WWF

BRIEFING

2020

PLASTIC PACKAGING IN SOUTHEAST ASIA AND CHINA

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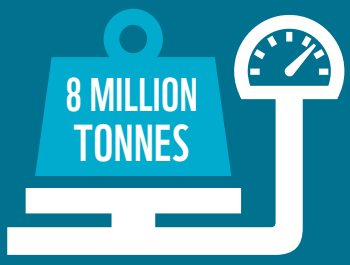


8 MILLION TONNES

OF PLASTIC ENTERS THE OCEAN EVERY YEAR (2015 ESTIMATE)

<60%

OF GLOBAL MARINE PLASTIC ENTERS THE OCEAN FROM CHINA, INDONESIA, MALAYSIA, THE PHILIPPINES, THAILAND AND VIETNAM

860 MILLION TONNES

CO_2 EMISSIONS FROM PLASTICS IN 2019 (ABOUT 2.3% OF TOTAL GLOBAL EMISSIONS)

BY 2050, THERE MAY BE

MORE PLASTIC THAN FISH

IN THE SEA BY WEIGHT

+300%

PLASTIC WASTE IS PROJECTED TO QUADRUPLE BETWEEN 2010 AND 2050

800 SPECIES

ARE DIRECTLY THREATENED BY MARINE PLASTIC DEBRIS

TACKLING THE PLASTIC CRISIS

Preventing waste from entering the ocean through Southeast Asa and China is key to addressing the global plastic emergency

Plastic pollution has become a global crisis. Every year, on average 8 million tonnes of plastic enters our oceans.[1] If current trends continue, the volume of plastic waste is on course to quadruple between 2010 and 2050 – meaning that, by weight, the ocean could contain more plastic than fish.[2] This vast quantity will stay in the environment for hundreds of years, gradually decomposing into countless tiny particles known as microplastics. This has serious consequences for marine life, with more than 800 species directly threatened by marine debris.[3]

AROUND 80%

OF THE PLASTIC IN OUR OCEANS ORIGINATES ON LAND, WITH A SIGNIFICANT PROPORTION ENTERING THE SEA VIA RIVERS

Around 80% of the plastic in our oceans originates on land, with a significant proportion entering the sea via rivers.[4] And while marine plastics have captured the headlines, plastic waste on land is also a major problem – from despoiling the visual environment, to toxic pollutants leaching into soil and water, to air pollution caused by incineration. Carbon emissions associated with plastic, from production to burning, reached 860 million tonnes in 2019[5]– greater than the annual emissions of Thailand, Vietnam and the Philippines combined.

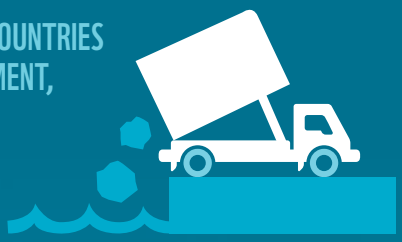
Preventing plastic waste from entering nature requires both upstream and downstream solutions – from eliminating unnecessary plastic use and using more recycled and recyclable materials, to setting up and operating effective waste management systems. Packaging is the dominant user of plastic, and accounts for about half of the world's plastic waste.[6] In the present briefing, we focus on the specific challenge of managing plastic packaging waste in Southeast Asia and China. While plastic pollution is a global problem, studies show that around 60% of marine plastic debris enters the ocean from just five countries: China, Indonesia, Thailand, Vietnam and the Philippines.[7] Tackling plastic waste in this region – from both domestic consumption and imported waste – is a top priority.

This briefing introduces the findings of a study commissioned by WWF from GVM, a German consultancy firm that specializes in the packaging market. It looks at the volume of plastic packaging placed on the market in China, Indonesia, Malaysia, the Philippines, Thailand and Vietnam. Obtaining reliable data is hard, and these figures should not be treated as definitive; rather, they are our best estimates of the make-up of the plastic packaging market in these countries, based on the information available. As well as showing the scale of the challenge, the report gives an idea of the funds that could be raised if these countries introduced extended producer responsibility (EPR) schemes – under which companies that place plastic packaging on the market cover the costs of its proper management, from collection and sorting to recycling and disposal. We also include recommendations for companies and policy-makers to address the plastic challenge.

1 Jambeck et al. 2015: Plastic Waste Inputs from Land into the Ocean. *Science 347*.
2 Ellen McArthur Foundation. 2015. *The New Plastics Economy – Rethinking the future of plastics*.
3 CBD. 2016. *Marine Debris: Understanding, Preventing and Mitigating the Significant Adverse Impacts on Marine and Coastal Biodiversity.* Technical Series No.83. Secretariat of the Convention on Biological Diversity, Montreal
4 Global Surface Water Explorer; Lebreton, L.C.M et al. 2017. River plastic emissions to the world's oceans. *Nature Communications* 8: 15611.
5 CIEL. 2019. *Plastic and Climate: The Hidden Costs of a Plastic Planet*.
6 UNEP. 2018. *Single-Use Plastics: A Roadmap for Sustainability.*
7 Jambeck et al. 2015. Plastic Waste Inputs from Land into the Ocean. *Science* 347

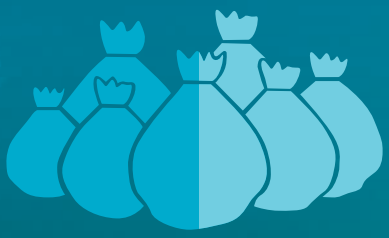
93% OF WASTE IN LOW-INCOME COUNTRIES IS DUMPED IN THE ENVIRONMENT, COMPARED TO

4% IN HIGH-INCOME COUNTRIES



14% OF PLASTIC IS RECYCLED GLOBALLY

32% OF PLASTIC PACKAGING ENDS UP IN NATURE



50% IN BEACH CLEAN-UPS AROUND THE WORLD, 5 OF THE TOP 10 MOST COMMONLY FOUND ITEMS ARE PLASTIC PACKAGING[8]

8 Ocean Conservancy. 2017. 30th Anniversary International Coastal Cleanup: Annual Report. oceanconservancy.org/wp-content/uploads/2017/04/2016-data-release-1.pdf

THE WASTE MANAGEMENT CHALLENGE

Inadequate waste management systems are the primary cause of plastic pollution in Southeast Asia and China

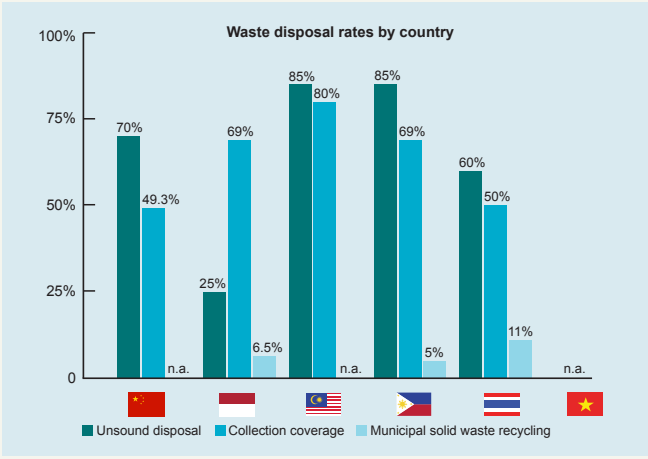
Plastic ends up in the environment because of inadequate systems for collecting and treating waste, particularly in the developing world. In low-income countries, 93% of waste is dumped somewhere in the environment, compared to just 4% in industrialized countries. Waste collection rates in developing countries are often below 50%.[9]

93%
OF WASTE IS DUMPED SOMEWHERE IN THE ENVIRONMENT IN LOW-INCOME COUNTRIES

Single-use plastics and packaging for consumer goods are driving the increase in plastic pollution. Globally, 36% of plastic is used for packaging – and almost a third of it (32%) leaks into the environment. Just 14% is recycled in some way, with only 2% achieving "closed loop" recycling or circularity (where it can be continually recycled into similar products).[10]

In Southeast Asia and China, rapid economic growth has led to an immense increase in the use of plastic, especially for packaging consumer goods. Unfortunately, waste management systems in the region have not kept pace. In China and Thailand, for example, only around half the waste is collected, while in Malaysia and the Philippines, just 15% is safely disposed of.[11] Segregation of waste is rare, and very little municipal waste is recycled. When recycling does happen, it usually depends on the informal sector, private enterprises or community initiatives. These countries often lack resources for effective waste services, even though solid waste management makes up a higher share of municipal expenditure on average, at 19% in low-income countries and 11% in middle-income countries, compared to just 4% in high-income countries.[12]

With the volume of plastic packaging in Southeast Asia continuing to increase, there is an urgent need to put in place effective systems for collecting, sorting, recycling and disposing of waste. As well as being the most effective way of preventing plastic from leaking into the environment, this presents economic opportunities: in Germany, for example, 270,000 people work in the waste management and secondary materials sector.[13] Shifting to more efficient, circular business models can also provide a competitive advantage, for example through reduced materials costs and improved brand perception. But setting up the necessary infrastructure requires significant investment, and ongoing financial resources are needed to operate an effective waste management system.



source of data: www.atlas.d-waste.com

9 Silpa, K. et al. 2018. *What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050.* Urban Development Series. World Bank, Washington, DC.
10 Ellen McArthur Foundation. 2015. *The New Plastics Economy – Rethinking the future of plastics*.
11 Source of data: www.atlas.d-waste.com
12 Silpa, K. et al. 2018. *What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050.* Urban Development Series. World Bank, Washington, DC.
13 Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit (BMU). 2018. Abfallwirtschaft in Deutschland 2018.

PLASTIC PACKAGING CONSUMPTION

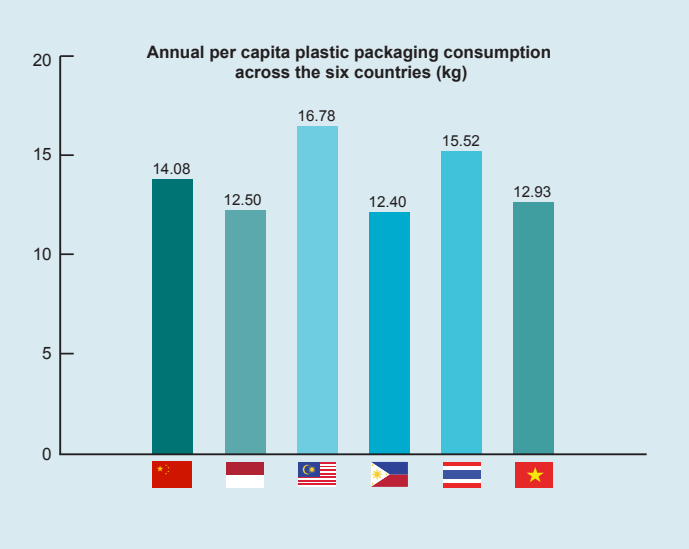
27 MILLION TONNES

TOTAL ANNUAL HOUSEHOLD PLASTIC PACKAGING CONSUMPTION IN THE SIX COUNTRIES ANALYSED

13.74KG

AVERAGE ANNUAL PER CAPITA PLASTIC PACKAGING CONSUMPTION ACROSS THE SIX COUNTRIES

Our study focuses on household consumption of plastic packaging, as this is the plastic most likely to end up in the oceans. In Germany, household plastic packaging makes up about two-thirds of the total, though this proportion is thought to be higher in Southeast Asian countries with a smaller manufacturing sector. The data includes plastic packaging consumption among private households, small businesses and other end users such as schools, hospitals and government buildings, but not retail/ wholesale or industry.



source of data: GVM, 2016

TOTAL ESTIMATED ANNUAL HOUSEHOLD PLASTIC PACKAGING CONSUMPTION IN THE SIX COUNTRIES ANALYSED[2]

source of data: GVM, 2016

Total estimated annual household plastic packaging consumption (in 1,000 tonnes)	PET bottles	Other plastic bottles	Plastic film and bags	Plastic cups, cans other containers	Other plastic packaging	**Total plastic packaging**
Beverage	7,296	50	367	79	785	**8,576**
Food	105	247	2,553	3,004	1,387	**7,297**
Detergent cleaning agents and personal care	183	749	110	358	515	**1,916**
Other	10	303	4,983	1,709	2,327	**9,332**
Total	**7,594**	**1,350**	**8,013**	**5,150**	**5,015**	**27,122**

Total estimated annual household packaging consumption (in 1,000 tonnes)	PET bottles	Other plastic bottles	Plastic film and bags	Plastic cups, cans, other containers	Other plastic packaging	**Total plastic packaging**
China						
Beverage	5,248	35	258	50	561	**6,154**
Food	75	177	1,908	2,217	1,031	**5,407**
Detergent cleaning agents and personal care	144	586	89	272	368	**1,458**
Other	7	219	3,597	1,238	1,684	**6,746**
Total	**5,474**	**1,017**	**5,852**	**3,777**	**3,644**	**19,765**
Indonesia						
Beverage	814	6	45	14	92	**971**
Food	15	36	316	389	167	**923**
Detergent cleaning agents and personal care	14	60	8	32	55	**170**
Other	1	39	644	218	298	**1,201**
Total	**845**	**141**	**1,012**	**654**	**612**	**3,265**
Malaysia						
Beverage	100	1	5	1	12	**119**
Food	2	4	55	59	28	**148**
Detergent cleaning agents and personal care	6	25	4	12	19	**67**
Other	0	6	103	34	46	**190**
Total	**108**	**37**	**168**	**107**	**104**	**523**
Philippines						
Beverage	406	3	22	7	44	**482**
Food	4	10	100	116	58	**288**
Detergent cleaning agents and personal care	6	24	3	13	23	**70**
Other	0	14	235	81	111	**441**
Total	**416**	**51**	**360**	**217**	**237**	**1281**
Thailand						
Beverage	304	2	15	3	33	**358**
Food	4	11	77	106	47	**245**
Detergent cleaning agents and personal care	9	39	5	21	38	**113**
Other	0	12	191	64	86	**353**
Total	**318**	**63**	**289**	**194**	**204**	**1,069**
Vietnam						
Beverage	428	3	20	4	43	**498**
Food	4	10	98	117	57	**285**
Detergent cleaning agents and personal care	3	14	2	8	13	**40**
Other	0	13	212	73	101	**400**
Total	**436**	**40**	**332**	**202**	**214**	**1,223**

EXTENDED PRODUCER RESPONSIBILITY

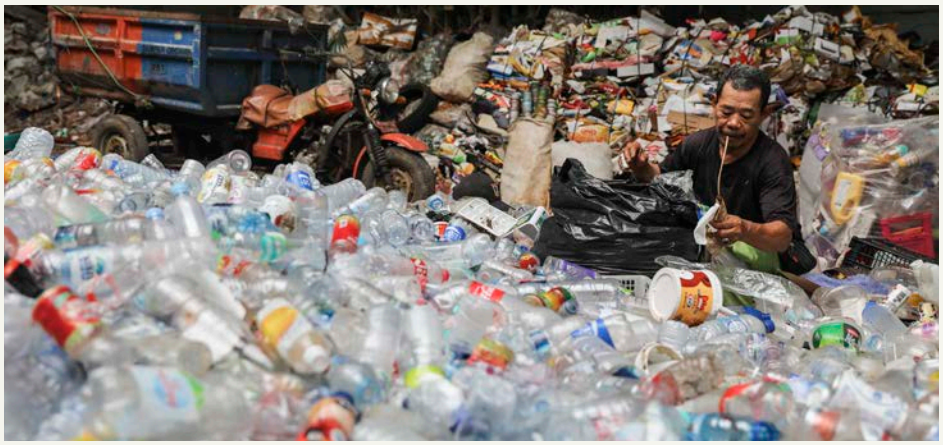
Ensuring that companies take responsibility for the full life-cycle impacts of their plastic products and packaging can strengthen waste management, reduce pollution, and drive smarter design and materials use

When waste management systems cannot take the strain of plastic packaging, leakage into the environment is the result. One effective solution is the concept of extended producer responsibility (EPR). Essentially, this means that those who place packaged goods (as well as products such as electrical appliances and batteries) on the market bear the cost of their collection, treatment, recycling and disposal. More than 30 countries, mainly in Europe but also including Japan and South Korea, have implemented EPR programmes, and around 400 schemes exist worldwide.[14]

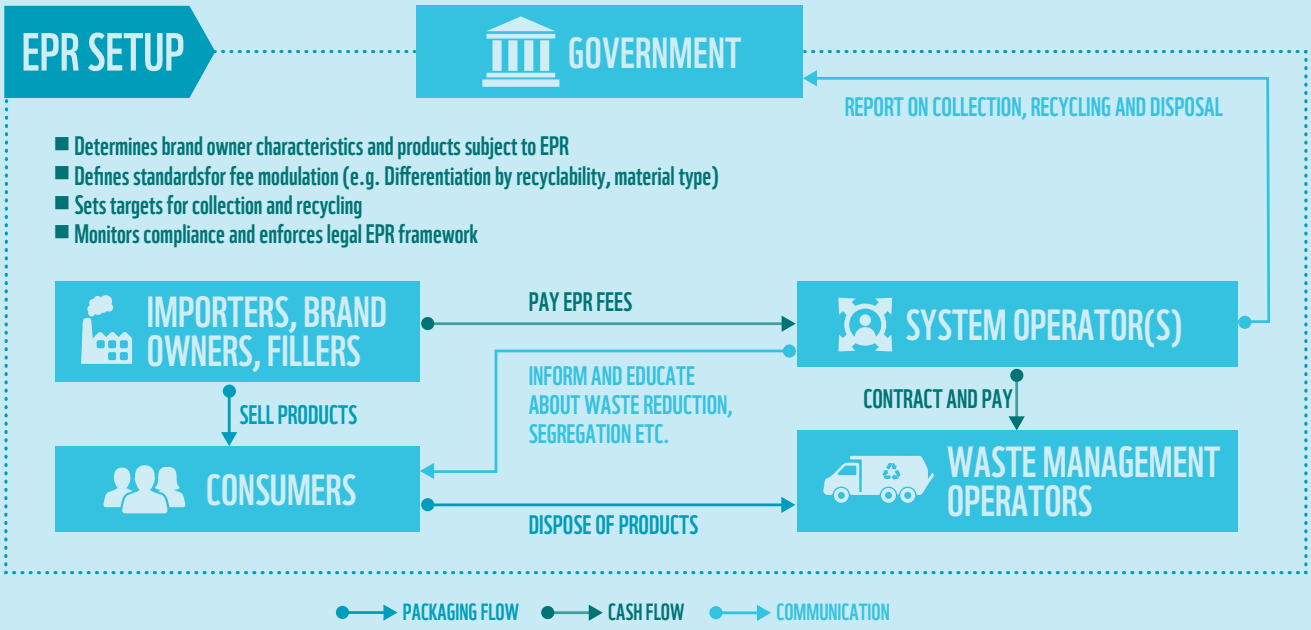
In practice, rather than each company individually taking responsibility for the waste it produces, EPR schemes are usually managed by a collective system operator, sometimes known as a producer responsibility organization (PRO). Companies pay a fee to this organization for the packaging they introduce onto the market, and the PRO is then responsible for organizing collection and further processing of the packaging waste, as well as for communicating with consumers. The system operator will usually contract out waste management services to third parties, potentially including those in the informal sector such as waste pickers. PROs may be private companies, not-for-profit organizations or public sector agencies; some EPR schemes involve more than one competing operator.

EPR schemes can help address the shortfall in financial resources for waste management that leads to plastic pollution. Introducing mandatory EPR policies, rather than relying on voluntary action by individual companies, provides a level playing field for business as well as creating economies of scale. EPR schemes also help reduce plastic consumption by incentivizing producers to design more resource-efficient products with lower environmental impacts.

On a positive note, several countries in Southeast Asia have taken first steps toward implementing EPR schemes. To date, however, these mostly concern e-waste rather than packaging.



14 Kaffine, D. and O'Reilly, P. 2015. What have we learned about Extended Producer Responsibility in the past decade? A survey of the recent EPR economic literature. OECD Environment Directorate.



EPR IN SOUTHEAST ASIA AND CHINA COULD RAISE €12.2 BILLION ADDITIONAL FUNDING FOR WASTE MANAGEMENT OPERATIONS

Under the German EPR scheme for packaging, companies pay a fee of around €450 per tonne. Applying this figure to the estimated 27.12 million tonnes of plastic packaging in China, Indonesia, Malaysia, the Philippines, Thailand and Vietnam could raise a total of €12.2 billion. This is, of course, only a rough estimate, as costs in Germany are very different to the six countries analysed here. In addition, the EPR fees predominantly aim to cover the annual running costs of the system; they should also contribute to setting up an effective waste management infrastructure in the first place, although other sources of upfront investment may also be needed. Nevertheless, they give some indication of the revenue-raising potential of EPR schemes in Southeast Asia.

	Household plastic packaging (thousand tonnes)	EPR licensing fees if using German price (€ million)
China	19,765	8,894
Indonesia	3,265	1,469
Malaysia	523	235
Philippines	1,281	576
Thailand	1,069	481
Vietnam	1,223	550
Total	**27,122**	**12,205**

GVM's analysis also looked at the consumer goods companies that have the largest plastic packaging footprint in the region – although collecting reliable data was challenging. Multinationals dominate along with large Chinese companies, though national companies also play an important role. Many of these multinationals participate in EPR schemes in other markets, and a number have shown they want to be part of the solution, not the source of the problem. However, many lack a strategic approach, and there is often a mismatch between global commitments and action at the national level. A lack of data transparency also makes it difficult to measure and monitor progress.

SHARED RESPONSIBILITY

Governments and companies in Southeast Asia and China need to work together to solve the plastic crisis

Improving waste management for plastic packaging in Southeast Asia and China is vital for stemming the tide of marine plastic pollution – and, in the longer term, for moving towards a sustainable circular economy. EPR schemes play a crucial role in addressing this problem by providing an ongoing source of financing for collecting and processing waste, as well as encouraging companies to adopt eco-design practices and educating consumers.

GOVERNMENTS SHOULD:

- Set national targets for waste collection, segregation and recycling, and invest in national/regional waste management infrastructure.
- Create a coherent and transparent EPR framework within national legislation that takes account of local characteristics, such as the role of the informal sector, while promoting a global treaty against plastic pollution on an international level.
- Monitor companies' plastic use and enforce EPR legislation, creating a level playing field for all companies.

COMPANIES SHOULD:

- Reduce unnecessary use of plastics and transparently disclose the amount of plastic packaging they are putting on the market, e.g. via WWF's ReSource platform (resource-plastic.com) or joining the national PACT initiative.
- Take responsibility for products' end-of-life impacts, from the design and choice of materials through to collection, sorting, recycling and disposal.
- Support the creation of EPR schemes, and work with governments and other partners to improve waste management systems and raise consumer awareness.

CONSUMERS SHOULD:

- Call on companies to demonstrate leadership by reducing dependency on single-use and unnecessary plastics, taking responsibility for the end-of-life impact of their packaging, and investing in environmentally sound alternatives.
- Reduce consumption of unnecessary plastics and select reusable or recyclable packaging – and do reuse or recycle it.
- Ask government representatives for better waste management infrastructure and eco-design, and show support for the creation of EPR schemes.

8 MILLION

Tonnes of plastic entering the ocean every year

60%

Proportion of marine plastic pollution originating in these countries

27 MILLION TONNES

Total annual household plastic packaging consumption in six Southeast Asian nations

300%

Projected increase in plastic packaging between 2010 and 2050

Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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