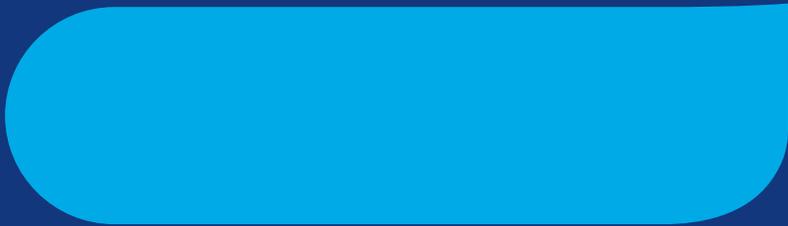


# Investor Expectations for Global Plastics Challenges

An underwater photograph showing a sea turtle swimming towards the camera, with a clear plastic bag in its mouth. The water is filled with various pieces of plastic waste, including bottles and fragments, creating a somber and environmental message.

April 2020



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## Executive Summary

Plastic has transformed our world, thanks to its low cost and a range of societal benefits, from lightweighting millions of products to reducing food waste and communicable diseases. However, the volume and nature of plastics use presents an enormous challenge.

Plastics are predominantly produced from fossil fuel-based hydrocarbons, are non-biodegradable, and are used in a take-make-waste model.

Investors are concerned that a failure to account for the negative impacts of plastic has resulted in numerous interlinked challenges – from acute environmental pollution and potential human health impacts, to substantial greenhouse gas emissions across plastics value chains. Companies in isolation are poorly equipped to address the wider value chain challenges of plastics, and we believe that businesses, key sectors, policymakers and society must rethink — and re-engineer — our global plastics system.



### What is the scale and nature of the challenge?

Since the 1950s, plastics production has increased by 8% annually. We consume 20 times more plastic than we did in 1964, and plastics production rates are expected to have doubled again within 20 years. Plastics use tends to accelerate as emerging economies increase their purchasing power; worryingly, these economies usually follow the same plastics use blueprint as that of developed markets because companies rely on the prevailing take-make-waste plastics model to go to market.

Packaging is a key application of plastics, representing about a quarter of the total volume and about one-third of total plastic resin demand. Packaging accounts for 40% of EU plastics volume and 59% of all plastic waste in this region. It is no surprise then, that packaging attracts outsized scrutiny.

Since the

# 1950s

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# 8%

annually.



### What are the risks that investors need to understand?

Challenges lie ahead for today's model of plastics and packaging use. Only 14% of estimated plastic packaging is recycled globally. Of the remainder, around 14% is incinerated, 40% is landfilled, and 32% is 'leaked' to the environment.

### The proliferation of microplastics in animals and aquatic species has attracted significant scientific study but the effect of plastic inside the human body is not fully understood.

This collective failure to tackle global plastics flows is unlikely to continue indefinitely. A combination of regulation, scarcity and the long-term need to decouple consumption from fossil fuel use is starting to change the business and societal case for action on plastics, raising commercial challenges across sectors. Investors should understand several issues to which companies could be exposed:

- Climate-related risks:** Emissions from plastics value chains could account for 17% of the global carbon budget by 2050 with no changes, if global temperature rises are to be kept below 1.5 degrees Celsius in line with the Paris Agreement. Companies reliant on plastics could be exposed to climate change mitigation costs. Taxation and economic disincentives may impact these users of hydrocarbons, feeding through to the cost of plastics.
- Environmental risks:** The UN Environment Programme conservatively estimates that negative societal costs from plastics pollution amount to US\$40bn annually. Degradation of the natural environment, pollution of water habitats, and acute impacts on animal and aquatic life are already attracting public and policymaker attention.
- Human health risks:** The proliferation of microplastics in animals and aquatic species has attracted significant scientific study but the effect of plastic inside the human body is not fully understood. An increased understanding of bodily plastic contamination could have a real impact on consumer concern and human health restrictions, given that we ingest the weight of about one credit card in plastics in an average week.
- Licence-to-operate risks:** The risks outlined above may impact a company's licence-to-operate, but beyond this, the public awareness of plastics as a threat to human health and the environment is growing. Companies that are heavily reliant on plastic will fare worse as licence-to-operate is scrutinised, and reputational risks loom large.
- Regulatory risks:** Beyond the actions taken in the developed world, including progressive legislation from the EU, some developing economies are aggressively regulating plastics. China's total ban on imported plastic waste and India's drive to eliminate single-use plastics by 2022 are examples of actions that have real consequences for how companies operate.



Companies reliant on plastics could be exposed to climate change mitigation costs.



### What opportunities are available to companies that act?

Changes in the way the world uses plastic provide opportunities for investors, and we believe companies with robust commercial responses to key challenges may be rewarded over the longer term.

For some value chain participants, such as chemicals makers and packaging manufacturers, this represents an investment in significant **long-term growth opportunities**, as innovative solutions are needed to reduce the impact of plastics and packaging. All firms exposed to plastics value chains can take early steps to **future-proof supply chains** against unpredictable costs and disruptions from changing regulation and societal norms. It may be possible to **stabilise long-term costs** where companies have a significant plastic-exposed cost base; in fast-moving consumer goods, packaging has been found to account for as much as 14% of the cost of goods sold. **Meeting consumer demand** is not just about reputational damage control, given that an ever-broader base of customers is interested in attractive alternatives to unsustainable plastics and packaging. Finally, for many companies, plastic is a tangible part of the total carbon emissions footprint of their products, and so changing how plastics and packaging are used may **reduce embedded emissions**.

**Our engagement activity focuses on businesses engaged in the manufacturing of chemicals for plastics, and the design, marketing and retailing of consumer goods.**



### Our expectations for moving from opportunity to action

We expect companies to move from treating plastic as an externalised risk, to developing strategies that consider it as a resource requiring responsible management and value preservation – in partnership with suppliers, customers, processors and regulators.

Our engagement activity focuses on businesses engaged in the manufacturing of chemicals for plastics, and the design, marketing and retailing of consumer goods. In 2020 and beyond, we are amplifying our engagement in the chemicals, consumer goods and retail sectors by setting objectives for high-risk companies and targeting outcomes that address opportunities and risks.

For each sector in this report, we believe companies should be on a journey of change, from *Starting Out* expectations that we outline. We plan to drive engagement that focuses on moving corporate strategies, goals, transparency and reporting from this starting point to *Evolving the Approach and Market Leadership*. Without a cogent, disclosed journey on the sustainability of plastics and packaging, we believe many companies will face significant scrutiny from investors and stakeholders.

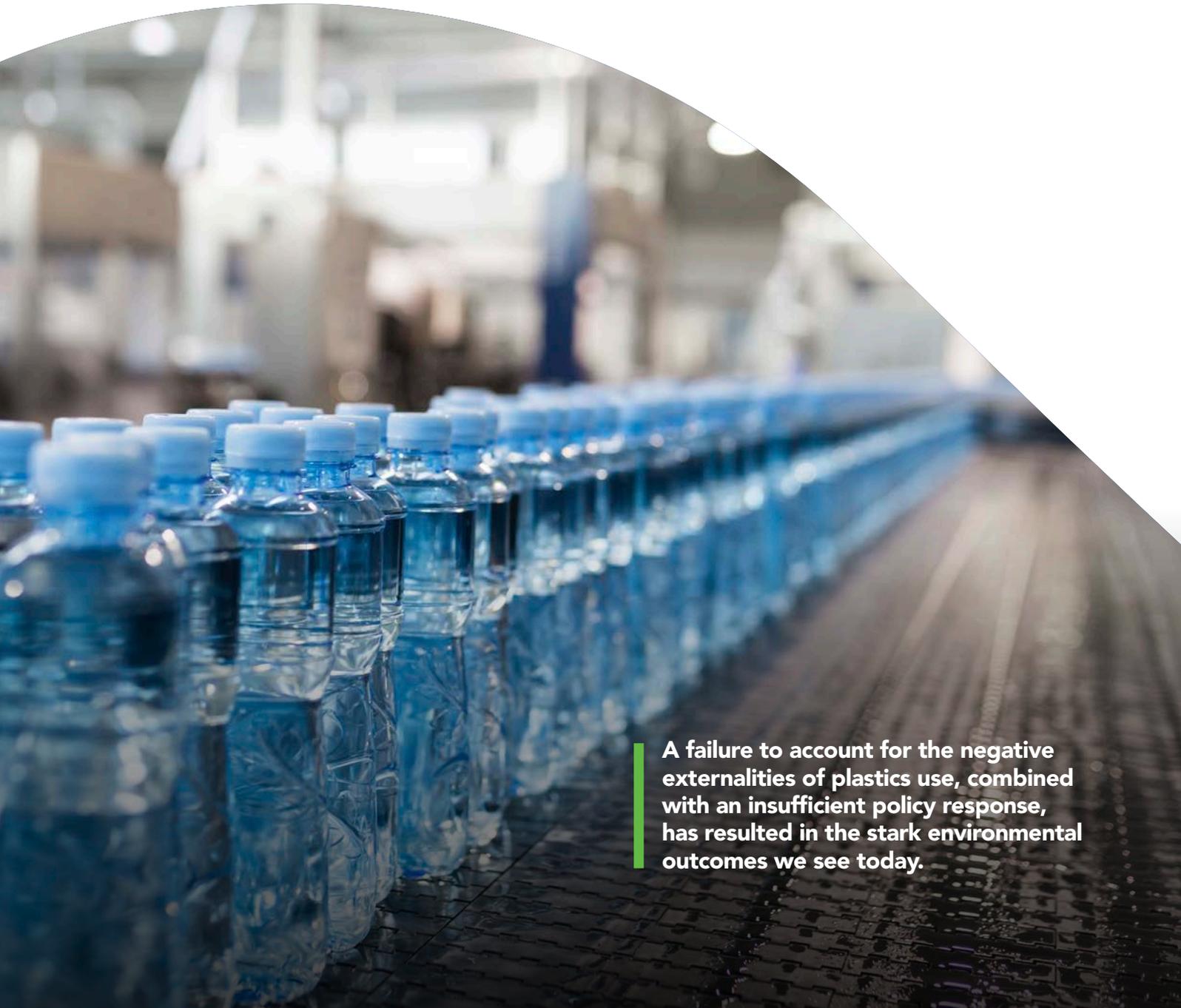
This report concludes with a series of questions that investors can ask of companies at each point on this journey. Our approach to engagement considers key elements relating to a sustainable plastics strategy, including management, governance and disclosure. However, these questions are a key part of engagement with companies along the plastics value chain, and a good starting point for any investor in dialogue with companies on this complex challenge.

## 1. The paradox of plastics

A durable and versatile material, plastic has transformed industries and offers substantial societal benefits. Plastic will also play a role in the transition to a low carbon economy<sup>1</sup>, through its use in lightweight components for electric vehicles, and by helping to reduce food waste and communicable diseases via protective, hygienic packaging. We cannot underestimate the role of plastic in efficiently addressing critical needs, including those in pharmaceuticals, hazardous waste control and early-life nutrition.

Paradoxically, the versatility and cost-effectiveness of plastic also makes its use problematic. The raw materials used in plastics are typically derived from fossil-based hydrocarbons and are mostly non-biodegradable. The plastic produced is predominantly wasted and leaks into our environment. Until recently, the current model of plastics use has not given more than cursory consideration to the negative environmental and social impacts. A failure to account for the negative externalities of plastics use, combined with an insufficient policy response, has resulted in the stark environmental outcomes we see today.

We are concerned that companies and their wider value chains are poorly equipped to respond to the risks and opportunities of plastics use, which we elaborate on in detail in this document. We contend that companies, policymakers and society must fundamentally rethink plastics use, whilst avoiding unintended consequences from potential solutions.



**A failure to account for the negative externalities of plastics use, combined with an insufficient policy response, has resulted in the stark environmental outcomes we see today.**



Packaging is the largest application of plastics, representing around 26% of total volume and about one-third of plastic resin demand.

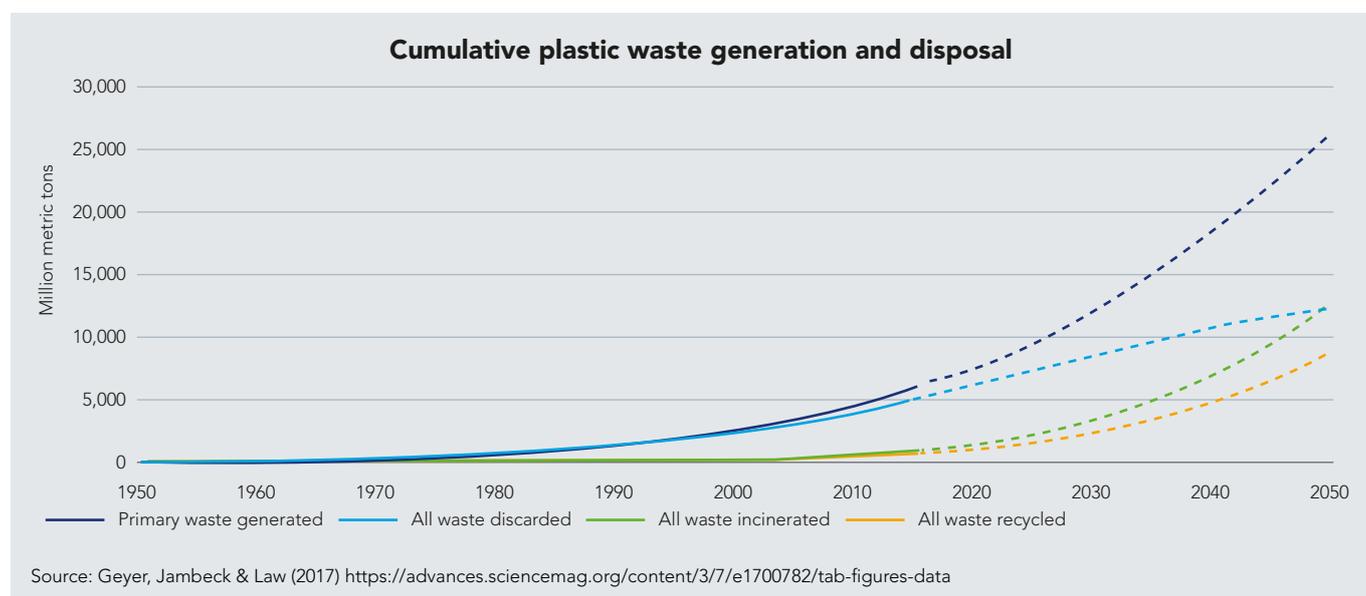
## 2. The scale and nature of global plastics and packaging

The convenience and cost-effectiveness of plastics has driven an immense increase in global use. Since the 1950s, production has increased 8% annually.

We consume 20 times more plastic than we did in 1964<sup>2</sup>, and plastics production rates are expected to double in the next 20 years<sup>3</sup>. By 2050, we may cumulatively produce 26,000 million tonnes of plastics waste<sup>4</sup> if there are no changes to this system (see diagram). Per capita use varies, with the US at almost 100 kilograms per year, Brazil at 30 kilograms and China at 61 kilograms. Plastic use tends to accelerate as emerging economies increase their purchasing power and consume more.

Emerging economies tend to follow the same pattern as developed markets because companies rely on the same blueprint – resource use is largely externalised, resulting in environmental costs and impacts that are unaddressed. Therefore, until recently these wider issues received scant corporate attention.

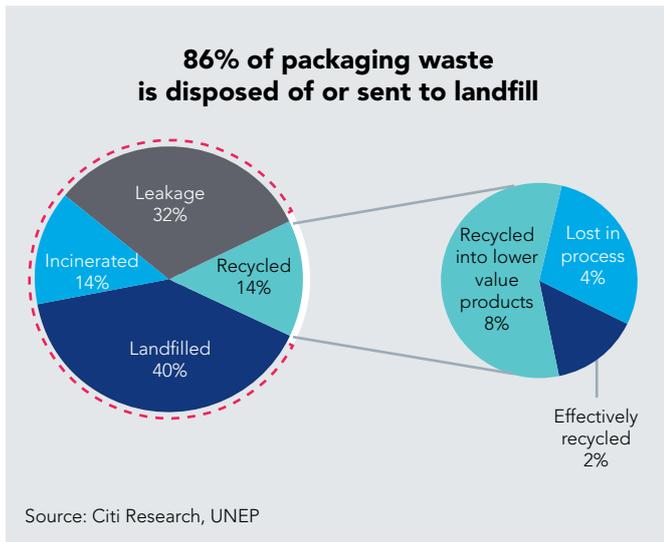
Packaging is the largest application of plastics, representing around 26% of total volume<sup>5</sup> and about one-third of plastic resin demand<sup>6</sup>. Most packaging comprises relatively small, lightweight single-use items that have no value after one use and so are more likely to be disposed of as waste and become a pollutant. It is therefore attracting a great deal of scrutiny – but we believe there is tremendous opportunity for companies and value chains to adopt more sustainable packaging models.



### 3. Why should investors care?

We believe that the linear, take-make-waste model for plastics has become unacceptable from a social, environmental and regulatory perspective, and companies reliant on this model will face substantial new commercial risks in coming years. Companies and their shareholders need to grapple seriously with the challenges and opportunities ahead.

First, we contend that corporate and policymaker failures to sustainably manage global plastics flows won't be allowed to continue. Statistics on plastics flows vary, but it is estimated that only 14% of plastic packaging is recycled globally<sup>7</sup>. Of the remainder, about 14% of packaging is incinerated, 40% is sent to landfill and a remarkable 32% of global volumes are classed as "leakage" to the environment.<sup>8</sup>



Second, we believe the use of plastics in packaging is likely to be exposed to greater commercial risk in the near term, with good reason. This is due to the share of packaging in overall plastics. In the EU, for example, packaging represents 59% of the plastic waste generated by over 500 million consumers<sup>10</sup>. As of 2015, packaging makes up 40% of total EU plastics use<sup>11</sup>.

In the EU packaging represents **59%** of the plastic waste generated by over **500m** consumers



#### Why is recycling performance so poor?

Resource-intensive but infinitely recyclable materials such as aluminium and glass retain much of their value, whereas the economics of low-cost plastics make current models of recovery, such as recycling, a challenging business case in many contexts. In regions where plastics recycling rates are lowest, financial and non-financial burdens fall disproportionately on the environment, society, government and waste management sectors, in addition to the companies that use plastics. These societal costs, or externalities, which we elaborate on in the next section, are not accounted for in the sustainable plastics business case for many companies. One economic analysis estimates that single-use packaging is responsible for US\$40bn in annual global societal costs related to issues such as pollution and carbon emissions, which may exceed the total net profit pool of the packaging industry<sup>9</sup>.

Third, we believe that a combination of regulation, scarcity and the long-term need to decouple consumption from fossil fuel use is changing the business and policy case for action on plastics. Take the US, for example: paper and steel recycling has reached over 70%, aluminium and glass hover between 30-40%, but plastic remains at about 15%<sup>12</sup>.

There is also a macroeconomic case for action. Of the 8.3 billion tonnes of virgin plastics produced as of 2015, 6.3 billion ended as waste<sup>13</sup>. The World Economic Forum estimates that US\$80-120bn is lost in terms of material value every year<sup>14</sup>, constituting 95% of the value after one use cycle. This ultimately accrues as a loss to companies and their investors, but it could be a gain. Although the cost of many new kinds of plastic remains lower than alternative or recycled materials for individual companies, one cannot assume this will continue indefinitely based on the risks we outline below.

## 4. Key risks and opportunities in global plastics

### 4.1: Risks



#### Plastic feedstocks and the climate crisis

Plastics materially contribute to the climate crisis. They are largely derived from fossil fuels and manufactured in energy-intensive processes. Scientists estimate that emissions from plastics in 2015 were equivalent to almost 1.8 billion metric tonnes of CO<sub>2</sub>. But emissions from plastics could potentially reach up to 17% of the global carbon budget by 2050, if global temperature rises are to be kept below 1.5 degrees Celsius<sup>15</sup>.

At each stage of its life, plastic contributes to emissions – from the extraction, transport and refining of fossil fuels, to manufacturing and recycling or disposal. Beyond the emissions impact of hydrocarbon extraction and use, and the logistics of handling plastics, emergent findings suggest that poorly handled plastic may also have global warming impacts. Research by academics at the University of Hawaii shows that as microplastics degrade, they emit several greenhouse gases such as methane and ethylene<sup>16</sup>.

Companies that rely on plastics will be exposed to the costs of climate change mitigation. Various forms of carbon taxation and economic disincentives may impact users of hydrocarbons and will feed through to the cost structure of plastics, directly or indirectly. Whether this proves to be insubstantial to the business and passed on to users (such as consumer goods producers, retailers and consumers), or is more disruptive depends on the nature and cost of carbon pricing. Morgan Stanley estimates that the cost of plastics as a proportion of consumer goods sales could be anywhere from 1.5% to 14%<sup>17</sup> so in some cases this could be an appreciable shift.



#### Pollution and degradation of natural environments

Degradation of natural environments, and waterway and ocean pollution are further detrimental consequences of our plastics use. Widely-used consumer plastics take up to 1,000 years to degrade, and leakage proliferates across the entire global environment, from deep ocean waters to local waterways. Recent research has indicated that microplastic pollution is so persistent it may never be eliminated from the environment once released.

Various plastic products make up an estimated 45-50% of total debris<sup>18</sup> found in marine environments. Without any changes, up to 16 million tonnes of plastic will make its way into oceans by 2025<sup>19</sup>. Of the well-known garbage patches in calm portions of the ocean, eight have been identified and one is three times the size of France – made up of 79,000 tonnes of waste<sup>20</sup>. Plastic debris broken down by the elements to tiny particulates below 5mm, so-called microplastics, are ingested by a broad range of species, particularly fish and birds. The UN Environment Programme conservatively estimates that negative societal costs such as degradation of the environment amount to US\$40bn annually<sup>21</sup>.

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of waste and is three times the size of France.



#### Negative impacts on human health

The detrimental impact of plastics on marine life is well-understood – but what about the impact on human health? Microplastics have been found in 114 aquatic species,<sup>26</sup> of which more than half are consumed by humans. In addition to damaging the digestive tracts of aquatic and bird species, microplastic particles concentrate toxic chemicals and heavy metals<sup>27</sup>. Often plastics contain additives such as stabilisers, flame retardants, and stiffeners. These chemicals are then introduced into food chains and bioaccumulate. Many of these substances have been found to have health consequences, such as endocrine disruption<sup>28</sup>.

The extent of the impact on human health is not yet understood, but recent peer-reviewed research demonstrates worrying trends in the proliferation of microplastics inside the body. Scientists around the world are now tracking the presence of microplastics in food chains, from small organisms up to the fish and livestock that humans consume.

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Companies and investors must recognise just how serious the human health risk flashpoint could be. A 2019 study at the University of Newcastle in Australia found that people may be ingesting 5 grams of plastic weekly, equal to the weight of a credit card<sup>29</sup>. Besides microplastics in food, much of this originates from tap and bottled water due to the ubiquity of this pollutant. We expect increased knowledge of microplastics contamination of wildlife, food chains, water and air to have a real impact on consumer concerns and health regulation.

Concerns over the health risks of microplastics might prompt regulatory action. There is a precedent for this as companies phased out Bisphenol A (BPA) in advance of, or at the behest of, national bans on this polymer due to concerns about babies' health. With BPA there is still no scientific consensus on the potential human health effects, but its use will be further restricted in the European Union as a "substance of very high concern" due to its potential toxicity in reproduction<sup>30</sup>.

## Recent studies on microplastics

Microplastics contamination is likely to trigger future health problems. A 2018 pilot study at the Medical University of Vienna found nine types of microplastics in stool samples from all participants across eight countries<sup>22</sup>, whilst a 2019 investigation by the University of Stirling found nurdles – small plastic pellets – washed up on Scottish beaches tainted with *E. coli* from as far away as India<sup>23</sup>. Researchers at the University of Manchester also found that a local river had the worst level of microplastic pollution recorded anywhere in the world<sup>24</sup>. Other new studies have found that microplastics may carry pollutants in the air we breathe<sup>25</sup>.



## Risks to social licence to operate, and investor and public awareness

If a strong link between microplastics and negative human health outcomes is established, this could trigger a strong public backlash.

However, as many consumer goods and retail executives will attest, public and investor sentiment is already shifting. Environmental campaigners also report an unprecedented amount of attention on this issue, and a growing awareness of plastics as a systemic threat to human health and the environment<sup>31</sup>.

This awareness has extended to investors. The shareholder advocacy group As You Sow filed plastics-related resolutions at the 2019 annual shareholder meetings for Starbucks, PepsiCo, YUM! Brands, DowDuPont, Chevron, ExxonMobil, Phillips and others – some of which received substantial shareholder support. At the 2019 Starbucks AGM, a resolution on reporting on sustainable packaging was supported by 44.5% of shareholders.

## Environmental campaigners also report an unprecedented amount of attention on this issue, and a growing awareness of plastics as a systemic threat to human health and the environment.

Reputational risks stemming from public criticism of company behaviour, and the corresponding loss of brand value, may also endanger shareholder value. For example, a 2018 investigation of on-the-ground plastic pollution, through 239 clean-ups and brand audits, found that PepsiCo, Coca-Cola and Nestlé packaging was the most common worldwide. Branded plastic was found in 40 out of 42 participating countries, and these three companies were responsible for around two-thirds of all waste recovered in the Americas<sup>32</sup>. Of this, polystyrene was common, and unrecyclable in many locations. This visible, branded form of unmitigated land and water pollution, and other negative exposure, has the potential to exacerbate reputational risk far beyond the most environmentally-aware consumers. Companies must consider the knock-on policy reactions and added costs and restrictions to business-as-usual activity, some of which we highlight next.



## Regulatory action and costs

In January 2019, the European Parliament voted to ban 10 single-use plastics that make up half of marine litter<sup>33</sup>. Other markets have moved to legislate on plastics. In 2018, the UN found that 127 countries had adopted some form of regulation on plastic bags, while 27 had banned or restricted single-use plastics<sup>34</sup>. This includes Kenya, which in 2017 introduced jail terms of up to four years to combat rampant plastic pollution.

Developing economies, observing the history of plastic consumption whilst grappling with local pollution challenges, could lead the way in aggressive regulation. Local unrest caused by environmental degradation was one factor that in 2018 led China to ban the import of many kinds of solid waste, mostly from developed countries with high per-capita plastics consumption. China had been the recipient of around 56% of the world's plastic waste<sup>35</sup>. The ban halted eight million tonnes of annual imports<sup>36</sup> and left policymakers in waste export countries scrambling for solutions for this unchecked consumption model.

# 127

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# 27

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Although single-use plastic restrictions have been a focus for policymakers for over two decades, China's action spurred new laws, bans and taxes elsewhere. India intends to eliminate single-use plastics by 2022, as around 40% of the country's plastic waste is not collected or recycled, making its way into soil, agricultural land and waterways. Indian states have also acted. Tamil Nadu banned the sale of 14 types of plastic whilst Maharashtra "issued a directive to large companies asking them to create a reserve fund for buying back and recycling single-use plastics used in food packaging"<sup>37</sup>.

Policy experts observe regulators working at "an unusually accelerated rate" on plastics<sup>38</sup>, so a widespread limit on waste imports beyond China could cause more problems for companies and waste exporting nations. In the UK, only about a third of the 3.7 million tonnes of the total annual plastics volume is recycled, due to the limited domestic recycling infrastructure. The quality of the plastic waste exported is also impacted by complexity and contamination, partly due to the UK's over 300 waste collection systems<sup>39</sup>. Many advanced economies lack the domestic capabilities for extensive recycling or greater circularity of plastics, and the private sector often outsources this problem to waste management companies. Deloitte estimated in 2015 that building capacity to achieve the recycling targets enshrined in EU legislation could cost around €1.1 billion per annum by 2020 – years before China blocked recycling routes for exported waste.

## 4.2: Opportunities

We believe that the potential for systemic change in the way the world uses plastic is an opportunity for investors, and there is significant value on offer for companies investing in solutions. Companies allocating capital to a robust commercial response to these challenges could be rewarded financially over the longer term. If companies act decisively, and disclose comprehensive plastics actions and strategies to investors, this can help to create and safeguard value and avoid risk. Investors should therefore make sure they understand the opportunities.

The Opportunities	Example
 <p><b>Invest in Long-Term Growth.</b> Changes in plastics value chains and how resources are used and preserved will present opportunities for companies that are investing in capabilities and offerings aligned to lower environmental impact alternatives. This is the case upstream, where chemicals and plastics manufacturers already cite some evidence for demand for recycled plastics inputs, as well as alternatives.</p>	<p>In 2019, US-based Sealed Air announced an investment in the manufacturing of Plantic plant-based resins and post-consumer plastics at its Simpsonville, North Carolina packaging factory – one of the world’s largest. Plantic was brought to market in a partnership with Kuraray, a Japanese company with bio-based and recycled materials capabilities. This investment is part of a 2018 commitment by Sealed Air to ensure all its packaging will be 100% recyclable or reusable by 2025, and to achieve 50% recycled content (60% post-consumer) across all the plastic that the company makes globally<sup>40</sup>.</p>
 <p><b>Future-Proof Supply Chains Against Disruption &amp; Maintain Licence to Operate.</b> By using plastic inputs more efficiently and adapting value chains now, companies get a head start on safeguarding operations that we believe, based on the evidence presented here, cannot continue in the same way indefinitely.</p>	<p>Thailand, the Philippines, Vietnam, Malaysia and India are among the countries to have announced bans on imports of plastic waste or scrap<sup>43</sup>. This is likely to lead to compliance costs as wealthier plastic-exporting nations are forced to shoulder a greater share of the costs due to inadequate processing capacity.</p>
 <p><b>Stabilise Long-Term Costs.</b> Morgan Stanley found that the cost of plastics as a proportion of fast-moving consumer goods (FMCG) sales can vary from 1.5% to 14%<sup>42</sup>, so the impact of volatile or increasingly regulated plastics costs may be a drag on cashflow. Where this is significant, it could be an opportunity to protect against unpredictable volatility and regulatory exposure.</p>	<p>In its report on the role of the circular economy in climate mitigation, Material Economics contends that circular use of key materials reduces the emissions intensity and environmental impacts of industrial activity and growth<sup>41</sup>. It estimates that a 33% EU-wide emissions reduction can be achieved by 2050 just by recirculating what has already been produced including 56% of plastics, 75% of steel, and 50% of aluminium.</p>
 <p><b>Meet Consumer Demand.</b> Key media events, awareness of microplastics, visible plastic waste and the potential negative impact on human health, water and land pollution all influence consumer views. Alternatives to plastic are likely to be more attractive to mainstream consumers, enabling innovative companies to gain market share and pricing power.</p>	<p>Recent studies show that consumer concern and frustration about plastics are on the rise. Some 65% more Americans care about sustainable packaging than five years ago, whilst 52% of Europeans say they will switch brands due to unrecyclable packaging<sup>44</sup>.</p>
 <p><b>Reduce Embedded Emissions.</b> In many cases, plastics and packaging represent a substantial portion of the carbon footprint of products, particularly lower-value, higher-volume goods. This represents a long-term risk exposure from a cost perspective. Conversely, it may be one of the easiest emissions reductions levers that businesses can pull, if reducing the carbon emissions from the manufacturing of the product itself is challenging.</p>	<p>Although footprints vary considerably across brands and packaging, an early Coca-Cola study found that packaging is the largest contributor to the carbon footprint of its beverages in the UK – between 33% and 72% depending on the product and packaging<sup>45</sup>.</p>

## 5. From opportunity to action

Within our thematic approach to pollution, waste and the circular economy, we are intensifying engagement with companies reliant on plastics value chains.

We expect companies to move away from treating plastic as an externalised risk, towards developing strategies that consider it as a resource requiring responsible management and value preservation throughout its lifecycle – in partnership with suppliers, customers, processors and regulators. The table below describes areas where we expect companies to concentrate their efforts in future, across three of our focus sectors.

### Why isn't total recycling the solution?

Recycling will play a strategic role in more sustainable plastic value chains. However, unlike glass and aluminium, plastic degrades each time it goes through the process of mechanical recycling. Consumer-grade plastics used in food or electronics might be too degraded after recycling, so go into lower-value applications such as carpet fibres or insulation instead. Ultimately, this translates into demand for non-degraded materials, even if recycling is maximised.

To solve this challenge, individual products and entire plastics use systems require designs that emphasise principles such as disassembly, recovery without degradation and re-use, alternative materials, light-weighting and new business models. Innovations in chemical-based recycling may help to prevent degradation and improve the economics of recycling, essentially turning plastic waste into virgin feedstock, but this cannot be relied on as a silver bullet. Moreover, bans on single-use plastics, by their nature prevent the recycling of such materials as an option.

	Chemicals	Consumer Goods	Retail
Product & packaging R&D, design & innovation	Commercially scalable, sustainable plastics production methods		Reflect and communicate rising demand for meaningful solutions with suppliers
Plastic material input manufacturing	Decouple from virgin and non-renewable inputs in production	Generate demand for attractive solutions which work for customers	Collaborate upstream to develop closed-loop, circular and value recovery-based solutions
Product & packaging manufacturing	Provide packaging manufacturers with sustainable feedstock		
Sourcing & procurement	Collaborate closely with key, high-volume buyers	Work with suppliers to design solutions for the value chain	Work with suppliers to bring value chain solutions to market
Marketing, sales & customer experience		Design attractive value propositions for mainstream consumers	Offer attractive value propositions for mainstream consumers
Customer lifecycle management, collection & recovery		Contribute to development and success of customer lifecycle management	Lead development of customer touchpoints for plastics handling and value recovery
Plastics conversion, capture or end-of-life management	Work with partners to enable circular and value recovery based value chains	Work with partners to enable circular and value recovery based value chains	Work with partners to enable circular and value recovery based value chains

## 6. Our expectations when engaging key sectors

Our engagement objectives focus on the need for companies to articulate and disclose their ambitions and strategies for reducing the negative impacts of plastic.

We also ask companies to develop solutions with meaningful and scalable outcomes, to move beyond 'take-make-waste'. Our engagement programme features businesses that are engaged in the manufacturing of chemicals for plastics, and the design, marketing and retailing of consumer goods, which we have identified as higher potential targets for engagement.

We are amplifying our engagement in the chemicals, consumer goods and retail sectors by setting objectives for high-risk companies and targeting outcomes that meaningfully confront the opportunities and risks.

For each of the sectors addressed below, every company materially exposed to the risks and opportunities of plastics should already be tackling the 'Starting Out' actions and practices. We believe companies that do not demonstrate at least this level of performance will face significant scrutiny from investors and stakeholders.

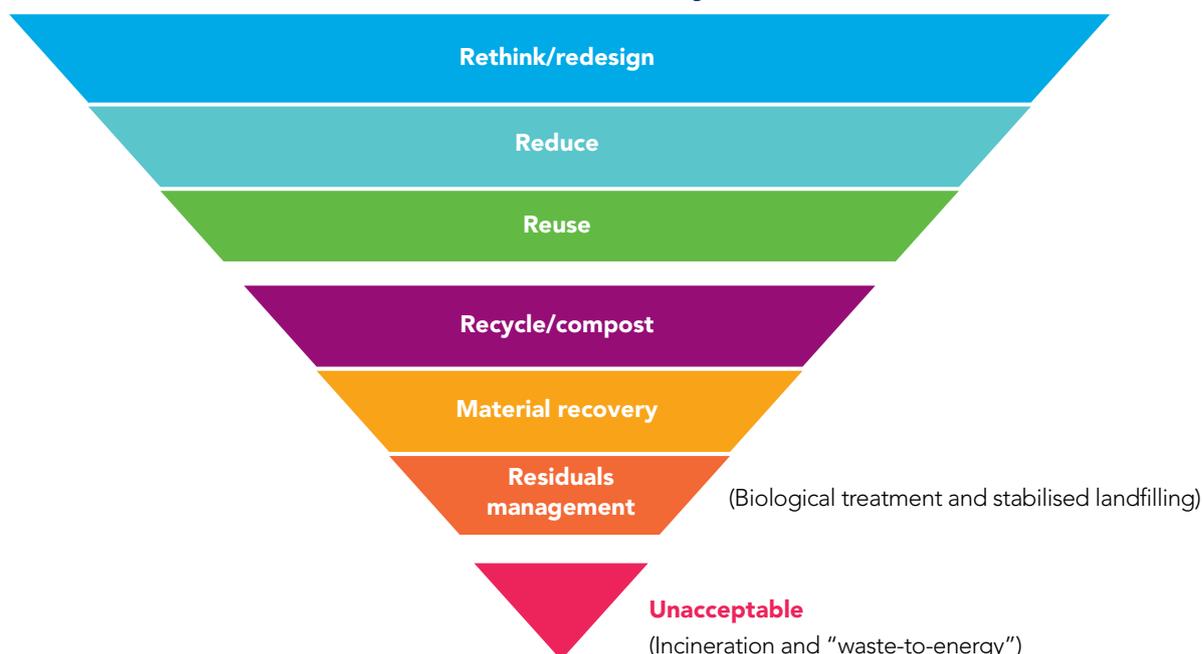
As every company has a unique value chain and model for materials use, we cannot suggest one-size-fits-all objectives or solutions. Instead, we believe a hierarchy of action is helpful within engagement. The Zero Waste International Alliance illustrates this using an order of preference, as shown below – from the least environmentally-friendly solutions such as the incineration of plastics, to best practice, such as the redesign of plastics and packaging value chains.



Beyond company engagements, we participate in the Plastic Solutions Investor Alliance led by As You Sow, a collaborative initiative to engage with consumer goods companies such as PepsiCo and Nestlé on the lifecycle of plastic packaging. We are also participants in the Investor Forum's plastic pellet management initiative. This aims to reduce ocean plastic pollution by encouraging national and international standard-setting bodies to include plastic pellet management.

We are active members of the PRI Plastics Investor Working Group to advise on plastic strategy and how investors need to engage. EOS is a signatory of the New Plastics Economy Global Commitment, led by the Ellen MacArthur Foundation with the UN Environment Programme. In 2020, we will seek new opportunities to collaborate with investors and key stakeholders on the challenges we believe that companies must confront, while expanding our investor expectations tools to include deeper dives on sector-specific challenges. We will also begin engaging with a range of plastics packaging manufacturers.

### The zero waste hierarchy 7.0



### Relative vs Absolute

The following sections refer to relative and absolute target-setting. Relative targets are set in the context of overall activity – for example, the percentage of recyclable plastic used as a proportion of total plastic used. Absolute targets are defined in isolation – such as recycling 100,000 tonnes of plastic. Targets set relative to total sales, volume, use or another characteristic are more robust, as the overall impact being achieved is more transparent.



## 6.1: Chemicals

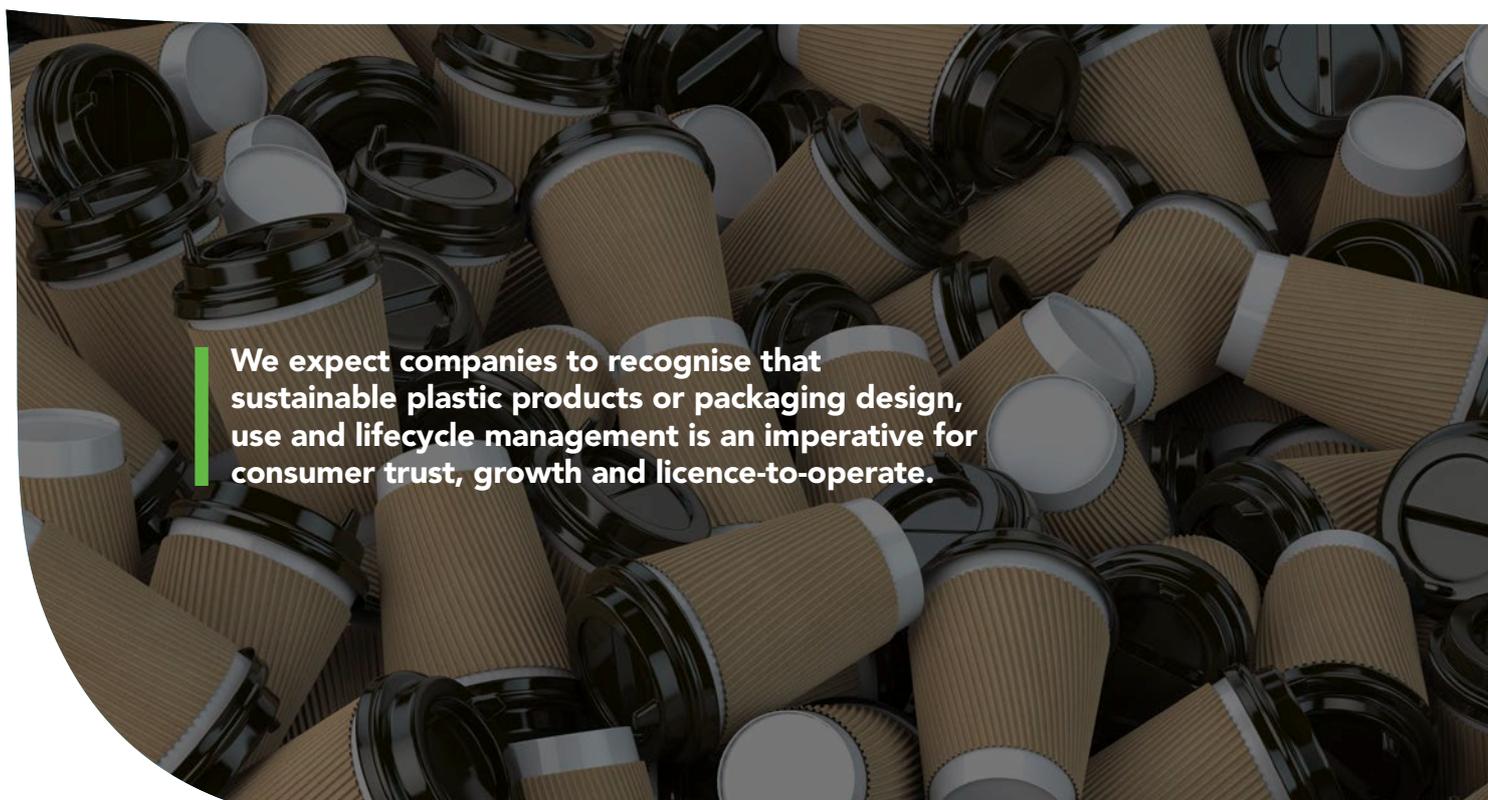
As a supplier of key plastics inputs, the chemicals sector plays a crucial role finding suitable materials for customers. In engagement, we will focus on how companies are delivering solutions for prominent plastics challenges, the resources allocated to research and development (R&D), and the capital invested in recycled and circular production.

	Starting Out	Evolving the Approach	Market Leadership
Strategy	We will ask companies to begin to describe their approach to the production of more sustainable plastics feedstocks, and how they will work with downstream customers to shift value chains over the long term.	We expect companies to articulate a strategy that acknowledges the need to develop sustainable plastics feedstocks value chains, customer solutions, and production models as one of several long-term imperatives for capital investment.	We expect companies to have sustainable material feedstocks, new methods of production and recycling, and partnerships with downstream customer value chains at the heart of their strategy, as all of these are viewed as imperatives for growth.
Goals	We want companies to begin to set targets for sustainable production, R&D, sales or volume, even if these targets only cover parts of the solution. For example, an absolute recycled materials or sustainable feedstocks goal may be less material but is the start of a journey.	We expect companies to set and disclose targets for sustainable production, R&D, sales or volumes, with end-dates showing that sustainable materials growth is a commercial imperative.	We believe companies need to set targets for sustainable production, R&D, sales or volumes, relative to total production, with end-dates. These goals are commercially-focused and demonstrate a shift to a significant, growing share of sustainable materials production.
Transparency & Reporting	Disclosures need to begin to acknowledge the total volume of plastics production, how this is changing, and the associated risk exposures in customer value chains.	We expect disclosures to provide the total volume of production and associated carbon emissions, even if this is not yet aggregated across all types of material or comparable year-on-year. Investors need to assess risk exposure in a meaningful way.	We expect disclosures to provide production volumes categorised as either traditional or sustainably produced, in detail and year-on-year, to demonstrate changes in production, risk exposure and problem-solving for downstream customers over time.

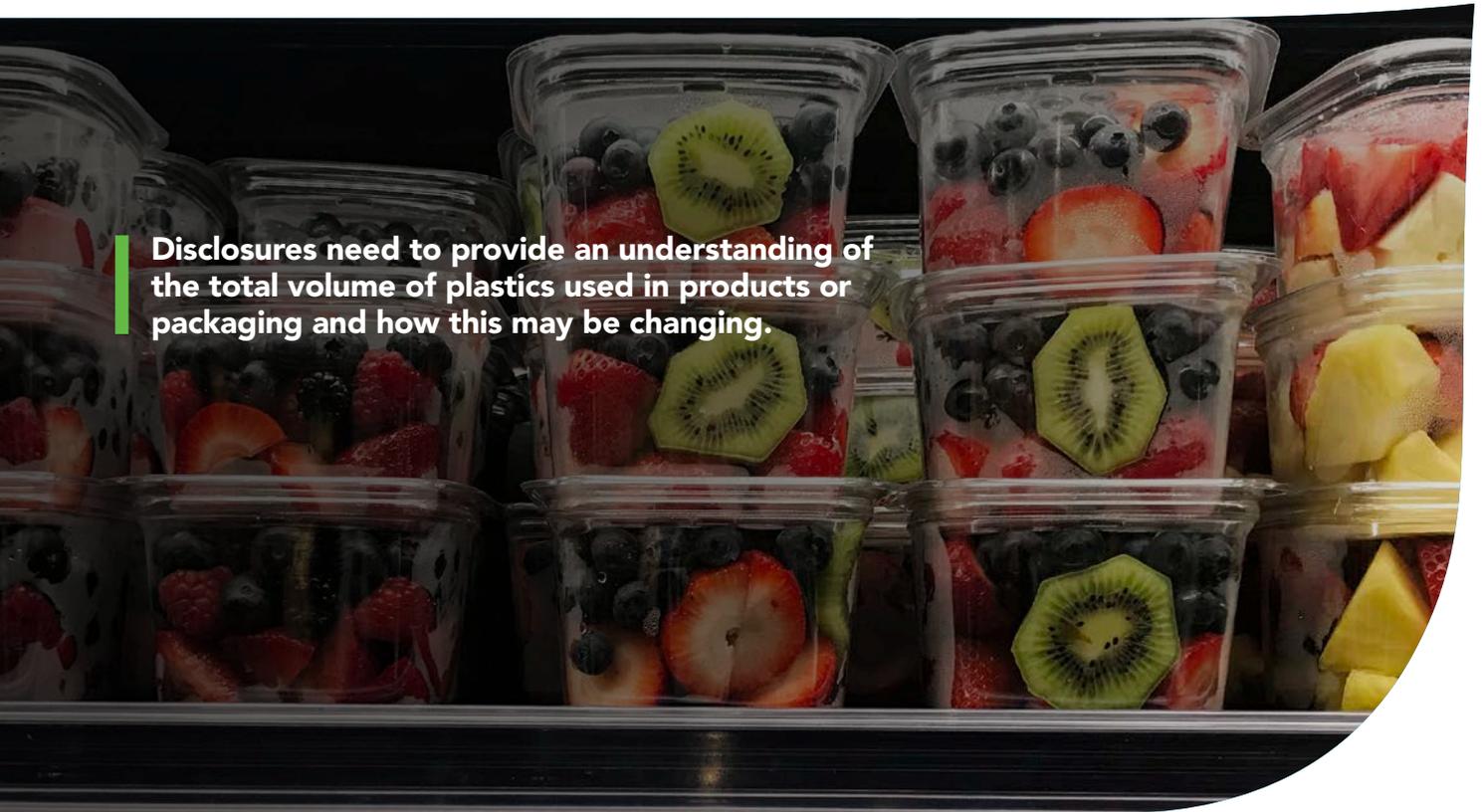
## 6.2: Consumer Goods

The consumer goods sector is instrumental in product and packaging design, recyclability and handling. We will focus on engaging companies on their R&D and design strategies for sustainable plastics use and recovery, educating consumers, and showing greater leadership with value chains and regulators on scalable solutions.

	Starting Out	Evolving the Approach	Market Leadership
Strategy	We expect companies to start to disclose their approach for sustainable plastics in product and packaging design, use and lifecycle management.	We will engage on the strategy for sustainable plastic design, use and lifecycle management over the longer term, and whether this is an imperative for the future of the company's products.	We expect companies to recognise that sustainable plastic products or packaging design, use and lifecycle management is an imperative for consumer trust, growth and licence-to-operate. We expect the strategy to include an assessment of long-term risks and opportunities.
Goals	We will ask companies if they have set any goals or targets for the design, materials use or handling of plastics in packaging or products. We expect companies to disclose targets that begin to address the impact of plastics, such as an absolute recycled plastics usage goal.	We expect companies to disclose goals that focus on design, materials use, or handling elements with end-dates. Although goals may not yet be set relative to total volumes, companies need to indicate a focus on sustainable use and management of plastics as a commercially material issue.	We expect companies to have sustainable design, materials use, handling and value chain targets disclosed and set relative to total volume, with end-dates for achievement. We will seek evidence that the goals and targets are commercially-focused and demonstrate a shift to sustainable, or increasingly circular use of, materials.
Transparency & Reporting	Disclosures need to provide an understanding of the total volume of plastics used in products or packaging and how this may be changing.	We expect to see disclosures on the volume of plastics used, even in aggregate, and how this is changing year-over-year.	We expect disclosures to articulate the volume of plastics categorised as either sustainably managed or not, in detail and year-on-year, so we can understand how the business is evolving its approach to plastics and packaging.



**We expect companies to recognise that sustainable plastic products or packaging design, use and lifecycle management is an imperative for consumer trust, growth and licence-to-operate.**



Disclosures need to provide an understanding of the total volume of plastics used in products or packaging and how this may be changing.

### 6.3: Retail

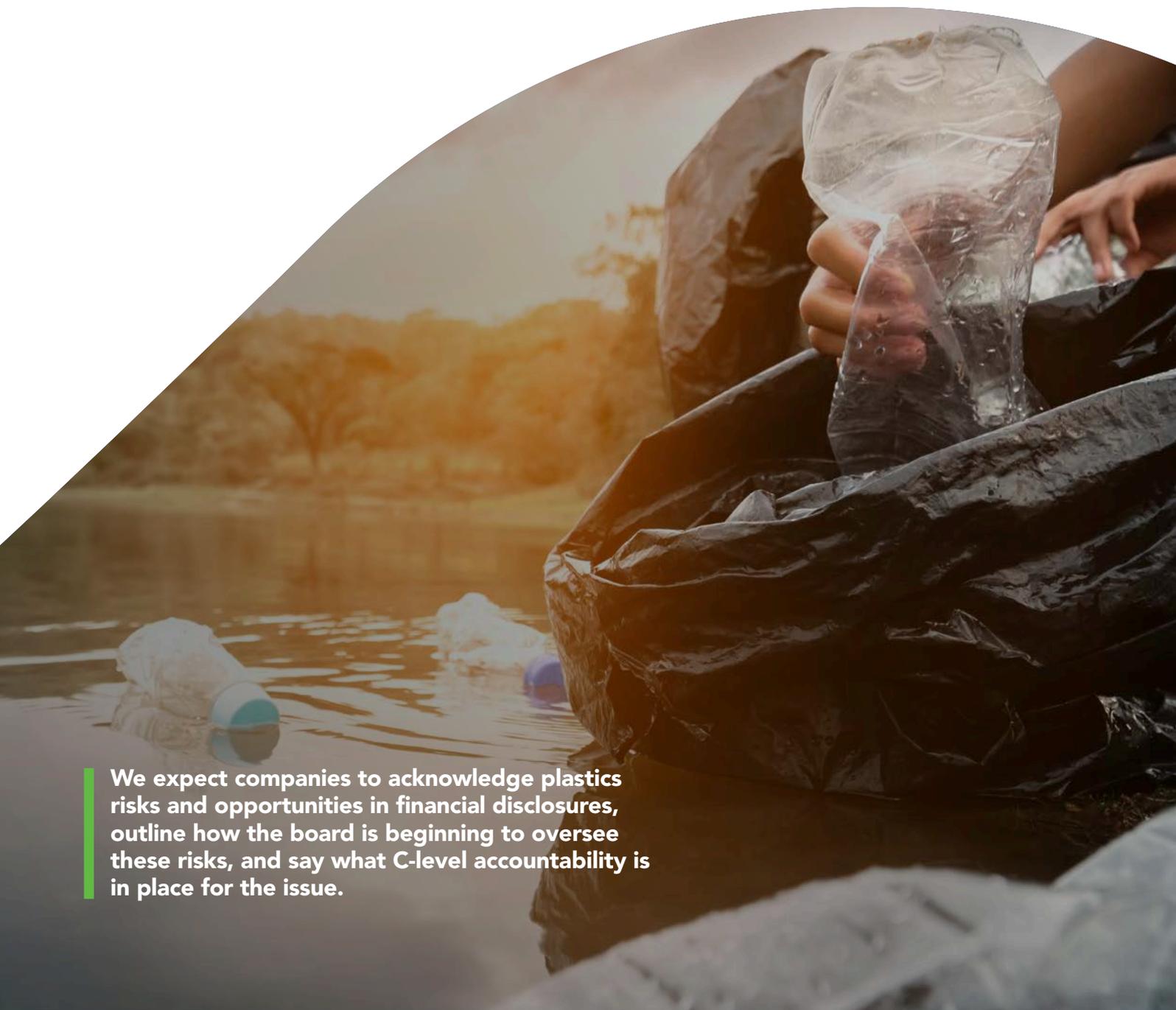
In retail, we focus on how companies are making sustainable plastics choices easier for consumers, working with suppliers and value chains to offer products with sustainable materials use, and partnering with regional and national stakeholders on effective materials recycling infrastructures.

	Starting Out	Evolving the Approach	Market Leadership
Strategy	We expect companies to disclose their approach to sustainable plastic products, addressing key issues such as sourcing and procurement, supplier action, and customer use of plastics.	We expect a disclosed plastics strategy to acknowledge the serious need for sustainable plastic products or packaging in sourcing and procurement, supplier actions, and how customers use plastics, as business imperatives.	We expect companies to recognise sustainable plastic products or packaging sourcing and procurement, supplier actions, and customer lifecycle management as imperatives for consumer trust, growth and licence-to-operate. We expect the strategy to include an assessment of long-term risks and opportunities.
Goals	We will ask companies to begin setting goals in sourcing and procurement, supplier action and customer use of plastics. Targets may only cover one aspect of plastics management, such as an absolute recycling collection goal, but will at least indicate the direction of travel.	We expect goals to consider sourcing and procurement, supplier action, and customer lifecycle management, with end-dates for achievement. Even if the goals are not set relative to the total volume of goods, they need to indicate a focus on sustainable use and management of plastics as a commercial issue.	We seek to understand how sustainable sourcing and procurement, supplier action, and customer lifecycle management is driven by clear targets that take stock of the total volume of plastics, with end-dates for achievement. Goals and targets need to be commercially-focused, demonstrating a shift to the sustainable and circular use of materials.
Transparency & Reporting	Disclosures need to provide an understanding of the total volume of plastics used in products or packaging and how this may be changing.	We expect to see disclosures on the volume of plastics used, even in aggregate, and how this is changing year-on-year.	We expect disclosures to articulate the volume of plastics categorised as either sustainably managed or not, in detail and year-on-year, so we can understand how the business is evolving its approach to plastics and packaging.

### 6.4: Governance expectations across sectors

Regardless of sector, companies must recognise that the issue of plastics may require risk oversight and management using a defined governance approach and process. Therefore, we have similar expectations for how management teams and boards should take responsibility. Where this is a very material issue, serious consideration should be given to aligning remuneration incentives to focus executive attention.

	Starting Out	Evolving the Approach	Market Leadership
Governance	We expect companies to acknowledge plastics risks and opportunities in financial disclosures, outline how the board is beginning to oversee these risks, and say what C-level accountability is in place for the issue.	In addition to our starting expectations, we want companies to provide detail on the supervision of this issue through committee or board member responsibility, with clear executive and organisational accountability.	We expect detailed disclosure of the board and management’s supervision and management of risks and opportunities, the C-level executives responsible for leadership on the issue, and remuneration based on meaningful solutions to plastics challenges.



**We expect companies to acknowledge plastics risks and opportunities in financial disclosures, outline how the board is beginning to oversee these risks, and say what C-level accountability is in place for the issue.**

## 7. Key questions investors must ask

We take a bespoke approach to each company exposed to plastics value chains, which takes the maturity of the company into account. Our approach considers all the elements relating to a sustainable plastics strategy, including the management, governance and disclosure outlined earlier. However, the following questions are likely to form a key part of our dialogue in any engagement with companies along the plastics value chain.

	Starting Out	Evolving the Approach	Market Leadership
Strategy	<ol style="list-style-type: none"> <li>1. What is your long-term strategy for managing plastics risks and opportunities?</li> <li>2. What are the costs to which the business is exposed in relation to plastics?</li> <li>3. What changes in demand has the company observed from customers or regulators?</li> </ol>	<ol style="list-style-type: none"> <li>1. Which elements of the plastics challenge is your strategy focused on?</li> <li>2. How are customer, market or regulatory changes influencing your strategy?</li> <li>3. What investments are being made to ensure the strategy is successful?</li> </ol>	<ol style="list-style-type: none"> <li>1. What is the company's plan for addressing weaknesses in the strategy as it continues its journey?</li> <li>2. How are the R&amp;D, design, marketing and customer functions working to deliver the strategy?</li> <li>3. What are the longer-term challenges with which the company is grappling?</li> </ol>
Goals	<ol style="list-style-type: none"> <li>1. When will targets for the more sustainable use of plastic be set and disclosed?</li> <li>2. Can these be set relative to the total use of plastics in the business?</li> </ol>	<ol style="list-style-type: none"> <li>1. How close is the company to achieving its targets? What barriers are in the way?</li> <li>2. What will the next generation of targets focus on?</li> </ol>	<ol style="list-style-type: none"> <li>1. What challenges does the company have in meeting its current set of goals?</li> <li>2. What actions have been taken to ensure targets are met?</li> </ol>
Transparency & Reporting	<ol style="list-style-type: none"> <li>1. How important are plastics compared with other raw materials that the company sources, produces or uses?</li> <li>2. When will the company begin to disclose its plastics footprint in terms of total volume?</li> </ol>	<ol style="list-style-type: none"> <li>1. Can the company provide year-on-year reporting of its plastics footprint and how this is changing?</li> <li>2. Will the scope of this reporting be disclosed, so that investors can understand what is and is not covered?</li> </ol>	<ol style="list-style-type: none"> <li>1. Can the company report how its goals and targets are reducing the intensity and volume of plastics use, differentiated by the action it is taking (production, sourcing, design, recycling, etc)?</li> <li>2. Can the company quantify its shift from unsustainable to sustainable plastics use?</li> </ol>
Governance	<ol style="list-style-type: none"> <li>1. How are plastics issues overseen by the board?</li> <li>2. What is the board's awareness of the company's risk exposure?</li> <li>3. Has the board assigned risk oversight to a committee or board member?</li> <li>4. Who in management is responsible for managing this risk and reporting to the board?</li> <li>5. Has external advice been sought on the company's risks or opportunities?</li> </ol>	<ol style="list-style-type: none"> <li>1. What oversight and management processes are in place for the board to oversee this issue?</li> <li>2. How does management report to the board and account for the company's plastics footprint and risks?</li> <li>3. Are executives being remunerated based on sustainable plastics management outcomes?</li> </ol>	<ol style="list-style-type: none"> <li>1. What oversight has the board taken over the last year in terms of plastics risks and opportunities?</li> <li>2. Has management made changes to the strategy over the past year based on board feedback?</li> <li>3. What emergent risks are on the board's mind?</li> <li>4. How is the company sharing best practice with peers, suppliers, buyers, regulators and its value chains?</li> </ol>

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