



The business case for
**reducing
ocean
waste**



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Foreword



The issue of ocean plastic is rising on the global policy agenda, as evidenced in the UN adoption of Sustainable Development Goal (SDG) 14 – part of which calls for action to address marine pollution.

Without significant action, there may be more plastic than fish in the ocean by weight by 2050¹. Impacts go far beyond images of large marine creatures ingesting and getting entangled in plastic rubbish. Overall, **the natural capital cost of marine plastic pollution for the consumer goods industry alone is estimated to be at least 4.7 billion per year²**.

Approximately 80% of ocean waste – also called marine debris – comes from land-based sources³. To effectively address the problem, we must close the tap and prevent valuable plastic waste from flooding into the ocean in the first place.

There is no one-size-fits-all scenario. Yet, there is growing consensus that improvements in waste collection and management, in concert with a more sustainable plastics life cycle, are key parts of the equation⁴.

We believe that plastic marine debris presents significant risks and opportunities for business. **The private sector has a key role to play in the solution.** It is up to the public sector to adopt policies that foster innovation and stimulate investment in these solutions that close the plastics loop.

Several leading companies along the plastics value chain have already started to invest in land-based solutions to reduce plastics leakage to the ocean. Solutions range from industry-specific innovations to multi-stakeholder partnerships. The challenge remains on how to scale-up these efforts, alongside improvements in waste management, to prevent and significantly reduce marine pollution.

As business leaders, we joined WBCSD's Roadmap for reducing Ocean Waste (ROW) program to galvanize the broader business community to prioritize ocean waste prevention. Our aim is to demonstrate that plastic marine debris presents material risks and opportunities to the entire plastics value chain.

This report identifies the business drivers for companies along the value chain to address marine debris.

Business leaders – especially those in plastic, packaging, consumer products and waste management – must recognize that plastic marine debris is a material issue for their businesses. Beyond the typical business actors, most of the business community is not yet involved.

Bridging this gap and getting more companies on board is essential to enable impact at scale. As business, we possess the innovation potential and technical know-how to significantly reduce marine pollution by 2025⁵.

Furthermore, business stands to benefit from contributing to the solution. Benefits include reducing the risks of losing core business in a context of growing regulatory and consumer pressure, enhancing our brands' reputation by demonstrating leadership in solving the issue and growing our business through the development of new products or businesses.

We strongly encourage you to join us and start tackling this important issue. It is time to act and seize the massive opportunity of capturing the \$80-120 billion in annual economic value currently lost to the economy due to not capturing single-use plastic packaging material after use⁶.

We must act now to reverse the current trend of marine pollution and preserve a thriving ocean ecosystem for the future.





Executive summary

Plastic materials are increasingly used across all sectors of the economy because they present significant benefits over alternative materials. Yet plastic market growth has come at the price of our oceans.

Today, at least 8 million tons of plastics leak into the ocean each year⁷. The natural capital cost of marine plastic pollution is estimated to be at least \$4.7 billion per year in the consumer goods industry alone⁸.

Approximately 80% of marine debris – including plastics – comes from land-based sources⁹. Business has a key role to play in addressing this global issue.

Many leading companies have developed solutions to reduce marine littering. These range from industry-specific innovations to multi-stakeholder partnerships. While many solutions already exist, they are mainly developed by a small number of companies. Most of the business community is not yet involved.

To bridge this gap and to get more companies on board, we developed the following Business Case for Action.

Three key takeaways:

1. Business can and should play a key role in addressing marine debris by having more companies involved to scale-up emerging solutions. The time for action is now.
2. There are four business drivers which define the material impact of marine debris on any given company: maintaining core business, enhancing brand and reputation, securing competitive advantage and improving business operations.
3. There is a proven social impact which businesses can drive with the engagement in reducing marine debris.

Our goal is to encourage business leaders, especially those in plastics, packaging, consumer products and waste management companies, to prioritize ocean waste prevention in their respective corporate agendas. Broader business engagement and

collaboration with the public sector will drive impact at scale.

Business drivers

There are numerous arguments for companies to engage in preventing ocean waste. Based on company insights along the entire plastics value chain, four main business drivers for acting on plastic marine debris surfaced (see Figure 1).

The four drivers, and their respective risks and opportunities, should be considered a menu of business cases that a company or individual can reference or choose from. Deciding which drivers are material to your company will depend on your sector and position in the value chain.

For each of the four drivers, the report details concrete business risks and opportunities. It also showcases perspectives and best practices from leading companies who are already prioritizing marine debris in their corporate agendas through a series of case studies.

Business benefits

Solutions to reducing ocean waste can generate additional environmental, social and economic benefits, creating shared value beyond company walls. For instance, job creation, inclusion of the informal waste management sector, and better environmental conditions will contribute to better living conditions in cities and communities where companies operate. This is likely to enhance local stakeholders' trust in business, and improve community engagement.

Call to action

Ultimately, this report is a call to action for the entire private sector. The issue of ocean plastic pollution is deeply embedded in climate change mitigation, circular economy, water, waste management and is rising on the global policy agenda. Adoption of Sustainable Development Goals (SDG) 12 on

sustainable production and consumption as well as ocean-focused SDG 14 is a sign of this.

The business case is compelling. Top companies already understand this and are engaged. This is the opportunity to take your place among the leaders and get involved in the journey towards a plastic-free ocean.

Figure 1: Summary of the main business drivers for companies to reduce ocean waste

Maintain core business

- Regulatory risk
- Consumer misperception of plastics
- Financial risk

Enhance brand and reputation

- Corporate responsibility
- Mission & values
- Reputational risk
- Customer loyalty
- License to operate
- Stakeholders' involvement

Secure competitive advantage

- New business
- New products
- Greater talent
- Differentiation

Improve business operations

- Costs of alternative packaging options
- Loss of material procurement options
- Secondary material supply
- CO₂ mitigation

1. Introduction

From the plastic age to the ocean waste age¹⁰...

The past 65 years have seen plastics production increase from 1.5 to 300 million tons¹¹. Plastic materials are increasingly used across all sectors of the economy, including in packaging, electronics, textiles, road vehicles, building envelopes, construction, hygiene and healthcare.



This is mainly due to plastics' performance advantages over alternative materials - which include convenience for consumers and design freedom. These performance advantages also bring tangible economic, environmental and social benefits, including improved food preservation, food waste reduction, better crop production, higher energy efficiency, reduced CO₂ emissions, lower water demand as well as enhanced safety and hygiene¹².

Despite these various benefits, the plastic market growth has negative effects. Today, at least 8 million tons

of plastics leak into the ocean each year¹³. This is equivalent to dumping the contents of one garbage truck into the ocean every minute¹⁴.

Plastic makes up 60 to 90% of the litter collected at sea or on the coastline¹⁵. This is because polymers degrade slowly in the marine environment (from months to hundreds of years), and accumulate over time. If no significant action is taken, one recent estimate suggests that there may be more plastic than fish in the ocean by 2050, by weight¹⁶.

Ecological impacts go far beyond widespread images of large marine creatures ingesting and getting entangled in plastic rubbish¹⁷ - they include smothering, sea floor damage, coastal habitat degradation and transport of invasive species¹⁸.

Marine debris also has social and economic consequences. There is growing human health concern regarding the potential effects of plastic particles that accumulate along the seafood chain¹⁹. In addition, plastic debris found in rivers and coastal waters are potential vectors for bacteria and diseases²⁰.

In the consumer goods industry alone, the natural capital cost of marine plastic pollution is estimated to be at least \$4.7 billion per year²¹. This estimate includes revenue loss to fisheries, aquaculture and marine tourism industries, plus the cost of cleaning up plastic litter on beaches, as well as the valuation of physical and chemical impacts from plastic marine debris²².

Approximately 80% of marine debris - including plastics - comes from land-based sources²³. Poor solid waste management is considered one of the major reasons²⁴. Other land-based sources include the intentional and unintentional release of solid materials into the environment. Such releases often originate from sectors that operate outdoors like the extractive, construction, logistics/distribution and tourism industries²⁵. As they collectively determine the plastic packaging format and material design, the plastic manufacturing, conversion, brand owners and retailers all share some responsibility.

Aside from these direct on-land sources of leakage, **the marine debris issue should also be framed within the wider context of wasteful linear uses of resources**. The ultimate causes of waste accumulation in the natural environment are often associated with the linear "take-make-dispose" lifecycle of plastics²⁶.

Overall, estimates indicate that over half of land-based plastic-waste leakage originates in five countries: China, Indonesia, Vietnam, Thailand, and the Philippines²⁷. Sea-based sources of marine litter include fisheries, commercial shipping, maritime-based tourism and other offshore industries such as oil and gas²⁸.

The scale of the issue is daunting. What can be done to help and reverse the current trend? What is business' role in this?



Plastic marine debris: an issue for business

Solutions exist and have been clearly outlined in several recent studies²⁹:

- In the short and medium-term:** In *Stemming the Tide*, The Ocean Conservancy estimates that accelerated development of collection infrastructure and commercially viable waste treatment options could reduce plastic waste leakage by about 45% globally. These developments would directly contribute to achieving SDG14's first target: By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution³⁰.
- In the long-term:** Further innovation across the plastics value chain is required to potentially eliminate plastic waste leakage from the five aforementioned southeast Asian countries by 2035. Encouraging broader use of circular economy principles and making improvements

in infrastructure, design, collection and processing systems can facilitate decreased leakage into the environment. The recently published *New Plastics Economy – Catalyzing Action* report outlines a set of priority actions that would underpin such a systemic transition towards a more sustainable plastics life cycle³¹.

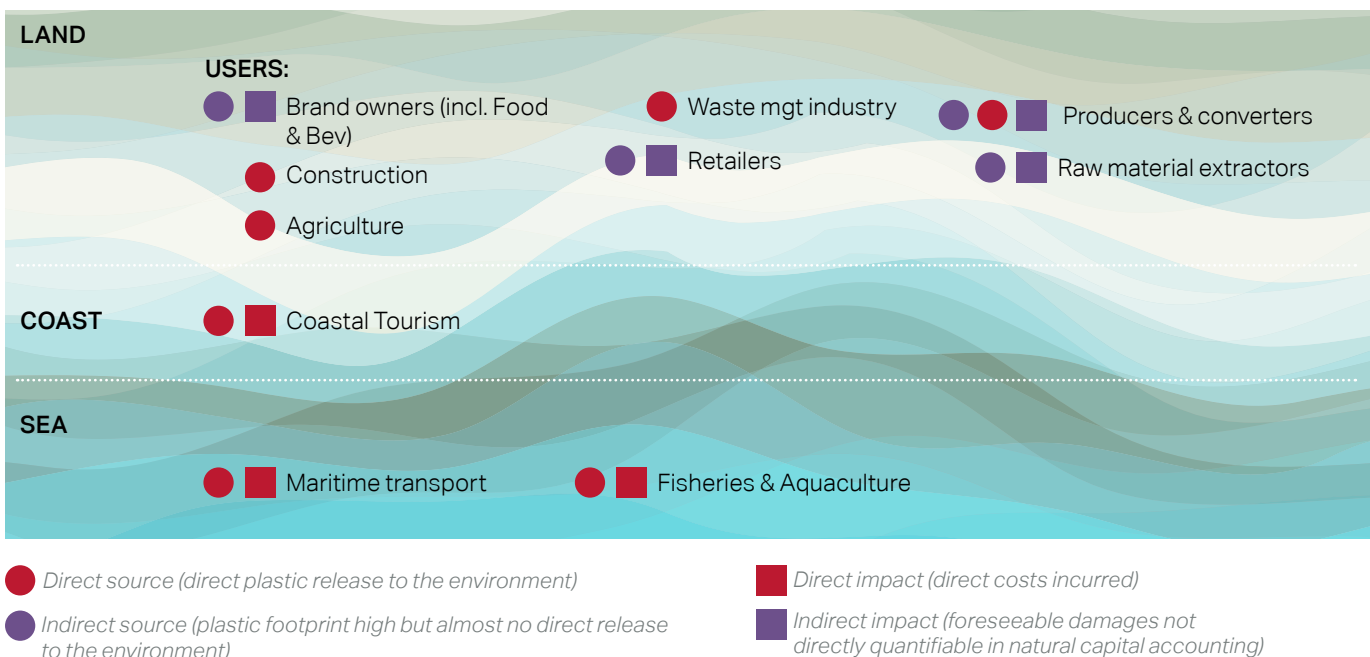
Business has a key role to play. Many leading companies have made investments in solutions to reduce marine littering, especially plastics. Such solutions range from industry-specific innovations – like the design of new products and the development of new product design tools that consider product end-of-life – all the way to multi-stakeholder partnerships³². In such collaborative efforts, companies across the value chain partner with public and non-governmental organizations to improve regional waste collection and processing systems.

What are the main drivers that inspire leading companies along the plastics value chain to consider this sustainability issue in the first place?

Many businesses are either responsible for or impacted by plastics marine litter. Figure 2 summarizes the complex links between various industrial sectors and the sources/impacts of marine litter.

Adoption of the ocean-dedicated SDG 14³³ and endorsement of the “Because the Ocean” Declaration at Conference of the Parties 21 are signs that ocean management is garnering increased attention at the international policy level. Further, the resolution adopted by the United Nations Environment Assembly (UNEA) in 2016 on marine plastic litter and micro-plastics³⁴ sends another strong signal. This global trend should be reinforced across international policy, as marine debris is at the crossroads of other key sustainability agendas like the recent climate negotiations³⁵ or the New Urban Agenda³⁶.

Figure 2: Links between industrial sectors and ocean waste. Note: although plastic bans have direct implications on industry, they are included as “indirect impacts” as legislation is a potential consequence of the issue itself. Source: Based on data from UNEP and GRID-Arendal, 2016.



Analysis: It is interesting to note that sectors directly impacted by or a direct source of marine debris – maritime transport, fisheries and aquaculture, and coastal tourism – are not the most actively engaged in solving the issue. This may be since they ‘only’ contribute to approximately 20% of the pollution (as sea-based sources, see above). Plastic producers, converters, brand owners and waste management companies that have direct and/or indirect links are the most represented in marine debris international working groups. The present report tends to bring light to the business reasons behind this involvement.

Ocean plastics in a nutshell

Scale: Today, it is estimated that at least 8 million tons of plastics leak into the ocean each year, equivalent to dumping the contents of one garbage truck into the ocean every minute.

Impacts: Overall, the natural capital cost of marine plastic pollution is estimated to be at least 4.7 billion per year, in the consumer goods industry alone.

Sources: Approximately 80% of marine debris comes from land-based sources. Poor solid waste management is considered one of the major sources.

Global policy: The ocean-plastic challenge continues to rise on the global sustainability agenda, with adoption of the ocean-dedicated SDG 14 and of the UNEA Marine Plastics Resolutions.



1. Introduction *continued*

Why this report?

Despite the clear roadmap for global action and the quality of the current solutions deployed, we are far from reaching the scale required. One of the barriers to scaling action is the unclear business case for companies to invest in preventing plastic marine debris. Beyond the usual suspects, most of the business community is not yet involved.

To bridge this gap and get more companies on board, we developed the following Business Case for Action. Our goal is to encourage business leaders, especially those in plastics, packaging, consumer products and waste management companies, to prioritize ocean waste prevention in their respective corporate agendas.

This report outlines the primary business drivers leading different companies along the plastics value chain to make investments in marine debris on-land prevention. **It is designed as a tool for business leaders to make the case within their companies and value chains.**

Additional economic, environmental and social benefits are generated by these solutions (co-benefits), creating shared value beyond the company walls. Moreover, these co-benefits can be used as common ground for establishing new Public-Private Partnerships (PPP). For instance, public authorities may be interested in social co-benefits such as job creation and public health enhancement³⁷.

Solutions to reverse the current trend exist, and businesses possess the know-how and innovation potential to drive impact at scale. **It is time to act and seize the massive opportunity of capturing the \$80-120 billion in annual economic value lost due to inadequate design and after-use management of single-use plastic packaging material.**³⁸

This study is also the first step in the Roadmap for reducing Ocean Waste (ROW) WBCSD Business Solution.

ROW seeks to galvanize the business community to prioritize ocean protection by demonstrating that on-land marine plastics litter prevention makes business sense. The Roadmap is designed as a

three-year action plan whereby WBCSD and its member companies implement the following steps:

- **Define a set of solutions** that business can implement – both individually and collectively – to reach impact at scale.
- **Identify potential barriers** to implementing this Business Action Plan.
- **Develop a demonstration project** in key city to illustrate that implementation barriers can be overcome, and that the Action Plan brings tangible results.
- **Collaborate with key stakeholders** of the project city – local government, business partners, NGOs, social and waste management organizations.
- **Measure progress** against key performance indicators, and reflect upon the project impacts.
- **Apply lessons learned** in other geographical locations. Broader replication will be possible once a few projects will have proven to be successful.

Focus of the report

On-land prevention of macro-plastics leakage into the ocean

The report includes seven types of plastic resins, classified as PET, PE-HD, PVC, PE-LD, PP, PS and other.

All seven types of plastics fall under one of the following two categories:

thermoplastic or *thermoset*.

Thermoplastic materials soften on heating, and can be molded, while thermosets are cross-linked materials that cannot be re-molded on heating³⁹.

Once they reach the ocean, plastic materials degrade into smaller particles due to physical and biological reactions. Once they reach a diameter smaller than 5 mm, they are classified as *secondary micro-plastics*. *Macro-plastic* pieces measure more than 5 mm, while primary micro-plastics designate plastic particles smaller than 5mm but that have been intentionally made (e.g. micro-beads in cosmetics or synthetic microfibers used in the clothing industry)⁴⁰. Due to differences in the value chain and potential solutions, this study excludes primary micro-plastics from its scope.

There are two main actions that may be taken when it comes to addressing plastic marine litter: cleaning up and prevention. The scope of this study is limited to on-land prevention.

On-land prevention of plastic marine debris needs to be encompassed in the broader context of integrated waste management. Cleaning the oceans, although highly important, addresses the symptom rather than the cause. Recent studies show that the quantity of plastics found in the ocean via direct measurement accounts for less than 5% of the amount of plastic entering the ocean⁴¹.

A global approach

Reducing ocean waste requires a global framework for action as well as solutions adapted to each local context. Therefore, this report uses an international perspective for the business drivers discussed.

2. Business drivers

Based on group discussions and individual interviews with WBCSD member companies, we identified four main business drivers for acting on plastic marine debris.



Companies may consider engaging in solutions to plastic marine debris to maintain their core business, enhance brand and reputation, secure competitive advantage or improve business options. Plastics producers, converters, brand owners, retailers and waste management companies all provided their perspectives.

Four main business drivers

A. Maintain core business in a changing environment

Globally, public perception of ocean plastics is becoming increasingly negative. This trend, coupled with growing regulatory pressure, may affect business' ability to sell products, posing significant financial risks.

- **A1 - Regulatory risks**

Regulations on plastics and plastic packaging are gaining traction. In Europe, many countries have introduced landfill taxes following the EU Landfill Directive. Today, most OECD countries and many emerging economies have extended producer responsibility (EPR) programs and policies in place.⁴² This is also the case in some Australian states and in New Zealand⁴³.

Additionally, taxes or bans on specific plastic products are multiplying globally. To date, 132 cities and

counties in the US, accounting for over 20 million people, now have plastic bag bans or fees⁴⁴. In 2016, there was a new wave of industry regulations, including:

- Indonesia, Morocco, and Colombia regulation on using single-use plastic bags;
- French ban on non-biodegradable plastic cutlery;
- San Francisco, California's ban on EPS packaging in San Francisco;⁴⁵
- The United States ban on the use of microbeads in personal care products as of 1 July 2017⁴⁶;
- India's Plastic Waste Management Rules, which bans plastic carry bags thinner than 50 microns and looks to phase out non-recyclable multilayered plastics, among others⁴⁷.

Business should anticipate regulations like these to avoid future industry implications.

There is also an opportunity for business to engage with public authorities and collaborate to improve plastics management at the end-of-life. This will enable a public-private dialogue, paving the way for future legislation that considers the business voice.

- **A2 - Risk of increased consumer pressure**

In addition to regulatory pressures, the plastics value chain faces increased consumer pressure. This is mainly due to a shift in the general public's perception of plastics, driven by a growing number of articles and media campaigns on marine debris. This could shift the demand towards plastic-free products. **It is therefore essential for companies to address end-of-life plastics' management. This should help companies gain trust from consumers and secure their core business.**

Figure 1:

The four main business drivers, and corresponding sub-drivers, for companies to reduce ocean waste.

Maintain core business	Enhance brand & reputation	Secure competitive advantage	Improve business operations
<ul style="list-style-type: none"> • Regulatory risk • Consumer misperception of plastics • Financial risk 	<ul style="list-style-type: none"> • Corporate responsibility • Mission & values • Reputational risk • Customer loyalty • License to operate • Stakeholders' involvement 	<ul style="list-style-type: none"> • New business • New products • Greater talent • Differentiation 	<ul style="list-style-type: none"> • Costs of alternative packaging options • Loss of material procurement options • Secondary material supply • CO₂ mitigation

2. Business drivers *continued*



The Dow Chemical Company

is particularly aware of these risks to core business. Therefore, it committed to leading the industry in eradicating ocean plastic waste – announcing in September 2016 that it would spend \$2.8 million over the next two years to drive solutions that address global marine debris and litter.

“The risk of losing business due to an increased misperception of plastics by society is real. This argument should be convincing enough for every business leader to take action and engage in this global collective challenge.”

Jeff Wooster

Dow Packaging and Specialty Plastics
Global Sustainability Director

- **A3 – Financial risks**

Core business risks have direct impacts on the financial sustainability of a company, as they can reduce investor interest. This has the potential to affect stock prices. Additionally, banks may increase the cost of debt because of perceived business risks, ultimately resulting in higher capital costs. Further, Environmental, Social and Governance (ESG) ratings systems that account for environmental costs of plastic marine debris may punish companies in those value chains.

B. Protect and enhance company's reputation

A business that demonstrates leadership in preventing ocean waste can protect its brand and reputation, increase customer loyalty, improve stakeholder relations and secure its license to operate.

- **B1 – Corporate responsibility to care for plastics at end-of-life**

The scientific community has made substantial progress on understanding the scale, impact and sources of marine debris⁴⁹. Based on these findings, leading companies along the plastics value chain are working to solve this global issue.

- **B2 – Risks to upholding company's mission and values**

Many leading companies have placed sustainability at the core of their business strategies. Overlooking the issue of marine debris may be in direct contradiction with these core

corporate values.

- **B3 – Reputational risks**

Ocean waste with clear branding visible on beaches or in the streets is a direct threat to a company's reputation and image, as it could potentially drive consumers away. Some companies call this phenomenon “brand trash”⁴⁹ (cf. figure 3). Brand trash contributes to shifting the general public's perception of plastics, a risk to core business (see paragraph A2).

- **B4 – Opportunity to increase consumer and customer loyalty**

The topic of marine debris is also an opportunity for business to improve consumer and customer loyalty. When demonstrating leadership in preventing marine debris, companies may overcome reputational risks and even enhance their positioning as a responsible business. They can also answer their customers' requirements, which increasingly take plastics end-of-life aspects into account.

- **B5 – Opportunity to demonstrate interest in local environmental and social health, and secure license to operate**

Solutions to plastic marine littering require a global framework for action and solutions adapted to each local context. Implementing these local solutions can help a company improve local employment and quality of life. This can contribute to maintaining a company's license to operate⁵⁰.

Figure 2:
‘Brand trash’ illustration. Source: [NOAA website](#)



- **B6 – Opportunity to demonstrate leadership and engage with NGOs and other stakeholders proactively instead of reactively**

Solving the issue of marine debris will require collaboration and knowledge sharing between governments, businesses, NGOs, think tanks and communities. Addressing marine debris is an opportunity for companies to engage with stakeholders proactively instead of reactively, as well as an opportunity to influence the debate.

C. Drive future business growth and secure competitive advantage

Limiting plastics leakage into the ocean represents an opportunity for companies to establish new businesses, develop new products and drive business growth. It can also help to secure competitive advantage by recruiting top talent and differentiating from competitors.

- **C1 – Opportunity for business development**

There is clear business development potential for companies who engage in marine debris prevention. Various strategies are possible and include establishing new businesses as well as exploring new business models that address this complex issue.

- **C2 – Opportunity to develop new products and processes**

The potential for innovating and developing new products and packaging is considerable. Examples include:

- **New types of plastic materials** (partially or entirely) made from post-consumer plastic waste, or especially designed to facilitate recycling
- **New types of additives** – ‘compatibilizers’ ease the recycling process of hard-to-recycle multilayer packaging
- **New product design tools** that consider the product end-of-life

DuPont developed a solution to ease the recycling process of currently hard-to-recycle multi-material multilayer packaging such as films or pouches. These ‘compatibilizers’ are additives that allow for the different materials in packaging to be blended into a durable raw material. This raw material can then be used to develop products such as school desks or building planks for the construction of low cost housing, as demonstrated by the pilot project that DuPont coordinated in South Africa between October 2016 and March 2017.

- **C3 – Opportunity to recruit and retain top talent**

Attracting, developing and retaining top talents is key to achieving organizational growth. In fact, 84% of the 17,600 students interviewed for a Yale/WBCSD study would choose to work for a company with good environmental practices⁵¹. “Employees are proud to contribute to society, education or any other activity with a social purpose; it’s also a lever of engagement, attractiveness and retention,” says Cécile Tandeau de Marsac, Solvay Group Human Resources General Manager⁵².

- **C4 – Opportunity to differentiate from competitors**

A company can enhance differentiation from competitors by making the marine debris issue core to corporate strategy and by being a leader in ocean management.

D. Improve business operations

If demand for plastics were to shift to alternatives because of increased regulatory and consumer pressure, companies would face material procurement option limits. However, by anticipating this and closing the plastics loop, companies can seize opportunities to diversify their material supplies and reduce CO₂ emissions by using secondary plastics. Below are some of the reasons business should act now.



Suez

As a major operator in water and waste management services in major coastal cities around the globe, Suez acknowledges the business development potential there is in positioning itself as a leader in ocean waste management. As a matter of fact, the Group created PLAST'lab®, an innovative laboratory dedicated to the characterization and recovery of plastics to supply back to industries.

“Various strategies are possible, but exploring new business models that address this complex issue is necessary because public funding only will certainly not be able to meet the challenge given the urban population expected growth by 2050”

Marc Simon

VP Business Development
Mediterranean at Suez.Global
Sustainability Director

DuPont

DuPont developed a solution to ease the recycling process of currently hard-to-recycle multi-material multilayer packaging such as films or pouches. These ‘compatibilizers’ are additives that allow for the different materials in packaging to be blended into a durable raw material. This raw material can then be used to develop products such as school desks or building planks for the construction of low cost housing, as demonstrated by the pilot project that DuPont coordinated in South Africa between October 2016 and March 2017.

2. Business drivers *continued*

- **D1 – Risk of incurring the consequences of plastic alternatives in packaging**

Plastics reduce the volume and weight of packaging. The average packaging weight for 1 kg of product is estimated at 22 grams for plastics against 88 grams for alternative materials⁵⁴.

Moving from plastics to alternative materials in packaging results in higher production costs – as more resources are needed to produce the same packaging function, with fewer product units transported per delivery. Additionally, heavier truckloads require increased fuel consumption and CO₂ emissions per distance unit. Thicker and heavier packaging options result in higher unit transportations costs for brand owners and retailers.

- **D2 – Risk of losing material procurement options**

Plastic packaging regulations and bans could mean losing key packaging options for brand owners. This could increase the need for new suppliers in purchasing alternative material types. In these instances, the cost of goods sold and operating margins would be directly impacted. Changes to packaging are likely have

consequences on organizational departments beyond procurement, and could include supply chain and logistics.

- **D3 – Opportunity to supplement raw materials with secondary material supply**

In reducing plastic leakage, **integrated waste management will enable collection of post-consumer plastic waste, contributing to the supply of secondary plastics** (also called post-consumer recycled plastics). **The supply of stable secondary plastics is critical for enabling demand for the product.** This supply would allow plastics producers, converters and brand owners to increasingly integrate recycled plastics into their packaging and products.

In the context of increasingly rare natural resources, **virgin plastics prices will be volatile and competition for resources will be inevitable. A long-term vision in which companies diversify their material supplies is a way to address this business risk.**

- **D4 – Opportunity to mitigate CO₂ emissions**

Using plastic waste as a resource – raw material or energy – may be an opportunity to reduce greenhouse gas (GHG) emissions. However, conducting a life-cycle analysis (LCA) is necessary to validate this general assumption.

Research commissioned by Dell demonstrated that the company's use of closed-loop plastics has a 44% greater environmental benefit when compared to virgin plastic. This net environmental benefit includes lower pollution, improved human health and reduced greenhouse gas emissions⁵⁷.

Plastic waste can also be used as an alternative source of energy, especially in the cement industry as refuse-derived fuels (RDF)⁵⁸. By replacing traditional fuels, RDFs reduce a company's carbon footprint.

- **D5 – Opportunity to reduce costs through operational efficiencies**

Shifting to more sustainable materials brings opportunities to improve operational costs through leaner processes and production processes by focusing on the whole supply chain to find eco- and resource efficiency.



Philips

Philips increased its recycled plastic product content from 50 tons 2011 to 1440 tons in 2016. This is motivated by a long-term strategy: a larger market of recycled plastics means a lower dependence on oil, which will be a competitive advantage in a context of fossil fuels resources rarefaction. By using recycled plastics in new products, Philips also aims to create an incentive for recyclers to invest in high quality recycling processes. This will drive the recycled plastics market towards more supply, hence more competition, resulting in lower less volatile prices⁵⁵.



Surfdome Shop Ltd

Surfdome Shop Ltd is an action sports and lifestyle products online global retailer, supplied by around 700 brands. The company started pursuing marine debris prevention in 2014. In two years, the company moved from having little recognition, to being one of the top fourteen companies tackling ocean waste. The retailer's sustainability efforts generated a highly positive impact in terms of public relations as well, and saw 2/3 of its social media traffic generated from its sustainability strategy – a demonstrable competitive advantage.



Woolworths South Africa

The retailer Woolworths South Africa encourages its packaging suppliers to incorporate recycled plastic into their food packaging. This reduces the need for virgin materials and increases the demand for recycled materials. This in turn creates employment opportunities for unskilled people to clean the environment, including our rivers, beaches and coastlines. It is a win-win situation⁵⁶.

See below for a visual representation illustrating some of these risks and opportunities.

Figure 2: Summary of main business drivers and sub-drivers mapped in terms of risks and opportunities.

Risks to Business	Opportunities for Business
<p>CORE BUSINESS</p> <ul style="list-style-type: none"> Regulatory risks Consumer perception of plastics Financial risks <p>BUSINESS OPERATIONS</p> <ul style="list-style-type: none"> Loss of procurement options Consequences of alternative packaging options <p>REPUTATION</p> <ul style="list-style-type: none"> Corporate responsibility Reputational risks Missions and values 	<p>CORE BUSINESS</p> <ul style="list-style-type: none"> New products & processes Top talent Differentiation <p>BUSINESS OPERATIONS</p> <ul style="list-style-type: none"> Secondary material supply CO₂ mitigation <p>REPUTATION</p> <ul style="list-style-type: none"> Consumer loyalty License to operate Stakeholders' engagement

Mapping to the value chain

The following diagram (figure 2) details the degree to which each of the drivers is material to each value chain player. This is based on interviews conducted by WBCSD.

Through this table, the following are clear:

- **Most drivers appear to be material for each value chain position.**
- **Some drivers are material for all value chain levels:**
 - o Responsibility to care for plastics end-of-life
 - o Risk to upholding company's mission
 - o The opportunity to develop new businesses and products

- **On average, the upstream section of the plastics value chain (producers and converters) indicates more risks than opportunities as material issues.**
- Interestingly, **companies downstream** (retailers and waste management companies) rank more **opportunities than risks** as material issues. Brand owners rank risks and opportunities the same.
- **Plastics producers and converters rank the same top three risks and opportunities.**

Natural capital valuation: A means for business to identify further risks and opportunities:

Natural capital valuation is a means for business to identify risks and opportunities associated with their impacts and dependencies on natural capital⁵⁹.

In the plastics industry, two recent studies from Trucost⁶⁰ applied natural capital valuation techniques to value the environmental costs of plastics and alternatives in the consumer products sector. Both studies consider the downstream impacts of plastics on the ocean by estimating their economic and environmental impacts.

It is estimated that, on average, the impact of plastics on marine ecosystems accounts for 17% of total plastics lifecycle impacts. When integrated into companies' natural capital accounting, such downstream impacts could highlight risks and opportunities for a company.²

Pressure to account for natural capital risk is increasing. The Natural Capital Protocol, developed by the Natural Capital Coalition and WBCSD, aims to provide guidance for companies on how to measure and value their impacts and dependencies on natural capital in a consistent manner.

2. Business drivers *continued*

Figure 2:

Mapping of the drivers' materiality to the value chain. Dark blue refers to a high level of materiality while light blue represents a low level of materiality. The data is based on 11 interviews conducted by WBCSD in the context of this study.

DRIVERS	EXAMPLES	PRODUCERS	CONVERTERS	BRAND OWNERS	RETAILERS	WASTE MANAGEMENT
Maintain core business	Risk of increased consumer pressure	●	●	●	●	●
	Regulatory risks	●	●	●	●	●
	Risk of stock price vulnerability from ESG rating systems (financial risk)	●	●	●	●	●
	Risk of banks increasing their interest rates due to increased risk profile of business (financial risk)	●	●	●	●	●
Protect and enhance company's reputation	Reputational risks	●	●	●	●	●
	Corporate responsibility to care for plastics end-of-life	●	●	●	●	●
	Risk to uphold your company's mission and values	●	●	●	●	●
	Opportunity to increase your consumers' and customers' loyalty	●	●	●	●	●
	Opportunity to demonstrate care of the local environmental & social health in areas where a company operates, and to secure license to operate	●	●	●	●	●
Drive future business growth and secure competitive advantage	Opportunity to demonstrate leadership and engage with NGOs/other stakeholders proactively instead of reactively	●	●	●	●	●
	Opportunity for business development	●	●	●	●	●
	Opportunity to develop new products and processes	●	●	●	●	●
	Opportunity to recruit and retain top talents	●	●	●	●	●
Improve business operations	Opportunity to differentiate from competitors	●	●	●	●	●
	Risk of losing material procurement options	●	●	●	●	●
	Risk of incurring the consequences of plastic alternatives in packaging	●	●	●	●	●
	Opportunity to supplement raw materials with secondary material supply	●	●	●	●	●
	Opportunity to mitigate CO ₂ emissions	●	●	●	●	●
Risk of incurring natural capital costs associated with plastics end of life	●	●	●	●	●	

● >80% score ● 50-80% score ● <50% score (> 0)

By selecting the top drivers for each category, we see key messages for each part of the value chain.

Key messages for producers

- Maintain your core business despite increasing regulatory pressure
- Abide by your company's mission and values
- Seize this business development opportunity and increase your market share by creating new products
- Differentiate yourself from competitors and position yourself as a leader in ocean plastics stewardship

"Dow is committed to finding viable science-based solutions to prevent debris and litter from entering the world's ocean. These efforts are aligned to Dow's 2025 Sustainability Goals and through innovation and collaboration, Dow is taking a leading role on the advancement of a circular economy to ensure that a product's lifecycle – from creation to use to disposal – is fully optimized for the benefit of society. Dow is a leading manufacturer of plastics, which provide many advantages in terms of sustainability and performance, yet the reputation of plastics is facing increased scrutiny due to the proliferation of trash and litter polluting our ocean. This should be an important area of focus for our industry, not only because it is the right thing to do, but for the business case it represents. We must all come together to work on waste management initiatives that keep plastics waste and other debris from leaking into our ocean."

Andrew Liveris, Chairman and CEO, The Dow Chemical Company

Key messages for converters

1. Maintain your core business despite increasing consumer pressure
2. Seize this business development opportunity and increase your market share by creating new products
3. Differentiate yourself from competitors and position yourself as a leader in ocean plastics stewardship

*"Working to reduce packaging waste is just one illustration of how sustainability goals and business goals can and must align so that **Amcor** remains a strong, growing company."*⁶¹

Ron Delia, CEO, Amcor

*"Being a good corporate citizen is part of **ITW's** DNA. Whether supporting local communities or being good stewards of the environment, we believe in the need to participate to help achieve the appropriate outcomes. It is just good business."*

Steve Henn, President, ITW Specialty Products

Key messages for brand-owners

1. Protect and enhance your company's brand and reputation
2. Differentiate yourself from competitors and position yourself as a leader in ocean plastics stewardship
3. Improve your business operations

"Plastic packaging plays a critical role in making our products safe and enjoyable for our consumers. It is clear that if we want to continue to reap the benefits of this versatile material, we need to do much more as an industry to help ensure it is managed responsibly and efficiently. We simply cannot continue to allow it to end up as plastic marine debris. Our own commitment to ensure that all of our packaging is reusable, compostable or recyclable by 2025 is one example of the action companies can take, and I urge others to make similar commitments so together we can tackle this important issue."

Paul Polman, CEO, Unilever

"Continually reducing end of life environmental impact and facilitating recycling for all our packaging is a key driver in our product and packaging development process. Preventing the disposal of packaging into the environment, including marine littering is part of our ambition to eliminate our impact upon the environment."

Duncan Pollard, AVP, Stakeholders Engagement in Sustainability, Nestlé

Key messages for retailers

1. Place responsibility to care for plastics end-of-life at the core of your business strategy.
2. Abide by your company's mission and values
3. Applying circular economy principles to close the plastic loop will allow your company to develop innovative products and secure its resource supply in the medium term



"The Emotional call – A South-African beach"
(source: Woolworths Holdings Ltd)

"The plastic packaging from our (Walmart's) products is often an untapped resource that can be reused in future products."

Ashley C. Hall, Senior Manager, Sustainability at Walmart.

Key messages for waste management companies

1. Seize this great business development opportunity and grow your business
2. Secure your license to operate by demonstrating care of local environmental & social health⁶²

"In the 1980s, we established Geocycle to help reduce energy costs by utilizing waste as an alternative fuel and raw material for our cement plants. Today, our Geocycle business is recognized around the world as a leader in waste management, offering sustainable solutions to more than 10,000 customers for a wide range of waste types, including industrial and municipal plastics. In 2015, we managed 14 million tons of waste globally."

We are proud that the expertise and operational scale we have built over more than 30 years can now contribute to addressing the issue of ocean waste.

Geocycle is a great example of a sustainable business, making sense commercially while providing solutions to a growing and pressing societal problem at both local and global level."

Eric Olsen, CEO, LafargeHolcim

Case studies: best practices illustrating some of the key business drivers

Case Study 1 – Mitsubishi Chemical Holdings Corporation

Building a community-based solid waste management system

Driver illustrated

- Opportunity to demonstrate respect for local environmental and social health, securing license to operate



Shinryo Corporation, a business division of Mitsubishi Chemical Holdings Group, focuses on providing business solutions to ensure a resource-efficient and recycling-oriented society, including material recycling of plastics and chemical recycling.

As a core member of The JICA (Japan International Cooperation Agency) Partnership Program for Promoting Efficiency of Waste Management in Medan City, Republic of Indonesia, Shinryo has been engaged in building a community-based solid waste management system, which complements a centralized waste management system by offering immediate solutions to communities and developing areas.

The primary goals of the program were to reduce final waste for landfill and to increase waste recycling in selected model districts in Medan City.

In collaboration with Medan City, local NGOs and Kitakyushu City, Shinryo provided technical guidance in composting organic waste, building a community system of recycling, and raising awareness on waste handling.

After studies on local waste and dumpsites, a new composting center was built to handle raw garbage from a local public market. In parallel, 400 households initially participated in household composting to reduce garbage generation.

The reduced raw garbage eased the collection and recycling of plastics, glass, paper and metals in garbage.

Next to the composting center, a garbage bank was built for community residents to deposit recyclable paper, plastics, glass and metals. In return for recycling, participants receive payments to their bank accounts.

The garbage bank collected 27 tons of recyclable rubbish in 2015. Of the 27 tons of recycled waste, plastics accounted for 30%, some of which could have become ocean debris. At the end of the project in 2016, the number of households engaged in household composting and garbage banking increased from 400 to 1,400.

This project highlights the critical roles of local community and local government, as well as the importance of a holistic and flexible approach to address local needs. It also shows the need for establishing a sustainable business ecosystem of waste handling and recycling.

A local perspective and a holistic approach are essential to curb plastic waste generated in developing economies. This example showcases how a business solution provider can successfully collaborate with local government and community to address local needs while minimizing abandoned plastic waste.



Case Study 2 – Nestlé

Extracting value from plastic packaging waste

Driver illustrated

- Opportunity to mitigate CO₂ emissions and other environmental impacts
- Opportunity to demonstrate respect for the local environmental and social health in operating areas and to secure license to operate

<http://www.nestle.com/csv>

Processing plastic waste can be a challenge. Together with a specialized consulting company, Nestlé has identified a number of technologies focusing on processes that turn plastics into liquid fuels and gas (pyrolysis and gasification). They have also reviewed how different plastics found in the waste stream influence the performance, quality and yield of the fuel produced.

Nestlé India has installed a small-scale pyrolysis plant, converting plastic to oil in one of its noodle factories. This is being trial tested for feasibility and robustness. The aim is to accept post-consumer plastic laminates that have been collected in the surrounding community.

The main sources of marine litter are from land-based, mismanaged waste. Laminates are difficult to recycle, and converting them to oil and gas is a promising approach to add value to the material.

As the material becomes more valuable, there's better incentive to collect it - which could prevent litter and plastic ending up in the ocean. The oils and gases obtained in the process are used in the factory as fuel to generate steam.

As soon as the process has been optimized and has proven its robustness, additional stakeholders such as NGOs, municipalities, waste pickers and recovery organizations will be involved to support the necessary infrastructure for collecting and sorting plastic laminates and operating the necessary equipment.

In addition, Nestlé UK & Ireland is partnering with other companies and waste partners to explore the options for collecting flexible laminate packaging containing aluminium, so that the plastics can be recovered and converted into fuel, and the aluminium recycled. Trials began in 2015.



Small-scale pyrolysis plant in a Nestlé India plant

2. Business drivers *continued*

Case Study 3 – LafargeHolcim-Geocycle

Co-processing plastics reduces the use of primary fuels and mitigates CO₂ emissions

Driver illustrated

- Opportunity to mitigate CO₂ emissions

<http://www.lafargeholcim.com/2030-plan>

Geocycle – the waste treatment and management entity of LafargeHolcim – was founded over 30 years ago.

Originally created to reduce energy costs at the Group's cement plants by using alternative fuels derived from waste, it developed over time into a full waste management services organization.

Geocycle offers its customers solutions for a wide range of waste, including industrial and municipal plastics. By managing waste in a sustainable way, Geocycle directly contributes to reducing waste leakage into the ocean.

Plastic material is quite a common waste stream for Geocycle, representing about 2 million tons of its annual volume. In many countries where Geocycle operates, plastic waste ends up in landfills and can potentially leak into rivers and oceans.

The overall objective of LafargeHolcim and Geocycle is to increase the amount of waste-derived fuels from six to 13 million tons in 2020, to 21 million tonnes in 2030. They estimate that plastic waste will represent one-third of these volumes. For Geocycle, this means treating an additional 2 million tons of plastic waste by 2020 and another 3 million tons by 2030.

Their solution is to transform waste into fuels and raw materials through pre-processing, thereby avoiding environmental contamination.

Through expertise and state-of-the-art environmental filters, Geocycle is able to manage waste in a safe manner as they transform it into usable products.

For example, alternative fuels created are co-processed in a cement kiln to produce clinker – the main ingredient of cement. Clinker kilns have a minimum temperature of 1450 °C, much higher than traditional incinerators that operate at 800 or 900°C. At this high temperature, dangerous substances are rendered inert.

By extension, their use of these alternative fuels helps reduce CO₂ emissions by replacing primary traditional fuels, such as coal, petcoke or natural gas. At the current rate of 15% alternative fuel use, LafargeHolcim is able to reduce its CO₂ emissions by about 14 million tons a year. Of this emissions reduction, 4.8 million tons are due to the use of plastic waste as alternative fuel.



Case Study 4 – Borealis

Enhancing circularity of polyolefins as a means to prevent marine litter

Driver illustrated

- Opportunity to develop new products and processes
- Opportunity for business development



“Cooperation with all players along the value chain and beyond is essential for the systemic transformation of today’s linear plastic economy into a circular economy.”

Dorothea Wiplinger

Sustainability Manager at Borealis

Borealis, a leading provider of innovative solutions in the fields of polyolefins, base chemicals and fertilizers, is fully committed to the principles of a circular economy, and has engaged to become a technology leader in plastics recycling.

In this context, the company recently acquired the German plastics recyclers mtm plastics and mtm compact, technology leaders and one of Europe’s largest producers of post-consumer polyolefin recyclates.

Design for recyclability is a prerequisite for efficient plastics recycling. Designing packaging and products fit for recycling encourages feeding waste collection schemes and prevents littering. Circular design also makes recycling of all materials easier, as plastic waste streams will be less contaminated with unrecyclable components.

Over the last years, Borealis has been advancing innovation to improve resource efficiency, including the launch of a new Daplen™ portfolio of polypropylene compound grades for automotive applications composed of post-consumer recycled (PCR) and virgin content allowing for increased sustainability and resource efficiency without compromising on the quality and performance of the material.

Borealis also introduced a step-change concept in flexible plastic packaging that enhances recyclability. This packaging

type, typically in the form of stand-up pouches, helps safeguard the quality and safety of the packed products and, compared to rigid packaging alternatives, it has a lower overall carbon footprint and higher resource efficiency. Yet up to now, a significant drawback was its hard-to-recyclability due to the multi-layer material leading and the resulting lower quality of the recyclates. The new Borealis solution improves recyclability without compromising on product efficiency or integrity and, what’s more, increases the quality of the final recyclate.

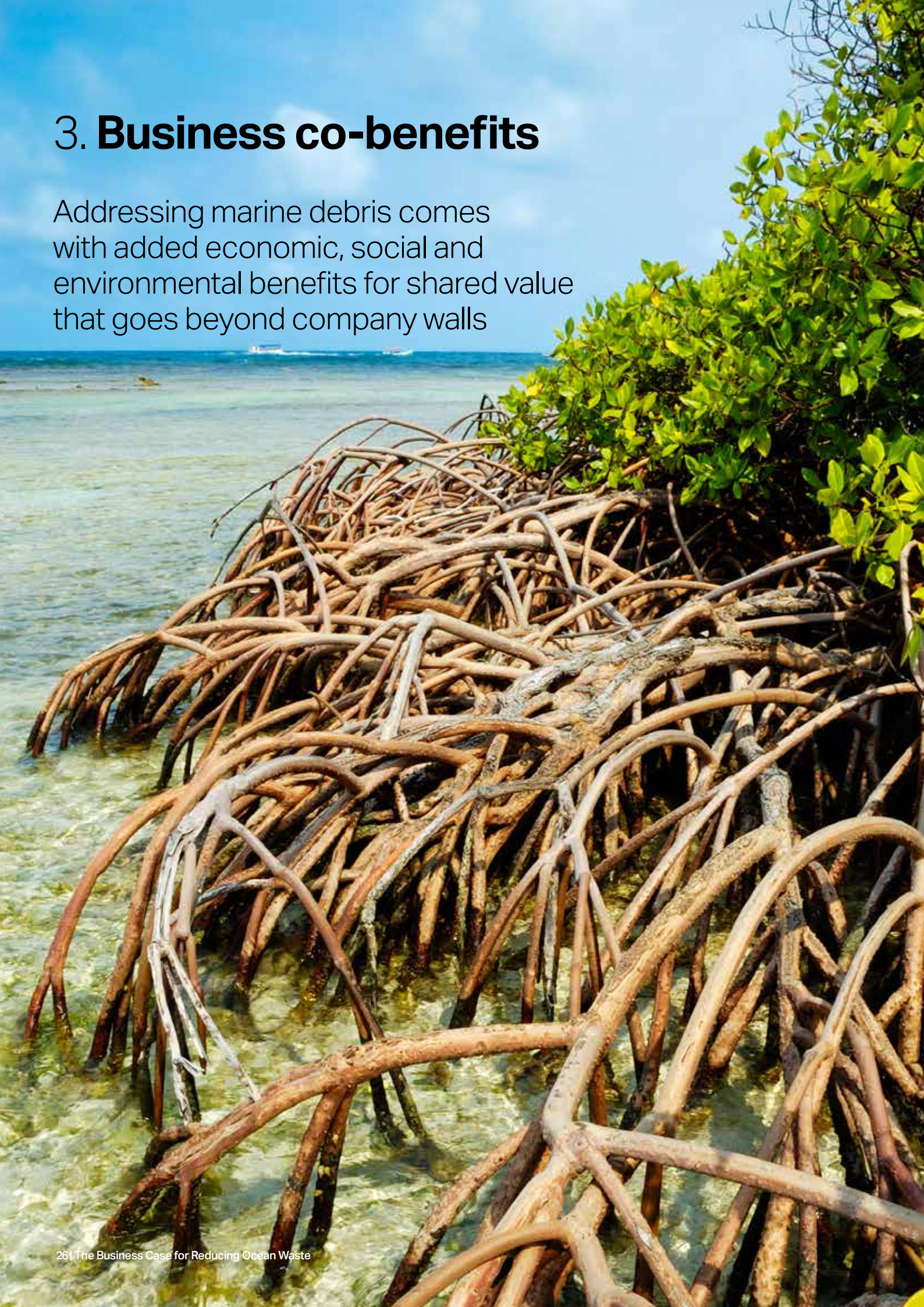
Another example is Borealis’ Daploy™ high melt strength (HMS) PP foam material which is 100%-recyclable and suitable for a wide-range of applications where an improved environmental footprint is sought. In drinking cups, this material has a ground-breaking potential as a possible replacement for expanded polystyrene and paper/cardboard alternatives.

In order to achieve transformation from a linear to a more circular economy, cooperation with all players along the value chain and beyond is essential. Borealis therefore participated in the creation of the Polyolefin Circular Economy Platform (PCEP), and recently joined the New Plastics Economy initiative led by the Ellen MacArthur Foundation that brings together a broad group of stakeholders, including companies, cities, and philanthropists, policymakers, academics, students, NGOs and citizens.



3. Business co-benefits

Addressing marine debris comes with added economic, social and environmental benefits for shared value that goes beyond company walls



Economic co-benefits

The ocean supports global economic growth. The OECD estimates that the ocean economy's output was worth \$1.5 trillion in 2010 and could reach over \$3 trillion in 2030 on a 'business-as-usual' basis⁶³. Reducing marine debris is essential for preserving these economic benefits over the long-term.



- **New business models**

Needed improvements in waste collection and treatment as well as more circularity in the plastics economy require new business models.

According to WBCSD interviewees, leading companies acknowledge the need to develop innovative business models for addressing the issue of marine litter. These include public and private funding for basic collection and sorting systems – especially from those industries and areas that are most affected by marine litter (see fig. 1). These new PPPs are likely to strengthen business relationships with public authorities in key markets, or may help with attracting new capital.

Accenture identified five main business models that underpin the transition towards a circular economy: Circular supply-chain; recovery and recycling; product life-extension; sharing platforms; product as a service. These business models may also provide a new perspective that uncovers the economic opportunity of tackling plastics marine debris.

Considering solutions to reduce ocean waste could help companies apply some of these models to their own businesses. Doing so could help them get "ahead of rivals by innovating for both resource efficiency and customer value – and creating change at the intersection of a company's strategy, technology and operations".



- **Improved value-chain knowledge**

To close the plastic loop, companies need to explore new partnerships across the value chain – especially between industries that need material stream from each other. These new partnerships are likely to help companies gain better knowledge of material flows in the market, ensuring a better control over the value chain overall.

The WBCSD Materials Marketplace business solution aims to help facilitate these partnerships.

Environmental benefits

Environmental benefits offer additional reputational, financial and operational gains for business specifically. They also help companies achieve their sustainability goals and reporting requirements – while enhancing reputation and securing a healthy environment essential for future business growth.



- **Improved ecosystem services**

Plastic marine debris is detrimental to the ocean's natural ecosystem services. Among these are coastal protection, water filtration, carbon sequestration, recreation and tourism⁶⁷. The ocean also provides one sixth of the animal protein people eat⁶⁸. Further, more than 25% of annual CO₂ human-caused emissions is absorbed by the ocean. It is the largest net supplier of oxygen in the world.⁶⁹

Reducing marine debris is key for preserving essential ecosystem services around the world.



- **Reduced CO₂ emissions**

Preventing marine litter contributes to climate change mitigation, waste management and the circular economy. For example:

- Improved waste management can lead to reducing greenhouse gas (GHG) emissions across the economy by about 15-20%⁷⁰.

3. Business co-benefits *continued*

- A circular economy development path in Europe could halve carbon dioxide emissions across mobility, food systems and the built environment by 2030⁷¹.
- The increased material recycling of plastic waste mandated by EU legislation could result in a 6.5% GHG reduction from the EU plastics industry by 2020 and an 11.5% reduction by 2025, when considering a constant level of plastic production.⁷²

- **Reduced environmental costs**

A recent Trucost study estimates that the annual environmental costs of plastic marine debris from the consumer goods sector – 2.5 megatons of plastic – costs the world at least \$4.7 billion in terms of economic, chemical and biological impact.

Addressing marine debris by closing the plastics loop could help recover these losses.

Social benefits

Overall, job creation, inclusion of the informal sector and better environmental conditions will contribute to better living conditions in cities and communities where companies operate⁷³. This will enhance local stakeholders' trust in business, and improve community engagement.





- **Job creation**

Employment in waste and resource management in Europe doubled between 2000 and 2010, to more than 2 million jobs⁷⁴. The potential for new jobs in the circular economy is estimated at 9 to 25 million worldwide⁷⁵. **Preventing ocean waste will contribute to this growing trend.**

From a business standpoint, it is expected that employment opportunities will be boosted through increased innovation and entrepreneurship in this space⁷⁶.



- **Informal sector integration**

Stemming the Tide states that any intervention to close the source of ocean plastics needs to take the informal waste sector into account.

In many developing countries, informal actors successfully contribute to large-scale plastics recycling where formal approaches struggle to do so⁷⁷. In India, the plastics recycling rate is about 4.6 million tonnes (60%), of which 4.4 tonnes is recycled informally⁷⁸.

This illustrates that the informal waste management sector can help provide innovative solutions and operational gains around challenges in secondary materials management. The informal sector is key to closing the plastics loop. Upgrading the conditions of workers in the sector is essential, as informal workers are often part of vulnerable communities facing unsafe and unhealthy working conditions⁷⁹.

Formalizing the recycling systems in these economies will help business, governments, and society achieve the UN SDGs 1 and 8⁸⁰.



- **Enhanced public health, communities and liveability**

Growing concerns about the effects that plastic particles in the seafood chain have on human health has inspired a host of research.

Uncollected waste – including plastics – can negatively impact public health. Public health risks include gastrointestinal and respiratory infections, blocked drains that aggravate floods, and vectors of infectious disease⁸¹.

Further, recent research showed that marine litter can undermine the psychological benefits that the coast ordinarily provides to people. These include restorative effects and improved state-of-mind from viewing these natural environments⁸².

Preventing marine debris via the improvement of solid waste management would improve public health, benefiting public authorities and society.

Conclusion



Summary

The business case for reducing ocean waste is compelling, and the benefits of investing in land-based solutions to prevent plastics marine debris are clear:

- **Maintain core business in a changing environment**
- **Protect and enhance reputation**
- **Drive future business growth and secure competitive advantage**
- **Improve business operations**

For each of these, there are concrete risks and opportunities for companies, as demonstrated by the perspectives and best practices for prioritizing marine debris highlighted in this report.

Some of the risks and opportunities appear as more material to one level of the value chain than others – which is why the key messages for each value chain player are critical.

Throughout the report, the business cases presented aim to convince business leaders in plastics, packaging, consumer products and waste management to prioritize ocean waste prevention in their respective corporate agendas.

Added benefits include additional environmental, social and economic “wins” generated by on-land prevention of marine litter. Even though they are not primarily driving companies’ investments in the issue, they add to the value of such investments.

Next Steps

Next steps for the WBCSD’s [Roadmap for reducing Ocean Waste](#) Working Group as well as for the business community include:

Building an action plan – What are the solutions that business can implement both individually and collectively to reach impact at scale?

Addressing barriers to implementation – What are the financial, policy-related, technical and other barriers that inhibit implementation?

Focusing on implementation – A demonstration project will be developed to show that the action plan brings tangible results when local implementation barriers are overcome.

Continue replication and scale-up – To reach impact at scale, the lessons learned from the demonstration project will be applied in other geographical locations.

Ocean plastic pollution is deeply embedded in climate change mitigation, circular economy, water, waste management and is rising on the global policy agenda.

The business case is compelling. Top companies are already taking action. This is the opportunity to take your place among the leaders and get involved in the journey towards a plastic-free ocean.

Appendices

Definitions

- **Bio-based plastics ('bioplastics')**
Bio-based plastics are plastics if they are either biobased, biodegradable, or features both properties. Biomass used for bioplastics stems from corn, sugarcane, or cellulose. Conventional plastics, on the other hand, are synthesized from non-renewable fossil fuels, either petroleum or natural gas.
- **Biodegradable plastics**
Biodegradation is a chemical process during which microorganisms available in the environment convert materials into natural substances such as water, carbon dioxide and compost (artificial additives are not needed). The process of biodegradation depends on the surrounding environmental conditions (e.g. location or temperature), on the material and on the application. Both conventional and bio-based plastics can be biodegradable.
- **Business co-benefits**
Co-benefits are secondary, or ancillary, benefits provided by ocean waste prevention solutions above and beyond those sought by a solution (for example for example, public health and job creation in waste management).
- **Business drivers**
Business drivers are factors (resources, processes, or conditions) required to create the conditions necessary for a business to grow or succeed.
- **Informal waste sector**
The ILO defines informal waste workers as "individuals or small and micro-enterprises that intervene in waste management without being registered and without being formally charged with providing waste management services."
- **Macro-plastics**
Particles larger than 5 mm are considered "macro-plastics."
- **Marine debris, marine litter, ocean waste**
"Marine debris is defined as any persistent solid material that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine environment⁹³."
- **Materiality**
The materiality principle is the idea

that companies should focus their strategy and reporting on the most relevant sustainability challenges and opportunities. The Global Reporting Initiative (GRI), the International Integrated Reporting Council (IIRC) and the Sustainability Accounting Standards Board (SASB) have all developed frameworks to further advance the approach towards clarifying what is material for reporting purposes.

- **Micro-plastics**
Particles in the size range 1 nm to <5 mm were defined as micro-plastics by GESAMP – joint Group of Experts on the Scientific Aspects of Marine Environmental Protection.
- **Natural Capital**
"Natural capital is another term for the stock of renewable and non-renewable resources (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people⁹⁴."
- **Plastics**
"The term 'plastic' is used here to define to define the class of materials that consist of synthetic polymers. Polymers are very large molecules that have characteristically long chain-like molecular architecture and therefore very high average molecular weights⁹⁵."
- **Primary micro-plastics**
Primary micro-plastics are micro-plastic particles that were originally manufactured to be a certain size. Primary micro-plastics include industrial 'scrubbers' used to blast clean surfaces, plastic powders used in molding, micro-beads in cosmetic formulation and plastic nanoparticles used in a variety of industrial processes
- **Secondary materials**
Materials that have been collected, recycled and processed for continued or alternative use.
- **Secondary micro-plastics**
"Secondary micro-plastics result from the fragmentation and weathering of larger plastic items. This can happen during the use phase of products such as textiles, paint and tires, or once the items have been released into the environment⁹⁶."
- **Social Capital**
The WBCSD is using "social capital", to refer to the resources and relationships provided by people and society. This

encompasses human capital (people skills, knowledge and wellbeing), social capital (societies' shared values, norms and institutions) and relationship capital (connections and networks).

Acronyms

- WBCSD** – World Business Council for Sustainable Development
- ROW** – Roadmap for reducing Ocean Waste
- GHG** – Greenhouse Gas
- EPR** – Extended Producer Responsibility
- OECD** – Organization for Economic Co-operation and Development
- CO₂** – Carbon dioxide
- LCA** – Lifecycle Analysis
- PPP** – Public-Private Partnerships

Gaps and limitations

There are certain gaps and limitations in this report.

- **Robustness** – The identification of main drivers, co-benefits and the value chain mapping, are based on the inputs from 14 major companies along the plastics value chain. 10 expert organizations and individuals also contributed to this study. We are aware that these numbers are not high enough to draw statistically consistent results. This report intended as a first attempt to illustrate the business case for reducing marine debris and convince others to join.
- **Representativeness** – The 14 companies are nearly all multinational enterprises headquartered in Europe or the US (except one in South Africa, and one in Japan). The brand owners represented all belong to the food and beverage industry. Views from small and medium enterprises, companies headquartered in Asia, Africa, South America or Oceania, and other plastic user industries need to be examined as well.
- **Knowledge gaps** – This report is based on the latest research findings available to date, to the best of the authors' knowledge. The reader should be aware that there are knowledge gaps in the field of plastics marine debris. For instance, research on the health and safety impacts of ocean plastics is currently being conducted.

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35. More than 25 % of the CO2 emitted annually by humans into the atmosphere is absorbed by the ocean, and it is also the largest net supplier of oxygen in the world, playing an equally important role as the forests. Plastics marine debris contribute to the degradation of marine ecosystems, potentially threatening the ability of the principle 'lung' of the planet to limit global warming.
36. Habitat III's New Urban Agenda's commitment number 74 state that: 'We further commit to reduce marine pollution through improved waste and waste water management in coastal areas.'
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