REPORT

JULY 2018

# What Can Business Do to Prevent Plastic from Becoming Waste in Asia Pacific?

BSR
The Business of a Better World

# About this Report

This report was written by Jeremy Prepscius, Eileen Gallagher, and Joanna Lovatt, with additional insights provided by Cynthia Wang, The Coca-Cola Company, and external stakeholders. Any errors that remain are those of the authors.

## STATEMENT OF PURPOSE

The purpose of this report is to provide all actors with a stake in plastic with a primer on plastic waste and recycling in Asia Pacific, as well as a set of realistic, feasible recommendations for what business can do to prevent plastic from becoming waste. These recommendations were developed and validated in consultation with representatives from the private sector, public sector, civil society, and academia. The report is not intended to be an exhaustive description of the barriers and opportunities for plastic recycling. Instead, it aims to provide an overview of the challenges in Asia Pacific and highlight potential solutions for waste reduction. The report also focuses on solutions to preventing a variety of plastic items from becoming waste, including bottles, containers, packaging, utensils, and straws. Other forms of plastic, like plastic casings on electrical equipment, may require different routes of recycling.

The Coca-Cola Company, in collaboration with Swire Beverages, gathered representatives from civil society, the public sector, business, and academia in Hong Kong on May 10-11, 2018 to identify the challenges of plastic waste. Moderated by BSR, the convening aligned with The Coca-Cola Company's global commitment to collect and recycle the equivalent of every bottle or can it sells globally by 2030.[1] This report outlines the findings of that discussion, supplemented by eight key interviews with stakeholders engaged across the plastics value chain in Asia Pacific, as well as desk research.

## ACKNOWLEDGMENTS

The authors wish to thank partners and colleagues who shared their insights and expertise in the development of this report, namely representatives from the Ocean Recovery Alliance, Gone Adventurin, Closed Loop Ocean, UN Environment, WWF HK, the Ellen MacArthur Foundation, State Oceanic Administration's First Oceans Institute, and Swire Beverages. This report would also not have been possible without the energy and ideas provided by all participants at the stakeholder convening, as well as support from The Coca-Cola Company and Swire Beverages.

The authors would like to extend particular gratitude toward Ashwin Subramaniam (Founder and CEO, Gone Adventurin), Rob Kaplan (Managing Director, Closed Loop Ocean), Kakuko Nagatani-Yoshida, (Regional Coordinator for Chemicals, Waste and Air Quality, Asia and the Pacific, UN Environment), Karen Ho (Head of Corporate and Community Sustainability, WWF Hong Kong), Jeff Maguire (Head of CDS Implementation – Director Statewide Recycling, Coca-Cola Amatil), Eric DesRoberts (Manager, Trash Free Seas® Program), as well as Michael Goltzman (Vice President, Global Policy, Environmental Sustainability and Social Impact, The Coca-Cola Company), Ben R. Jordan (Senior Director, Environmental Policy, The Coca-Cola Company), Stuart Hawkins (Public Affairs and Sustainability Director, Coca-Cola ASEAN), William Davies (Global Safety and Sustainability Transformation Lead, Swire Beverages), and Pablo Largacha (Vice President, Public Affairs and Communications Asia Pacific Group, The Coca-Cola Company) for providing special expertise and for speaking at the convening.

[1] The Coca-Cola Company, 2018.

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## SUGGESTED CITATION

Lovatt, J., Gallagher, E., Prepscius, J. 2018. “What Can Business Do to Prevent Plastic from Becoming Waste in Asia Pacific?” Report. BSR, Hong Kong.

# Contents

# Executive Summary

Plastic is a highly durable and functional commodity, and many plastic products are able to be re-used and re-purposed multiple times through the process of recycling. Unfortunately, this value is lost when plastic becomes waste. Approximately 300 million tons of plastic is produced every year, and once it enters landfills, the riverways, or the oceans, it can linger for decades or even centuries, harming ecosystems and posing potential risk to human health.[2]

To retain plastic's value and protect our planet and the people living on it, it is imperative to prevent plastic from becoming waste in the first place. The Asia-Pacific region is a significant contributor to the global challenge of plastic waste—the top five countries contributing to marine plastic debris worldwide, China, Indonesia, the Philippines, Thailand, and Vietnam, are in Asia—and is therefore a key intervention point for addressing the issue.[3] The types of plastic found in the environment are varied, but primarily include plastic bottles, plastic bags, and other single-use plastic items like food wrappers, plastic packaging, plastic utensils, and plastic straws.

The challenge of plastic waste is not insurmountable. Stakeholders across the plastics value chain are beginning to publicly recognize the role they can play in preventing plastic from becoming waste by ensuring that containers and packaging can be reused or recycled. This report outlines some of the challenges and opportunities for plastic recycling in Asia Pacific, based on discussions and consultation with plastics stakeholders and industry experts. Plastics producers, manufacturers, and bottlers, have a perspective, as do civil society, government, academia, retailers, and recyclers.

**The challenges of plastic waste are varied.** They span the entire plastics value chain and have both local, regional, and international implications. They include the following:

1. **Design and manufacturing:** Not all plastic packaging and containers are designed to be recycled.
2. **Infrastructure and financing:** There is not enough waste management and recycling infrastructure in Asia Pacific to recycle all the plastic being used. Financing to build facilities is limited due to pricing and economic feasibility.
3. **Consumer behavior:** Many consumers are not recycling because the sorting infrastructure is not there, they don't trust the system, or they don't understand the need or the benefits.
4. **Policy regulation and implementation:** Many national governments do not sufficiently support the waste management recycling industry, and many local governments do not enforce legislation on, for example, source segregation. A lack of localized data that could help inform policy and decision-making on plastics regulation further contributes to this challenge.

**Overcoming these challenges will require business action and collaboration across the plastics value chain and the public and private sectors**. Plastics recycling is a commodity market, so plastic waste can be considered using a systems perspective. All stakeholders have a role to play in preventing plastic from becoming waste, from local small- to medium-sized enterprises (SMEs) to large multinationals. The recommendations for business action are therefore as follows:

[2] Galloway, T. S. *et al*, 2017.
[3] The Ocean Conservancy, 2017.

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| **Generate Data and Innovate**  | » Define the baseline by collecting data on collection and recycling rates, establishing monitoring protocols and methodologies, running pilot schemes, and exploring how these can be scaled.<br><br>» Develop and test alternative packaging, digital technology solutions, and incentive schemes that support consumer behavior change. |
| **Collaborate**  | » Develop and commit to industry-wide voluntary standards for the sustainable design and manufacturing of plastic packaging and containers.<br><br>» Establish cross-industry and inter-industry coalitions at the local and regional level and engage in partnerships with government, civil society, and academia to strengthen packaging waste collection and recycling. |
| **Provide Business Leadership**  | » Define organizational commitments on sustainable packaging design as well as plastic waste collection and recycling, to inspire investor confidence in the waste management and recycling industry and drive demand for recyclable materials.<br><br>» Establish corporate green bonds, loans, and other financing mechanisms to stimulate recycling capacity by supporting local SMEs and entrepreneurs. |

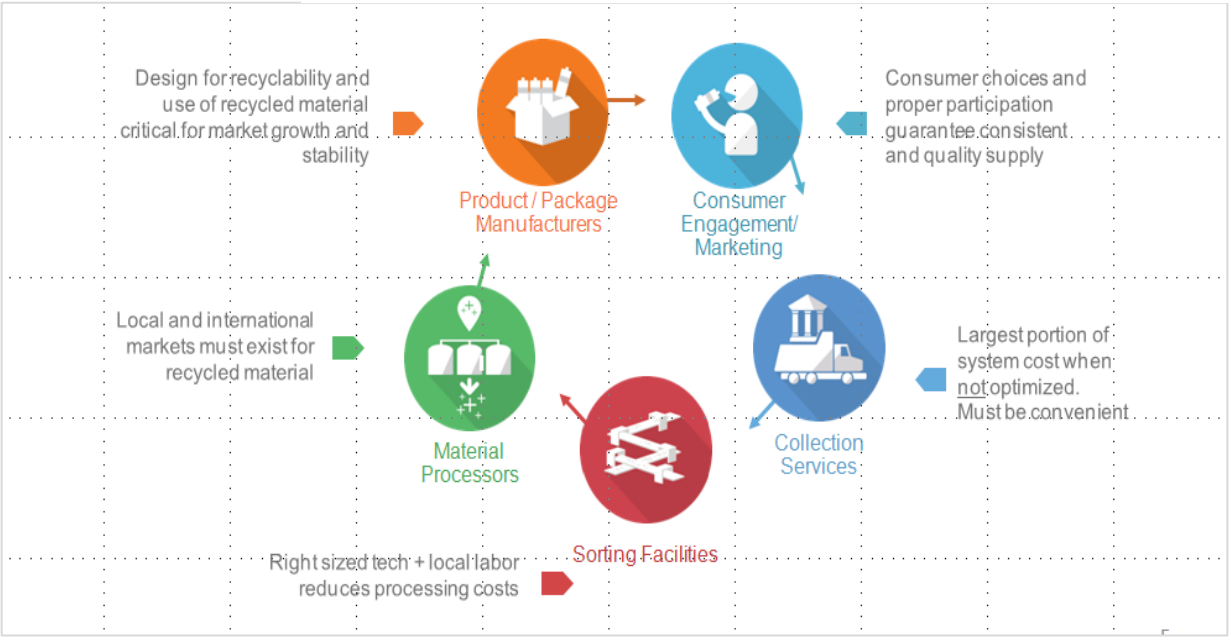
# Why Plastic Becomes Waste in Asia Pacific

## INTRODUCTION

Plastic is a commodity that provides impressive functionality and durability for a low production cost, but it is very difficult to recover this value if it becomes waste. Once contaminated with salt water or mixed with other materials, it is generally no longer cost effective to recycle. As a result, it will likely be incinerated, or it becomes plastic pollution in the environment. It is estimated that 6.3 billion tons of plastic was produced between the 1960s and 2015, but only 9 percent of that has been recycled.[4] Approximately 150 million tons of plastic are floating in the oceans right now.[5]

While the practice of plastics recycling is well-established in places like Europe and North America, this is not necessarily the case for Asia Pacific, where many countries are still developing their economies. Just five countries in Asia produce as much as 60 percent of all plastic waste entering the oceans.[6] Unchecked, this burden could increase exponentially alongside the projected increase in Asian consumer spending power.

Figure 1: The NextGen System: Connecting Supply & Demand (Source: Closed Loop Ocean)




This is problematic for several reasons. Plastic pollution disturbs ecosystems and threatens tourism, is mistaken by animals for food, can entangle and maim wildlife, and potentially contributes to ocean acidification. There is also evidence to suggest that humans can ingest plastic when eating contaminated fish and shellfish.[7] Unlike many other items in the trash, most plastic is not biodegradable. Over time, plastic items break down into smaller pieces known as microplastics, which are accumulating in the oceans and have a complex and poorly understood interaction with animal and human health.[8] Virgin plastic is also not a renewable resource, and its carbon-intensive production accounts for approximately 6 percent of global oil consumption

[4] Geyer, R., 2017.
[5] WEF, 2016.
[6] The Ocean Conservancy, 2017.
[7] Galloway, T. S. *et al*, 2017.
[8] Galloway, T. S., *et al,* 2017.

(equivalent to that of the global aviation sector).[9] The incineration of plastic can release carbon dioxide and other harmful pollutants into the atmosphere.[10]

It is therefore imperative to prevent plastic from entering the ocean or becoming waste in the first place, by using an approach that targets the upper end of the value chain—the manufacturers, producers, consumers, and recyclers. This perspective aligns with the market-led nature of the plastic recycling industry (see Figure 1: The NextGen System: Connecting Supply & Demand), which relies on a consistent supply of good quality raw materials, robust demand for these materials by the recycling processors (which itself is stimulated by investment capital), and ultimately an attractive economic value for both recyclable and recycled plastic to incentivize both the supply and demand.

## CHALLENGES TO PLASTIC WASTE REDUCTION

» **Design and Manufacturing:** Not all plastic packaging and containers are designed to be recycled. Plastic packaging and containers are produced in many kinds of colors, shapes, and sizes, as well as by using unique blends of plastic types, all of which can affect the value of the material and make re-processing them into recycled products difficult or impossible. Many single-use plastics, like straws, are so small that they fall out during collection or enter the ocean from landfill. Containers and packaging that use layers of plastic and other materials, like single-use sauce sachets, or which are contaminated by organic material like food cannot be recycled at all. Even products that are recyclable in one locality may not be recyclable in another, due to differences in local recycling regulation and capacity. Reducing plastic waste could require the re-design of approximately 30 percent of all plastic packaging by weight.[11] This inconsistency in design and manufacturing standards results from lack of industry consensus or standards on the style and composition of plastic packaging and containers.

» **Infrastructure and Financing:** There is not enough recycling infrastructure to process all the plastic being used, and financing to build more facilities is limited. Anecdotally, most countries in the Asia Pacific region do not have the recycling capacity to process the waste currently being produced domestically, let alone past waste that has accumulated over time. China imported 51 percent of plastic recyclables in trade globally in 2016, for example, but a recent ban on several types of plastic imports has significantly reduced regional recycling capacity.[12] This is the case because recycling is often seen as a risky investment, due to the fluctuating price of crude oil used to produce virgin plastic; the high costs associated with recycling inputs like power, transport, retail space, and manual labor; and an inconsistent supply of recyclable material. The industry also lacks the kind of financing mechanisms that are available for other sectors, like green bonds for renewable energy.

» **Consumer Behavior:** Many consumers do not recycle because they lack access to sorting and recycling facilities, do not trust the recycling system, or have concerns about food hygiene and safety. Plastic recycling rates are as low as 6 percent in some Asia Pacific markets as a result.[13] Big venues like sports stadiums and entertainment parks find misuse of the sorting bins provided on-site, with plastic waste being mixed with other materials, for example. In Hong Kong, it is rumored and

[9] WEF, 2016.
[10] Ibid.
[11] Ellen MacArthur Foundation, 2017.
[12] Futurism, 2017.
[13] National Government Agency Singapore, 2017.

reported in the media that all waste ends up in landfill regardless of whether it has been sorted correctly.[14] True or not, this discourages consumers from using recycling facilities and sorting their plastic waste. The manual labor required by vendors and recyclers to sort the plastic after it has been disposed is a drain on resources, disincentivizes collection, and ultimately impedes plastics recovery. There is a real need for targeted consumer education and re-education initiatives to support the recycling industry as a whole.

**Policy Regulation and Implementation:** With the exception of recycling policy intervention success stories like Japan and Taiwan, governments in Asia Pacific generally do not heavily regulate the recycling industry using mechanisms like regulations on the composition of packaging and containers, waste collection fees, mandatory source segregation, and plastic taxes. Plastic recycling has also traditionally not been a priority for governments in the Asia-Pacific region. This, as well as a lack of clear responsibility and accountability for transboundary marine plastic waste, has impeded the establishment of robust international and national legislation regulating the production, distribution, and management of plastic products.

In several cases, regulation exists but it is poorly enforced at the municipal level due to insufficient budget or capacity. Lack of government support or subsidies in costly operating environments like Hong Kong and Singapore also disincentivizes entrepreneurs to establish recycling operations. In some cases, food safety and hygiene regulations can impede efforts to recycle or reduce plastic waste by making it hard for retailers and venues to provide reusable containers. These regulations can also make it challenging for food and beverage companies to use recycled plastic material in food containers and packaging.

This weak policy environment is also a result of data gaps that prevent policymakers from making evidence-based decisions. For example, to date, firm scientific evidence demonstrating that plastic pollution is harmful to human health has yet to be published. And in Asia Pacific, there is a particular lack of localized research conducted by national research institutions on the impact and efficacy of plastic recycling mechanisms.

[14] Hong Kong FP, 2017.

# Recommendations for Business Action

Keeping plastic out of landfill, the oceans, and the riverways is undoubtedly a complex task, with many entrance points, perspectives, and approaches. Up to now, a lack of robust and harmonized industry and regulatory standards and economic incentives has prevented business from exploring the full potential of the recycling industry in Asia Pacific.

It is clear that overcoming these barriers will require business action and collaboration across the plastics value chain to improve and innovate on packaging and container design; catalyze financing and establish infrastructure; incentivize consumers to recycle; and inspire and encourage governments to support the industry. This action needs to be:

» **Localized:** Countries and cities have different recycling capacities. Interventions, product design, and product labeling should reflect this.

» **Long-Term:** Consumer behavior change is generational. Companies should adopt a "long-term" mindset while accelerating action and awareness to decrease waste today.

» **Loud and Informed:** There is general unawareness around the economic opportunities for plastics recycling and the need to recycle among consumers. Business can play a role in advocating for that behavior change in partnership with government and civil society.

## Generate Data and Innovate

**There is a critical lack of data and evidence on existing collection and recycling rates in much of the region, in addition to the impact of plastic pollution, the cost-benefit of plastic recycling, alternative packaging solutions, and consumer behavior schemes. This is impeding policy, practice, and innovation. Businesses can:**

» **Define the local baseline on plastic use, collection, recycling, and business impact, identifying methodologies, collecting data, and establishing monitoring protocols.** By establishing this baseline, business can help national and municipal governments understand the costs and economic opportunities associated with plastic recycling, like employment generation. This research can plug critical gaps in knowledge that are preventing more robust policies on recycling regulation, and, in theory, can subsequently encourage decision-makers to enact legislation on plastics and provide subsidies or other types of government support to the recycling industry.

By approaching it from a pre-competitive lens, business can pool resources to finance research and innovation and make that research and data open source with academic institutions to drive guided, evidence-based action. In the short term, businesses can communicate to retailers, vendors, and civil society to assure them of their commitment to partner on multi-sector solutions.

» **Develop and test alternative packaging and digital technology solutions.**
Providing consumers with better options and economic incentives for recycling may be an effective approach to addressing household segregation and improving plastic recovery rates, as well as reducing overall plastic production.[15] Universities, as hotspots of increasingly engaged sustainable consumers, could be used as test-beds for piloting behavior-change interventions.

These could include the establishment of consumer incentive schemes like endowments (whereby retailers charge customers extra for a single-use container to encourage the use of reusable packaging), deposit systems for plastic bottles (where bottlers place a return value on plastic bottles), or points systems (which reward consumers with credit based on successful recycling efforts). Of course, incentive schemes need to be supported by recycling infrastructure and oversight from governance systems, and thus far, deposit systems have only addressed plastic bottle waste and not other types of plastic waste.

Alternative packaging could include beverage fountains. Plastics could be geotagged to improve traceability and inspire consumer confidence. Solutions could also involve the use of different materials: A number of major hospitality destinations in Asia have recently announced bans on plastic drinking straws, for example, and will experiment with straws made out of bamboo instead.[16]

## Collaborate

**Businesses should consider working together and with public, civil society, and academia partners to prevent plastic from becoming waste. The scope and scale of the plastic waste problem necessitates cross- and inter-industry collaboration, in particular because inconsistent design and manufacturing standards make recycling more difficult and less profitable, subsequently harming the entire industry. Furthermore, collaboration has been recognized as key to sustainable development, enshrined in UN SDG 17, "Partnerships for the Goals." Specific actions include:**

» **Consider developing voluntary standards for the design and manufacturing of plastic packaging and containers.**
This could improve the supply of recyclable plastics by standardizing the recyclability, and therefore increasing the commodity value of a wider range of plastic packaging and containers. The approach has already been used successfully in Japan, to the extent that Japanese plastics have higher value in overseas markets compared to domestically produced products, and this guarantees their collection and ultimate recovery. This approach is being considered for other industries, like the Higg Index self-assessment standard for assessing environmental and social sustainability throughout apparel and footwear supply chains.

Voluntary standards on plastic could include standards on size, composition, shape, and color, thereby making it easier to sort and recycle, and commitments to use less virgin plastic and

[15] BBC, 2018.
[16] National Geographic, 2018.

more recycled plastic during production, thereby increasing the value of recycled plastic. Harmonizing standards regionally and tailoring them locally can help to account for the variation in local recycling capacities. Small- to medium-sized enterprises (SMEs) should also be engaged and encouraged in the process, so as to improve uptake and effectiveness at the local level.

» **Establish cross-industry and inter-industry coalitions and engage in public-private partnerships.**
This serves the function of providing a platform for learning and sharing of solutions, as well as joint ownership and contributions to recycling infrastructure like collection sites and shared responsibility for consumer education. In the long run, it could improve the waste stream, instill confidence in investors to catalyze funding, and contribute to the improvement of consumer awareness on recycling.

This form of collaboration could look like the establishment of a global waste management agency (similar to the UK's WRAP), with the mandate to create and govern a global plastics protocol on design and manufacturing. Marine plastic debris is transboundary, so it could also include regional coalitions (e.g., the wider bay area of Hong Kong, Shenzhen, Guangzhou, etc.) for shared responsibility and shared recycling capacity. Business can also partner with civil society and government agencies to unlock "people power" by running public awareness campaigns to educate consumers on food hygiene and recycling as a means to promoting positive behavioral change.

For example, Thailand's Pollution Control Department, a government agency, worked with five of the major bottled water producers in Thailand to set a target on reducing unrecyclable plastic waste, through firm commitments from these businesses to cease using plastic cap seals. Plastic cap seals are falsely believed by many consumers to be necessary for hygiene purposes, but studies have shown that bottles without them pose no greater risk to hygiene.[17]

## Provide Business Leadership

**The plastic waste problem is too urgent to wait for government regulation, and some governments may look to business to set standards, identify solutions, and inspire others through leadership before they enact and enforce recycling policies. Business can also use its evidence base and collaboration platforms to collectively lobby for government action. This leadership could entail the following:**

» **Define organizational commitments on tackling plastic waste.**
For example, in early 2018, 42 companies in the U.K., including The Coca-Cola Company and Procter & Gamble, pledged to a "Plastics Pact," committing to several significant milestones by 2025: ensuring all plastic packaging is reusable, recyclable, or biodegradable; eliminating single-use plastic through better design, including a minimum of 30 percent recycled plastic in

[17] South China Morning Post, 2018.

all packaging; and guaranteeing that 70 percent of all plastic is recycled or composted.[18] This commitment runs parallel to independent plastic waste reduction goals, like The Coca-Cola Company's "A World Without Waste" commitment, or Unilever's promise that all plastic packaging will be fully reusable, recyclable, or compostable by 2025.[19] [20]

Corporate commitments on recycling will inspire investor confidence and catalyze financing for the industry. In turn, this could result in increased recycling capacity and therefore drive demand for recyclable materials. For example, industry-wide commitments on a minimum percentage of recycled plastic in all containers and packaging can increase the market value of recycled plastic so that it can compete with cheap virgin plastic, improving the overall economic profitability and feasibility of the recycling process. Commitments on outright bans on plastic items, like straws, should stimulate entrepreneurs to develop alternatives. For example, Hilton Hotels will eliminate plastic straws across its portfolio of hotels in Asia Pacific by the end of 2018,[21] and The Hong Kong and Shanghai Hotels, which own and operate The Peninsula Hotels, will ban them by November 2018.[22]

» **Establish corporate green bonds, loans, and other innovative financing mechanisms.** Some organizations have already pledged capital: Global companies, including The Coca-Cola Company, 3M, and Procter & Gamble, have backed a US$150 million fund for solutions to the global ocean plastics problem, with a focus on infrastructure investments in Southeast Asia, as part of a wider initiative called Closed Loop Ocean.[23]

In July 2018, Closed Loop Ocean evolved into Circulate Capital to create a new blended financing mechanism to invest in companies, innovations, and projects that prevent marine plastic waste originating in Asia. One of its aims is to identify what types of interventions work and can be scaled to prevent plastic from being mismanaged; it will also look at those which can direct it out of the environment and back into the economy.

In combination with holistic action across the plastics value chain, financial instruments like these could build on investments in research and development. Business can improve the plastic waste collection rate and stimulate the entire industry by making them accessible to local SME recyclers, entrepreneurs, and government municipalities to improve infrastructure or implement initiatives.

A full cost-benefit analysis should be undertaken to understand the specific benefits of corporate green bonds, which can also serve the function of demonstrating to state actors, multilateral development banks, and other lenders the return on investment associated with investing in recycling infrastructure.

[18] WRAP, 2018.
[19] The Coca-Cola Company, 2018
[20] Unilever, 2018
[21] Hotel News Now, 2018.
[22] The Hong Kong and Shanghai Hotels, 2018.
[23] GreenBiz, 2018.

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## About BSR

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