

Extended Producer Responsibility

a necessary part of the solution
to packaging waste and pollution

A statement by key stakeholders
from across the packaging value
chain and a position paper by the
Ellen MacArthur Foundation



STATEMENT

A call for the implementation of Extended Producer Responsibility schemes for packaging

As a group of businesses and stakeholders that are drawn from across the packaging value chain, we are calling for the implementation of Extended Producer Responsibility (EPR) schemes for packaging. We recognise that EPR is a necessary part of the solution to create the circular economy for packaging we are aiming for. EPR schemes, through which all industry players that introduce packaging to the market provide funding dedicated to its collecting and processing after use, are the only proven and likely pathways to provide the required funding. Without such policies, packaging collection and recycling is unlikely to be meaningfully scaled and tens of millions of tonnes of packaging will continue to end up in the environment every year.

To solve the packaging waste and pollution crisis, a comprehensive circular economy approach is required. We must: **eliminate** the packaging we don't need; **innovate** to ensure all the packaging we do need is reusable, recyclable, or compostable; and **circulate** all the packaging we use, keeping it in the economy and out of the environment. This circular economy approach would lead to significant economic, environmental, and social benefitsⁱ and contribute to addressing major global challenges, such as plastic pollution, climate change, and biodiversity loss.

Circulation of packaging that cannot be eliminated or reused involves collection, sorting and recycling.ⁱⁱ However, this process comes at a net cost for practically all packaging formats in most geographies.ⁱⁱⁱ Over time, the economics can be improved significantly through better design, technological advancements, and economies of scale. However, for many years to come, mechanisms that ensure dedicated, ongoing, and sufficient funding will be necessary to cover that net cost. Without such funding mechanisms, it is unlikely that packaging collection and recycling will

scale to the extent required, and tens of millions of tonnes of packaging will continue to end up in the environment every year.

While, in theory, there could be many ways to provide this funding, in practice, the only proven and likely pathway to ensure dedicated, ongoing, and sufficient funding at scale is through mandatory, fee-based EPR schemes, in which all industry players introducing packaging to the market provide funding dedicated to collecting and processing their packaging after its use. The alternatives – relying on funding from public budgets or from voluntary contributions – are unlikely to scale to the extent required and fall short of being dedicated, ongoing, and sufficient.

Furthermore, EPR schemes are more than a funding mechanism, and can bring many additional benefits, such as enhancing the efficiency and transparency of the system, and incentivising upstream packaging solutions.

The design and implementation of EPR schemes are crucial for their effectiveness. No existing EPR scheme is perfect and many elements need to be taken into account during the design and implementation of EPR schemes, including the local context and broader circular economy policy agenda. Therefore, we are committed to constructively working with other stakeholders to make EPR work in different geographies around the world, because we recognise it is a necessary part of the solution to packaging waste and pollution.

Finally, we recognise that, while EPR is a necessary and vital part of the solution to packaging waste and pollution, it is by itself insufficient and needs to be complemented by a wider set of policies, and voluntary industry action and innovation towards a circular economy for packaging.

With this statement, we publicly express our support for the implementation of EPR schemes for packaging and commit to:

1

Ensure our entire organisation is aligned on, and our actions are in line with, this statement

2

Be constructive in our engagement with governments and other stakeholders: advocating for the establishment of well-designed EPR policies and being supportive in working out how to implement and continuously improve EPR schemes in the local context

3

Engage with our peers and the relevant associations and collaborations we are part of to work towards aligning their positions and actions accordingly

Endorsers

The foregoing statement is endorsed by the organisations listed below. The Position Paper which follows is the work of the Ellen MacArthur Foundation. While the foregoing statement is based on the findings of the Position Paper, not every element of the Position Paper may necessarily be endorsed by all of these organisations.

Brands and retailers

Beiersdorf AG	Ferrero	Mars Inc	Splosh Ltd
BEL Group	FrieslandCampina	Nestlé SA	SWANIA
Clif Bar & Company	H&M Group	PepsiCo	The Coca-Cola Company
Danone	Henkel AG & Co. KGaA	Pick n Pay	Unilever
Diageo	INDITEX	Preserve	Walmart
Earthwise Group Ltd	L'Occitane-En-Provence	Reckitt	Werner & Mertz GmbH
Eco MYO Cosmetic Cases Inc.	L'OREAL	Schwarz Group	
Erno Laszlo	Life Without Plastic	SOVENA	

Manufacturers, recyclers and other businesses

Albea	DS Smith	James Cropper PLC	RecyclePoints
Algramo	Dynapack Asia	John Swire & Sons (HK) Ltd.	SAP SE
ALPLA Werke Alwin Lehner GmbH & Co KG	Eastman	Koepala Packaging	Silafrica Plastics & Packaging Intl Ltd
APK AG	ECOCE A C	LOLIWARE Inc.	Swire Coca-Cola Ltd
Aquapak Polymers	Ecoiberia SA	Loop Industries	TC Transcontinental
Archemics	ECOPIXEL / WET Srl	Luhai Pro-environment Inc.	Termoencogibles S.A. de C.V. (TERNOVA GROUP)
BASF	Ecopod Kiosk	Mondi	TerraCycle
BELL Holding	ECOR Global	Mr. Green Africa	Tetra Pak
Berry Global	Envases Universales	Myplas	The Better Packaging Co
BioPak	Futamura	Notpla	TIPA® Compostable Packaging
Boomera Brasil Ltda	Gemini Corporation N.V.	NOVAPET	TOMRA
Borealis AG	Greiner AG	Nutramara	Umincorp
CCL Label	Hera Group	Plastic Bank	UPM Raflatac
Cedo	INCOM Recycle Co., Ltd.	Plastic Collective	Veolia
Coca-Cola FEMSA	Indorama Ventures PCL	Plastic Energy	Waste4Change
Delphis Eco Ltd	INDUSTRIA MEXICANA DE RECICLAJE S.A. DE C.V	Pöppelmann	

Investors, asset managers, financial institutions

ACTIAM	Boston Common Asset Management	ESG Portfolio Management GmbH	Mirova Natural Capital
As You Sow	Circularity Capital	European Investment Bank (EIB)	Agrecovery Foundation
BNP Paribas Asset Management	Closed Loop Partners	Mercy Investment Services, Inc.	

Experts, consulting and professional services

APWC	Iönica	RePack	SYSTEMIQ
Canadian Stewardship Services Alliance	Kiduaa BV	Rubicon	Waste Ventures India Private Limited
Digimarc	Landbell Group	Searious Business	Wealth of Flows Consulting Ltd
Dragon Rouge	Lorax EPI	South Pole	Yunus Environment Hub
EPRO	PREVENT Waste Alliance	St. Afvalfonds Verpakkingen (Packaging Waste Fund Foundation)	
GIZ GmbH	Quantis	SUST4IN	

Academia, NGOs and other organisations

Adrian Dominican Sisters, Portfolio Advisory Board	CAPTURE	Materiom	Shanghai Rendu Ocean NPO Development Center
AGMPM	Congregation of St. Joseph	Netherlands Institute for Sustainable Packaging	Sostenibilidad 3Rs Inc.
American Herbal Products Association	Daughters of Charity, Province of St. Louise	Oak Foundation	The Green Earth
APLM - Portuguese Marine Litter Association	ELISAVA	Oceanium	The Pew Charitable Trusts
Association of Plastic Recyclers	Enviro Pride	Plant Chicago	The Recycling Partnership
Bioproducts Discovery and Development Centre (BDDC), University of Guelph, Ontario, Canada	Independent/ UC Davis Industrial Ecology Program	PLASTIC ODYSSEY	University of São Paulo
Californians Against Waste	Indian Plastics Institute	Plastics Recyclers Europe	WWF
	Life Cycle Initiative	Recyclers Association of Nigeria	Π3=Plastic Pollution Prevention
		Reusable Packaging Association	

i Ellen MacArthur Foundation, *Perspective on 'Breaking the plastic wave' study* (2020)

ii Recycling includes material recycling, as well as organic recycling as defined in ISO 18601:2013 to ISO 18606:2013 on 'Packaging and the Environment'

iii Note that where recycling is not yet possible, also collection and safe disposal comes at a net cost

Note: The undertaking in the commitment to "ensure our entire organisation is aligned on this statement" is a statement of the endorsers' intention to engage in good faith efforts.

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1 | Introduction

We have a major global issue with packaging waste and pollution. In the case of plastic packaging, for example (see figure 1), just 14% is collected for recycling globally, while, staggeringly, a third ends up in the environment and more than half is landfilled or incinerated.¹ If we continue on the current track, the annual volume of plastic entering the ocean will almost triple, from 11 million tonnes in 2016 to 29 million tonnes in 2040 and ocean plastic stocks will quadruple, reaching over 600 million tonnes² — putting us well on the way to an ocean with more plastic than fish by 2050.³

It is now widely recognised that a comprehensive circular economy approach is the only solution that can match the scale of this global waste and pollution problem, for packaging and beyond. The circular economy does more than treat the symptoms of the current take-make-waste economy. It is a bigger idea that tackles the root causes of many global challenges - such as waste and pollution, climate change and biodiversity loss - at the same time as providing opportunities for better growth. It can scale fast across industries, providing the solutions that people are calling for.

Through the New Plastics Economy Global Commitment and the many Plastics Pacts around the world, more than 1,000 organisations have united behind the Ellen MacArthur Foundation's vision of a circular economy for plastic packaging, in which we **eliminate** the packaging we don't need; **innovate** to ensure all the packaging we do need is reusable, recyclable, or compostable; and **circulate** all the packaging we use, keeping it in the economy and out of the environment. Such a circular economy approach allows us to redesign the entire packaging system, leading to significant economic, environmental, climate, and job creation benefits.⁴

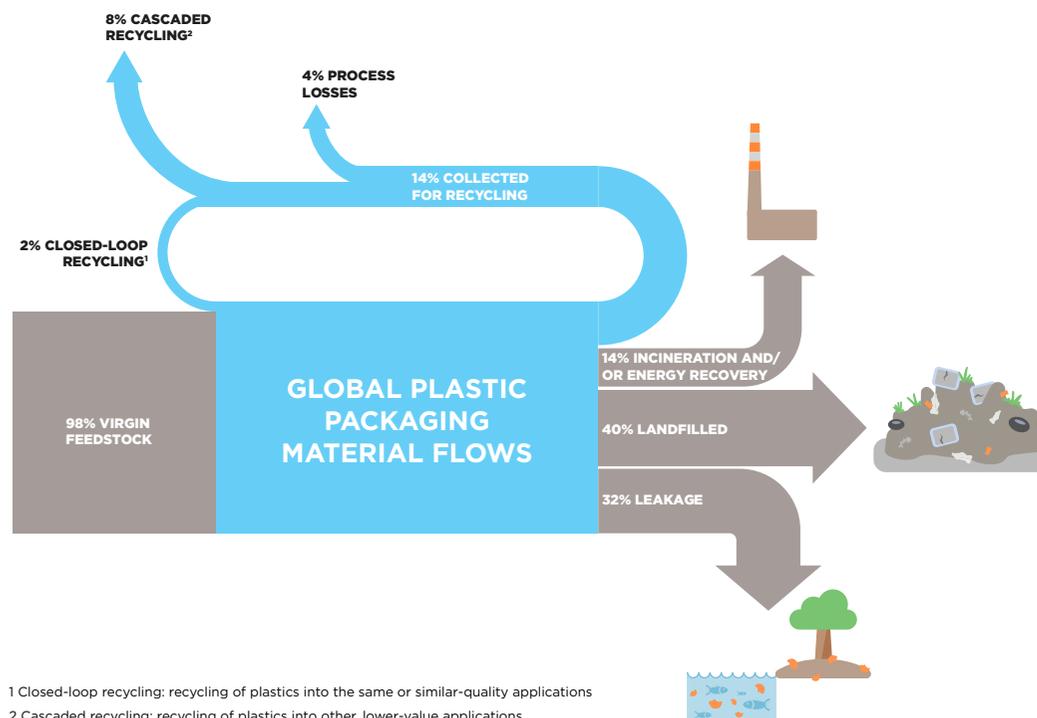
Businesses accounting for more than 20% of global plastic packaging use have set ambitious 2025 targets in line with this vision. Initial progress is being made, but much more needs to be done, at greater pace and scale to match the size of the problem.⁵ To accelerate progress, some substantial challenges will need to be overcome.

This paper is focused on one of these challenges: improving and scaling collection, sorting, and recycling⁶ systems around the world, for

packaging that cannot be eliminated or reused. While downstream solutions to improve and scale collection, sorting, and recycling will - by themselves - not be enough to solve this problem, scaling them is a necessary part of the solution. It has been estimated that, today, around 2 billion people worldwide lack access to organised solid waste collection services,⁷ and on our current trajectory, this number would grow to about 4 billion by 2040.⁸

Figure 1: Global plastic packaging material flows in 2015

Source: Ellen MacArthur Foundation, *The new plastics economy: rethinking the future of plastics* (2016)



¹ Closed-loop recycling: recycling of plastics into the same or similar-quality applications

² Cascaded recycling: recycling of plastics into other, lower-value applications

In particular, this publication looks into overcoming one of the major roadblocks towards scaling collection, sorting, and recycling systems for packaging: making the economics work.

This publication explicitly lays out why mandatory, fee-based Extended Producer Responsibility (EPR) schemes (as defined in Box 1), are a *necessary* part of the solution, as the only proven and likely pathway to ensure the required funding to scale these systems to the extent required.

Recognising that the actual design and implementation of EPR schemes are crucial to their success, this publication lists a few of the key elements to consider when designing an EPR scheme. However, it does not provide detailed recommendations on how to design and implement such schemes, which have already been covered in a wide range of publications (see Chapter 6).

This work unites a broad spectrum of key stakeholders, all explicitly recognising the need for EPR schemes for packaging and committing to constructively work with other stakeholders on how to best implement them, acknowledging there are many aspects to be considered in each geography. In this way, this publication aims to send a strong signal of alignment and to create broad momentum to accelerate the development and implementation of packaging EPR schemes around the world. By doing so, this will enable the scaling of collection, sorting, and recycling systems – overcoming one of the main barriers to achieving a circular economy for packaging.

Note that, while EPR schemes have been applied to different products other than packaging, and while some insights of this work can also be relevant in creating a circular economy for other products, this paper focuses on EPR for packaging.

Finally, also note that, although this paper discusses EPR in the context of addressing the funding challenge of scaling and operating collection, sorting, and recycling systems, EPR is much more than a funding mechanism, as is briefly addressed in Chapter 5.

Box 1: What we mean by Extended Producer Responsibility (EPR)

Throughout this publication, unless otherwise specified, EPR refers to mandatory, fee-based Extended Producer Responsibility schemes for packaging, as described below.

EPR, according to the OECD definition, is “an environmental policy approach in which a producer’s responsibility for a product is extended to the post-consumer stage of a product’s life cycle.”⁹ In the example of packaging, it means that whoever introduces packaging or packaged goods into a country’s market remains responsible for that packaging also after use.

EPR is a performance-based regulation in which specific outcomes and objectives are set and defined by law, and so are the roles and responsibilities of stakeholders involved in delivering on these. The way/means through which these outcomes and objectives are achieved is left to the responsible stakeholders.

Generally, the legal framework leaves it optional to companies to fulfil their responsibility individually, by putting in place their own collection, sorting, and recycling system, or collectively, by joining efforts to establish a shared system. The latter is the most common approach for packaging, in which collective responsibilities are fulfilled through a Producer Responsibility Organisation (PRO).¹⁰

Producer Responsibility Organisations (PROs)

In a collective EPR system, legally obliged companies delegate their responsibility (fully or partially) to a third party. Typically – but

not exclusively – the third party is a joint PRO, which manages the packaging after use on their behalf^{11,12,13} and coordinates the activities identified as within the scope of such a body. In order to cover the necessary expenses to achieve the legally binding outcomes and the objectives, the PRO requires a payment from the legally obliged companies.

Fees

The payment to the PRO is normally provided through packaging fees that each obliged company pays to the PRO. Such an EPR scheme can be referred to as a fee-based EPR scheme, whose scope, design, and operating/management methods vary across countries.

In general, the fees are determined the mass and type of the packaging placed on the market, as well as the net cost of its after-use management. In the vast majority of schemes, the fee is paid by the business that introduces the finished packaged goods to the market (e.g. the supplier/producers/importers/etc.) as that is most often the entity with the greatest control over the design of the packaging.¹⁴

In fee-based EPR schemes, the funding remains ring-fenced and dedicated to the after-use management of the packaging and related activities – which should be clearly defined in the scope of the EPR legislation and in the responsibilities of the PRO body.

2 | Collection, sorting, and recycling of packaging comes at a net cost, globally amounting to tens of billions of dollars per year

The economics of collecting, sorting, and recycling packaging do not stack up

The process of collection, sorting, and recycling packaging costs more than the revenues made from selling the recycled materials. That is true for practically all packaging types and in most geographies today.^{15,16} Where packaging is currently recycled, collection and/or sorting and/or recycling are often funded through mechanisms such as EPR schemes or government funding. Non-funded, market-driven recycling is, in most cases, only possible because informal waste-pickers collect and sort waste packaging in return for a very low income and in precarious working conditions – and even then, it is limited to only a few ‘high-value’ packaging types.

Also, when not recycled, the collection and disposal or incineration of packaging waste comes at a cost. This means that any collection scheme aiming to collect all packaging – not just selected ‘high-value’ items – requires dedicated funding to cover the cost and keep packaging out of the environment in the first place.

Even in a best-case scenario, the net cost of collection, sorting, and recycling packaging globally amounts to tens of billions of dollars every year

Even in the best-case scenario, an estimated USD 30 billion per annum would be required to cover the net cost of scaling and operating collection, sorting, and recycling and, where recycling is not possible, disposal/safe treatment¹⁷ of household plastic packaging alone (see Box 2). To cover all packaging materials (i.e. also paper, glass, metal, etc.), the total net cost would be even higher.

While the economics can be improved significantly through better packaging design, technological advancements, and economies of scale,^{18,19} mechanisms that ensure funding for scaling and operating collection, sorting, and recycling of all types of packaging will be necessary for many years to come. Without such mechanisms, it is unlikely that packaging recycling will ever meaningfully scale across all packaging types and geographies, meaning over 100 million tonnes of packaging will continue to end up in landfills, incinerators, or the environment every year.

“ The process of collection, sorting and recycling of packaging costs more than the revenues made from selling the recycled materials. That is true for practically all packaging types and in most geographies today.

Box 2: The net cost of collecting, sorting, and processing packaging

In this document, the “net cost of collection, sorting, and recycling” refers to the total cost of these three activities subtracted by the revenues generated by selling the recycled materials (or compost in the case of organic recycling). It only looks at the cost for packaging that is or would be recycled. The “net cost of collection, sorting, and processing”, in addition, includes the cost of disposal or incineration for packaging that is not recycled.

With only a few exceptions, the economics of collection, sorting, and recycling packaging do not stack up, i.e. there is a net cost. Looking at plastic packaging, for example, even clear, rigid plastic packaging – the highest value and easiest to recycle plastic packaging type – most often costs more to collect and sort than the price recyclers can afford to pay (while still allowing them to profitably recycle and sell these materials) for the sorted

packaging (see figure 2). For lower value plastics, such as flexible plastic packaging or non-clear plastics, the net cost per tonne of material would be even higher. Also, beyond plastics, with only a few exceptions, collecting, sorting, and recycling of other packaging materials comes at a net cost.²⁰

Globally, the total net cost of collection, sorting, and processing plastic packaging alone is estimated by the *Breaking the Plastics Wave* study to be around USD 30 billion annually.*

Calculations were performed under the study’s best-case scenario, or “system-change scenario”, in which the plastic we don’t need is eliminated, reuse models are scaled, and efforts to design for recycling are maximised. Without significant action on elimination and packaging redesign, the cost is significantly higher. Furthermore, given the realistic speed of infrastructure development, even in this scenario, nearly 20% of remaining plastic waste generated in 2040 would not be collected, and thus will still be mismanaged.²²

Finally, this estimate only includes the part of the cost of scaling and operating collection, sorting, and processing systems for household waste that is allocated to plastic packaging, not all packaging materials. If all packaging materials are taken into consideration, the cost is significantly higher.

*The Pew Charitable Trust and SYSTEMIQ, *Breaking the Plastic Wave* (2020): Plastic packaging represents >90% of the volume in the scope of this study. The remaining 10% is other plastic waste, such as diapers and non-packaging household waste.

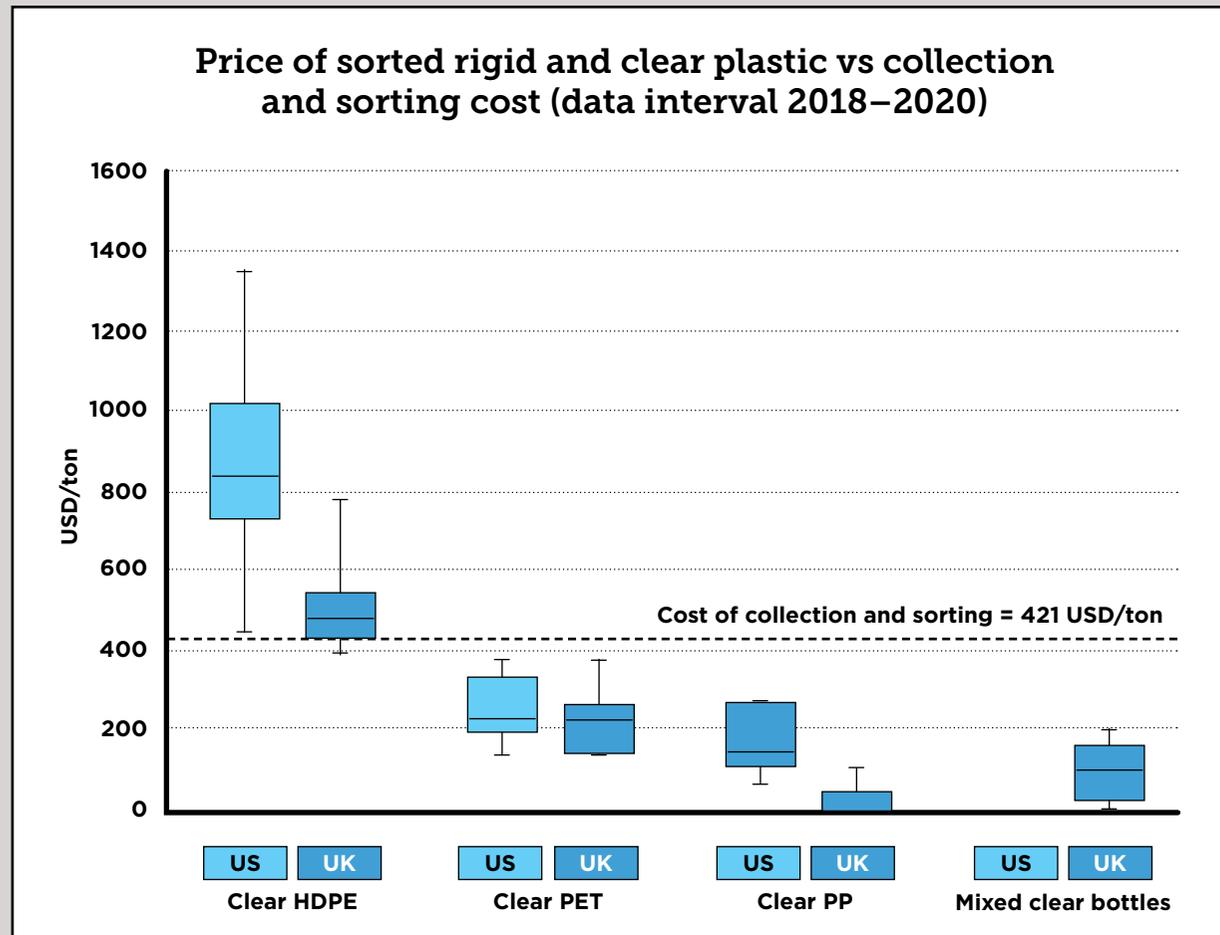


Figure 2: Range of market prices for sorted curbside-collected high-value plastic packaging (the most economically attractive) in two different geographies (US and UK), compared to the average cost of collection and sorting in developed economies.

Source: Ellen MacArthur Foundation analysis based on data from resource-recycling.com, WRAP, letsrecycle.com, and *Breaking the Plastic Wave*²⁴

3 | It is crucial that this net cost is covered by funding that is dedicated, ongoing, and sufficient

To stop packaging pollution and create a circular economy for packaging, systems for collection, sorting, and recycling need to be established and operated around the world. However, the fact that this process is not profitable (i.e. comes at a net cost) is a fundamental barrier to mobilise the necessary investments. Therefore, it is crucial to put in place mechanisms that provide the funding to cover the net cost and make the economics work. Furthermore, it is important that these mechanisms do so in a structural and sustainable way, in order to attract and de-risk the required investments in long-lived assets, such as sorting and recycling facilities.

Funding must meet all three of the below criteria in order to ensure the economic viability of collection, sorting, and recycling is structural, sustainable, and resilient. Ensuring this would create viable and significantly de-risked investment opportunities, which could trigger a step change in investments in packaging collection, sorting, and recycling infrastructure.

The funding provided would need to meet all of the three following key criteria:

✓ DEDICATED

Funding should be ring-fenced to ensure it is dedicated to a clearly defined scope of activities (which as a minimum should include covering the net cost of collection, sorting, and recycling, and, where recycling is not possible, disposal/safe treatment of all packaging²³), and to achieving specific pre-defined objectives (e.g. recycling rates of different types of packaging, minimum service level of collection, etc.).

✓ ONGOING

Funding should be guaranteed on an ongoing basis, as opposed to a one-off investment. While one-off investments can be helpful, ongoing funding is required, given the majority of the net cost of circulating packaging materials comes from ongoing operating expenses.

✓ SUFFICIENT

Funding should be guaranteed to be sufficient to execute the defined scope of activities and deliver on the objectives set. As such, the funding should evolve in line with the actual net cost of establishing and operating the systems required to deliver on the objectives, as opposed to funding that fluctuates year on year depending on other factors. The required level of funding can vary according to different factors, such as changes in the total packaging mass placed on the market, technological innovations, market prices of recycled materials, or progressively evolving objectives.



4 | While, in theory, there are many funding options, EPR schemes are the only proven mechanism to deliver dedicated, ongoing and sufficient funding in practice

In theory, there are many ways to provide funding for the collection, sorting, and recycling of packaging. However, most options do not fulfil the criteria of being dedicated, ongoing, and sufficient, and therefore don't ensure the structural economic viability required to attract and de-risk the necessary investments to scale these processes.

EPR schemes, as defined in Box 1, are the only proven, scalable funding mechanisms that fulfil all three criteria. The alternatives - relying on funding from public budgets or from voluntary contributions - fall short of meeting at least one of these criteria.

Public funding as a part of general national and/or local government budgets is revised on a regular basis, balancing a wide range of important public policy priorities, such as clean water and other utilities, education, and healthcare. As such, this type of funding is not ring-fenced or dedicated on an ongoing basis. In addition, the past has proven that this funding is not sufficient, in particular in most low- and middle-income countries where the funding gap is the largest.²⁴ Also, in high-income countries, government funding for the collection and management of packaging after use has proven to be insufficient. In some cases, it might be enough to make the economics work for a few selected high-value items (e.g aluminium cans, PET bottles), but not to achieve high overall packaging recycling rates.

This does not mean that government funding cannot play a role in the after-use management of packaging, but it does mean that government funding alone does not provide the dedicated, ongoing, and sufficient funding required.

Table 1: Evaluation of various funding mechanisms against the criteria of being dedicated, ongoing, and sufficient

	Dedicated	Ongoing	Sufficient
Public funding through general national or local government budgets allocated towards collection, sorting, and recycling, or disposal.	No	Partially	No
Voluntary funding provided by businesses, philanthropists, or other sources towards voluntary EPR schemes, or any other initiatives to improve the collection, sorting, and recycling of packaging.	Yes	No	No
Mandatory fee-based Extended Producer Responsibility schemes, as described in Chapter 1, Box 1.	Yes	Yes	Yes

“ EPR policies are much more than funding mechanisms. They can bring many additional benefits, such as enhancing the efficiency and transparency of the system and incentivising upstream solutions.

Voluntary funding can be helpful in the short/medium term. In certain countries, voluntary EPR schemes could be a way to accelerate the trajectory towards a well-designed mandatory EPR scheme, e.g. by starting to build up the systems and processes required, create markets, and learn by doing so. However, voluntary funding does not represent a sustainable, long-term funding solution by itself. While this funding is often dedicated to specific objectives, its voluntary nature means it is not ongoing and is unlikely to ever be sufficient. For example, in 2020, voluntary industry contributions in the US raised just 7% of the USD 12 billion capital investments (excluding ongoing operational expenses) needed for scaling the curbside collection and recycling of all packaging.²⁵ Furthermore, it is unlikely that the entire, or even the majority, will contribute, and that those who do step forward will be able to bear the entire cost on an ongoing basis.

Mandatory fee-based EPR schemes are the only proven mechanisms with the potential to ensure funding that fulfils all three criteria. If designed well, the funding is ring-fenced and dedicated to specific activities and objectives (which as a minimum should include contributing to covering the net cost of collection, sorting, and recycling and, where recycling is not possible, disposal/safe treatment of packaging). Due to their mandatory nature, (i.e. contributors cannot opt out), they guarantee an ongoing funding stream. Finally, the fees are tied to, and evolve with, the actual net cost of achieving the outcomes set out in the EPR regulation (i.e. they are performance-based), ensuring that the funding is sufficient. It is important to note that EPR policies are much more than funding mechanisms.

They can bring many additional benefits, such as enhancing the efficiency and transparency of the system, and incentivising upstream solutions, such as packaging reduction, reuse, and redesign (see Chapter 5).

In order to cover the full net cost of dealing with packaging after-use, EPR schemes could be complemented by other funding mechanisms, such as pay-as-you-throw fees or public funding. However, the total combined funding should be dedicated, ongoing, and sufficient to cover the full net cost of the system. For the reasons outlined above, this means that EPR is a *necessary* part of the funding and will need to cover the vast majority of the full net cost.

Finally, it is also important not to look at packaging in isolation. There are many other products and materials (e.g. food waste, textiles, different household products, and many more) that require collection and management after-use, which might come at a net cost. And some of these might even share certain services or infrastructure, such as collection systems. Governments have an important role to play in ensuring the entire materials management system and related funding is coordinated holistically, and that it is designed to be conducive to scaling a circular economy.

5 | EPR is a well-known and proven policy tool that is gaining increasing support

EPR is a well-known policy tool

With almost 400 existing schemes globally, across various product types from packaging and used tyres, to vehicles and electronics, EPR is a known policy tool that has been widely adopted at scale and in different contexts.²⁶ For packaging specifically, around 65 policies to extend producer responsibility exist. This includes different kinds of schemes, of which around 45 can be considered mandatory, fee-based EPR schemes (as defined in Box 1, Chapter 1).

Some schemes were introduced around 20–30 years ago (e.g. in Japan, South Korea, and most EU Member States), while others were introduced more recently. As seen in figure 3, mandatory EPR schemes are widespread in Europe, but are also gaining traction across the globe, including schemes limited in scope, geography, or packaging types – hereinafter referred to as ‘Limited EPR’. At the same time, there are countries across all continents with emerging EPR legislation, and others in ongoing discussions around the implementation of such schemes.

If designed well, EPR is effective in providing the necessary funding and helping to drive up collection, sorting, and recycling rates

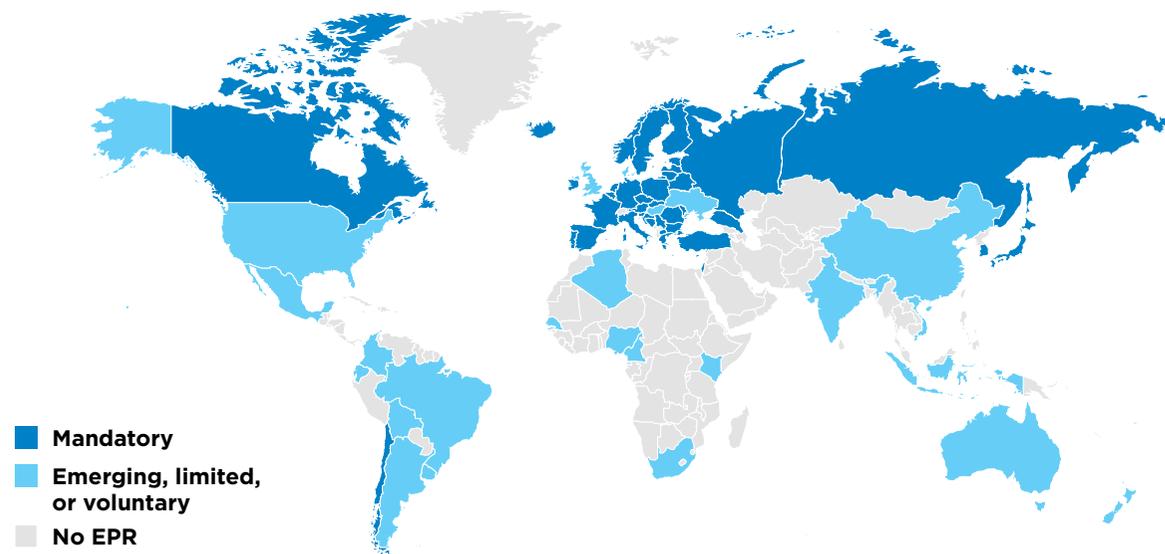
EPR is widely considered to be an effective tool to secure funding for the after-use management of packaging and to drive up collection, sorting, and recycling rates.²⁷ Looking at plastic packaging, for example, a clear difference in collection-for-recycling rates can be observed for countries with

or without mandatory packaging EPR schemes (figure 4). Although many factors influence the collection-for-recycling rate of a country, figure 4 shows that on average countries with ‘Mandatory’ EPR schemes tend to achieve a higher collection-for-recycling rate (~40%) than countries with ‘No EPR’ (~10%) or only ‘Limited or Voluntary’ EPR (~15%) in place.

According to the OECD, there is evidence that levels of waste disposal have decreased, and recycling

rates have increased where EPR schemes have been adopted.²⁸ Positive trends can be observed in collection and recycling rates across European countries since the introduction of EPR schemes.²⁹ Increases in packaging recycling rates after the introduction of EPR schemes have also been observed in many other geographies, such as South Korea and Japan.^{30,31} According to the Northeast Recycling Council (NERC) and the Northeast Waste Management Officials Association (NWMOA), Canadian provinces with EPR schemes

Figure 3: Overview of packaging EPR schemes implementation around the globe in 2020. ‘Mandatory EPR’ represents countries with specific legislation that mandates EPR for packaging. ‘Emerging, Limited, or Voluntary’ includes countries where general waste legislation exists that calls for packaging EPR to be developed or there are discussions around its introduction (Emerging), or countries where EPR schemes exist, but these are limited in scope, geography, or packaging type (Limited), or countries where EPR is not mandated by law and only a subset of businesses is engaged in the scheme (Voluntary). This map has been created based on 2020 data provided by Lorax-EPI. Note that given the increasingly broad momentum behind EPR for packaging, the status in some countries could change quickly.



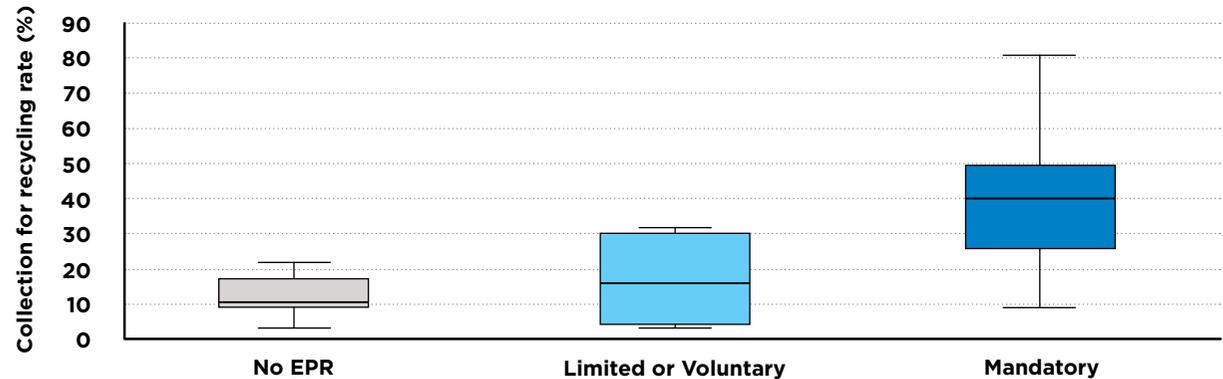
for packaging and paper products have increased recovery rates, reduced confusion about what to recycle, decreased contamination, bolstered recycling infrastructure, and grown strong markets for recycled material.³² While it is hard to isolate the impact of EPR policy versus the potential effects of other complementary policies, this data does suggest that EPR schemes have a positive impact on the collection, sorting, and recycling rates of packaging.

EPR is more than a funding mechanism, and can deliver benefits such as increased transparency, efficiency, and incentivising upstream solutions

Although this paper discusses EPR in the context of addressing the funding challenge of scaling and operating collecting, sorting, and recycling systems, EPR is much more than a funding mechanism. By clearly and carefully defining the target outcomes, the roles, and (financial and operational) responsibilities of all stakeholders involved, these schemes can, lead to additional benefits, further strengthening their contribution to achieving a circular economy for packaging.

- Incentives for upstream packaging solutions:** By giving financial responsibility to those stakeholders who decide what packaging is placed on the market and how that packaging is designed, EPR schemes can incentivise upstream innovation and solutions such as packaging reduction, a shift from single-use to reusable packaging, and the development and use of packaging that is more easily recycled. According to the OECD, the consensus appears to be that to date existing EPR schemes have contributed to improving the packaging design, though not to the extent originally expected.³³ More recently, several countries have introduced, or have started looking to introduce, changes to their EPR schemes to further strengthen the incentives for upstream solutions. These include the introduction of eco-modulation of fees, and reusable packaging targets.³⁴

Figure 4: National collection-for-recycling rates for plastic packaging. ‘No EPR’ comprises countries where there are no regulatory frameworks on EPR, or where the regulations were adopted less than three years ago. ‘Limited or Voluntary’ comprises countries with schemes in place that are either limited in scope, geography, or to certain types of packaging formats, and/or where the schemes are run voluntarily by a limited number of businesses. ‘Mandatory’ comprises countries that have EPR legislation in place that is more than three years old. The data is based on official sources and consultation with experts for countries where it was possible to retrieve information.



- Higher system efficiency:** By putting the financial (and sometimes operational) responsibility on businesses, and by having a broader system coordination performed by a Producer Responsibility Organisation (PRO), EPR schemes could help incentivise continuous research, innovation, and other initiatives that can improve the efficiency of the system.
- Increased transparency of financial and material flows:** EPR schemes have the potential to coordinate the required financial flows, as well as the physical material flows and the related information in the system.³⁵ This creates transparency and enables a more robust, data-driven decision-making process.
- Increased awareness:** Within various EPR schemes, the PROs run awareness campaigns and education activities for local authorities, businesses, and citizens that help to improve understanding around good packaging design, collection systems, technology development needs, etc. – improving the overall effectiveness of the system.

Additional benefits of an EPR scheme:

- Incentives for upstream packaging solutions
- Higher system efficiency
- Increased transparency of financial and material flows
- Increased awareness

There is broad and increasing support for EPR across a wide variety of stakeholders and geographies

The political momentum behind EPR for packaging is growing globally. In the past three years, several countries introduced, or have started the legislative process to introduce, mandatory EPR. In countries such as South Africa, Chile, Colombia, and Kenya, EPR legislation has already been adopted for all packaging types. Vietnam has adopted a first legal framework for EPR³⁶ and India introduced a national EPR legislation for plastic packaging. Other countries, including New Zealand and Ecuador, are in the process of introducing or developing EPR legislation. In the EU, where almost all Member States have already adopted fee-based EPR (some more than 20 years ago), all 27 Member States are now required to establish EPR systems by the end of 2024 that cover all packaging types and comply with the minimum requirements as outlined in the EU Waste Framework Directive 2018/851. Countries such as the UK³⁷ and Denmark that previously opted for alternative schemes, have revised or are revising their legislation to adopt an EPR scheme for packaging. In January 2021, nine US states with emerging EPR legislation announced a coordinated effort through an ‘EPR for packaging network’.³⁸

International organisations, NGOs, and environmental consultancies have also long been recommending or advocating for EPR for packaging in order to transition to a circular economy, including the OECD,³⁹ Eunomia,⁴⁰ As You Sow,⁴¹ Ocean Conservancy,⁴² and WWF.⁴³

“WWF believes that extended producer responsibility (EPR) schemes have a critical role in financing a circular plastics economy by holding manufacturers financially accountable for managing their plastic products and packaging’s end-of-life impacts, as well as incentivising holistic eco-design in the business sector.”⁴⁴ - **WWF**

“A focus on measures that finance collection has the greatest potential to reduce the financing gap. EPR, implemented through Packaging Material Fees, can have the highest potential in reducing this gap.”⁴⁵ - **Ocean Conservancy**

And over the past 12-18 months, a broader recognition of the benefits and importance of EPR has been emerging throughout the industry. Major industry players, such as Nestlé and Unilever, have publicly expressed their support for mandatory EPR schemes:

“We’re also working to reduce plastic pollution by helping to collect and process plastic packaging. [...] This includes direct investments and partnerships in waste collection and processing,

building capacity by buying recycled plastics, and supporting extended producer responsibility schemes in which we directly pay for the collection of our packaging.”⁴⁶ - **Unilever**

“Nestlé advocates for the design and implementation of affordable and effective mandatory Extended Producer Responsibility schemes.”⁴⁷ - **Nestlé**

In July 2020, a broader group of major global brands and retailers, as part of the Consumer Goods Forum’s Coalition of Action on Plastic Waste, published a position paper called *Building a circular economy for packaging: a view from the consumer goods industry on optimal extended producer responsibility*.

“A focus on measures that finance collection has the greatest potential to reduce the financing gap. EPR, implemented through Packaging Material Fees, can have the highest potential in reducing this gap.

Ocean Conservancy

This position paper has been endorsed by 28 major industry players, including Amcor, The Coca Cola Company, Danone, Mars, Mondelez, Nestlé, PepsiCo, SC Johnson, Unilever, and Walmart. It states:

“As leading manufacturers and retailers of consumer packaged goods, we believe that Extended Producer Responsibility (EPR) programmes for packaging can accelerate this progress [towards a circular economy] and provide critical and effective support to recycling, particularly when the right conditions are in place for a given market.”⁴⁸

In that same year, Plastics Europe, the European association of plastic manufacturers, stated that EPR schemes are pivotal to financing and incentivising a circular economy for plastics.⁴⁹

Also, in the US, over the past 12 months, multiple businesses, industry associations, collaborations between industry players, and other US organisations have started to express support or show openness for the introduction of EPR for packaging in the country.

- Mondelez International expressed it is “lending its support for a reasonable, federal level EPR scheme in the US that caters to flexible films, as well as other plastics”;⁵⁰

- The Northeast Recycling Council (NERC) and the Northeast Waste Management Official Association (NWMOA) published a baseline of shared knowledge to support the implementation of EPR for packaging and paper products;⁵¹
- The Flexible Packaging Association (FPA), together with the Product Stewardship Institute (PSI), published a paper with principles behind EPR implementation;⁵²
- In January 2021, Ameripen, a packaging industry group that has traditionally opposed EPR, changed its position saying it will support EPR proposals if they meet certain criteria.⁵³

“As leading manufacturers and retailers of consumer packaged goods, we believe that Extended Producer Responsibility (EPR) programmes for packaging can accelerate this progress [towards a circular economy] and provide critical and effective support to recycling, particularly when the right conditions are in place for a given market.

**The Consumer Goods Forum,
*Building a circular economy for packaging***

6 | To be effective, the design of the EPR scheme is key

The way EPR schemes are designed and implemented is crucial for their effectiveness. Potential risks of a badly designed or implemented EPR scheme include: a lack of proper enforcement and accountability (e.g. free-riders); a lack of transparency and monitoring; and not delivering or even disincentivising circular outcomes. Therefore, new EPR schemes should be carefully designed and existing ones should be continuously monitored and refined.

Many publications and reports with recommendations on how to best design and implement such schemes exist (OECD,⁵⁴ Eunomia,⁵⁵ PREVENT Waste Alliance,⁵⁶ European Commission,⁵⁷ Product Stewardship Institute,⁵⁸ Institute for European Environmental Policy,⁵⁹ WWF,⁶⁰ Ocean Conservancy,⁶¹ Consumer Goods Forum,⁶² EXPRA,⁶³ among others).

This publication's main focus is laying out why EPR is a necessary part of the solution. This section, however, briefly touches upon a few key elements or considerations to keep in mind when implementing an EPR scheme - without providing detailed recommendations on how to design and implement these elements. The list below is based on a distillation of a few of the most recurring elements mentioned in other publications and is not meant to be exhaustive.

Key considerations when designing an EPR scheme

1 Scope of covered materials:

It is important to clearly define what is considered 'packaging'. Furthermore, it is important to ensure the scope of covered packaging is comprehensive, both in terms of packaging types (such as bottles, cans, flexibles, etc.) and materials (such as paper, glass, aluminium, regular and compostable plastics, etc.). This is important for two reasons: firstly, because it is necessary to establish systems that work for all packaging types and materials, so that all of them are collected and (over time) recycled or composted; and secondly, to avoid unintended consequences, such as switching to other packaging materials or types, merely to avoid the EPR.

2 Objectives, scope of activities, and granular, ambitious, and time-bound targets:

It is important to clearly define the objectives and scope of responsibilities/activities of the EPR scheme, as well as the target outcomes to be met over time. This is to ensure that it is clear to all stakeholders what activities funding should be raised and used for and what outcomes should be delivered. For example: the minimum service level of collection that should be provided; what time-bound recycling targets by packaging type should be met and how exactly they should be measured; whether (part of the) litter clean-up is included or excluded in the extended responsibilities, etc.

3 Roles and responsibilities of stakeholders involved:

It is important to clearly define who bears what part of the financial and operational responsibilities to fulfill the objectives and targets. For example: who are the 'producers' (i.e. how is 'producer' defined) and what are their responsibilities; what are the responsibilities of municipalities and other stakeholders; what is the role of the PRO(s); who owns the materials at the different steps of the process, etc.

4 Mechanisms to ensure robust and transparent reporting, monitoring, and enforcement:

Failure to provide consistent enforcement undermines the performance of the EPR scheme and creates unfair advantages for those who do not meet their obligations (free-riders). It is also important to gather data and constantly monitor the performance of the EPR scheme so that the results of decisions taken can be evaluated and any adjustments needed to achieve objectives and targets can be allowed for.

While designing the many elements of an EPR scheme, it is important to always ensure the scheme results in funding that meets the three key criteria of being dedicated, ongoing, and sufficient. Furthermore, it is important for EPR schemes to be embedded in the local context, balancing harmonisation with local adaptation. While harmonisation nationally, regionally, and internationally (for example with respect to definitions or core design principles) can enhance the overall efficiency and effectiveness of the scheme, one also needs to ensure the EPR scheme fits the local context and is embedded in the broader local circular economy policy framework (see Chapter 7).

In particular, in countries that do not have formal collection systems in place, there are questions to be resolved on how to best design and implement EPR schemes fit for the local context, including: how to include the informal sector in a way that ensures a just transition, enhancing the livelihoods and wellbeing of all people involved; and how EPR schemes can help enable or accelerate the build out of collection, sorting, and recycling systems where these do not exist yet.

Broad stakeholder consultation, with input from EPR experts, businesses, and organisations from across the value chain, municipalities, and the informal sector, can help to enhance the acceptability, transparency, and effectiveness of the EPR scheme.

To conclude, the way EPR schemes are designed and implemented is crucial for their effectiveness. No existing EPR scheme is perfect and a lot of elements need to be taken into account. However, recognising it is a necessary part of the solution to packaging waste and pollution, it is essential that all stakeholders involved work together constructively to accelerate the implementation of EPR schemes for packaging and to continuously refine them.

“ The way EPR schemes are designed and implemented is crucial for their effectiveness. No existing EPR scheme is perfect and a lot of elements need to be taken into account. However, recognising it is a necessary part of the solution to packaging waste and pollution, it is essential that all stakeholders involved work together constructively to accelerate the implementation of EPR schemes for packaging and to continuously refine them.

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7 | EPR schemes are necessary, but by themselves they are not enough to address packaging waste and pollution

Mandatory, fee-based EPR schemes are the only proven way to secure dedicated, ongoing, and sufficient funding to cover the net cost of collection, sorting, and recycling packaging, and as such are a necessary part of the solution to packaging waste and pollution. However, EPR schemes, by themselves, will not be enough to create a circular economy in which packaging never becomes waste or pollution. They need to be part of a broader policy strategy to scale the circular economy and be complemented by voluntary action from industry.

EPR needs to be part of a broader policy strategy to scale the circular economy

To eliminate packaging waste and pollution, a comprehensive circular economy policy approach is required that, beyond EPR, includes various complementary policies. Five [Universal Circular Economy Policy Goals](#) can be used to structure such a policy approach. These goals recognise that the relevant policies are interconnected – this will help avoid the creation of a patchwork of fragmented solutions.

Here the five Universal Circular Economy Policy Goals are laid out. For each of them, a few examples of policies relevant to packaging are listed, to illustrate the types of policies that could be considered in the development of a comprehensive and integrated policy approach to create a circular economy for packaging. The specific policy examples listed here should not be viewed as blanket recommendations but as illustrative examples that can be considered within the given geographical context and on a case-by-case basis.

GOAL 1: STIMULATE DESIGN FOR THE CIRCULAR ECONOMY

This could include creating standards to harmonise packaging or designs, products and systems (e.g. for collection, reuse, and recycling) across geographies, banning some of the most problematic packaging items, or setting mandatory minimum recycled content targets for specific packaging types.

GOAL 2: MANAGE RESOURCES TO PRESERVE VALUE

This could include policies that further drive up collection rates, such as: mandatory collection for recycling for all packaging (for residential, industrial, and commercial locations, and public spaces); Deposit Return Schemes (DRS), which could be included as a part of an EPR scheme and are a proven mechanism to increase reuse and recycling rates;⁶⁴ mandatory collection of organic waste for composting or digestion, and international restrictions on the import/export of packaging waste.

GOAL 3: MAKE THE ECONOMICS WORK

This could include incentivising circular and other environmental outcomes, for example through financial or procurement incentives for recycled content or reuse solutions, tax reductions or rebates on reuse or recycling activities or machinery. Or it could include disincentives for non-circular outcomes, for example through a landfill tax or ban, incineration gate fees, a tax on – or reducing subsidies for – virgin resource extraction or use, or greenhouse gas emission pricing mechanisms.

GOAL 4: INVEST IN INNOVATION, INFRASTRUCTURE, AND SKILLS

This could include the development of clear guidelines for public procurement, the establishment of a blended finance mechanism to mobilise private capital for investments into new sorting and recycling technologies, as well as research funds focused on creating a circular economy for packaging or incorporating circular economy studies in school and higher education programmes.

GOAL 5: COLLABORATE FOR SYSTEM CHANGE

This could include working together across the private and public sectors when developing national roadmaps to eliminate packaging waste, aligning ambitions for economy-wide reuse systems, and creating a common direction of travel for a joint innovation agenda towards 100% recyclable, reusable, or compostable packaging solutions.

EPR needs to be complemented by voluntary action from industry

Policies can play an important part in enabling the circular economy for packaging to emerge at scale, but policies alone will not be enough. Voluntary actions and innovation from businesses across the value chain will need to continue to play a crucial and leading role. After all, it is businesses that decide what packaging is put on the market, how it is designed, and what the related business model looks like.

Leading businesses have already set ambitious circular economy goals for the (plastic) packaging they put on the market by signing up to the New Plastics Economy Global Commitment, led by the Ellen MacArthur Foundation in collaboration with UNEP, and/or by joining Plastic Pacts around the world.

They are all united behind one common vision of a circular economy and are working towards concrete targets to: **eliminate** the packaging we don't need; **innovate** to ensure all the packaging we do need is reusable, recyclable, or compostable; and **circulate** all the packaging we use, keeping it in the economy and out of the environment.

It is important that businesses that have not yet done so, follow their lead, and that all businesses take bold action, invest the necessary resources, and collaborate internally, externally, nationally, and internationally, to deliver on these goals.



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Endnotes

- 1 World Economic Forum, Ellen MacArthur Foundation, and McKinsey & Company, *The new plastics economy: rethinking the future of plastics* (2016)
- 2 The Pew Charitable Trust and SYSTEMIQ, *Breaking the plastic wave* (2020)
- 3 World Economic Forum, Ellen MacArthur Foundation, and McKinsey & Company, *The new plastics economy: rethinking the future of plastics* (2016)
- 4 Ellen MacArthur Foundation, *Perspective on 'Breaking the plastic wave' study* (2020)
- 5 Ellen MacArthur Foundation and UN Environment Programme, *2020 Global Commitment progress report* (2020)
- 6 Throughout the paper, unless otherwise specified, any mention of “collection, sorting, and recycling” includes both material recycling as well as organic recycling (as defined in ISO 18601:2013 to ISO 18606:2013 on ‘Packaging and the Environment’)
- 7 UN Environment Programme and International Solid Waste Association, *Global waste management outlook* (2015)
- 8 The Pew Charitable Trust and SYSTEMIQ, *Breaking the plastic wave* (2020)
- 9 OECD, *Extended Producer Responsibility: updated guidance on efficient waste management* (2016), definition and policy rationale
- 10 OECD, *Extended Producer Responsibility: updated guidance on efficient waste management* (2016), developments in governance arrangements
- 11 Basel Convention, *Draft manual on Extended Producer Responsibility* (2017), individual or collective EPR schemes
- 12 OECD, *Extended Producer Responsibility: updated guidance on efficient waste management* (2016), Producer Responsibilities Organisations
- 13 PREVENT Waste Alliance, *EPR toolbox* (2020), factsheet 01 and factsheet 02
- 14 OECD, *Extended Producer Responsibility: updated guidance on efficient waste management* (2016), key factors in designing EPR
- 15 The Pew Charitable Trust and SYSTEMIQ, *Breaking the plastic wave* (2020)
- 16 As You Sow, *Unfinished business* (2012); US Environmental Protection Agency, *Historical recycled commodity values* (2020); letsrecycle.com, 2020 available data; WRAP, *Market snapshots*, 2020 available data
- 17 While disposal/safe treatment is not part of a circular economy, wherever these do happen, these activities also come at a net cost and thus require funding
- 18 Ellen MacArthur Foundation, *The new plastics economy: catalysing action* (2017)
- 19 The Pew Charitable Trust and SYSTEMIQ, *Breaking the plastic wave* (2020)
- 20 Based on expert interviews and a confidential study. Also existing EPR fees for these materials are an indicator of the net cost involved
- 21 The Pew Charitable Trust and SYSTEMIQ, *Breaking the plastic wave* (2020) Table A.9/A.10 HI urban areas
- 22 Ellen MacArthur Foundation, *Perspective on 'Breaking the plastic wave' study* (2020)
- 23 While disposal/safe treatment is not part of a circular economy, wherever these do happen, these activities also come at a net cost and thus require funding
- 24 Silpa Kaza, Lisa C. Yao, Tata Bhada Perinaz, Frank Van Woerden, *What a waste 2.0: a global snapshot of solid waste management to 2050*. Urban Development, Washington, DC: World Bank
- 25 As You Sow, *Waste and opportunity 2020* (2020)
- 26 OECD, *Extended Producer Responsibility: updated guidance on efficient waste management* (2016), an overview
- 27 Institute for European Environmental Policy, *How to implement extended producer responsibility (EPR): a briefing for governments and businesses* (2019); Ocean Conservancy, *Plastic policy playbook: strategies for a plastic-free ocean* (2019); The Pew Charitable Trust and SYSTEMIQ, *Breaking the plastic wave* (2020)
- 28 OECD, *Extended Producer Responsibility: updated guidance on efficient waste management* (2016), impacts of EPR schemes
- 29 European Commission – DG Environment, *Development of guidance on Extended Producer Responsibility* (2014); Eurostat, *Recycling rate of packaging waste by type of packaging; Plastics Europe, Plastics – the facts 2020* (2020)
- 30 OECD, *Extended Producer Responsibility: updated guidance on efficient waste management* (2016), EPR in Korea and EPR for packaging waste in Japan
- 31 PREVENT Waste Alliance, *EPR toolbox* (2020), the Republic of Korea’s EPR for packaging – an Asian role model
- 32 NERC and NEWMOA, *White Paper: Extended Producer Responsibility for packaging and paper products* (2020)
- 33 OECD, *Extended Producer Responsibility: updated guidance on efficient waste management* (2016), impacts of EPR schemes
- 34 Footprint – Sustainable Responsible Business, *New refill label launched* (website)
- 35 EUNOMIA, *Study to support preparation of the Commissions’ guidance for Extended Producer Responsibility* (2020)

- 36 Rethinking Plastic – Circular Economy Solutions to Marine Litter, *Extended Producer Responsibility for packaging waste in Vietnam* (2020)
- 37 United Kingdom Department for Environment Food and Rural Affairs, *25 Year Environment Plan – Extended Producer Responsibility for packaging* (2021)
- 38 National Caucus of Environmental Legislators, *States to hold plastic packaging producers responsible* (2021)
- 39 OECD, *Environmental policy tools and evaluation – Extended Producer Responsibility, several studies* (1996–2016)
- 40 EUNOMIA, *Policy and Strategy – Extended Producer Responsibility; Radical EPR Solutions to drive the circular economy* (2017)
- 41 As You Sow, *Unfinished business: the case for EPR for post-consumer packaging* (2012)
- 42 Ocean Conservancy, *Plastic policy playbook: strategies for a plastic-free ocean* (2019)
- 43 WWF, *Extended Producer Responsibility Project* (2020)
- 44 WWF, Position Paper – WWF Network Extended Producer Responsibility for Plastic Packaging
- 45 Ocean Conservancy, *Plastic policy playbook: strategies for a plastic-free ocean* (2019)
- 46 Unilever website, *Our progress on plastics - collecting and processing plastic* (2020)
- 47 Nestlé website, *Nestlé intensifies its sustainable packaging transformation journey* (2020)
- 48 The Consumer Goods Forum, *Building a circular economy for packaging* (2020)
- 49 Plastics Europe, *A silver bullet for a circular economy?: a global framework for plastics 2020* (2020)
- 50 Mondelez International website, *Mondelez International commits to reduction in virgin plastic use to combat plastic pollution* (2021)
- 51 NERC and NEWMOA, White Paper: *Extended Producer Responsibility for packaging and paper products* (2020)
- 52 Flexible Packaging Association (FPA) and Product Stewardship Institute (PSI), *Shared elements of EPR for Packaging and Paper Products* (PPP) (2020)
- 53 Resource Recycling, *Ameripen starts to shift on recycling policy* (2021)
- 54 OECD, *Extended Producer Responsibility: updated guidance on efficient waste management* (2001, 2016)
- 55 EUNOMIA, *Study to support preparation of the Commissions' guidance for Extended Producer Responsibility* (2020)
- 56 PREVENT Waste Alliance, *EPR toolbox* (2020)
- 57 European Commission – DG Environment, *Development of guidance on Extended Producer Responsibility* (2014)
- 58 Product Stewardship Institute, *Extended Producer Responsibility for Packaging and Paper Products: policies, practices and performance* (2020)
- 59 Institute for European Environmental Policy, *How to implement Extended Producer Responsibility (EPR): a briefing for governments and businesses* (2019)
- 60 WWF, *Extended Producer Responsibility project: 15 basic principles for EPR* (2020); *Emerging markets deep dives* (2020); *Legal framework study* (2019)
- 61 Ocean Conservancy, *Plastic policy playbook: strategies for a plastic-free ocean* (2019)
- 62 The Consumer Goods Forum, *Building a circular economy for packaging* (2020)
- 63 EXPRA, *Best practices for successful EPR for packaging* (2013)
- 64 EUNOMIA, *PET market in Europe: state of play* (2020)



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