sea ice, the sea surface, and the seafloor.⁵⁹ Microplastics are the same size as zooplankton which underpins the marine food chain and in some waters, where plastic accumulates, there may already be more microplastic particles by mass than zooplankton.⁶⁰

Scientists observed a decline of approximately 50% in the total number of organisms exposed to both microplastics and macroplastics

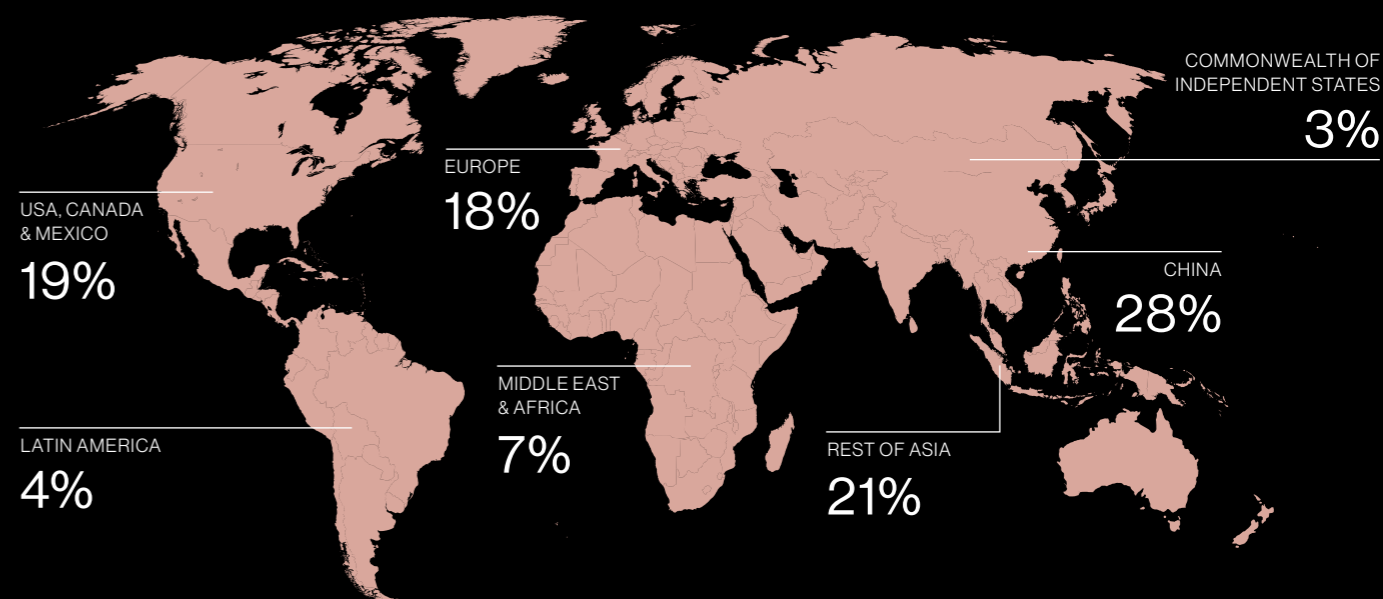


The plastic packaging industry

Plastic production and trends

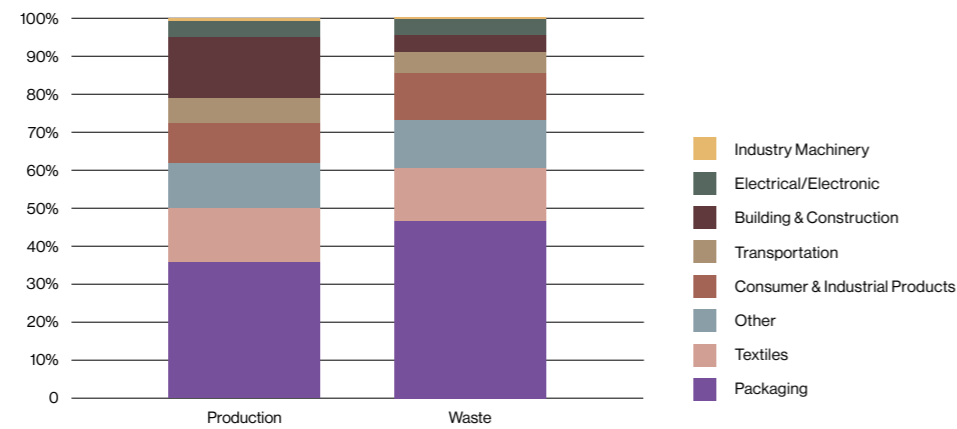
Since the use of plastics became widespread in the 1950s, global production increased rapidly and more than 400 million tons of virgin plastic are now manufactured annually,⁶¹ the equivalent of 760 tons every minute, every day.

Figure 5: Global Distribution of Plastics Production⁶²



In 2015, it was estimated plastic packaging accounted for 36 per cent of all plastic production, and for 47 per cent of all plastic waste.

Figure 6: Plastic Production and Waste 2015 (Mt)⁶³



Plastic packaging accounts not only for the largest share of plastic production – its contribution to plastics waste is even larger. In 2015, it was estimated plastic packaging accounted for 36 per cent of all plastic production, and for 47 per cent of all plastic waste.⁶⁴

Figure 7: Global Primary Plastic Production by Major Uses (1950 - 2015)⁶⁵

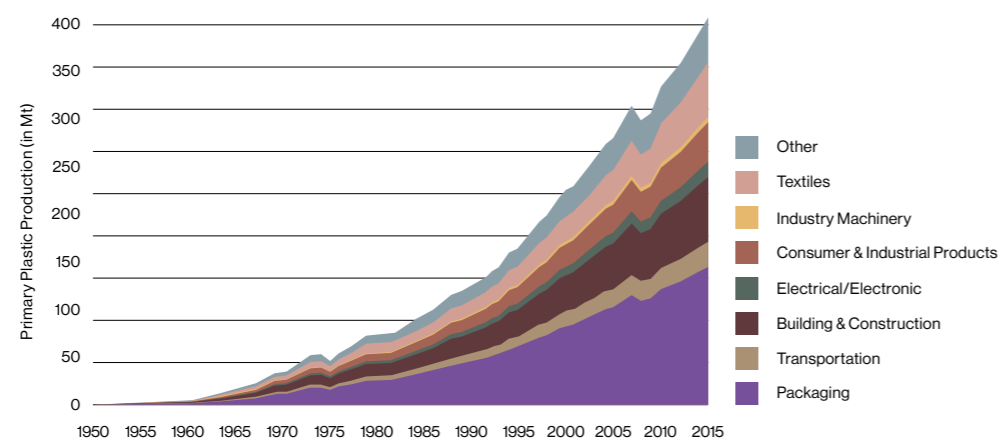
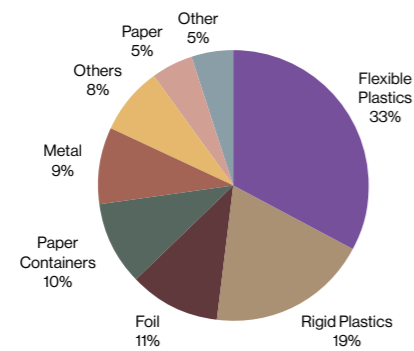


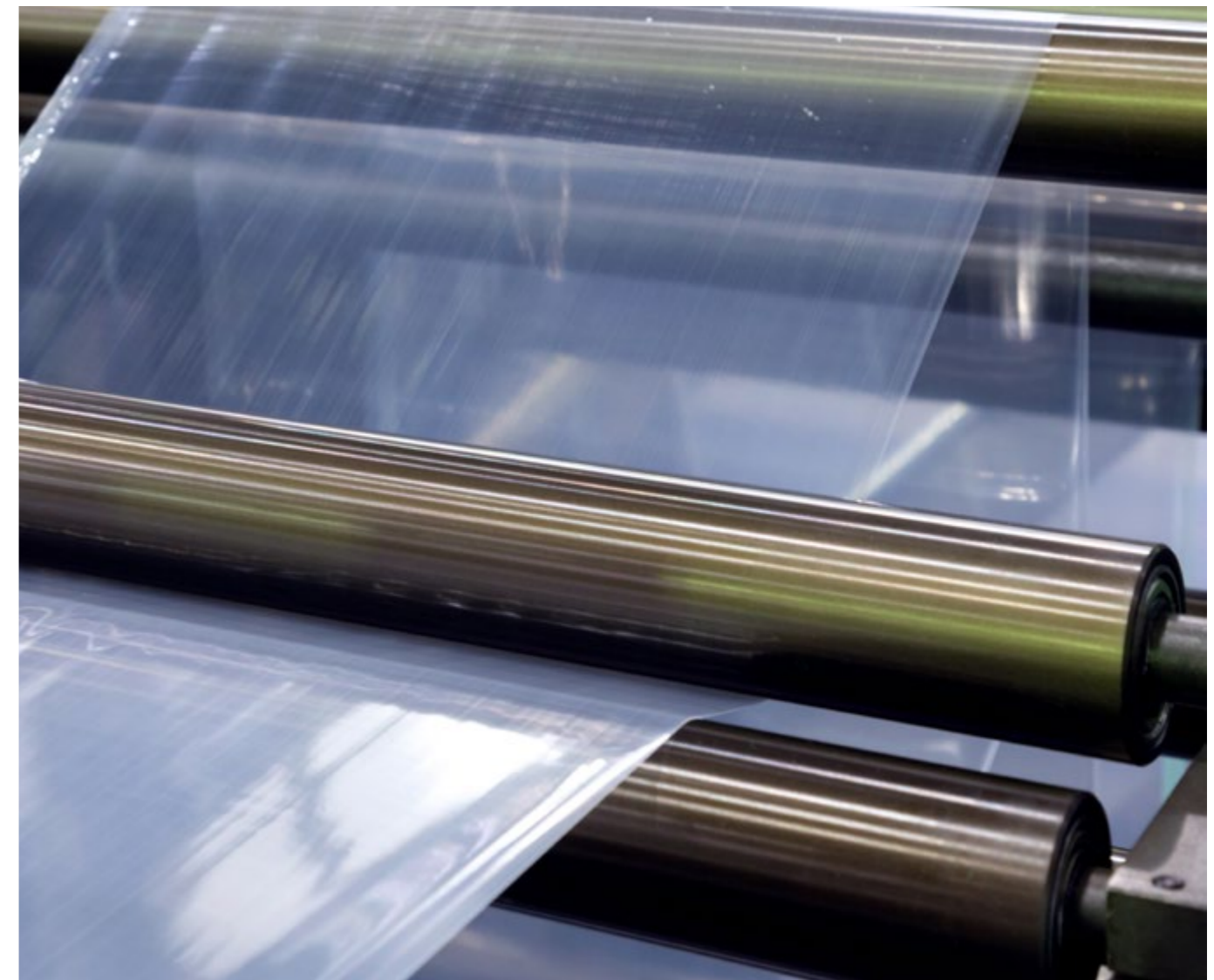
Figure 8: Global Consumers Packaging Market (percent of units sold)⁶⁶



The main plastic molecules (polymers) used for packaging are low density polyethylene (LDPE), Linear low-density polyethylene (LLDPE), and polyethylene terephthalate (PET). While LDPE and LLDPE are mostly used for plastic bags, plastics wraps, liners of juice and milk cartons, and containers for food, cosmetics, and cleaning products, most soft drink and other plastic bottles are made of PET. Harder containers for single-use consumer products such as shampoo and cosmetics containers are often made from High Density Polyethylene (HPDE).

Table 4: Plastic Resin Types – Uses & Applications^{67 68}

RESIN GROUP	NAME	% USED IN PACKAGING	MAIN USES
LDPE, LLDPE	(Linear) Low Density Polyethylene	30.1%	Single use plastic bags; shrink wrap, garbage liners;
PET	Polyethylene terephthalate	22.5%	Bottles for soft drinks, water, juices; Jars for jellies, peanut butter, pickles;
HDPE	High Density Polyethylene	20.8%	Bottles for shampoos, cleaning products; Milk bottles;
PP	Polypropylene	18.3%	Containers for yoghurts, snack wrappers, take out and deli meal containers
PS	Polystyrene	5.1%	Cups, plates, bowls, takeaway containers
Other		3.2%	



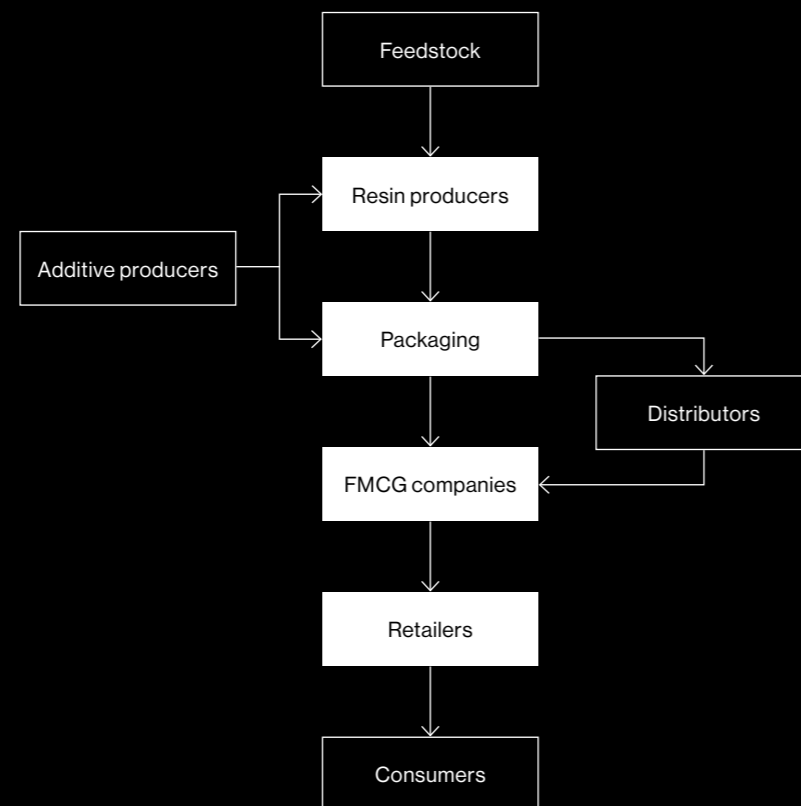
The plastic packaging supply chain

Most plastic resin is made from oil or gas.⁶⁹

The critical actors in the plastic packaging supply chain are the producers of resins and polymers who then pass on their products to packaging producers which use these materials in the products of Fast Moving Consumer Goods (FMCG) companies and many other industries. Retailers provide the point of purchase for their own branded products and for most FMCG products. Other actors include various distributors and producers of additives such as phthalates which are toxic chemicals that act as binding agents and make plastics soft and flexible.

Scientists estimate that as of 2015, 6.3 billion tons of plastic waste has been generated. **Nearly 80 per cent of that was accumulated in landfills or the natural environment, where it persists since none of the major plastics can biodegrade. Only 9 per cent have been recycled** and 12 per cent incinerated.⁷⁰ Plastic waste is so prevalent and persistent it has been predicted that by 2050 the weight of all plastic in the ocean will exceed the weight of all fish in the world's oceans.⁷¹

Figure 9: Simplified Plastic Packaging Value Chain



“People start pollution. People can stop it.” By making individual viewers feel guilty and responsible for the polluted environment, the ad deflected the question of responsibility away from corporations and placed it entirely in the realm of individual action, concealing the role of industry in polluting the landscape.

Finis Dunway of the Chicago Post about an ad released by Make America Beautiful in 1971

Plastics and a short history of corporate greenwashing

When the plastic economy first emerged in the 1950s, it did not take long before concerns over human health and the environment were voiced. Alarms were raised over visible plastic pollution and the persistence of plastic in the environment. This did not remain unnoticed by companies that used or produced large amounts of plastic. In response, in 1953 large US beverage companies such as Coca-Cola and Anheuser-Busch, along with Phillip Morris and others, formed a non-profit organisation called Keep America Beautiful (KAB). The organisation’s mission was to educate and encourage environmental stewardship in the public. While this was communicated as an honourable cause it was later criticized as one of the first instances of corporate greenwashing.⁷² Greenwashing is the attempt by companies to show they are doing more to protect the environment than is actually the case, for example through the use of misleading information or by deflecting.

Instead of taking responsibility for the polluting and persistent properties of their products, the industry successfully shifted responsibility to the consumer and helped prevent legislation that would make the industry responsible for waste management. To this day, consumer

responsibility for plastic waste instead of extended producer liability is still largely the norm and continues to be favoured by industry around the world. Keep America Beautiful still exists today, pushing a message to “help people end littering, improve recycling, and beautify America’s communities”⁷³ while the corporations involved successfully avoid taking full responsibility for the products they produce or sell. In addition, the industry knew as early as 1974 that their claims that the majority of plastic could and would be recycled were not achievable.⁷⁴ Amongst current partners of the organisation are companies such as Mars, Pepsico, Dow, Coca Cola, and the Plastics Industry Association.⁷⁵

Similar organisations that prolong and support the tactic of shifting responsibility of pollution to consumers and away from manufacturers have been set up in Europe.⁷⁶ Organisations such as Pack2Go and the Clean Europe Network (also known as the European Litter Prevention Association)⁷⁷ work to “improve litter prevention techniques across the EU” with images of children cleaning up single-use plastic waste products produced by plastics manufacturers.⁷⁸ The membership of Pack2Go Europe includes key food packaging producers.

Industry reaction to COVID-19

In Europe and the United States the plastics industry has also used the Covid-19 pandemic to advance its own agenda. The American plastics and recycling industry requested USD 1 billion worth of support from the federal government, arguing that the American recycling system was struggling due to the virus and without such support for recycling infrastructure, jobs would be lost.^{80,81} In Europe the industry argued that because of the pandemic the European Commission should agree to the “postponement of the deadline for the imple-

mentation of the SUP [Single Use Plastic] Directive for at least an additional year at national level and to lift all bans on some of the single-use plastics items”.⁸² The SUP bans products such as cotton bud sticks, plastic cutlery and plates, straws, stirrers, food containers made of expanded polystyrene, and other products from July 2021. It also mandates a reduction in the use of plastic food containers and drinks cups and increases the responsibility producers have for their products.⁸³ The EU dismissed the industry’s request.⁸⁴

More than 125 health experts, including virologists, epidemiologists, emergency room doctors, and specialists in public health and food packaging safety, have signed a statement on the safety of reusables during the Covid-19 pandemic. They emphasised that reusables can be safely used by employing basic hygiene.

Corporate and government initiatives

Global corporate commitments

Faced with an increasing public campaign on plastic packaging, numerous companies have adopted commitments to address the problems arising from the plastic supply chain.

In late 2018, the Ellen MacArthur Foundation, in collaboration with the UN Environment Programme (UNEP), launched the New Plastics Economy Global Commitment. The 450 signatories include companies, governments, universities, NGOs, and other stakeholders. According to the Foundation, the companies that have signed represent 20 per cent of all plastic packaging produced globally.⁸⁵ The Global Commitment calls for a circular economy for plastics that is based on eliminating problematic or unnecessary plastic packaging and moving from single-use to reuse packaging models. It also calls for innovation to ensure 100 per cent of plastic packaging can be easily and safely reused, recycled, or composted by 2025.⁸⁶ ING was the only bank amongst the top 20 investors in this research that endorsed the New Plastics Economy Global Commitment,⁸⁷ but the bank does not make its lending contingent on companies having strong policies to address plastic pollution.⁸⁸

The Global Commitment specifically asks companies to ensure that by 2025 they will:

- Take action to eliminate problematic or unnecessary plastic packaging by 2025
- Take action to move from single-use towards reuse models where relevant by 2025
- Ensure 100 per cent of plastic packaging is reusable, recyclable, or compostable by 2025
- Set an ambitious 2025 recycled content target across all plastic packaging used⁸⁹

Only 3 per cent of plastics used are reusable, while 97 per cent are still single-use.

While there has been quite broad support for the Global Commitment and recognition for its embrace of a circular economy, some organisations have argued it lacks meaningful, time-bound, and specific reduction targets.⁹⁰ Such timebound targets, including actions plans and progress reports as well as supply chain transparency and reporting, are best practice in other sectors with significant biodiversity impacts such as ethical supply chains in agriculture and forestry.⁹¹

Since the Global Commitment was launched, a progress report across the corporate signatories shows an increase in commitments made and establishes a baseline for compostable, recyclable, and reusable plastics. It is however of concern that the progress report shows only 3 per cent of plastics used are reusable, while 97 per cent are still single-use.⁹² Reusability underpins a circular economy since recyclability alone does not ensure a reduction in the production of virgin plastic, in particular taking into account that only 9 per cent of all plastics have been recycled.⁹³

On the other hand, a 2020 assessment of the actions of 50 of the largest US consumer-facing companies by shareholder activist group As You Sow concluded that companies are far too slow in adopting responsive actions and promoting reusability, recyclability, or composability in their packaging. The report found that most of the progress was linked to pledges to redesign packaging to be reusable, recyclable, or compostable, followed by commitments to increase recycled content and actions to support recycling. Much less leadership was detected in the areas of reusable packaging innovation, data transparency, and producer responsibility.⁹⁴

Broken promises by the soft drink giants

In 2005, Coca Cola briefly met a goal to use an average of 10 per cent recycled content in its bottles before backsliding a year later.⁹⁵ Fifteen years later, the company promises to average 50 per cent of recycled content by 2030. The company has not made any commitments to ensure reusability of its bottles.⁹⁶ Coca Cola company produces around 3 million tonnes of plastic packaging a year, the equivalent of 200,000 bottles a minute.⁹⁷ Despite its new commitment on recycled content and the company signing the Global Commitment,⁹⁸ these bottles will continue to be single-use packaging. Nevertheless, in 2019 Coca Cola withdrew its membership of the US Plastics Industry Association, a lobby group that opposes the ban of single-use plastic bags.⁹⁹

Coca Cola's main competitor PepsiCo shares a similar history. Even though the company introduced a bottle with 25 per cent recycled content in 1990, ten years later there was no recycled plastic in any of its bottles. It did meet a more modest goal to include 10 per cent recycled content in its bottles in 2005, but the company failed to deliver on a third pledge to increase the industry-wide container recycling rate to 50 per cent by 2018.¹⁰⁰ PepsiCo's current pledge is to have 33 per cent recycled plastic in its PET bottles by 2025.¹⁰¹ Just like Coca Cola, reusability is not part of PepsiCo's current plan despite signing the Global Commitment,¹⁰² but equally PepsiCo also left the US Plastics Industry Association.¹⁰³

Coca Cola company produces around 3 million tonnes of plastic packaging a year, the equivalent of 200,000 bottles a minute.

National and international government initiatives

Governments around the world have begun to introduce regulation to reduce the impacts from single-use plastic packaging and there is a significant upward trend in the amount of government policies and legislations.¹⁰⁴

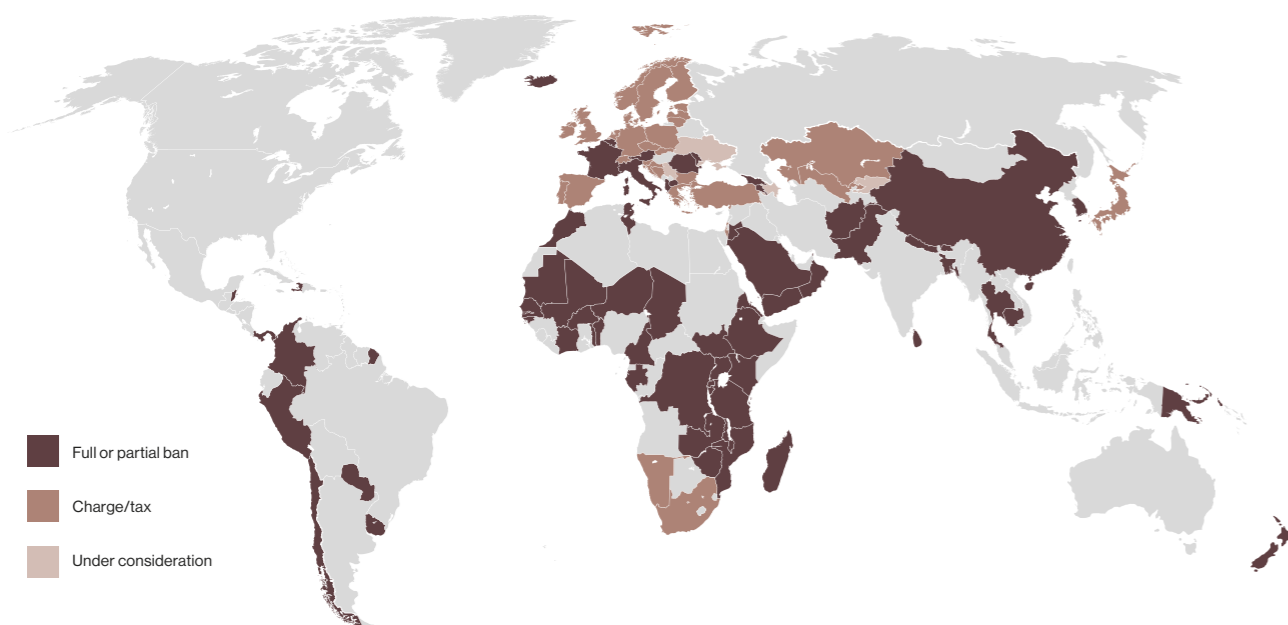
There are 29 international policies¹⁰⁵ that aim to address the problem but they tend to be non-binding agreements that focus largely on land-based sources only.¹⁰⁶ There are also ongoing discussions about a global treaty to tackle the plastic pollution crisis. While two-thirds of United Nations members states are open to such an agreement, the United States (the biggest per capita waste producers) has not yet indicated their support.¹⁰⁷ In addition, there have also been instances where the plastics industry has lobbied governments to make trade agreements contingent on weakening legislation to ban plastics in developing countries. For instance, it has been revealed that there was close coordination between chemical and plastic industry representatives and United States Administration

officials as they negotiated a trade deal that would undo environmental and public health regulations in Kenya which is considered a global leader in the fight against plastic pollution.¹⁰⁸

Amongst the most visible and frequent national-level regulations are those that ban the use of plastic bags. As of June 2020, it was reported 69 countries had passed some sort of full or partial ban on plastic bags. While plastic bag bans are especially popular in Africa, a majority of the 32 countries who have opted instead to charge a fee to limit plastic bag use are located in Europe.¹⁰⁹

Considering the slow progress companies are making to reduce and replace single-use plastic packaging, banks have an opportunity and a responsibility to ensure that the recipients of their loans do not contribute to global plastic pollution.

Figure 10: Map of National Plastic Bag Bans (as of June 2020)¹¹⁰



Plastic manufacturer commitments

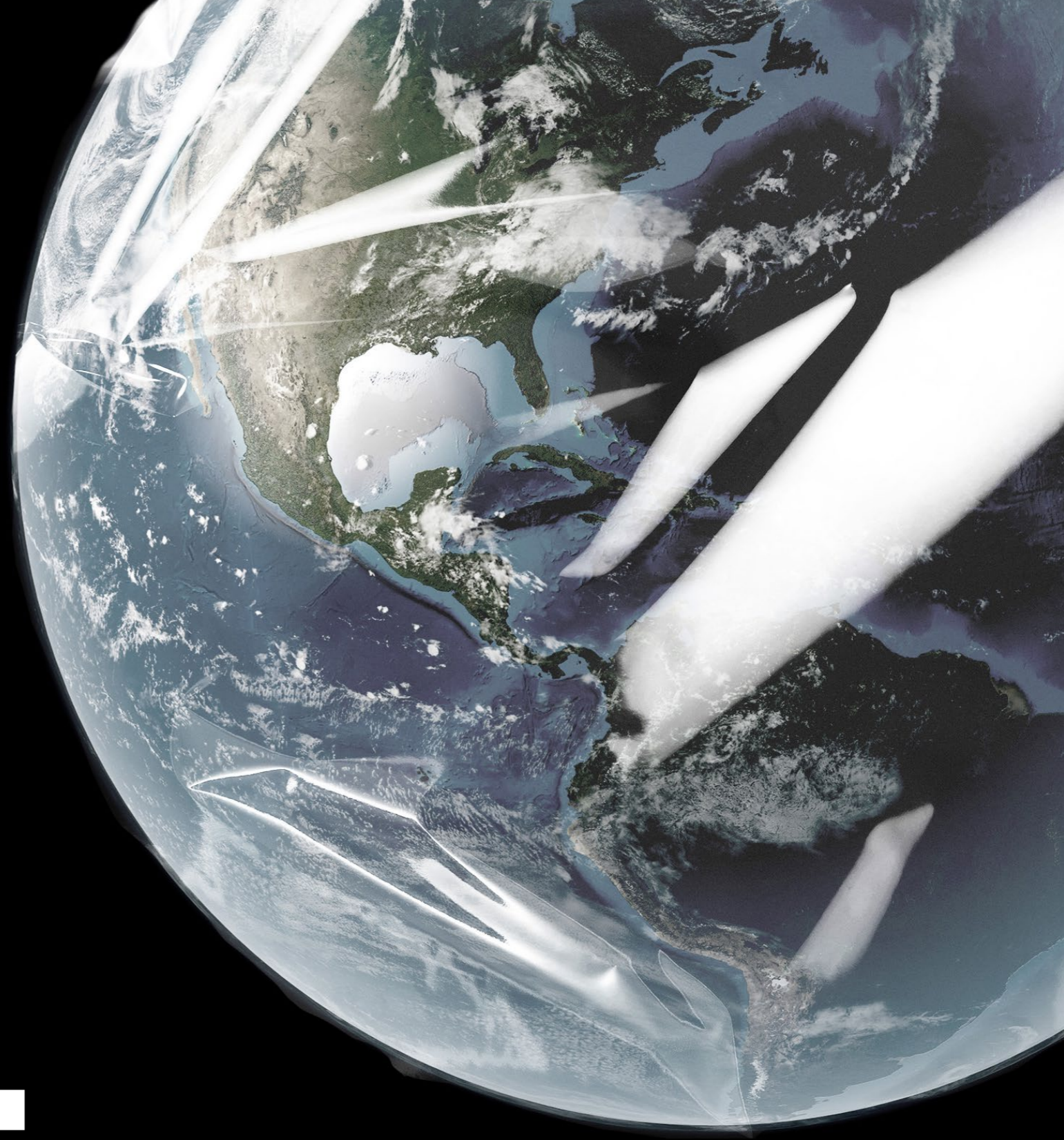
Faced with an increasing public backlash from consumers, industry associations made up of major manufacturers of plastic packaging and other plastic products have made commitments to address plastic pollution. However, most pledges include exceedingly long transition periods, do not favour reusability over recyclability, do not support extended producer responsibility, and do not prescribe measurable milestones.

It is fundamental to a zero-waste economy for plastics that the prevention and minimisation of plastic packaging, in conjunction with extended producer responsibility, takes priority over recyclability. Most commitments by plastic producer associations fall well short of this and instead focus on reusability and recyclability, with timelines that stretch too far into the future to tackle the urgency of the problem. It is vital banks make finance contingent on plastic manufacturers adopting strong, transparent, and time-bound commitments to reduce plastic packaging and take responsibility for the impact of their products.

Table 5: Commitments by Plastic Manufacturer Organizations in Selected Countries

INDIA	<ul style="list-style-type: none"> The All India Plastics Manufacturers' Association (AIPMA) has not published time-bound goals but has released a White Paper on Environment Issues While AIPMA is not supportive of a rapid or phase-out of single-use plastics, the organisation says it "recognizes and accepts the responsibility of EPR (Extended Producer Responsibility) and have also initiated the work towards its implementation"¹¹¹ Of note is that the Indian government has mandated extended producer responsibility and prepared a national framework that makes it mandatory for companies to collect and recycle the plastic they produce.¹¹²
CHINA	<ul style="list-style-type: none"> No such industry-wide commitments could be found in China, but the country's ban of plastic waste imports had significant impacts on the waste management systems of exporting countries.¹¹³ Previously, the country imported two-thirds of the globally-traded plastic waste¹¹⁴ The Chinese government recently announced a ban of all single use plastic. The policy will ban the production and sale of disposable plastic tableware and cotton swabs by the end of 2020 Production of household products containing microbeads will be banned by the end of 2020 and sales of such products will be banned two years after that¹¹⁵
EUROPE	<ul style="list-style-type: none"> In 2018, PlasticsEurope made a voluntary pledge as a "contribution to achieve a fully circular and resource efficient Europe" through its Plastics 2030 commitment The overall Plastics 2030 commitment is to achieve "100 per cent re-use, recycling, and or recovery of all plastics packaging in the EU-28, Norway and Switzerland by 2040", and 60 per cent re-use and recycling of plastics packaging by 2030¹¹⁶ While the press release for the 2030 commitment promised annual progress reports from 2019 onwards,¹¹⁷ this changed to 2020 as a starting point shortly afterwards¹¹⁸ The industry also promised that by mid-2018 it would set up concrete action plans, time-based performance indicators¹¹⁹ and yearly evaluations provided by an independent committee As of October 2020, no annual progress reports, actions plans, or evaluations can be found on the PlasticsEurope website¹²⁰
UNITED STATES	<ul style="list-style-type: none"> The American Chemistry Council's (ACC) Plastics Division has a set a goal of 100 per cent of plastics packaging being re-used, recycled, or recovered by 2040¹²¹
CANADA	<ul style="list-style-type: none"> The above is also the case in Canada where the Plastics Industry Association and the Chemistry Industry Association set goals of 100 per cent of plastics packaging being re-used, recycled, or recovered by 2040 and 100 per cent of plastics packaging being recyclable or recoverable by 2030¹²²
AUSTRALIA	<ul style="list-style-type: none"> The Australian Packaging Covenant Organisation has similar but more ambitious goals which were adopted in 2018. It aims to achieve 100 per cent reusable, recyclable, or compostable packaging by 2025, 70 percent of plastic packaging being recycled or composted and for 50 per cent average recycled content to be included in packaging¹²³ Similar to other initiatives, it does not provide separate goals for reusing and reducing plastics, nor subscribe to extended producer responsibility
SOUTH AFRICA	<ul style="list-style-type: none"> The South African Alliance to End Plastic Pollution in the Environment includes actors along the value chain and other stakeholders. It says its first priority is to tackle single-use plastic packaging waste as well as work to improve recycling rates¹²⁴ While the alliance says it has a "time-based plan" to reduce plastic pollution,¹²⁵ this could not be found on the website of Plastics SA which hosts the Alliance. The industry says it has "always advocated for an industry-managed plan where the producers of packaging materials are held responsible for managing their waste"¹²⁶

**Bankrolling
Plastics**



Appendix: Methodologies



Introduction

This research focuses on the plastic packaging value chain. The companies along the value chain used as the basis of the loan and underwriting calculations were identified by portfolio.earth. Financial research was carried out by Profundo and utilised financial databases (Bloomberg, Refinitiv (formerly known as Thomson EIKON), TradeFinanceAnalytics, and IJGlobal), company reports (annual, interim, quarterly) and other company publications, company register filings, as well as media and analyst reports. Corporate loans, credit, and underwriting facilities provided to the selected companies was analysed for the period 2015 - 2020 (September).

This Methodology note outlines the company selection methodology, the types of finance included in the study, the calculated elements in the corporate financing research, and financial research data sources.

This Methodology note is organized as follows: Section 4.2 outlines the company selection; Section 4.3 describes the types of finance included in the study; Section 4.4 details the methodology used to calculate the financing contributions where these were not provided.

Company selection

The 40 groups selected for this study are involved in the plastic packaging value chain. They have been classified under 4 sectors:

- Plastic Raw Material Producers
- Plastic Packaging Manufacturers
- FMCG Companies
- Retailers

Table 6: Plastic packaging value chain

PLASTIC RAW MATERIAL PRODUCERS	PLASTIC PACKAGING MANUFACTURERS	FMCG COMPANIES	RETAILERS
DuPont	Berry Global	Nestle	Walmart
INEOS	Reynolds Group	Procter & Gamble	Costco
LyondellBasell	Amcor/Bemis	PepsiCo	Kroger
Exxon Mobil	Silgan	Unilever	Amazon.com
Chevron Phillips	Sealed Air	AB Inbec	Schwarz Group
SABIC	Coveris	JBS	The Home Depot Inc
Dow Chemical	Huhtamaki	Tyson Foods	Walgreens Boots Alliance
BASF	Sonoco	Coca-Cola	Ahold Delhaize
Sinopec	Aptargroup	Danone	CVS Health Corporation
Formosa	Zhuhai Zhongfu	Mars	Tesco PLC

Types of finance

This section describes the types of finance included in the research. Financial institutions can invest in companies through a number of modalities. Financial institutions can provide credit to a company. This includes providing loans and the underwriting of share and bond issuances. Investments by the means of holding shares and bonds of a company were not covered by this research. This section outlines the different types of financing, how they were researched, and the implications for the study.

Corporate loans

In most cases, money is borrowed from commercial banks. Loans can be either short-term or long-term in nature. Short-term loans (including trade credits, current accounts, leasing agreements, et cetera) have a maturity of less than a year. They are mostly used as working capital for day-to-day operations. Short-term debts are often provided by a single commercial bank, which does not ask for substantial guarantees from the company.

A long-term loan has a maturity of at least one

year, but generally of three to ten years. Long-term corporate loans are in particular useful to finance expansion plans, which only generate rewards after some period of time. The proceeds of corporate loans can be used for all activities of the company. Often long-term loans are extended by a loan syndicate, which is a group of banks brought together by one or more arranging banks. The loan syndicate will only undersign the loan agreement if the company can provide certain guarantees that interest and repayments on the loan will be fulfilled.

Project finance

One specific form of corporate loan is project finance. This is a loan that is earmarked for a specific project.

General corporate purposes / working capital

Often a company will receive a loan for general corporate purposes or for working capital. On occasion while the use of proceeds is reported as general corporate purposes, it is in fact earmarked for a certain project. This is difficult to ascertain.

Share issuances

Issuing shares on the stock exchange gives a company the opportunity to increase its equity by attracting a large number of new shareholders or increase the equity from its existing shareholders.

When a company offers its shares on the stock exchange for first time, this is called an Initial Public Offering (IPO). When a company's shares are already traded on the stock exchange, this is called a secondary offering of additional shares.

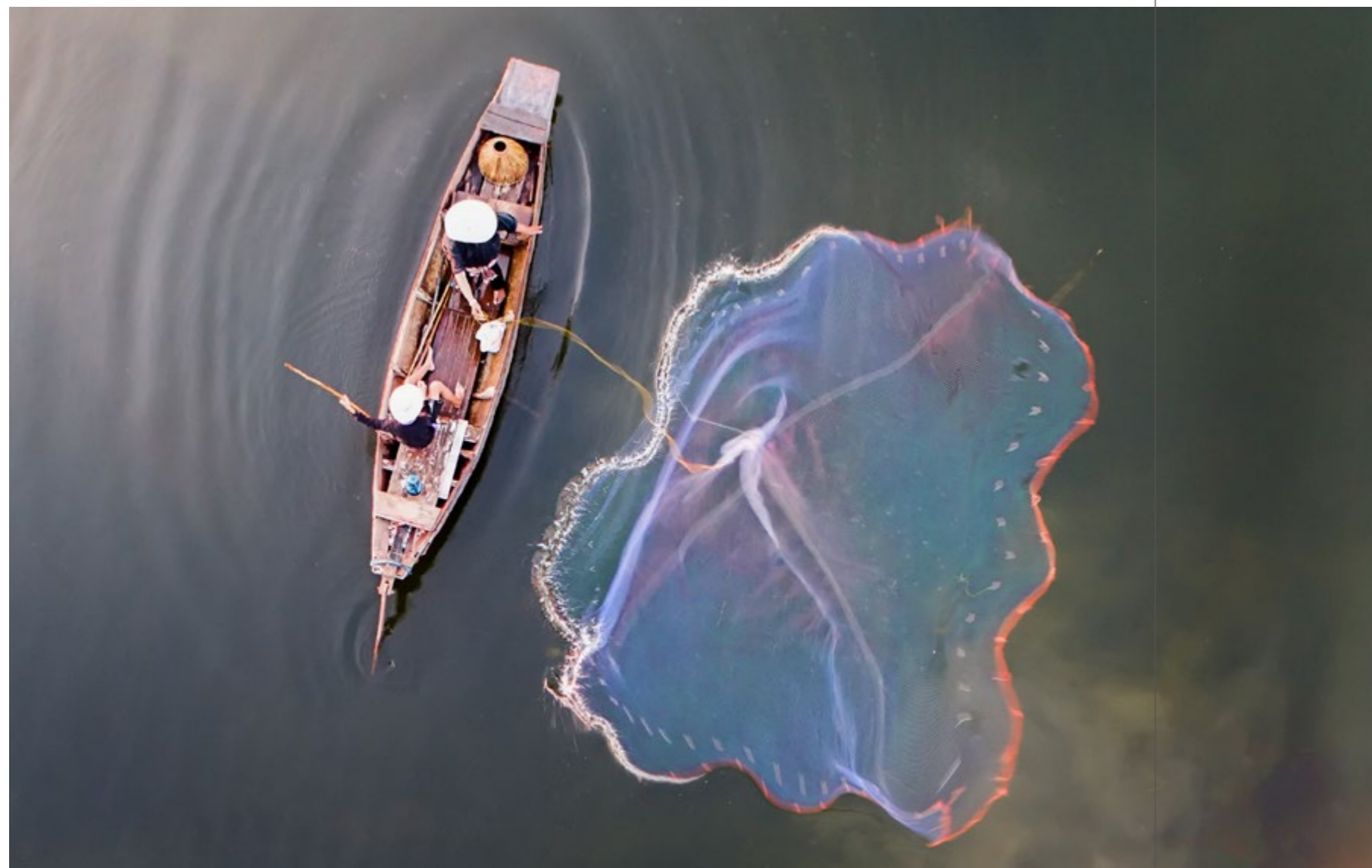
To arrange an IPO or a secondary offering, a company needs the assistance of one or more (investment) banks, which will promote the shares and find shareholders. The role of investment banks in this process therefore is very important.

The role of the investment bank is temporary. The investment bank purchases the shares initially and then promotes the shares and finds shareholders. When all issued shares that the financial institution has underwritten are sold, they are no

longer included in the balance sheet or the portfolio of the financial institution. However, the assistance provided by financial institutions to companies in share issuances is crucial. They provide the company with access to capital markets and provide a guarantee that shares will be bought at a pre-determined minimum price.

Bond issuances

Issuing bonds can best be described as cutting a large loan into small pieces and selling each piece separately. Bonds are issued on a large scale by governments, but also by corporations. Like shares, bonds are traded on the stock exchange. To issue bonds, a company needs the assistance of one or more (investment) banks which underwrite a certain amount of the bonds. Underwriting is in effect buying with the intention of selling to investors. Still, in case the investment bank fails to sell all bonds it has underwritten, it will end up owning the bonds.



Financial institution financing of loans and underwriting services

Financial databases often record loans and issuance underwriting when these are provided by a syndicate of financial institutions. Company reports and publications, company register filings, and the media also provide information on loans provided bilaterally, i.e. between one bank and the company in question. The level of detail per deal often varies. Some sources may omit the maturity date or term of the loan, the use of proceeds, or even the exact issue date. Financial databases often do not report on the proportions of a given deal that can be attributed to the participants in the deal. In such instances, this research calculated an estimated contribution based on the rules of thumb described below.

Individual bank contributions to syndicated loans and underwriting (bond and share issuance underwriting) were recorded to the largest extent possible where these details were included in a financial database, or company or media publications.

In many cases, the total value of a loan or issuance is known as are the banks that participate in this loan or issuance. However, often the amount that each individual bank commits to the loan or issuance has to be estimated.

In the first instance, this research attempted to calculate each individual bank's commitment on the basis of the fee they received as a proportion of the total fees received by all financial institutions. This proportion (e.g. Bank A received 10 per cent of all fees) was then applied to the known total deal value (e.g. 10 per cent × US\$ 10 million = US\$ 1 million for Bank A).

Where deal fee data was missing or incomplete, this research used the book ratio. The book ratio (see formula below) is used to determine the spread over bookrunners and other managers.

Book ratio:

$$\frac{\text{number of participants} - \text{number of bookrunners}}{\text{number of bookrunners}}$$

The table below shows the commitment assigned to bookrunner groups with our estimation method. When the number of total participants in relation to the number of bookrunners increases, the share that is attributed to bookrunners decreases. This prevents very large differences in amounts attributed to bookrunners and other participants.

Commitment to assigned bookrunner groups

BOOK RATIO	LOANS	ISSUANCES
> 1/3	75%	75%
> 2/3	60%	75%
> 1.5	40%	75%
> 3.0	< 40%*	< 75%*

* In case of deals with a book ratio of more than 3.0, we use a formula which gradually lowers the commitment assigned to the bookrunners as the book ratio increases. The formula used for this:

$$\frac{1}{\sqrt{\text{bookratio}}}$$

1.443375673

The number in the denominator is used to let the formula start at 40 per cent in case of a book ratio of 3.0. As the book ratio increases the formula will go down from 40 per cent. In case of issuances the number in the denominator is 0.769800358.

Endnotes

- 1 UN Environment Programme (2020). Report: Consumers and business concerned about plastic waste but expect governments to do more.[Press Release]. <https://www.unenvironment.org/news-and-stories/press-release/report-consumers-and-business-concerned-about-plastic-waste-expect>
- 2 Growth from Knowledge. (2019). Concerns about plastic waste soar in Europe: A major worry for 1 in 2 consumers. [Press Release]. <https://www.gfk.com/press/concerns-about-plastic-waste-soar-in-europe-a-major-worry-for-1-in-2-consumers>
- 3 Fortune Business Insight (2019). Polyethylene Market Size, Share & COVID-19 Impact Analysis, By Type (HDPE, LDPE, LLDPE), By End User (Packaging, Automotive, Infrastructure & Construction, Consumer Goods/ Lifestyle, Healthcare & Pharmaceutical, Electrical and Electronics, Agriculture, Others), and Regional Forecase, 2020 – 2027. <https://www.fortunebusinessinsights.com/industry-reports/polyethylene-pe-market-101584>
- 4 Absolute Reports (2020). 2014-2026 Global Polyethylene (Hdpe, Ldpe, Lldpe) Industry Market Research Report, Segment By Player, Type, Application, Marketing Channel, And Region. <https://www.absolutereports.com/2014-2026-global-polyethylene-hdpe-ldpe-lldpe-industry-market-15082965>
- 5 Research and Markets (2020). Low-Density Polyethylene Global Market Report 2020. [https://www.researchandmarkets.com/reports/4990956/low-density-polyethylene-global-market-report-2020?utm_source=dynamic&utm_medium=GNOM&utm_code=xbnlxf&utm_campaign=1356265+-+Global+Low-Density+Polyethylene+\(LDPE\)+-Markets%2c+2015-2030&utm_exec=joca220gnomd](https://www.researchandmarkets.com/reports/4990956/low-density-polyethylene-global-market-report-2020?utm_source=dynamic&utm_medium=GNOM&utm_code=xbnlxf&utm_campaign=1356265+-+Global+Low-Density+Polyethylene+(LDPE)+-Markets%2c+2015-2030&utm_exec=joca220gnomd)
- 6 360 Research (2020). Global Polyethylene Terephthalate (Pet) Resin Market Research Report 2020. <https://www.360researchreports.com/global-polyethylene-terephthalate-pet-resin-market-15046978>.
- 7 Research and markets (2020). Expanded Polystyrene Market by Product Type (White, Grey, and Black) and End-User Industry (Packaging, Building & Construction, Domestic Appliances, Consumer Electronics, Medical, and Others): Global Opportunity Analysis and Industry Forecast, 2019–2026. <https://www.researchandmarkets.com/reports/4520232/polyethylene-terephthalate-pet-resin-market>
- 8 Fortune Business Insights (2020). Polyethylene Terephthalate (PET) Market Size, Share & Industry Analysis, By Grade (Textile, Bottle, Film), By End-Use Industry (Packaging, Textiles, Automotive, Electrical and electronics) and Regional Forecast, 2019 – 2026. <https://www.fortunebusinessinsights.com/industry-reports/polyethylene-terephthalate-pet-market-101743>
- 9 GlobeNewsWire (2020, June 4). Polypropylene Market Size, COVID19 Impact Analysis, PP Industry Growth Forecast 2019-2026; Says Fortune Business Insights. <https://www.globenewswire.com/news-release/2020/06/05/2044085/0/en/Polypropylene-Market-Size-COVID19-Impact-Analysis-PP-Industry-Growth-Forecast-2019-2026-Says-Fortune-Business-Insights.html>
- 10 Allied Market Research (2020). Expanded Polystyrene Market by Product Type (White, Grey, and Black) and End-User Industry (Packaging, Building & Construction, Domestic Appliances, Consumer Electronics, Medical, and Others): Global Opportunity Analysis and Industry Forecast, 2019–2026. <https://www.alliedmarketresearch.com/expanded-polystyrene-eps-market>
- 11 Mordor Intelligence (2020). Plastic Packaging Market – Growth, Trends and Forecast (2020-2025). <https://www.mordorintelligence.com/industry-reports/plastic-packaging-market>
- 12 Citi Group (2019). Rethinking Single-Use Plastics. <https://www.citibank.com/commercialbank/insights/assets/docs/2018/rethinking-single-use-plastics.pdf>
- 13 Market Research Future (2020). Global Flexible Plastic Packaging Market, By Type (Stand-Up Pouches, Flat Pouches, Gusseted, Bags and Others), By Printing Technology (Flexography, Digital Printing and Others), By Application (Food & Beverages, Pharmaceuticals, Personal Care and others) and Region - Forecast to 2023. <https://www.marketresearchfuture.com/reports/flexible-plastic-packaging-market-4845>
- 14 Markets and Markets (2020). Flexible Plastic Packaging Market by Type (Pouches, Rollstocks, Bags, Wraps), Material (Plastic & Aluminum Foil), Application (Food, Beverage, Pharma & Healthcare, Personal care & Cosmetics), Technology, and Region - Global Forecast to 2025. <https://www.marketsandmarkets.com/Market-Reports/flexible-packaging-market-1271.html>
- 15 GlobalNewswire (2019, October 17). Global Plastic Packaging Industry. <https://www.globenewswire.com/news-release/2019/10/17/1931256/0/en/Global-Plastic-Packaging-Industry.html>
- 16 Consumer Goods Technology (2019, January 12). Top Consumer Goods Companies of 2019. <https://consumergoods.com/top-100-consumer-goods-companies-2019>
- 17 Consultancy.uk (2018, September 24). The 50 largest FMCG /consumer goods companies in the world. <https://www.consultancy.uk/news/18765/the-50-largest-fmcg-consumer-goods-companies-in-the-world>
- 18 Ellen McArthur Foundation (2019). The New Plastics Global Economy Commitment Progress Report 2019. <https://www.newplasticseconomy.org/assets/doc/Global-Commitment-2019-Progress-Report.pdf>
- 19 Deloitte (2020). Global Powers of Retailing 2019. <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Consumer-Business/cons-global-powers-retailing-2019.pdf>
- 20 Unilever (2020, October 7). Unilever announces ambitious new commitments for a waste-free world. [Press Release]. <https://www.unilever.com/news/press-releases/2019/unilever-announces-ambitious-new-commitments-for-a-waste-free-world.html>
- 21 Nestle (2020, January 17). Nestlé creates market for food-grade recycled plastics, launches fund to boost packaging innovation.[Press Release]. <https://www.nestle.co.nz/media/news/nestle-creates-market-food-grade-recycled-plastics-launches-fund-boost-packaging>
- 22 Based on an analysis of the public policies on the websites of the 20 banks.
- 23 Lebreton, L., & Andrady, A. (2019). Future scenarios of global plastic waste generation and disposal. *Palgrave Communications* 5 (6).. <https://doi.org/10.1057/s41599-018-0212-7>
- 24 Barra et al. (2018). Plastics and the circular economy. Scientific and Technical Advisory Panel to the Global Environment Facility. Washington, DC. <https://www.thegef.org/sites/default/files/publications/PLASTICS%20for%20posting.pdf>
- 25 Stahl, W. R. (2016, March 23). The Circular Economy. *Nature.com*. <https://www.nature.com/news/the-circular-economy-1.19594>
- 26 Barclays (2018, December 5). Tackling the Challenge of Plastic Pollution. <https://www.barclays.co.uk/wealth-management/news-and-insights/investments/tackling-plastic-pollution/>
- 27 Citi Group (2019). Rethinking Single-Use Plastics. <https://www.citibank.com/commercialbank/insights/assets/docs/2018/rethinking-single-use-plastics.pdf>
- 28 Based on an analysis of the public policies on the websites of the 20 banks.
- 29 Global Environment Facility (2019, June 10). The circular economy: tackling plastic pollution. <https://www.thegef.org/news/circular-economy-tackling-plastic-pollution>
- 30 Portfolio.earth (2020). Bankrolling Extinction. <https://portfolio.earth/wp-content/uploads/2020/10/Bankrolling-Extinction-Report.pdf>
- 31 Geyer, R. et al. (2017). Production, use, and fate of all plastics ever made. *Science Advances* 3 (7). DOI: 10.1126/sciadv.1700782. <https://advances.sciencemag.org/content/3/7/e1700782>
- 32 Jambeck, J. R., et al. (2015). Plastic waste inputs from land into the ocean. *Science* 347 (6223). 1. DOI: 10.1126/science.1260352. <https://science.sciencemag.org/content/347/6223/768.full>
- 33 Greenpeace (2018, June 8). Key Facts About Plastic Pollution. <https://www.greenpeace.org/usa/key-facts-about-plastic-pollution/>
- 34 Pew (2020, July 23). Research Finds Plastic Flows Into the Ocean Expected to Triple by 2040—but Immediate Action Could Stem Tide by More Than 80%. [Press Release]. <https://www.pewtrusts.org/en/about/news-room/press-releases-and-statements/2020/07/23/research-finds-plastic-flows-into-the-ocean-expected-to-triple-by-2040>
- 35 Science Daily (2020, August 18). There is at least 10 times more plastic in the Atlantic than previously thought. <https://www.sciencedaily.com/releases/2020/08/200818114940.htm>
- 36 Freinkel, S. (2011, May 29). A Brief History of Plastic's Conquest of the World. *Scientific American*. <https://www.scientificamerican.com/article/a-brief-history-of-plastic-world-conquest/>
- 37 Duer, J (2020, July 1). The plastic pandemic is only getting worse during COVID-19. *World Economic Forum*. <https://www.weforum.org/agenda/2020/07/plastic-waste-management-covid19-ppe/>
- 38 Hale, R.C. & Song. B. (2020). Single-Use Plastics and COVID-19: Scientific Evidence and Environmental Regulations. *Environ Sci Technol*. 54(12), 7034–7036. <https://doi.org/10.1021/acs.est.0c02269>
- 39 Sir, A. (2020, June 11). The impact of the COVID-19 pandemic on phasing out single-use plastics. *Freshfields Bruckhaus Deringer*. <https://sustainability.freshfields.com/post/102g9bc/the-impact-of-the-covid-19-pandemic-on-phasing-out-single-use-plastics>
- 40 Tullo, A.H. (2020, April 7). Plastic bag bans rolled back for COVID-19. *Chemical & Engineering News* <https://cen.acs.org/environment/sustainability/Plastic-bag-bans-rolled-back/98/web/2020/04>
- 41 Geyer, R. et al. (2017). Production, use, and fate of all plastics ever made. *Science Advances* 3 (7). DOI: 10.1126/sciadv.1700782. <https://advances.sciencemag.org/content/3/7/e1700782>
- 42 Suzuki, D. (2012, July 31). David Suzuki: How plastic bags are hurting the environment. *The Georgia Straight*. <https://www.straight.com/news/david-suzuki-how-plastic-bags-are-hurting-environment>
- 43 CBD (2016). Marine Debris: Understanding, Preventing and Mitigating the Significant Adverse Impacts on Marine and Coastal Biodiversity. *CBD Technical Series No. 83*. <https://www.cbd.int/doc/publications/cbd-ts-83-en.pdf>
- 44 IUCN (2018). Marine Plastics. https://www.iucn.org/sites/dev/files/marine_plastics_issues_brief_final_0.pdf
- 45 Greenpeace (2018, June 8). Key Facts About Plastic Pollution. <https://www.greenpeace.org/usa/key-facts-about-plastic-pollution/>
- 46 Lamb, J.B. et al. (2018). Plastic waste associated with disease on coral reefs. *Science* 359 (6374), 460-462. DOI: 10.1126/science.aar3320.

Endnotes

- 47 National Oceanic and Atmospheric Administration (2020). What is ghost fishing? <https://oceanservice.noaa.gov/facts/ghostfishing.html>
- 48 Richardson, K, & Hardesty, B.D. (2019). Estimates of fishing gear loss rates at a global scale: A literature review and meta-analysis. *Fish and Fisheries* 20 (6), 1218– 1231. <https://doi.org/10.1111/faf.12407>. <https://onlinelibrary.wiley.com/doi/full/10.1111/faf.12407>
- 49 Laville, S. (2019, November 6). Dumped fishing gear is biggest plastic polluter in ocean, report finds. *The Guardian*. <https://www.theguardian.com/environment/2019/nov/06/dumped-fishing-gear-is-biggest-plastic-polluter-in-ocean-finds-report>
- 50 Winton, D. et al. (2020). Macroplastic pollution in freshwater environments: Focusing public and policy action. *Science of The Total Environment* 704, 135242. <https://doi.org/10.1016/j.scitotenv.2019.135242> <https://www.sciencedirect.com/science/article/pii/S0048969719352349>
- 51 Van Emmerik, T.& Schwarz, A. (2019). Plastic debris in rivers. *Wires Water* 7 (1), e1398. <https://onlinelibrary.wiley.com/doi/full/10.1002/wat2.1398>
- 52 Hamilton, L.A. et al. (2019). Plastic & Climate: The Hidden Costs of a Plastic Planet. *CIEL*. <https://www.ciel.org/wp-content/uploads/2019/05/Plastic-and-Climate-Executive-Summary-2019.pdf>
- 53 IEA(2020). Global CO2 emissions in 2019. [Press Release]. <https://www.iea.org/articles/global-co2-emissions-in-2019>
- 54 Center for International Environment Law (2019, May 15). Sweeping New Report on Global Environmental Impact of Plastics Reveals Severe Damage to Climate [Press Release]. <https://www.ciel.org/news/plasticandclimate/>
- 55 Redondo-Hasselerharm, P.E., et al. (2020). Nano- and microplastics affect the composition of freshwater benthic communities in the long term. *Science Advances* 6 (5). DOI: 10.1126/sciadv.aay4054..
- 56 Wageningen University (2020, February 4). Effects microplastics and nanoplastics on biodiversity only visible after a year. <https://www.wur.nl/en/newsarticle/Effects-microplastics-and-nanoplastics-on-biodiversity-only-visible-after-a-year.htm>
- 57 Hu, D et al. (2019). Microplastics and nanoplastics: would they affect global biodiversity change? *Environmental Science and Pollution Research* 26, 19997–20002. <https://doi.org/10.1007/s11356-019-05414-5>
- 58 Watts, J. (2020, September 2). Microplastic pollution devastating soil species, study finds. *The Guardian*. https://www.theguardian.com/environment/2020/sep/02/microplastic-pollution-devastating-soil-species-study-finds?CMP=Share_iOSApp_Other
- 59 Bergmann, M et. al. (2019). White and wonderful? Microplastics prevail in snow from the Alps to the Arctic. *Science Advances*5(8). DOI: 10.1126/sciadv.aax1157
- 60 Moore, C.J. et. al. (2001). A Comparison of Plastic and Plankton in the North Pacific Central Gyre. *Marine Pollution Bulletin* 42(12), 1297-1300. doi: 10.1016/s0025-326x(01)00114-x
- 61 Geyer, R. et al. (2017). Production, use, and fate of all plastics ever made. *Science Advances* 3(7), e1700782. DOI: 10.1126/sciadv.1700782. <https://advances.sciencemag.org/content/3/7/e1700782>
- 62 Barra et al. (2018). Plastics and the circular economy. Scientific and Technical Advisory Panel to the Global Environment Facility. Washington, DC. <https://www.thegef.org/sites/default/files/publications/PLASTICS%20for%20posting.pdf>
- 63 Geyer, R. et al. (2017). Production, use, and fate of all plastics ever made. *Science Advances* 3 (7). DOI: 10.1126/sciadv.1700782. <https://advances.sciencemag.org/content/3/7/e1700782>
- 64 Geyer, R. et al. (2017). Production, use, and fate of all plastics ever made. *Science Advances* 3 (7). DOI: 10.1126/sciadv.1700782. <https://advances.sciencemag.org/content/3/7/e1700782>
- 65 Geyer, R. et al. (2017). Production, use, and fate of all plastics ever made. *Science Advances* 3 (7). DOI: 10.1126/sciadv.1700782. <https://advances.sciencemag.org/content/3/7/e1700782>
- 66 Citi Group (2019). Rethinking Single-Use Plastics. <https://www.citibank.com/commercialbank/insights/assets/docs/2018/rethinking-single-use-plastics.pdf>
- 67 Citi Group (2019). Rethinking Single-Use Plastics.
- 68 Geyer, R. et al. (2017). Production, use, and fate of all plastics ever made. *Science Advances* 3 (7). DOI: 10.1126/sciadv.1700782. <https://advances.sciencemag.org/content/3/7/e1700782>
- 69 Citi Group (2019). Rethinking Single-Use Plastics. <https://www.citibank.com/commercialbank/insights/assets/docs/2018/rethinking-single-use-plastics.pdf>
- 70 Geyer, R. et al. (2017). Production, use, and fate of all plastics ever made. *Science Advances* 3 (7). DOI: 10.1126/sciadv.1700782. <https://advances.sciencemag.org/content/3/7/e1700782>
- 71 World Economic Forum, Ellen MacArthur Foundation and McKinsey & Company (2016). The New Plastics Economy – Rethinking the future of plastics. https://www.ellenmacarthurfoundation.org/assets/downloads/EllenMacArthurFoundation_TheNew-PlasticsEconomy_Pages.pdf
- 72 Varshneya, A. (2019). Truth Behind the Trash: “America Recycles Day”. Break from Plastic Movement. <https://www.breakfreefromplastic.org/2019/11/16/truth-behind-the-trash-america-recycles-day/>
- 73 Keep America Beautiful (2020). About. <https://kab.org/about/>
- 74 Sullivan, L (2020, September 11). How Big Oil Misled The Public Into Believing Plastic Would Be Recycled. NPR. <https://www.npr.org/2020/09/11/897692090/how-big-oil-misled-the-public-into-believing-plastic-would-be-recycled?fbclid=IwAR3MDz9ib3ShhzQZHB-Cb-BqiEvBXqC3eT3eDMtVCr4nXb3D8WjL-Zyjj0BGE&t=1599984913121>
- 75 Keep America Beautiful (2020). About. <https://kab.org/about/partners/>
- 76 Corporate Europe Observatory (2018, March 28). Packaging lobby’s support for anti-litter groups deflects tougher solutions. <https://corporateeurope.org/en/power-lobbies/2018/03/packaging-lobby-support-anti-litter-groups-deflects-tougher-solutions>
- 77 Corporate Europe Observatory (2018, March 28). Packaging lobby’s support for anti-litter groups deflects tougher solutions. <https://corporateeurope.org/en/power-lobbies/2018/03/packaging-lobby-support-anti-litter-groups-deflects-tougher-solutions>
- 78 Clean Europe Network (2002) About us. <http://cleaneuropenetwork.eu/en/we-are-the-clean-europe-network/aua/>
- 79 Dunaway, F. (2017, November 21). The ‘Crying Indian’ ad that fooled the environmental movement. *Chicago Tribune*. <https://www.chicagotribune.com/opinion/commentary/ct-perspec-indian-crying-environment-ads-pollution-1123-20171113-story.html>
- 80 Plastic Soup Foundation (2020, April 29). American Plastics and Recycling Industry Requests \$1 Billion Support. <https://www.plasticsoupfoundation.org/en/2020/04/amerikaanse-plastic-en-recyclingindustrie-vraagt-1-miljard-steu/>
- 81 Letter to the American Congress (2020). <https://www.documentcloud.org/documents/6877535-RECOVER-Coalition-Letter.html>
- 82 Letter to the European Commission (2020). https://fd0ea2e2-fecf-4f82-8b1b-9e5e1ebec6a0.filesusr.com/ugd/2eb778_9d8ec284e39b4c-7d84e774f0da14f2e8.pdf
- 83 European Commission (2019). <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L0904&from=EN>
- 84 Simon, F. (2020, April 15). EU dismisses industry calls to lift ban on single-use plastics. *Euractiv.com*. <https://www.euractiv.com/section/circular-economy/news/eu-dismisses-industry-calls-to-lift-ban-on-single-use-plastics/>
- 85 Ellen MacArthur Foundation (2020). Global Commitment. <https://www.newplasticseconomy.org/projects/global-commitment>
- 86 UNEP (2018, October 29). ‘A line in the sand’ – Global Commitment to eliminate plastic pollution at the source. [Press Release]. <https://www.unenvironment.org/news-and-stories/press-release/line-sand-global-commitment-eliminate-plastic-pollution-source>
- 87 Ellen MacArthur Foundation (2020). Signatories. <https://www.newplasticseconomy.org/projects/global-commitment/signatories#8>
- 88 ING (2020). <https://www.ing.com/Sustainability/Our-Stance/Plastic.htm>
- 89 Ellen MacArthur Foundation (2018). Global Commitment. <https://www.ellenmacarthurfoundation.org/assets/downloads/13319-Global-Commitment-Definitions.pdf>
- 90 Oceana (2018, October 29). Oceana Denounces Corporate Recycling Commitments as Answer to Global Plastics Crisis. [Press Release]. <https://usa.oceana.org/press-releases/oceana-denounces-corporate-recycling-commitments-answer-global-plastics-crisis>
- 91 Accountability Framework Initiative (2020). Core Principles. https://accountability-framework.org/wp-content/uploads/2020/03/Core_Principles-Mar2020.pdf
- 92 Ellen McArthur Foundation (2019). The New Plastics Economy Global Commitment Progress Report 2019. <https://www.newplasticseconomy.org/assets/doc/Global-Commitment-2019-Progress-Report.pdf>
- 93 Geyer, R. et al. (2017). Production, use, and fate of all plastics ever made. *Science Advances* 3 (7). DOI: 10.1126/sciadv.1700782. <https://advances.sciencemag.org/content/3/7/e1700782>
- 94 As You Sow (2020). Waste and Opportunity 2020: Searching for Corporate Leadership. <http://www.asyousow.org/report-page/waste-and-opportunity-2020-searching-corporate-leadership>
- 95 Donovan-Smith, O. (2020, March 31). Companies’ New Pledges to Boost Recycling Face Old Pitfalls. *PBS Frontline*. <https://www.pbs.org/wgbh/frontline/article/companies-new-pledges-to-boost-recycling-face-old-pitfalls/>
- 96 Coca Cola (2018, January 19). The Coca-Cola Company Announces New Global Vision to Help Create a World Without Waste. [Press Release]. <https://www.coca-colacompany.com/press-releases/coca-cola-announces-new-global-vision-to-help-create-world-without-waste>
- 97 Laville, S (2019, March 14). Coca-Cola admits it produces 3m tonnes of plastic packaging a year. *The Guardian*. <https://www.theguardian.com/business/2019/mar/14/coca-cola-admits-it-produces-3m-tonnes-of-plastic-packaging-a-year>
- 98 Ellen MacArthur Foundation (2020). Signatories. https://www.newplasticseconomy.org/assets/doc/Global-Commitment-Signatories_List_Document-to-download-on-website_Feb-2020-V2.pdf

Endnotes

- 99 Goldsberry, C. (2020, July 24). Coca-Cola, PepsiCo exit Plastics Industry Association to boost 'green' cred. *Plastics Today*. <https://www.plasticstoday.com/recycling/coca-cola-pepsico-exit-plastics-industry-association-boost-green-cred>
- 100 Donovan-Smith, O. (2020, March 31). Companies' New Pledges to Boost Recycling Face Old Pitfalls. *PBS Frontline*. <https://www.pbs.org/wgbh/frontline/article/companies-new-pledges-to-boost-recycling-face-old-pitfalls/>
- 101 PepsiCo. (2018, October 26). PepsiCo Announces New Packaging Goal For 25% Recycled Plastic Content By 2025. [Press Release]. <https://www.pepsico.com/news/press-release/pepsico-announces-new-packaging-goal-for-25-recycled-plastic-content-by-202510262018>
- 102 Ellen MacArthur Foundation (2020). Signatories. https://www.newplasticseconomy.org/assets/doc/Global-Commitment-Signatories_List_Document-to-download-on-website_Feb-2020-V2.pdf
- 103 Goldsberry, C. (2020, July 24). Coca-Cola, PepsiCo exit Plastics Industry Association to boost 'green' cred. *Plastics Today*. <https://www.plasticstoday.com/recycling/coca-cola-pepsico-exit-plastics-industry-association-boost-green-cred>
- 104 Karasik, R. 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/sites/default/files/publications/20-Years-of-Government-Responses-to-the-Global-Plastic-Pollution-Problem_final_reduced.pdf
- 105 Nicholas Institute for Environmental Policy Solutions (2020). Plastics Policy Inventory Search. https://nicholasinstitute.duke.edu/plastics-policy-inventory/search?f%5B0%5D=level%3A10_International
- 106 Karasik, R. 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/sites/default/files/publications/20-Years-of-Government-Responses-to-the-Global-Plastic-Pollution-Problem_final_reduced.pdf
- 107 McVeigh, K. (2020, November 16). Global treaty to tackle plastic pollution gains steam without US and UK. *The Guardian*. <https://www.theguardian.com/environment/2020/nov/16/us-and-uk-yet-to-show-support-for-global-treaty-to-tackle-plastic-pollution>
- 108 Tabuchi, H et al. (2020, August 30). Big Oil Is in Trouble. Its Plan: Flood Africa With Plastic. *The New York Times* <https://www.nytimes.com/2020/08/30/climate/oil-kenya-africa-plastics-trade.html>
- 109 Buchholz, K. (2020, June 10). The Countries Banning Plastic Bags. *Statista*. <https://www.statista.com/chart/14120/the-countries-banning-plastic-bags/>
- 110 Buchholz, K. (2020, June 10). The Countries Banning Plastic Bags. *Statista*. <https://www.statista.com/chart/14120/the-countries-banning-plastic-bags/>
- 111 AIPMA (2019). White Paper by AIPMA on Environment Issues. <https://www.aipma.net/Industry-Update/July-2019/White%20Paper%20by%20AIPMA%20on%20Environment%20Issues.pdf>
- 112 Plastics for Change (2019, December 10). National framework for India's extended producer responsibility (EPR) is now prepared. <https://www.plasticsforchange.org/blog/category/national-framework-for-indias-extended-producers-responsibility-epr-has-been-announced>
- 113 Katz, C. (2019, March 7). Piling Up: How China's Ban on Importing Waste Has Stalled Global Recycling. *Yale Environment 360*. <https://e360.yale.edu/features/piling-up-how-chinas-ban-on-importing-waste-has-stalled-global-recycling>
- 114 National Geographic (2018). Plastic Recycling is Broken. Here is how to fix it. <https://www.nationalgeographic.com/news/2018/06/china-plastic-recycling-ban-solutions-science-environment/>
- 115 Nace, T (2020, January 20). China to ban all single-use plastics. *Forbes*. <https://www.forbes.com/sites/trevornace/2020/01/20/china-to-ban-all-single-use-plastics/#469926e97293>
- 116 Plastics Europe (2018). Plastics 2030 - PlasticsEurope's Voluntary Commitment to increasing circularity and resource efficiency. https://www.plasticseurope.org/application/files/6115/1700/8779/PlasticsEurope_Voluntary_Commitment_16012018.pdf
- 117 Plastics Europe. (2018, January 16). PlasticsEurope publishes its Voluntary Commitment to increase circularity and resource efficiency. [Press Release]. https://www.plasticseurope.org/application/files/1015/1966/6017/press_release.pdf
- 118 Plastics Europe. Progress Report. <https://www.plasticseurope.org/en/focus-areas/our-commitment/progress-report>
- 119 Plastics Europe. (2018, January 16). PlasticsEurope publishes its Voluntary Commitment to increase circularity and resource efficiency. [Press Release]. https://www.plasticseurope.org/application/files/1015/1966/6017/press_release.pdf
- 120 Plastics Europe. Progress Report. <https://www.plasticseurope.org/en/focus-areas/our-commitment/progress-report>
- 121 American Chemist Council (2018, May 9). U.S. Plastics Resin Producers Set Circular Economy Goals to Recycle or Recover 100% of Plastic Packaging by 2040. [Press Release] <https://www.americanchemistry.com/Media/PressReleases/Transcripts/ACC-news-releases/US-Plastics-Producers-Set-Circular-Economy-Goals-to-Recycle-or-Recover-100-Percent-of-Plastic-Packaging-by-2040.html>
- 122 CIAC (2018, June 4). Canadian plastics and chemistry industries set ambitious targets to reuse, recycle or recover 100% of plastics packaging by 2040. <https://canadianchemistry.ca/blog/2018/06/04/canadian-plastics-and-chemistry-industries-set-ambitious-targets-to-reuse-recycle-or-recover-100-of-plastics-packaging-by-2040/>
- 123 APCO (2020). Australia's 2025 National Packaging Targets. <https://apco.org.au/national-packaging-targets>
- 124 Plastics SA (2019, June 23). SA announces pollution alliance. [Press Release]. <http://www.plasticsinfo.co.za/2019/07/23/plastics-sa-announces-pollution-alliance/>
- 125 Plastics SA (2019, June 23). SA announces pollution alliance. [Press Release]. <http://www.plasticsinfo.co.za/2019/07/23/plastics-sa-announces-pollution-alliance/>
- 126 Plastics SA (2020). SA Initiative to end plastic waste in the environment. <https://www.plasticsinfo.co.za/s-a-alliance-to-end-plastic-waste-in-the-environment/#tab-id-3>



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