

A large, sprawling pile of plastic waste, including bottles, containers, and debris, stretches across the landscape under a sunset sky. The scene is dominated by the sheer volume of discarded plastic, with various colors like white, blue, red, and yellow visible. The sky is a mix of orange, yellow, and blue, suggesting the time is either dawn or dusk. The overall mood is one of environmental concern and the scale of the plastic waste problem.

# Ethical CORPORATION

## The Plastics Challenge

White Paper

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# Ethical Corporation – Plastics

By Mike Scott

**Tackling plastic pollution is the cause celebre of 2018, thanks to the devastating reportage of the BBC’s Blue Planet 2 programme. It is a problem that sits at the heart of the supply chain for vast swathes of the economy.**

Tackling plastic pollution is the cause celebre of 2018, thanks to the devastating reportage of the BBC’s Blue Planet 2 programme. It is a problem that sits at the heart of the supply chain for vast swathes of the economy.

Some 40% of plastic is used in packaging, 10% in vehicles, 20% in buildings – it’s everywhere we go, according to Jane Bevis, Chair of the On-Pack Recycling Label (OPRL).

Plastic is an inconvenient truth, added Melissa Wang, senior scientist at Greenpeace UK. “The plastic value chain is very complicated. We need solutions throughout the value chain.”

On current trends, within one generation, there will be four times as many plastic products as today and five times as much waste, she said. “If we don’t reduce production at source, the problem will only get worse.” The United Nations Environment Assembly has called for companies to cut waste by introducing circular economy practices to close the loop, but it will also be

*Plastic is an inconvenient truth*





crucial to slow the growth of plastics use, Wang pointed out. “We can’t simply recycle our way out of the problem.”

There must be a change to the waste hierarchy for plastic, agreed Bevis. “We need to start with replacing it, then reduce, reuse, recycle and perhaps even recompose.”

Business has a core responsibility to tackle plastic waste, but it will require a collaborative approach, Wang stressed. “We need timely commitments and concrete actions to ensure that plastic comes under Extended Producer Responsibility regulations.”

There has been a big debate on Extended Producer Responsibility in the UK, where companies will soon have to cover 80%-100% of the costs of dealing with the waste they cause, up from about 10% now, Bevis said.

“Business should help policymakers to tighten targets at regional, national and global level,” Wang added. “Policymakers also need to create the incentives for business opportunities in this area. And these initiatives must be global, so there is a level playing field.”

She said efforts to tackle plastic waste are being scaled up, everywhere from the UK where retailers such as Iceland have pledged to go plastic-free by 2023, to China, where some takeaway services are trialling recyclable packaging.

Companies are trying to increase the proportion of recycled material in packaging, Bevis said, “partly to show customers they are taking action and partly because it gives them options for the future”.

Design will be a key factor, she added. “We have to design packaging to increase its chances of making it through the recycling process.” Customers also need to know whether their packaging is recyclable and where it can be recycled. OPRL’s We Recycle app, currently being trialled in Leeds in the UK, tells users if a product is recyclable and where they can recycle it.

### Thinking differently

Beverage producers are one of the sectors in the spotlight and Joe Franses, vice-president for sustainability at Coca-Cola European Partners, acknowledged that “much of our packaging ends up where it should not. We have a responsibility to fix the problem. We have to change our business model.”



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*“We have to design packaging to increase its chances of making it through the recycling process.”*





Indeed, according to the Ellen MacArthur Foundation, tackling plastic waste is a significant business opportunity, he said. “There is a €700 million potential cost saving from recycling alone,” he said. “We are all going to have to do much more, think differently and invest in solutions we have not invested in before.”

The recent launch of JUST Water, a water bottle made from 82% renewable materials, in 800 Boots stores is one example of how the UK retail industry is responding to growing consumer pressure to end plastic waste.

Billed as “mostly from plants”, JUST’s water bottle is made from FSC-certified paper, lined with a thin layer of aluminium and plastic film. The plastic in the cap and shoulder of the bottle are made mainly from sugarcane.

JUST Water’s packaging starts its journey in a flat roll made by its parent company JUST Goods, a US-based B Corp founded by actor Will Smith and his son Jaden. It then gets folded into shape when filled with spring water at its UK bottling partner’s plant in Northern Ireland.

The pack can be recycled widely in UK local authority collections, but JUST Water company suggests that, with care, it can be reusable. It will hope the “on-the-go” consumers who buy their bottles at Boots will do just that.

JUST Water’s launch comes after Boots and 67 other retailers, brands, makers of packaging and waste and recycling companies signed the UK Plastics Pact earlier this year, setting a voluntary target for all plastics packaging to be either reusable, recyclable or compostable by 2025.

Separately, several companies in the UK bottled water and soft drinks industry, including Danone Waters, Lucozade Ribena and Nestlé Waters, have worked with the Institute for Sustainability Leadership at the University of Cambridge, to come up with a roadmap to eliminate plastics packaging waste from their UK value chains by 2030.

Beverley Cornaby of the Cambridge Institute for Sustainability Leadership (CISL) said the roadmap would see the bottled water industry go further than the UK Plastics Pact, though it doesn’t set additional targets. As a starting point, it wants to see policy actions to encourage use of recycled materials and support investment in reprocessors.



ICELAND

Supermarkets are piloting reverse vending machines, which give customers 10p back for every plastic bottle they return

**“There is a 700 million potential cost saving from recycling alone”**





## Chemical reaction

Every time plastic is heated up to be recycled, it breaks down a little bit, said Risto Vapola, technical product manager at oil refiner Neste. “To keep going, you either need to add new material or you have to move to chemical recycling.”

He explains how his company has been transforming itself from a crude oil refiner to a business making products from biomass. “We are looking at how we can replace fossil fuel-based materials in chemicals and plastics. We want to recover and use plastic as a feedstock.”

Neste hopes to process 1 million tonnes a year of waste plastic as a substitute for crude oil. But currently, he said, “chemical recycling doesn’t really exist at scale. We’re working with our value chain to make more waste streams available to us.”

Franses stressed the need to distinguish between “unnecessary single-use plastic that can’t be collected and recycled, and plastic bottles that can be recycled and reused in a closed loop”.

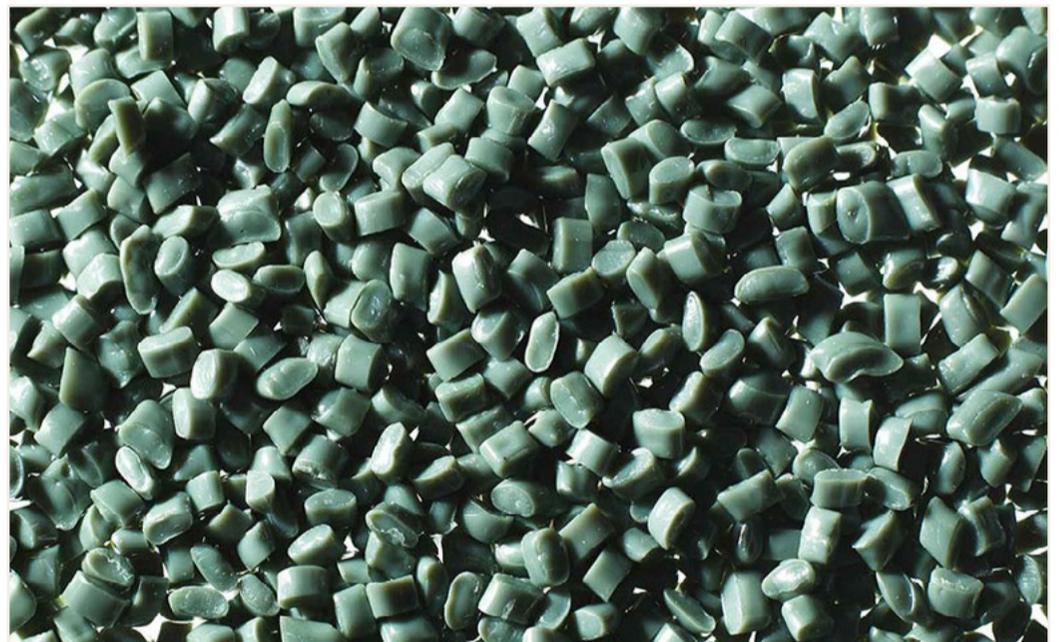
Coca-Cola European partners will work, with partners, to collect 100% of its packaging in Western Europe and support the introduction of deposit return and reverse vending schemes, he added.

The UK government, in the 2018 Budget, introduced plans for a plastics tax from 2022 and its long-awaited Waste and Resources Strategy, expected before the end of the year, has on-the-go consumption is in its sights, with Defra due to consult on a deposit return scheme (DRS) for single-use drinks containers aimed at cutting litter and boosting recycling.

The idea is that consumers would pay a small deposit (e.g. 10p), which would be refunded when they return the bottle to a retailer or collection point. The UK’s largest supermarket chain, Tesco, has started trialling recycling machines in four stores in England, Scotland and Wales, paying 10p for every bottle returned. It follows Iceland, which began trials of reverse vending machines in selected stores in June.

Bevis, whose On-Pack Recycling Label is on the JUST Water bottle, argues a DRS needs to tackle on-the-go consumption, rather than detract from existing local authority collection schemes. She points out that surveys

*Every time plastic is heated up to be recycled, it breaks down a little bit*



CLEAN TECH

Recycled pellets produced at the UK’s largest PET recycling facility owned by Clean Tech





suggest that the under-35s, the most vocal group when it comes to recycling, actually recycle least, and are more likely to eat out and on-the-go.

In September OPRL began industry-backed trials of its #LeedsbyExample app: on-pack bar codes let consumers in Leeds know whether material can be recycled, and how far it is to the nearest recycling site.

The Scottish government launched its public consultation on DRS at the end of June, fueling concern that we could end up with different schemes operating in different parts of the UK. However, ministers and officials from the devolved administrations have since met to discuss co-ordinated action.

Chris Brown, managing director of the UK's largest PET recycling facility, Clean Tech, says: "What's needed is a well-designed system that builds on the collection system the UK already has." He adds:

"Getting incremental collection and incremental quality of feedstock is key."

Experts say action, ambition and investment are all urgently needed to make plastic packaging recyclable, encourage consumers to recycle it, and ensure there's consistent quality of materials for processors, so it is valued and recycled.

### The problem

Reforms are urgently needed to overhaul the UK's 20-year-old producer responsibility system, which is designed to meet EU targets for recycling at a low cost to industry, rather than obligate companies to collect and recycle their own packaging.

Under the system, companies that handle over 50 tonnes of packaging a year and have a turnover above £2m – including manufacturers, supermarkets, and makers of packaged goods – have to show that they've recovered and recycled a minimum level of packaging waste.

To do that they buy packaging waste recovery notes (PRN) from UK reprocessors or waste exporters for the amount of packaging they've recycled. These are sold on the open market and prices vary with demand.



OPRL

Jane Bevis, chair of OPRL wants to tackle on-the-go consumption

*Action, ambition and investment are all urgently needed to make plastic packaging recyclable*





Supermarkets are piloting reverse vending machines, which give customers 10p back for every plastic bottle they return. According to a report from the National Audit office (NAO) in July, reprocessors and exporters were paid £73m in 2017. Meanwhile, Defra estimates that in England alone, local authorities (and hence taxpayers) spent £700m collecting and sorting waste in 2017.

Businesses in other parts of Europe pay a lot more for recycling – almost four times as much in Germany and the Netherlands, for example. But there, the system is intended to fully cover the costs of collecting household packaging waste.

In many parts of the world, waste infrastructure is very poor or simply non-existent, so it is important that rich Western countries treat their waste themselves rather than exporting it to emerging markets that may lack the infrastructure to deal with it. “We have exported our waste because the system is fundamentally broken and flawed. We have seen processing facilities go bust one after the other, in part because the fall in oil prices a few years ago made the system really fragile. We have to do better in keeping waste domestic and getting value out of it. If we can’t get it right, we can’t set an example to others,” Franses said.

The NAO has condemned the system as having “evolved into a comfortable way for government to meet targets without facing up to the underlying recycling issues”. It points out that the system “relies on exporting materials to other parts of the world without adequate checks to ensure this material is actually recycled,” or whether other countries will continue to accept it in the longer term. As China has shown us, it won’t.

It’s telling that since 2002 the amount of waste exported for recycling has increased more than six times, while the amount recycled here has not grown.

Clean Tech’s Chris Brown explains that this is because of the incentives structure: a PRN is generated for 100% of the tonnage exported, but if materials are processed in the UK the PRN is only generated on the percentage of material that is actually recycled.



The #LeedsByExample app lets consumers know whether and where a material can be recycled

*In many parts of the world, waste infrastructure is very poor or simply non-existent*





Typically, Clean Tech finds that 30% of what it receives for recycling is not suitable to go through its wash process. That's one of the reasons that environmental consultant Eunomia believes reported plastics recycling rates are over-inflated by as much as a third.

According to Brown there is strong demand for recycled PET from brands – like its biggest customer Coca-Cola – that have signed up to the UK Plastics Pact committing them to using more recycled content. But there are questions over availability of feedstock both in the UK and in continental Europe. He'd like to see materials collected here processed in the UK, suggesting incentives for the industry to come up with solutions that will make more recycled material available.

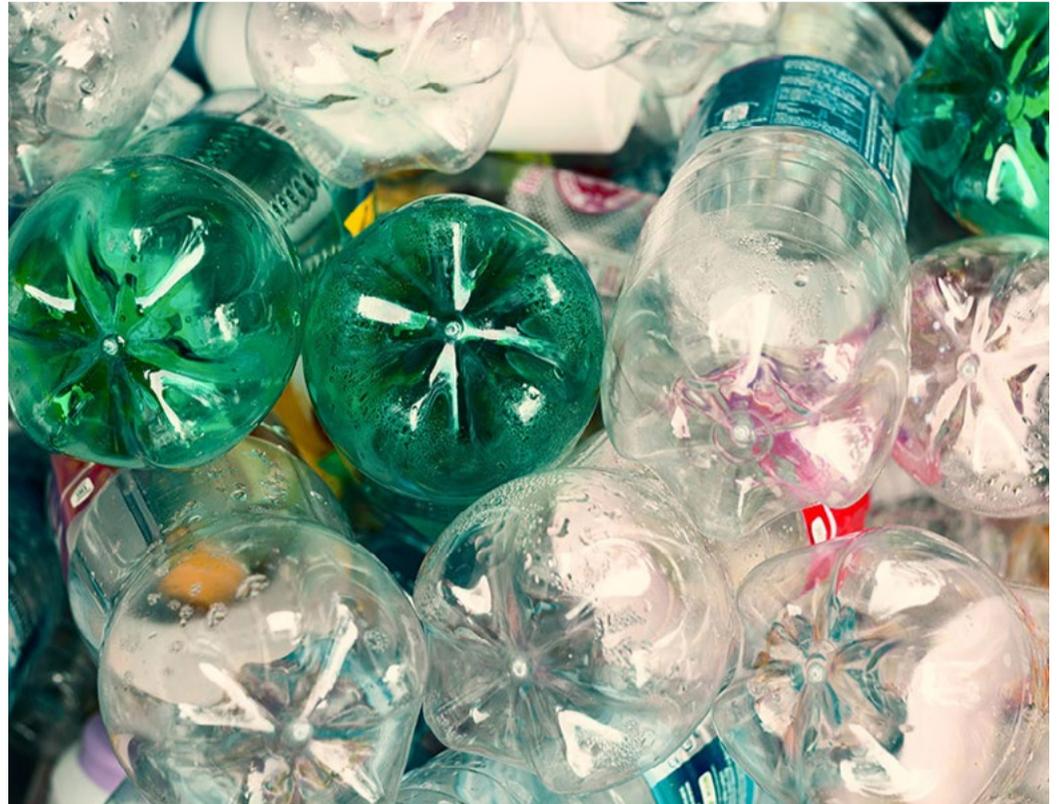
The government is expected to begin consultations later this year on reforming PRN as part of the Waste and Resources Strategy. But it already has some answers from the Treasury's investigation of how the tax system could be used to cut waste of single-use plastics, and how barriers to investment in the recycling industry can be overcome.

The signatories to the UK Plastics Pact are also mobilizing to seek solutions. David Moon, head of business collaboration at WRAP, which convenes the UK Plastics Pact, told a recent meeting at Coca-Cola European Partners (CEP) that action groups have been set up to look at how to tackle key issues, including how to measure progress towards the agreed targets.

Signatories are being consulted about potential flagship projects to solve big challenges such as black plastics and film recycling; and work is being done on guidance around bioplastics, polymer choice and film recycling.

"We're looking for leading businesses to participate so we develop best practice and collectively work on engaging the citizen, which is arguably the hardest challenge," Moon said.

The value being lost at the household level was highlighted by Zero Waste Scotland last year when it reported that 60% of waste that went to landfill could have been collected at the kerb-side for recycling. That included 15,000 tonnes of PET plastic drinks bottles, which would have been worth between £375,000 and £1.95m had they been recycled.



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*There is strong demand for recycled PET from brands*





The industry recognizes that it has to be as easy as possible to recycle at the household level, but that it also has to take action to filter out the more difficult materials and simplify the range of things it is dealing with, suggests Bevis. “We don’t want to lose plastic as a packaging material, but we have to value materials more – to ensure second, third ... 25th life.”

But there are choices to be made as part of a bigger sustainability assessment. Take vegetables. To extend shelf-life these are often packaged in a gaseous atmosphere that is modified from the air we breathe, and so the polyethylene packaging has to be sealed. Bevis says recyclable PE films can’t be sealed, so there’s a balance to be struck as the impact of food waste is greater in terms of carbon emissions.

Another big recycling challenge is flexible laminated packaging, which is made of multiple layers of materials, such as aluminium, paper and plastics. CCEP says it’s working on solutions to make it easier to collect and recycle

its drinks pouches, and it is collaborating to develop industry-wide solutions.

Meanwhile, Cambridge-based Enval has developed a process to recycle aluminium and plastic laminated packaging but is struggling to get support from brands, or for local authorities to agree to collect the material. It is recycling the post-production waste from CCEP’s Capri-Sun pouches, but not post-consumer waste.

CCEP’s response is that the economics of the process makes it difficult for local authorities to introduce the necessary collection systems. Perhaps this is an example of where producers need to take responsibility. “Where product needs are such that you’re pushed down a particular route, is there a way to create infrastructure, or have we really got the design [of the packaging] right?” Bevis asks.

OPRL intends to help its members (which include retailers and manufacturers) to design packaging with recycling in mind. It’s now testing the UK version of an Australian Prep for Design tool. The online tool will provide an assessment of recyclability, given current collection and processing systems, and whether the value of the material is diminished by, for example, putting a PVC sleeve around it.



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**Another big recycling challenge is flexible laminated packaging, which is made of multiple layers of materials, such as aluminum, paper and plastics.**



Brown comments that he's "never seen so many different areas of our customers' business spending time to understand the environmental impact of their products and how to minimize that". He suggests that while there will be no overnight solutions, the progress that has been made so far needs to be encouraged.

### Changing behaviour

Just as important will be for drinks producers such as Coke to use the reach of their brands to change consumer behaviour. "We need to connect with people to make sure they don't drop litter and do use the recycling facilities that are available," said Franses.

Detergent maker Ecover designed its packaging to be fully recyclable right from the start, said Tom Domen, the company's global head of long-term innovation, and it has started making bottles from ocean plastic. "By 2020, we want to have no new plastic in our bottles," he added.

Jon Khoo, innovation partner at Interface, the carpet tile maker that has been a circular economy leader since the 1990s, said that his company has "moved from a 'take, make, waste' position to one where we start with waste and use that in our own products, making it functional and beautiful, designing it so it can be taken back and recycled.

"Our suppliers have been key in that endeavour. The majority of our impacts are in our materials," he added. Interface told its yarn provider Aquafil that it wanted to buy recycled material. "They saw it as a business opportunity. They invested in a plant in Slovenia, where they take waste fishing nets, as well as our own factory waste, material from the car industry and clothing. They turn it all into material that is as functional as virgin material. It happened because we had shared values at a leadership level. We keep the pressure on each other."

Its Net-Works initiative not only collects waste fishing nets but also provides waste facilities for communities where there is no waste infrastructure and it is also looking at the potential of farming seaweed to make bioplastics. And Interface is also working with Dell, HP, GM, Lonely Whale and others in a venture called NextWave, which seeks to make ocean-bound plastics a commodity. "Cross-industry collaboration is important. It's a vanity project if you're only



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***"Cross-industry collaboration is important"***





looking at your own supply chain. You need lots of partners so you have a supply ‘web’ rather than a supply chain,” Khoo adds.

Companies need to enable and empower alternative options such as refills, Wang said. “Refill is crucial,” agreed Domen. “We want to scale it up. By next year, we will have our first refill machine in the UK. We will use materials like steel that can be recycled. The whole supply chain changes, from filling individual bottles to shipping 1,000 litres of concentrate. It saves a lot of energy, complexity and cost in the supply chain.”

The consumer is also key, Bevis added. “We think about products and materials, rather than consumers, but they need to be at the heart of this. They are the weakest link in the circular economy. Most people only think about packaging when they think about disposal. They want to make a decision in a split second. We have to make it as easy and convenient for them as possible.”

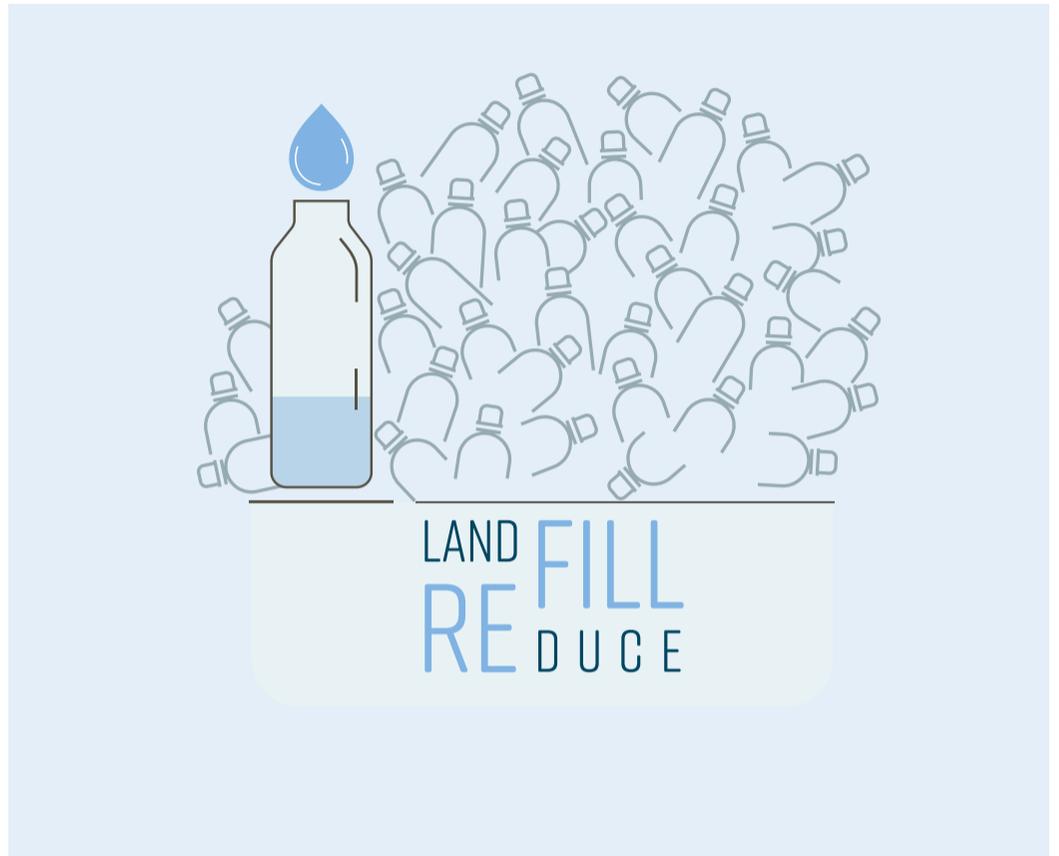
The financial sector will also be crucial, Wang said. “Some financial institutions say they won’t invest in fossil fuel projects, but we are not aware of any equivalents for plastic. But there is a huge role for the financial industry to play here.”

The industry needs to move forward together with a collective vision of systemic change, said Bevis. “No single brand or packaging manufacturer can do this on their own so we need collaboration at a global level.”

There is a higher level of understanding and awareness about the issue of plastic both in the living room and the boardroom, Khoo said. “The challenge is to turn that awareness into action and scalable models of change. Companies know they can’t wait for governments to act. People talk about turning off the tap and about getting the plastic out of the ocean. We need to do both, but turning off the tap is what’s most important.”

### ‘We need to keep plastics in our economy – but out of the oceans’

Angeli Mehta interviews Lonely Whale’s Dune Ives about how the NGO is working with Dell and other partners in the NextWave initiative to help companies incorporate plastic waste in supply chains



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**Companies need to enable and empower alternative options such as refills**





The rising tide of plastic waste is not only littering our ocean: its damaging impacts include carrying contaminants and bacteria that harm marine organisms such as coral. How can we stop any more fouling the water?

Seattle-based Lonely Whale is an NGO that is helping companies take positive action to address that challenge by incorporating plastic waste in their products. Its supply chain initiative NextWave “is trying to create new demand for a greater collection of materials – what we call additionality”, explains executive director Dune Ives.

Recovering plastics that wash up on ocean beaches is not the focus of Lonely Whale. This is technically challenging, as Procter & Gamble found out when it developed shampoo and washing-up liquid bottles using ocean plastics.

The NGO instead targets plastic waste that is found around waterways and is likely to end up in the ocean. Two years ago, it began working with computer maker Dell to use ocean-bound plastics in its packaging. Now the two are creating an industry consortium to develop a supply chain that will keep plastics in the economy and out of the water.

Lonely Whale is managing the connections and interface with suppliers; it will liaise with governments and pull in scientists and other NGOs. Each company that signs up to NextWave also commits to reduce and eliminate unnecessary plastics in its own business – even if it’s just balloons and straws.

“What are the plastics that we use today that could be replaced; and what is the most harmful to the environment? Can we be more creative about collecting and integrating them?” asks Ives.

Take bicycle maker Trek, one of the consortium’s founder members. Trek is exploring whether cork might be a viable alternative to the expanded polystyrene foam used in helmets, a material that is particularly challenging to recycle.

Another (as yet unnamed) company is a big user of Nylon 6. This can be sourced from fishing nets – another problematic waste, as they can drift for long distances and entangle marine life. So Lonely Whale is trying to create depositories for used fishing nets and find a means to turn them into pellets of Nylon 6.



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*The rising tide of plastic waste is not only littering our ocean: its damaging impacts include carrying contaminants and bacteria that harm marine organisms such as coral.*





Yet another business is exploring the means to recycle multi-layered and thin-film packaging. “Why isn’t it picked up? Because it has no value at present,” says Ives. “If we can demonstrate value, people will pick it up and pull it back into the economy.”

Each NextWave member has a different interest in a different part of the world – perhaps through its supplier network or even a personal connection. So far, it’s sourcing plastics from Chile, Indonesia, the Philippines, Cameroon, India and Denmark. The latter recovers fishing nets.

The key, suggests Ives, is to create a network of suppliers to ensure stability and continuity in the supply chain. “This has been a big learning [point] for me,” she says. “We can’t all be focused on Indonesia and then find the supply chain gets disrupted because of a natural disaster: there has to be a strong, stable supply chain in place that will maintain companies’ commitment.”

In a separate initiative, Bacardi is teaming up with Lonely Whale to eliminate one billion straws globally by 2020 in a campaign called #TheFutureDoesntSuck. Bacardi will work on eliminating plastic straws and stirrers, starting with venues in London, having successfully got rid of them at its own offices and in-house events.

“A bit of it is just putting our voice to the cause, to try to amplify it,” says John Burke, Bacardi’s chief marketing officer. But it’s just the first step, he adds. “When you become aware of single-use plastics you see them throughout the supply chain.”

Lonely Whale will help Bacardi review and remove non-essential single use plastics, then work on getting recyclable and renewable plastics into its supply chain. Burke explains that “the first piece of work is to quantify the scale, and pick the low-hanging fruit, then begin to look at the nuts that are harder to crack, where technology development is needed”.

Ives comments: “We sought out Bacardi because of its strong relationships with bars and mixicologists: our theory was, if we engage the mixicologists then how many consumers can we influence?”



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*“When you become aware of single-use plastics you see them throughout the supply chain.”*



Straws, she adds, are “not the worst offender but they’re a good place to start a conversation”. Bacardi also understands that water is fundamental, says Ives: microplastics showing up in the water could start to impact the quality of its products.

Another NGO, Washington DC-based Ocean Conservancy, has teamed up with Closed Loop Partners, which invests in sustainable goods and recycling technology. The aim of the partnership, called Circulate Capital, is to unlock the billions of capital investment that will be required to create the necessary recycling infrastructure in key Asia-Pacific countries, where so much plastic waste actually enters the oceans.

An initial \$150m fund is being created with the backing of partners including P&G, Unilever, Coca-Cola and Kimberly-Clark. The idea is to identify and develop local projects that will stop the damage but also demonstrate that it can be profitable to return plastics to the supply chain.

When Circulate Capital has identified those locations, Ives hopes that “they align with where we already have companies ready, willing and able to purchase material they intercept. This is very early stage, but I have a lot of optimism that these initiatives will come together in this way.”

### Bioplastics – fraught with problems, and potential

There is a need for non-oil plastic alternatives, Bevis said. “Are there situations where we can use completely novel materials, such as plastic made of seaweed? It’s edible and it can be used for things like drinks and sauce sachets but it has a very short shelf life so it has to be packaged almost on site – but it could be great for takeaways.”

However, she acknowledged that bioplastics is a fraught area, with many potential problems including potential displacement of food production and rainforest destruction, while compostable products are only an option for those with a garden.

Wang was clear that bioplastics are a bad idea for a range of reasons. “Using land to grow crops for bioplastics is bad when the issue could be solved in other ways,” she said. “Land use for the amount of bioplastics that



SHAWN HEINRICH

Computer-maker Dell is using ocean-bound plastics in its packaging

*“Using land to grow crops for bioplastics is bad when the issue could be solved in other ways”*





would be needed in current expected growth cannot be sustained, especially when you take biofuels into account.”

In addition, there are serious problems with biodegradable plastic, she said. “Just because plastics can biodegrade, it doesn’t mean they will. The industrial conditions for biodegradability cannot be met in the natural world. Once biodegradable plastics get into the marine environment, they can still cause considerable damage. A lot of biodegradable plastics need anaerobic conditions to break down, which releases a lot of greenhouse gases.”

Biodegradable plastic requires a lot of sorting infrastructure, supplies can easily be contaminated when recycled and biodegradable plastic reduces the quality of recycled plastics, she added.

However, Domen said that “there are a lot of myths around biodegradables. People think that if it is biodegradable, they can just throw it away. But littering is not linked to the material, it is a cultural and educational thing.

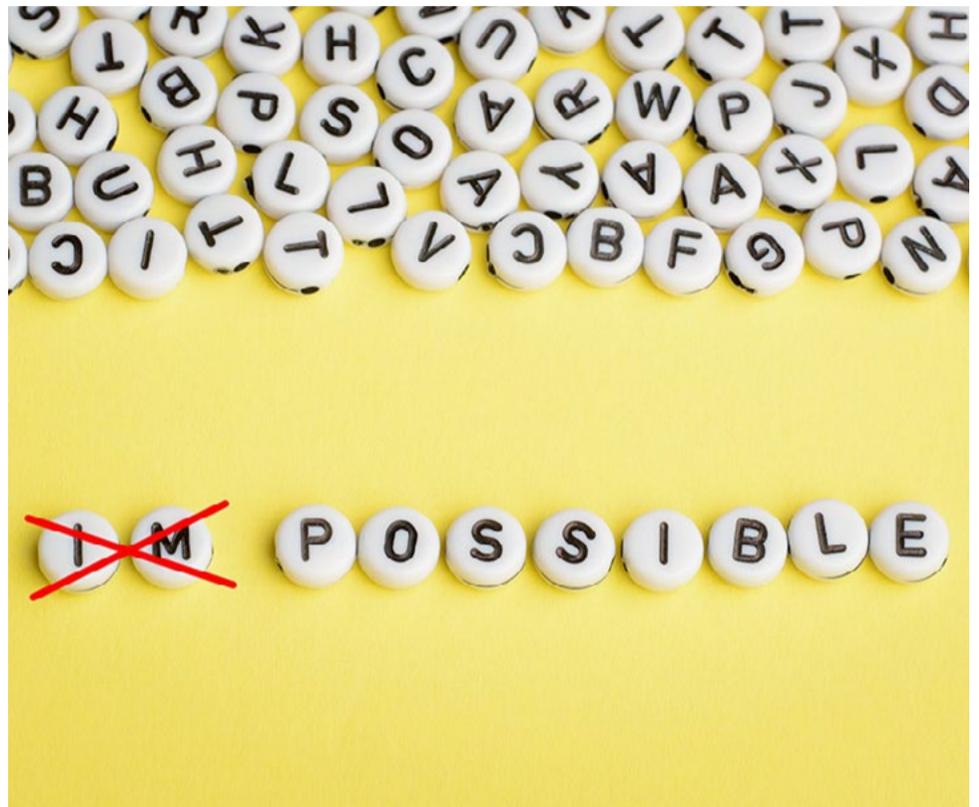
“Biodegradable materials are part of the solution, they just don’t fit the current system. People judge biodegradables by what is available, which is not currently biodegradable in most conditions. There are many new polymers that are biodegradable in different conditions, including with food waste in anaerobic digestors.”

Franses conceded that biodegradables are fraught with difficulty, adding that Coke was the first company to use plant-based material made from bagasse, the waste produced when sugar cane is processed, so there was no conflict with food production. “We were told for a number of years that this was the solution. Now we’re being told that it’s not,” he added.

However, he said, “If we could get to a place where we were replacing fossil fuel-based material with plant-based material that doesn’t conflict with food, is 100% recyclable and doesn’t contaminate the waste stream, I’m not sure what the problem is. We shouldn’t write off bioplastic overnight.”

Vapola agreed, as long as the packaging is designed to be recyclable both mechanically and chemically.

Khoo was also cautiously in favour, saying: “It’s a really tough issue, but I never like closing the door completely. We should look at the potential.” ■



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*“It’s a really tough issue, but I never like closing the door completely. We should look at the potential.”*

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