



Institute for
European
Environmental
Policy

HOW TO IMPLEMENT EXTENDED PRODUCER RESPONSIBILITY (EPR)

A BRIEFING FOR GOVERNMENTS AND BUSINESSES

Disclaimer: The arguments expressed in this report are solely those of the authors, and do not reflect the opinion of any other party.

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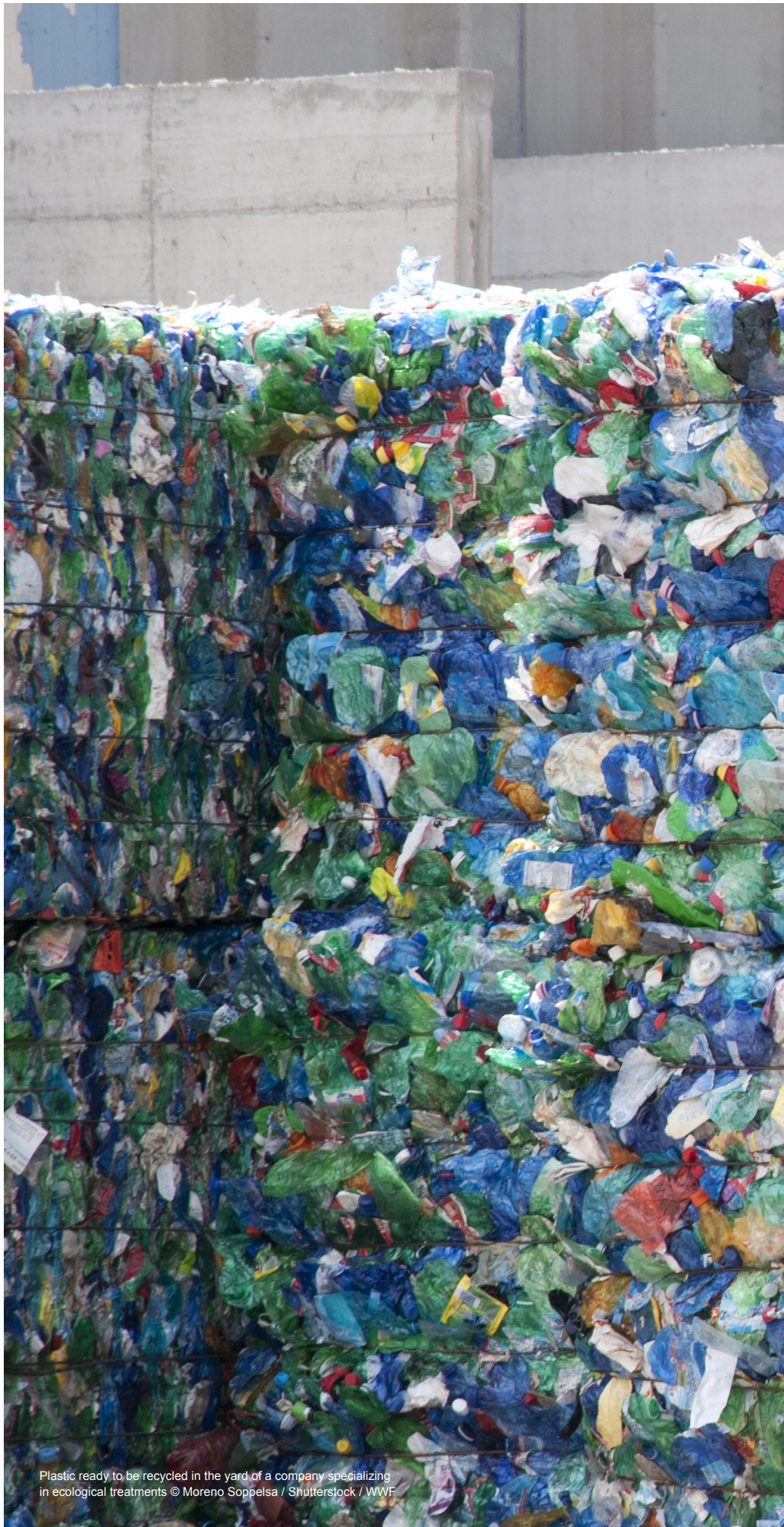
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Plastic ready to be recycled in the yard of a company specializing in ecological treatments © Moreno Soppelsa / Shutterstock / WWF



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LIST OF ABBREVIATIONS

CEPS	Centre for European Policy Studies
CPR	Collective producer responsibility
EEA	European Environment Agency
EEE	Electrical and electronic equipment
ELV	End-of-life vehicle(s)
EPR	Extended producer responsibility
EU	European Union
HDPE	High-density polyethylene (type of plastic)
IPR	Individual producer responsibility
NGO	Non-governmental organization
OECD	Organisation for Economic Co-operation and Development
PE	Polyethylene (type of plastic)
PET	Polyethylene terephthalate (type of plastic)
PRO	Producer responsibility organization
WEEE	Waste electrical and electronic equipment
WRAP	Waste & Resources Action Programme (UK)
ZWE	Zero Waste Europe

EXECUTIVE SUMMARY

Extended producer responsibility (EPR) aims to ensure that product manufacturers are made financially responsible for various parts of the life cycle of their products, including take-back, recycling and final disposal at the end of their useful life. In this way, it aims to apply what is often referred to as the ‘polluter pays principle’. EPR is typically used for **specific waste product streams** such as small consumer electronics, packaging and batteries.

This briefing proposes some suggestions for actions that governments and businesses in developing countries can take to begin the implementation of EPR systems in their countries:



EPR AIMS TO ENSURE THAT
**PRODUCT
MANUFACTURERS
ARE MADE
FINANCIALLY
RESPONSIBLE**
FOR VARIOUS PARTS OF THE
LIFE CYCLE OF THEIR PRODUCTS

Plastic bottles at a PET recycling plant
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EPR can be implemented in various forms, including product take-back requirements, economic and market-based instruments, regulations and performance standards, and information-based instruments. This briefing gives an overview of the key design elements of EPR schemes, such as defining the products covered, the producers affected, the form of EPR, the obligations imposed on producers, the setting of targets and fees, the provision of information to stakeholders, and effective monitoring and enforcement of the functioning of EPR schemes.

EPR can create various environmental, economic and social benefits, including improved waste collection and treatment, higher rates of waste reuse and recycling, incentivizing greener products, helping to finance waste collection and processing, ensuring higher quality secondary raw materials, job creation, and reduced health risks from mismanaged waste.

THE ROLE OF DIFFERENT STAKEHOLDERS IN EPR

Several stakeholders must be involved for EPR to be successful. National governments need to set the policy and legislative framework. Local municipalities often undertake household and business waste collection.



EPR schemes can help support municipal waste collection
© Elizabeth Dalziel / WWF-UK

Producers and businesses must meet waste management targets, and typically create, run and pay fees to EPR schemes, for example through collective producer responsibility organizations (PROs). Waste management companies collect and manage waste, and can receive financial support from the fees paid by producers to EPR schemes. In developing countries, the informal sector (e.g. waste pickers) should be given the opportunity to participate in EPR, for example by contributing to the collection of recyclable waste. Finally, consumers, citizens and households need to support EPR by returning waste products at the end of their useful life, using the infrastructure provided.

BUSINESSES AND EPR

By implementing EPR, businesses can make an important contribution to the transition to a circular economy by reducing the environmental impacts of their products and services, and helping to address the problems associated with trade in waste to developing countries with inadequate waste infrastructures. The benefits to business of participating in EPR schemes include enabling them to meet mandatory national recycling and collection targets; shifting towards more circular and more competitive business models; potential for cost savings by creating cost-effective solutions for the collection and recycling of end-of-life products; and supporting the development and improvement of waste and recycling industries, which are also associated with high employment potential.

Some businesses are introducing voluntary actions to minimize the environmental impacts of their products and services. These are not as powerful as mandatory measures, but can create a platform from which to launch formal EPR schemes.

Benefits of EPR schemes for packaging



WASTE PREVENTION



REUSE AND RECYCLING



USE OF RECYCLED MATERIAL



GENERATES ECONOMIC VALUE



SAVES ENERGY USE



REDUCES EMISSIONS OF CO₂



REDUCES INCINERATION

EPR FOR PACKAGING

This briefing uses the example of packaging to further illustrate some of the details and benefits associated with the implementation of EPR.

In the EU, 25 countries have EPR in place for packaging waste. Most countries feature a mix of both collective and individual producer responsibility. Some EPR schemes take on only simple financial responsibility, while others also take on operational responsibility for waste collection and treatment. The type of packaging covered also varies: some schemes deal with only household and equivalent packaging, some only commercial and/or industrial packaging, and others both. All packaging EPR schemes in the EU include some basic fee modulation, with different producer fees for each packaging material.

Some also charge specific fees for different types of plastic packaging, and others go further, varying fees based on specific characteristics of packaging that influence its environmental impact.

The benefits of EPR schemes for packaging can include improvements in waste prevention, reuse and recycling, reduced use of virgin/primary material, increased availability and use of recycled material, and generation of economic value from materials that would otherwise be thrown away or cause damage to the natural environment. Reuse and recycling also saves energy use and reduces emissions of CO₂ associated with virgin material processing and use, and helps to reduce incineration of plastic waste. It can also provide financial benefits, with fees paid by producers helping to reduce the cost to governments of waste collection and management.

POTENTIAL STEPS FOR GOVERNMENTS AND BUSINESSES IN DEVELOPING COUNTRIES TO IMPLEMENT EPR

STEPS FOR GOVERNMENTS	STEPS FOR BUSINESSES
Undertake research/feasibility studies including on benefits and opportunities of establishing EPR	
Familiarize themselves with the key objectives and principles of EPR	
Begin to develop legislation to support the introduction of EPR	Discuss with national governments what governments and companies can do to support the introduction of EPR
Begin to support the necessary waste collection infrastructure	Create a network or communication between like-minded businesses keen to participate in EPR
Consider how to support the development of markets for recycled material	Create a PRO, in cooperation with key stakeholders
Establish comprehensive and stable EPR laws and enforce them to create a reliable legal framework for all stakeholders	Participate in EPR schemes by reporting plastic quantities and characteristics, paying respective EPR fees and complying with additional EPR measures

1. INTRODUCTION AND CONTEXT FOR THIS BRIEFING

Plastics pollution is a global crisis touching on several of WWF's conservation priorities, including the protection of oceans, freshwater and wildlife. Marine habitats are particularly endangered, with an estimated 8 million tonnes of plastic waste being leaked into the oceans annually,¹ threatening both ecosystems and human livelihoods.



OVER A THIRD OF ALL PLASTIC PRODUCED GLOBALLY IS USED FOR PACKAGING WHICH IS USUALLY **DESIGNED FOR IMMEDIATE DISPOSAL**

© Elizabeth Dalziel / WWF-UK



Plastic pollution harms marine ecosystems and can even contaminate seafood.
© Rich Carey / Shutterstock / WWF

By 2050, the amount of plastic being produced globally is estimated to quadruple,² at which point there will be more plastic than fish in the oceans.³ This surge in plastic production will lead to rising CO₂ emissions and plastic leakage into nature. At current rates recycling capacities will only cover about 1/3 of global plastic waste by 2050.⁴

WWF has set a vision of “No Plastic in Nature by 2030” to turn the tide against this plastic flood. It aims at stopping the flow of plastics into nature by eliminating unnecessary plastic items; doubling reuse, recycling and recovery; and ensuring the remaining plastic is sourced responsibly. These goals are milestones on the pathway towards the transformation to a circular economy in which people can live in harmony with nature.

Over a third of all plastic produced globally is used for packaging which is usually designed for immediate disposal. However, only 14% of plastic packaging is recycled, of which only 2% is reused as packaging.⁵ The remaining 86% is sent to landfill (40%), incinerated (14%) or leaked into the environment (32%).⁶ Creating solutions to packaging waste is therefore key to solving the plastic crisis.

Extended producer responsibility (EPR) is widely recognized as a critical policy tool to combat plastic pollution. By holding manufacturers accountable for the end-of-life impacts of their plastic products and packaging, it helps increase collection and recycling rates, as well as encouraging the reduction of plastic packaging at the design stage.

EPR can enable governments to solve a multitude of environmental issues while promoting economic development, ensuring social safeguards, and removing the financial burden of running waste management systems from municipalities. Businesses can gain a head start in the transition towards the circular economy, thus mitigating reputational and regulatory risks while ensuring the roll-out of cost-efficient waste management systems.

This report offers guidance for those seeking to engage businesses and governments to promote the introduction of EPR schemes and legislation. It aims to give strong arguments for EPR schemes as a tool for the construction of functioning waste management systems and to show the feasible next steps towards these schemes.



14%

OF PLASTIC
PACKAGING IS
RECYCLED, OF
WHICH ONLY



2%

IS REUSED AS
PACKAGING.
THE REMAINING



86%

SENT TO LANDFILL,
INCINERATED OR
LEAKED INTO THE
ENVIRONMENT

2. INTRODUCTION TO EXTENDED PRODUCER RESPONSIBILITY (EPR)

The concept of EPR: The concept of extended producer responsibility (EPR) aims to ensure that the manufacturers of products are made responsible for various parts of the entire life cycle of their product, including take-back, recycling and final disposal at the end of a product's useful life.⁷



EPR AIMS TO APPLY THE
'POLLUTER PAYS PRINCIPLE'
BY SHIFTING THE
RESPONSIBILITY AND
FINANCIAL COST OF THE
NEGATIVE ENVIRONMENTAL
IMPACTS TO PRODUCERS

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Products most commonly covered by EPR systems*



35%

SMALL CONSUMER
ELECTRONICS



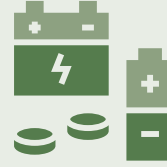
17%

PACKAGING



17%

TYRES



11%

VEHICLES/AUTO
BATTERIES



20%

OTHER
PRODUCTS

* From an OECD survey of 395 EPR schemes.



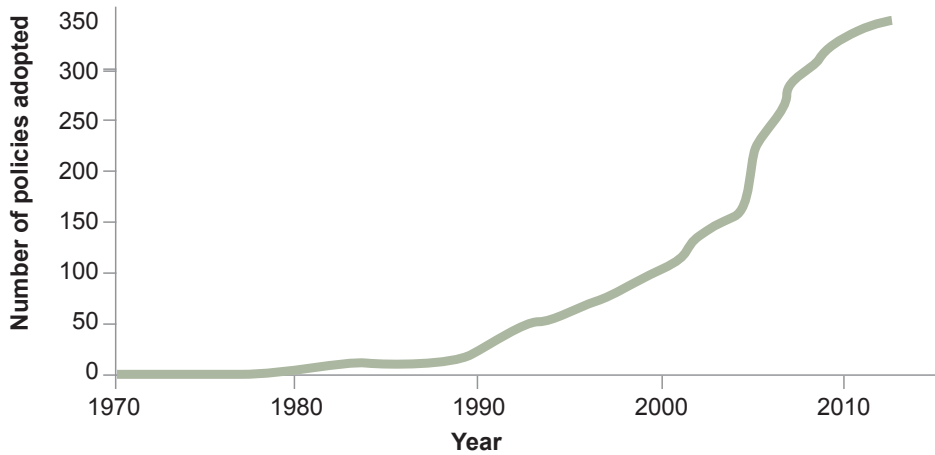
In this way, EPR aims to apply the ‘polluter pays principle’ by shifting the responsibility for, and the financial cost of, the negative environmental impacts of products from public bodies and taxpayers to producers.

EPR has two primary environmental goals, and if used well, it can be a key element of the transition towards a circular economy.⁸ Firstly, it aims to incentivize producers to design more resource efficient products with lower environmental impacts (often referred to as green design or ‘eco-design’), for example in terms of the type or amount of material used. Secondly, it aims to ensure effective end-of-life collection and environmentally sound treatment of collected waste products, and to create higher rates of reuse and recycling. In this way, EPR schemes can help to address issues related to resource consumption and growing waste generation.⁹

EPR is typically used for specific waste product streams. The products most commonly covered by EPR systems are small consumer electronics (sometimes known as waste electrical and electronic equipment or WEEE, 35%), followed by packaging (17%), tyres (17%), vehicles/auto batteries (11%) and other products (20%).¹⁰

The EPR approach was first adopted in the early 1990s in the European Union (EU), where it is now very widely used (in particular in response to EU legislation requiring it to be introduced for WEEE and end-of-life vehicles and batteries, and encouraging its use for packaging waste). It is also increasingly being used in other countries around the world, with over 400 EPR schemes now believed to be in use globally¹¹ (see Figure 1 over the page).

Figure 1: Cumulative global EPR policy adoption over time



EPR can be implemented through several types of instrument, as outlined in Table 1 below. These instruments are often applied in combination, since this may be more efficient than adopting a single instrument policy.¹³




Table 1: The main types of EPR

TYPE OF EPR INSTRUMENT	DESCRIPTION
PRODUCT TAKE-BACK REQUIREMENTS (almost three-quarters of all schemes globally)	Producers must take back their products from consumers when they become waste and are made responsible for their end-of-life management . Requirements often involve mandatory or voluntary recycling and collection targets for specific products or materials.
ECONOMIC AND MARKET-BASED INSTRUMENTS (most of the remaining schemes)	Examples include: <ul style="list-style-type: none"> ■ Deposit refund schemes: consumers pay a deposit when they purchase an item, which is refunded when they return the waste item ■ Advance disposal fees: consumers pay a fee at the point of purchase, based on estimated collection and treatment cost, which is used to finance end-of-life management of the products.¹⁴
REGULATIONS AND PERFORMANCE STANDARDS	Examples include product standards , such as requirements for minimum recycled content.
INFORMATION-BASED INSTRUMENTS (in conjunction with another type of instrument)	Providing information to consumers and/or producers to support the implementation of EPR.

If well-designed and implemented, EPR can provide significant environmental, economic and social benefits. This is because producers are in the best position to make

the changes necessary to reduce the negative environmental, social and economic impacts of their products. Some of the key potential benefits are summarized in Table 2 opposite.

Table 2: Key potential benefits of EPR

AREA OF BENEFIT	KEY POTENTIAL BENEFITS
 <p data-bbox="244 712 461 750">ENVIRONMENTAL</p>	<ul style="list-style-type: none"> <li data-bbox="587 465 1469 521">■ Supporting effective end-of-life collection and environmentally sound treatment of collected waste products <li data-bbox="587 539 1139 566">■ Helping to boost waste reuse and recycling rates <li data-bbox="587 577 1477 667">■ Incentivizing producers towards green design or eco-design; creating more resource efficient products with lower environmental impacts e.g. using fewer or less harmful materials <li data-bbox="587 678 1225 705">■ Contributing to the transition towards a circular economy
 <p data-bbox="285 1043 421 1081">ECONOMIC</p>	<ul style="list-style-type: none"> <li data-bbox="587 801 1398 891">■ Fees paid by producers to EPR schemes can finance waste collection and processing, reducing waste management costs to governments (for waste collection) and citizens (for waste-related charges) <li data-bbox="587 902 1458 992">■ Reduced cost of using recycled material relative to virgin materials, by ensuring more effective collection of sorted waste materials and thereby providing higher quality secondary raw material <li data-bbox="587 1003 1362 1059">■ Job creation, e.g. in Germany, around 290,000 people work in the waste management and secondary raw materials sector
 <p data-bbox="308 1379 399 1417">SOCIAL</p>	<ul style="list-style-type: none"> <li data-bbox="587 1149 1445 1205">■ Places greater social responsibility on producers by applying the polluter pays principle <li data-bbox="587 1216 1430 1305">■ Reduces potential health risks from mismanaged waste, including hazardous waste such as WEEE and batteries (e.g. pollution of water sources, health risks from pests attracted to dumped waste)

Of course, EPR should not be considered as a ‘silver bullet’ to solve all the problems of waste management. Firstly, it should be used in conjunction with other waste management policies, and tends to be more effective at meeting reuse and recycling targets when coupled with other economic instruments such as landfill and incineration taxes, disposal bans for certain products or materials, packaging taxes and pay-as-you-throw schemes.¹⁵ Secondly, if not well designed and implemented, various problems can occur with EPR. These can include, for example, lack of adequate waste management infrastructure to support the functioning of

EPR; the failure of fees paid by producers to fully cover the costs of waste management; lack of transparency in how the EPR schemes function and lack of adequate monitoring; and so on. Design features to help to counteract these potential problems are outlined in Table 4 in the following section. In addition, some of the economic benefits of EPR for plastic products, including packaging, can be counteracted by fluctuations in global oil prices. For example, a drop in oil prices can lead to a lower comparative value for recycled plastic materials, effectively creating an incentive to produce new plastics from virgin rather than recycled material.¹⁶

¹⁵ One example mentioned in *Zero Waste Europe (2015)* is the Norwegian tax on one-way packaging. On top of a basic fee of NOK 1.1 (€0.12), a graduated fee of a maximum of NOK 6.44 (€0.68) for cans and NOK 4.32 (€0.46) for plastic bottles can be reduced proportionally to the recycling rate of the packaging.

3. EPR AND GOVERNMENTS

Governments, at both the national and regional/local level, have an important role in supporting and promoting EPR. Crucially, by developing the necessary policy and legislation they can create the right conditions for well-functioning EPR schemes. Governments are also well placed to engage and support other stakeholders, including businesses, waste management companies, the informal sector and the public, in the implementation of EPR to ensure its success.



Introducing EPR can also lead to benefits for governments. This includes the potential to support the transition to a circular economy by increasing waste collection, reuse and recycling at a low cost to government, since EPR ensures that producers and businesses contribute financially to (or in some cases cover the whole cost of) the management of the waste created by their products.

This section discusses the role of governmental bodies and other stakeholders in EPR, as well as some of the key features of EPR schemes that governments can help to shape to ensure they are implemented effectively. It concludes with some suggestions of first steps that governments in developing countries can take to implement EPR.

STAKEHOLDER ROLES IN EPR

For EPR schemes to be created and function effectively, several stakeholders need to be involved. Table 3 below summarizes the key stakeholder groups and their roles within EPR schemes.

Table 3: Stakeholder roles in EPR ⁴⁷

STAKEHOLDER	ROLE(S)
NATIONAL GOVERNMENT	Setting the policy and legislative framework , including: <ul style="list-style-type: none"> ■ Defining the producers and products concerned ■ Setting the actual responsibilities for the producers, e.g. quantified targets for take-back, collection and recycling of waste ■ Defining the roles of other actors, e.g. local municipalities, informal waste sector. Dialogue with these actors is important ■ Accreditation/approval and monitoring of EPR schemes, to ensure good functioning and enforce compliance ■ Taking steps to combat illegal imports of packaging or packaging waste
LOCAL MUNICIPALITIES	Typically responsible for waste collection from households and businesses, including providing readily accessible infrastructure Provision of information to the public
PRODUCERS/BUSINESS (INCLUDING MANUFACTURERS, CONSUMER GOODS COMPANIES AND RETAILERS/DISTRIBUTORS)	Responsible for meeting responsibility and targets set by government, including: <ul style="list-style-type: none"> ■ Creation of EPR schemes, including setting up non-profit or for-profit producer responsibility organizations (PROs) in the case of collective EPR ■ Administering and running EPR schemes, which may include setting registration and product fees, collecting fees (typically from consumer goods companies), relationships with waste collectors/processors, reporting collection and recycling rates, and possibly take-back of waste packaging (retailers/distributors) ■ Paying fees to EPR schemes based on the packaging material they place on the market ■ Providing information to producers and consumers on how to use EPR schemes
WASTE MANAGEMENT COMPANIES	Collection and management of waste, through contracts with either local municipalities, PROs or individual producers. Should receive funds from EPR schemes for handling packaging waste
INFORMAL SECTOR (E.G. WASTE PICKERS)	Any existing informal sector actors should be given the opportunity to participate in EPR schemes, for example by contributing to effective collection of recyclable waste
CONSUMERS/CITIZENS/HOUSEHOLDS	Returning waste products at the end of their useful life, using the infrastructure provided

KEY FEATURES OF EPR SCHEMES

There are various aspects to take into consideration when designing EPR schemes. Table 4 below provides an overview of these aspects, and could provide a useful checklist for governments considering the introduction of EPR. When setting up a new EPR scheme, governments can usefully review existing experiences with EPR to identify successes (and failures), and the current state of waste management and related infrastructure. Feasibility studies and pilot projects may also be helpful to identify what will work in a specific national context.

Table 4: Key design elements of EPR schemes ¹⁸

DESIGN ELEMENT	DESCRIPTION	OPTIONS
PRODUCT DEFINITION	The product(s) to be covered by EPR must be clearly defined .	Definitions should include e.g. the type of product , categories/sub-categories if appropriate, materials and type of consumer (e.g. household and/or commercial/business waste).
PRODUCER DEFINITION AND REGISTRATION	All affected producers should be registered and treated equally .	All producers should face the same requirements/obligations, while not adversely affecting small and medium-sized enterprises.
INDIVIDUAL VS COLLECTIVE SCHEMES	Schemes can be either individual producer responsibility (IPR) or collective producer responsibility (CPR) . There may be one single collective scheme or competing schemes.	IPR: individual producers take responsibility for their own products – direct link between producer and waste management. CPR: producers join a collective producer responsibility organization (PRO) that takes on the responsibility of all its members. Collective schemes tend to be more efficient and cost effective ¹⁹ (due to pooled resources, economies of scale etc.).
TYPE OF PRODUCER RESPONSIBILITY (OBLIGATIONS)	The obligations placed on producers , i.e. their responsibilities, should be clearly defined. Various approaches can be taken.	'Simple' financial: obligation only to finance existing waste management. Financial with municipal contracts: producers set up waste management contracts with municipalities. Financial and partial organizational: e.g. municipalities still responsible for waste collection but with financial support from producers, producers responsible for other activities (e.g. sorting, secondary material sales). Financial and full organizational: producers have direct contracts with waste operators, or may own (parts of) the waste
SETTING TARGETS AND RESPONSIBILITIES	Realistic, but also reasonably ambitious, and measurable targets should be set for waste collection and management, and periodically reviewed. Targets should take into account mandatory (legislative) targets set by governments, technical and economic feasibility , existing/needed infrastructure, geographic and demographic characteristics , etc.	Targets are most often set based on product weight , since it is relatively easy to measure how much by weight producers place on the market. Targets should be in line with the waste hierarchy , e.g. where possible prioritizing reuse and recycling over energy recovery. Targets may also be set on eco-design , e.g. use/non-use of certain materials, to promote waste prevention and minimization.

<p>SETTING FEES AND COST COVERAGE</p>	<p>PROs should ideally set fees to cover the full net costs of waste management for their products,²⁰ including separate collection, transport, disposal, administrative and communication costs.</p> <p>Any revenue from sales of secondary materials or reusable products should be subtracted from the costs.</p>	<p>Fees may include a fixed element, effectively a producer membership fee, typically paid annually.</p> <p>Product-related fees should also be established per product, per category/sub-category and/or per material, as appropriate. Again, they are typically paid annually, based on the amount each producer places on the market.</p> <p>Fees can also be modulated (varied) according to certain product features e.g. recyclability, hazardousness. Schemes that directly target product characteristics in this way provide the most direct incentives for eco-design changes.²¹</p>
<p>INFORMATION PROVISION</p>	<p>Adequate information must be provided by governments and/or PROs to consumers and stakeholders to support the good functioning of the EPR scheme.</p> <p>Dialogue among stakeholders (PROs, producers, government, local municipalities, waste companies, consumers, NGOs) should be encouraged.</p>	<p>Information to consumers can include labelling on products, and publicity (posters, leaflets, TV/radio media spots).</p> <p>Information to stakeholders can include guidance documents on participation in EPR schemes, information on responsibilities, etc.</p> <p>Governments and/or PROs can facilitate networking platforms/events between stakeholders.</p>
<p>TRANSPARENCY, MONITORING AND ENFORCEMENT</p>	<p>Much information should be made publicly available.</p> <p>EPR schemes should be adequately monitored, and rules enforced, by public authorities and the obligated producers.</p>	<p>Publicly available information (e.g. in annual PRO reports) can usefully include collection, recycling and reuse rates achieved by EPR schemes, fees charged to producers, costs incurred, revenues from resale etc.</p> <p>Monitoring and enforcement should include detecting ‘free riders’ (producers who do not pay fees but still benefit from an EPR scheme); identifying anti-competitive practices by producers, PROs and waste management companies; monitoring compliance with targets; ensuring sound financial management of EPR schemes; compliance with legislation by all stakeholders involved.</p>

EXISTING EPR – FOCUS ON PACKAGING

This section focuses on packaging, to further illustrate some of the details and benefits of EPR. Packaging has been chosen as a focus since a significant amount of waste packaging, and in particular plastic packaging, ends up in the environment and in the oceans each year.²² Plastic production, use and waste continues to increase, both globally and at the European level.²³

Plastic waste in the world's rivers and oceans creates significant impacts on aquatic biodiversity, ecosystems and water quality. In beach clean-ups around the world, plastic beverage bottles are the second most commonly found item, and five of the top ten items are plastic packaging.²⁴

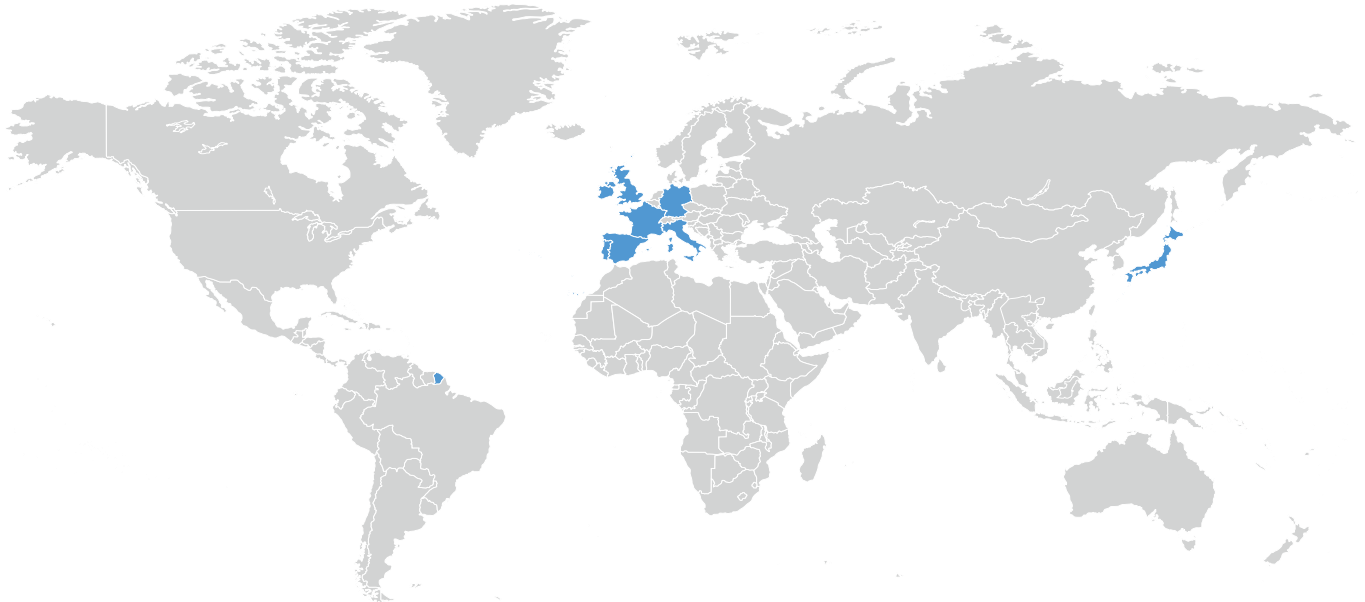
Existing EPR schemes for packaging

Figure 2 below shows how packaging EPR has become significantly more prevalent around the world over the past two decades.

Figure 2: Development of packaging EPR schemes worldwide, 2000-2018 ²⁵

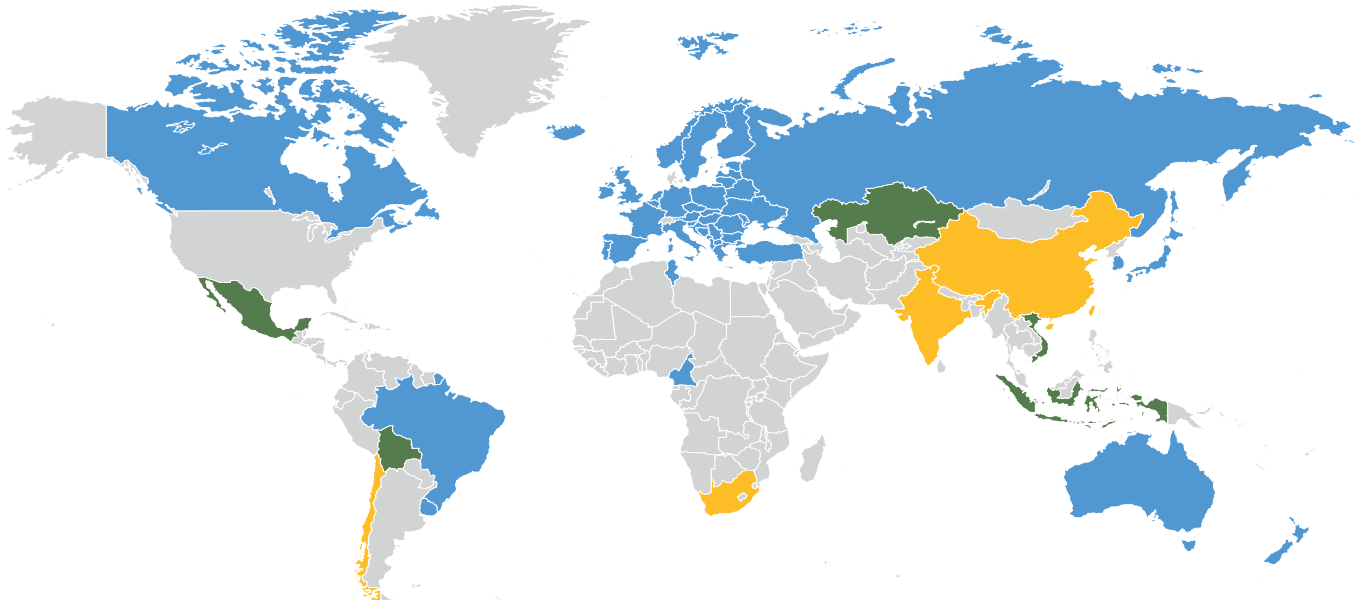
PACKAGING EPR IN 2000

■ In effect



PACKAGING EPR IN 2018

■ In effect (mandatory & voluntary) ■ In implementation ■ Framework EPR legislation



In the EU, 25 countries (plus the UK) have some form of EPR in place for packaging waste, as recommended by the EU Packaging and Packaging Waste Directive. Many of these schemes were implemented in the 1990s (with Germany the first, followed by France, Austria, Belgium, Luxembourg, Sweden, Spain, Portugal, Hungary, Finland, Ireland and the UK), with others being put in place in the early 2000s.²⁶ The schemes in EU countries have certain similarities but also some important differences. These are briefly outlined below.

Packaging EPR in most EU countries features a mix of both **collective and individual responsibility**. Nine countries have more than one packaging EPR scheme, meaning there is competition between PROs, whereas 12 countries have only one scheme, i.e. there is no competition.²⁷

The **type of responsibility** taken on by PROs also varies. The Belgian VAL-I-PAC scheme for industrial packaging involves only simple financial responsibility. The Czech EKO-KOM scheme, Dutch Afvalfonds Verpakkingen PRO and French CITEO scheme exercise their financial responsibility through direct reimbursement contracts with municipalities and/or sorting plants. The Austrian ARA scheme and German schemes have full operational responsibility.²⁸

The **categories of packaging** covered by EPR schemes vary. Some EPR packaging schemes deal with only household/equivalent packaging (Fost-Plus in Belgium, CITEO in France, Der Grüne Punkt – Duales System Deutschland in Germany, and ECOEMBES in Spain). The Belgian VAL-I-PAC scheme covers only commercial and/or industrial packaging. The majority of others cover both categories of packaging, with examples including ECO-KOM in the Czech Republic, Finnish Packaging Recycling RINKI Ltd, CONAI in Italy, Rekopol in Poland, and FTI in Sweden.²⁹

All packaging EPR schemes in the EU include some **basic fee modulation**, by charging differing fees to producers for each packaging material they place on the market. Fees for plastic and for composite packaging materials tend to be significantly higher than fees for other packaging materials such as paper, card, glass and metals. Some specific examples of fees charged in EPR schemes in the EU are included in Table 6 in Annex 1. Within schemes that cover both household and commercial/industrial packaging, the fees for the latter tend to be either the same or lower than those for household packaging.

Some schemes also charge **specific fees for different types of plastic packaging**. The most commonly differentiated plastic packaging materials are PET/HDPE, expanded polystyrene, bio-plastics/biodegradable plastics and plastic bags. PET/HDPE fees may be lower, higher, or the

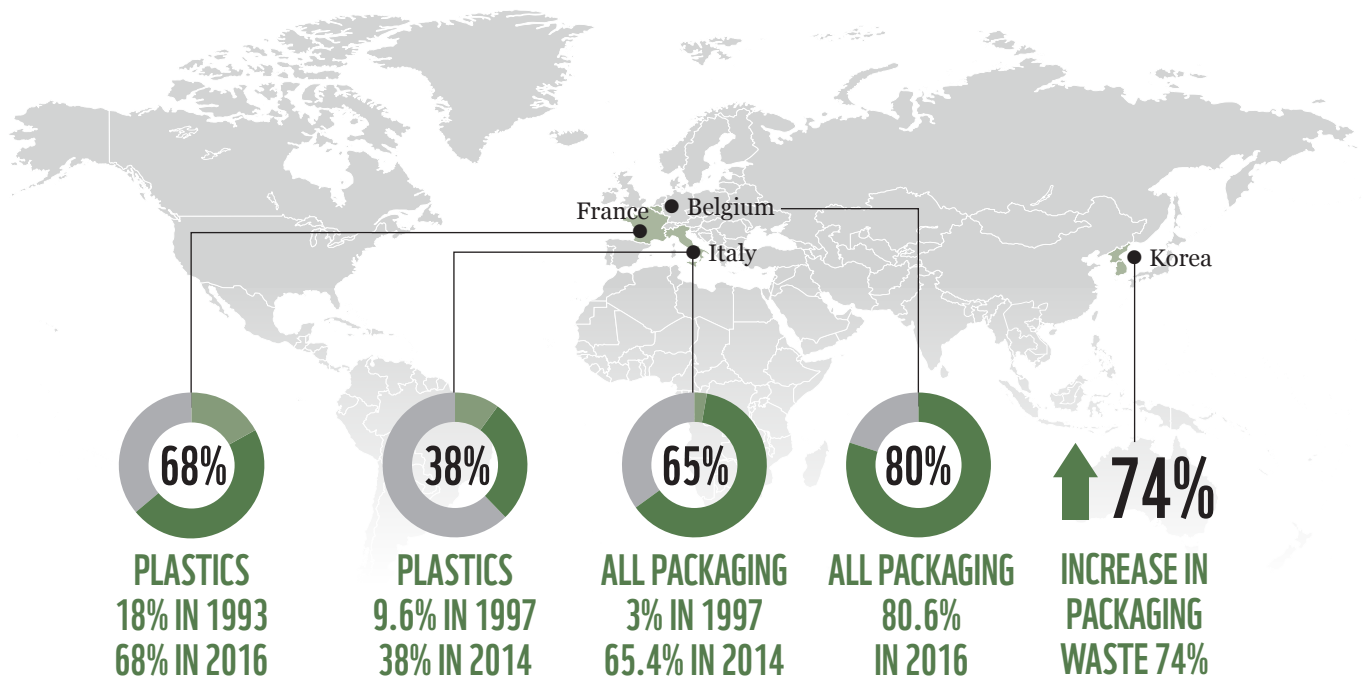
same as for other plastics, perhaps reflecting the sorting and recycling infrastructure available in each country. A handful of schemes have **lower fees for bio-plastic or compostable plasticⁱ** than other plastics (e.g. Austria, Germany, Latvia and the Netherlands). Some schemes also have **specific fees for plastic bags**; in Portugal the fee is the same for plastic bags and general plastic packaging, while in Croatia and Hungary the fee for bags is higher (in Hungary the bag fee is extremely high if the plastic bag features advertising). The majority of schemes also have **specific fees for beverage cartons** (which tend to be made of mixed or 'composite' materials including paper/card, plastic and/or aluminium foil) and other composite materials. In most cases, the beverage carton fee is lower than the fee for general plastics, likely because recycling processes are reasonably well established. Other interesting examples of fee modulation include the Czech Republic scheme applying **no fee to reusable packaging**, and the various bases for **more detailed eco-modulation** within the French CITEO scheme and the Italian CONAI scheme (see Box 3 in Annex 1).



Fully compostable trash bags © Leonie Sij / WWF-Aus

ⁱ 'Bio-plastics' are either bio-based, biodegradable, or both. Bio-based materials are derived (or partly derived) from biomass (plants). Biodegradable materials can be converted by microorganisms available in the environment into natural substances such as water, CO₂ or compost. See www.european-bioplastics.org/bioplastics

Examples of EPR contributing to the increase in packaging waste recycling



Key benefits of EPR for packaging

EPR schemes for packaging can help to effectively collect more plastic waste and prevent it from reaching rivers and oceans, thereby reducing the environmental impacts outlined above.

The development of EPR in Europe has contributed to improvements in **waste prevention, reuse and recycling**.³⁰ In 2014, 30% of the 25.8 million tonnes of post-consumer plastic waste generated was recycled and 40% was incinerated with energy recovery;³¹ 40% of plastic packaging was recycled in Europe in 2015,³² though this is a low figure when compared with the 65% recycling rate achieved for all packaging materials.³³

To take the specific example of PET bottles, around 1.8m tonnes were collected for recycling in 2015 (a 5% increase from 2014), and 59% of PET resin was recycled in the same year (a 2% increase from 2014). In 2014, bottle-to-bottle use became the main end market for recycled PET in Europe (previously it was more commonly used to make textiles), and the average recycled content in PET bottles in Europe has reached 11.7%.³⁴

To give some specific examples, EPR has contributed to increasing the packaging waste recycling rate in France from 18% in 1993 to 68% in 2016.³⁵ Italian recycling rates for plastic packaging increased from 9.6% in 1997 to 38% in 2014, and for all packaging from 3% to 65.4% over the same time period.³⁶ In 2016, the Belgian Fost Plus scheme achieved a recycling rate of 80.6%.³⁷ The Korean scheme set up in 2003 helped to increase packaging recycling by 74%.³⁸

Through increasing reuse and recycling of material, the **use of virgin/primary material is reduced**, including

the oils used to produce plastics. By encouraging separate collection and processing of materials, EPR schemes **increase the availability and use of recycled material, and generate economic value** from materials that would otherwise be thrown away. Reuse and recycling also saves energy use and reduces emissions of CO₂ associated with virgin material processing and use. In addition, it helps to reduce the energy recovery or **incineration** of plastic waste; although energy recovery can be beneficial, unless it is done using sophisticated technology it can lead to pollution and health risks from toxins and other harmful compounds.

As outlined above, packaging is one of the waste streams for which the use of varied or 'eco-modulated' fees is becoming more widespread. When the fees paid by producers are varied according to criteria on potential environmental impacts and how easy products are to deal with at the end of their life, EPR can contribute to **promoting eco-design** in packaging. Weight-based fees can help to promote the use of less material, and differences in the fees charged for certain materials can promote the use of more environmentally sustainable materials.

In addition, EPR can provide **financial benefits**, by moving financial responsibility for (parts of) waste management away from public authorities and onto producers.³⁹ The fees paid by producers to participate in EPR schemes can be used to help make waste collection and management infrastructure and processes more efficient. For example, since the creation of the French packaging EPR scheme (formerly Eco-Emballages, now CITEO), producers have paid €8 billion in fees to support the functioning of the scheme, and resold recycled materials have generated €193 million of revenue for local authorities.⁴⁰



EPR schemes in several emerging economies address e-waste © Ella Kiviniemi / WWF

BOX 1: EPR IN OTHER REGIONS

Countries outside Europe, including a number of emerging economies, have also implemented either EPR schemes or other policies and regulations based on the principles of EPR, as a way of dealing with different types of waste. E-waste appears to be the most widely addressed type of waste in these countries to date.

In 2011, **China** introduced the ‘Regulation on the Administration of the Recovery and Disposal of WEEE’ under which producers and importers are responsible for their products. Through the regulation, a fund was set up to subsidize formal e-waste collection and treatment, to overcome the role played by the informal sector. An EPR framework is expected to come into place in the country by 2020, followed by laws and regulations by 2025.⁴¹

In **South Korea**, an EPR scheme for e-waste was introduced in 2003. In 2014, the scheme covered 27 electronic products. Each year, the Ministry of Environment announces the rates specific to each product, based on the recycling performance of the producers, and sets weight-based recycling targets for each product. However, producers appear to have focused on reaching the recycling targets, dedicating less attention to the promotion of eco-design.⁴²

Singapore currently has several voluntary initiatives for e-waste recycling. Based on these, an e-waste management system, based on an EPR framework, is expected to come into place by 2021. Through the system, responsibilities will be assigned to the key stakeholders involved in the e-waste value chain.⁴³ In addition, a mandatory packaging reporting framework will be established in 2020, setting the basis for an EPR framework for packaging waste.

The reporting system will require businesses to report the types and amounts of packaging placed on the market in the previous year, together with details on their reuse, reduce and recycle plans.⁴⁴

In **Indonesia**, the government plans to introduce a new EPR regulation in 2019. The regulation will be part of the country’s Roadmap Towards 2025, which aims to reduce Indonesia’s waste output by 30% by 2025.⁴⁵ The EPR will require producers to bear the responsibility for the management of waste from their products, and will incentivize their redesign to increase the percentage of recycled content. The stakeholders most affected will include producers of processed food and beverages, due to their reliance on plastic packaging.⁴⁶

In **India**, e-waste management rules come into play in 2021. These rules are also based on the EPR principle as the producer is to bear both the financial and physical responsibility of WEEE management. The central role played by the informal sector is a common issue in developing countries in dealing with e-waste. The presence of more efficient informal collection and recycling leads to a lack of e-waste supply. Moreover, in the presence of a grey market, the identification of producers becomes a challenge.⁴⁷

In **Chile**, law 20.920, enacted in 2016, established a legal framework for waste management and introduced EPR schemes for six priority products: lubricating oil; car batteries; electrical and electronic products; tyres; batteries; wrapping and packages. In June 2019, the proposed draft decree for packaging was published for consultation and its entry into force is expected in 2021.⁴⁸

4. EPR AND BUSINESS

Business and its impacts

All businesses, to a certain extent, depend on and impact natural capital, generating significant environmental damage through their processes.⁴⁹ In particular, the production stage is associated with negative environmental impacts through the use of materials and energy. In addition, the main features of products determined at this stage can have implications downstream and generate negative environmental externalities when products become waste.





80%
PRODUCT-RELATED
ENVIRONMENTAL
IMPACTS ARE
DETERMINED AT THE
DESIGN STAGE



DURING THIS
PHASE,
DECISIONS ON
THE REUSABILITY,
RECYCLABILITY
AND REPARABILITY
OF PRODUCTS
CAN BE MADE



WITH PLASTIC
PACKAGING,
CHEMICAL
COMPOSITION AND
SHAPE CAN CREATE
OBSTACLES
FOR WASTE
MANAGEMENT

A study by Trucost estimates that primary production and processing sectors are associated with natural capital costs of US\$7.3 trillion, mostly due to greenhouse gas emissions, water and land use, pollution and waste.⁵⁰

At the same time, companies represent important players in the transition to a circular economy and can introduce business models which rely less on the use of natural resources and promote more sustainable products.⁵¹ For this reason, producers are best suited to integrate the required changes in the production process which are crucial to minimize the environmental, social and economic impacts of their products. In line with the polluter pays principle, producers are to take over the financial responsibility for the end-of-life management of the products they place on the market.⁵²

The European Commission has estimated that 80% of product-related environmental impacts are determined during the design stage.⁵³ In fact, it is during this phase of the life cycle that decisions on the reusability, recyclability and reparability of products can be made. Such features, which are in line with key principles of circularity, can lead to changes at the end-of-life stage and influence treatment of products. For instance, in the context of plastic packaging, several design features such as chemical composition and shape can create obstacles for waste management, hampering the recycling or reuse of packaging.⁵⁴

EPR provides a powerful tool which can support businesses in reducing the environmental impacts associated with their products and services. The rationale behind the introduction of EPR schemes lies in the need to establish feedback loops, so as to incentivize improvements in products' design and, as a consequence, minimize the costs associated with their waste management.⁵⁵

WHY EPR IS IMPORTANT FOR BUSINESSES

The introduction and uptake of market-based instruments such as EPR schemes by businesses derive from the political context in which they operate. More precisely, recent trends in transboundary movements of waste have given rise to environmental and economic concerns which have emphasized the potential role of policy instruments of this kind.

The global volume of trade in waste has increased considerably over the years, leading to increasing economic and environmental concerns in export destinations. High-income countries are the primary exporters of waste globally, with the EU being the top exporter.

Exported waste is generally directed towards developing or emerging countries with less stringent environmental regulations. However, importing countries often lack proper waste management capacity.⁵⁶



As a result of increasing trade, some countries have introduced import restrictions on certain types of waste. For instance, in 2018 China introduced a ban on the import of 24 types of solid waste, including plastic waste. Developed exporting countries that rely significantly on China's recycling industry, such as the EU and the US, are expected to be highly affected by the introduction of the ban, and indeed some implications are already visible. EU exports of plastic waste to China dropped by 95% between 2017 and 2018, and waste paper exports experienced a similar trend.⁵⁷ Many exporting countries have responded to the ban by shifting their waste exports to surrounding developing countries in South-East Asia, such as Thailand, Vietnam and Malaysia; the latter has rapidly become the world's biggest importer of plastic waste.⁵⁸

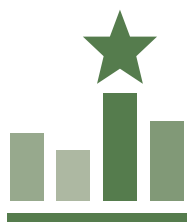
At the same time, the waste crisis that followed is increasingly putting pressure on the EU and similar exporting countries to find solutions to manage their waste domestically.⁵⁹ The current waste problem, and plastics waste in particular, is increasingly posing threats to the environment and, as a consequence, affects what is deemed responsible practice. This makes it crucial for businesses to start addressing their polluting practices, especially in view of increasing legislation. It is in this political context that policy instruments such as EPR find increasing application, presenting opportunities to develop domestic circular economy strategies.

The implementation of EPR schemes can in fact trigger the required innovations in businesses to support the placing on the market of more circular economy-related products. It can also contribute to the development and improvement of waste and recycling industries. In particular, a number of substantial **benefits to businesses** can be identified as arising from a proper implementation of EPR schemes, from boosting their reputation, to ensuring their compliance with legislation, to substantial cost savings.



Circular economy

EPR schemes, if properly implemented, can be a powerful tool to drive the transition to a circular economy. The objectives of EPR, intended to improve the environmental performance of products throughout their life cycle, are in line with circular economy objectives. For instance, schemes using eco-modulation of fees provide incentives for producers to integrate eco-criteria in the design of their products. Such systems can significantly contribute to helping businesses reach environmental and circular economy objectives. This will enable them to meet recycling and collection targets in line with national or European legislation, by ensuring effective end-of-life collection and treatment and promoting reuse and recycling.⁶⁰



Competitiveness

The incentives created by EPR schemes can support businesses in shifting towards more circular models. In view of changing markets and increasing consumer awareness and preference for sustainable products, the circular economy is increasingly seen as an economic opportunity for businesses.⁶¹ This will in fact enable them to gain a competitive advantage over those businesses that still rely on linear models of production and consumption. Over time, increasing competitiveness will stimulate other companies to make the same changes.⁶²



Cost savings

The structure and implementation of EPR schemes should ensure that producers bear the costs of collection, sorting and processing of waste. This structure, which by definition is based on the shift of responsibility to producers, encourages them to find the optimal, cost-effective solutions for the collection and recycling of end-of-life products. This is achieved by changing the production process, reducing the amount of resources and rethinking the design of products, making sure that the materials used do not hamper their recyclability or reusability downstream. As a consequence, the introduction of such changes, triggered by EPR, can reduce waste management costs for producers.⁶³



Empty polystyrene boxes piled up at Tsukiji fish market, Japan © Michel Günther / WWF



Efficient waste management

In addition to generating cost savings to businesses, EPR schemes may contribute to the development and improvement of waste and recycling industries, which are also associated with high employment potential.⁶⁴ While revenue generated through other environmental taxes can potentially finance environmental projects, the fees paid by producers to EPR schemes directly provide financing for waste management infrastructure. EPR schemes have been successful in improving separate collection schemes, reducing disposal, and increasing the cost-efficiency of collection and recycling.⁶⁵

Several schemes have been introduced so far in the EU, especially in the context of packaging. As discussed in the previous chapter, EPR fees are often based on material type or weight, but modulated fees based on eco-criteria have gained increasing attention in recent years. Such fee systems can have important implications on design, something which has not been achieved to a significant extent so far. By introducing fees based on eco-criteria, producers are encouraged to place on the market products which are more respectful of the environment, preventing damage at the end-of-life phase. Such systems can trigger business innovation, provided that the fees and criteria are properly defined and the difference large enough to trigger change.⁶⁶



THE ROLE OF BUSINESS IN EPR

The introduction of EPR schemes makes businesses accountable for the products they place on the market throughout their life cycle. Producers can take the lead in setting up and managing their EPR schemes, to ensure compliance with collection and recovery targets. A provisional list of next steps for businesses to promote the uptake of EPR is provided at the end of this chapter.

The responsibility placed on producers is often delegated to a third-party organization or PRO. Through this collective entity, the obliged industry collects funding, cooperates with local authorities and ensures cost-efficient recycling.⁶⁷ In order to ensure proper functioning of the scheme, close partnership between producers and local authorities is envisaged. By liaising with local authorities to agree on the most appropriate collection schemes, producers can also have a say on take-back and recycling schemes.

Many businesses are already implementing alternative models to the standard linear system, contributing to the transition to a circular economy. However, a number of challenges can be identified which warrant the integration of an ambitious policy mix.⁶⁸ EPR, if in line with ambitious targets and based on a properly defined incentive mechanism, can provide a powerful policy tool to incentivize businesses to shift to more circular models and improve the environmental performance of their products and services. Nevertheless, up to now changes in product design have mostly been the result of product policy enforcement, such as the EU Eco-design Directive. This indicates that EPR schemes have not been used to their full potential and suggests a need for more appropriate structuring and implementation of schemes which better integrate the role of and impact on businesses. In this regard, several **opportunities for improvement** can be identified.



Market demand for circular products

For the transition to circular models to happen, businesses need to make sure that a market for circular and sustainable products exists. While EPR schemes can help in creating incentives for this market to arise, demand for circular products is often lacking, generating significant obstacles for businesses to innovate their models, as well as their materials and products.

The lack of a harmonized approach across EPR schemes applied across geographies is also an obstacle to the creation of markets and may generate market distortions.⁶⁹ EPR is in fact generally applied at the national level. While this is the case for several policy approaches in the context of a circular economy, national policies may fail to take into account global implications, resulting in less effective results than if a common approach were adopted.



Waste management infrastructure

The functioning of EPR schemes is, to a certain extent, reliant on the available waste management infrastructure as the latter determines end-of-life treatment. On the one hand, EPR can provide financial support for developing and improving waste management infrastructure, especially the recycling industry. However, an absence of suitable infrastructure or technology for waste collection, sorting and recycling may result in EPR schemes proving ineffective in delivering their objectives.⁷⁰ In fact, the absence of suitable technology may lead to adverse effects, as illustrated by the case of textiles presented in Box 2 below.



Less than 1% of products are being recycled into new textiles.
Spools of thread at textile factory. © Charlotta Järnmark / WWF-Sweden

BOX 2: FACTORS TO CONSIDER WHEN IMPLEMENTING EPR – THE CASE OF TEXTILES

The only EPR scheme currently in place for textiles in the EU is the French ECO-TLC scheme. The scheme has led to a threefold increase in textile collection and recycling rates since 2006. In addition, the scheme introduced financial incentives to promote eco-design, for instance through the use of recycled content. Despite these benefits, some factors warrant consideration in order to make the case for EPR to be widely adopted in this sector.

The textile sector operates on an **almost entirely linear model**, with less than 1% of products being recycled into new textiles. The **market demand** for recyclable textiles is currently limited. In addition,

the textile sector lacks the necessary **sorting and recycling technologies**. The lack of such advanced technology implies that any EPR scheme incentivizing collection for recycling will result in an increasing amount of textile waste being accumulated without the possibility of it being recycled.

The introduction of an EPR scheme in the textile sector can contribute to increasing the demand for circular alternatives, through the application of higher fees on textiles lacking circular design. However, for this to be successful, the above-mentioned challenges need to be taken into consideration and overcome.⁷¹



Plastic for packaging at a textile factory.
© Charlotta Järnmark / WWF-Sweden



EPR as part of a policy mix

EPR as a market-based instrument does not work optimally on its own. It is therefore crucial to include it as part of a wider policy mix where regulations and binding targets, as well as financing and investments, also play a role in driving change at the industry level. So far, EPR schemes have largely focused on recycling, but have been much less successful in driving significant changes at the design stage. This calls for further development of these schemes and better implementation of the waste hierarchy. One way to do this is through introducing eco-modulation of fees, along with improving the technology and infrastructures needed for efficient waste management.

EXAMPLES OF VOLUNTARY COMMITMENTS

Industries are increasingly introducing voluntary actions, with the objective of minimizing the environmental impacts of their products and services. While not as powerful as mandatory measures, voluntary commitments can also trigger significant changes across the value chain.

Policymakers also play an important role in stimulating environmentally sound actions and ambitions from industry, such as commitments to boost the uptake of recycled plastics.⁷²

A recent example is the European Commission creating, in 2018, the Circular Plastics Alliance. With the plastics industry being set under the spotlight due to the negative environmental implications associated with its final products, commitments are needed to make the plastic model shift from a linear to a circular one. The Alliance gathers key stakeholders of the plastics value chain with the overarching objective of reaching 10 million tonnes of recycled plastics in European products by 2025.⁷³ However, current industry commitments are far from reaching this ambitious goal.

A similar collective initiative is the New Plastics Economy Global Commitment, led by the Ellen MacArthur Foundation and UN Environment and signed by more than 250 organizations, to eliminate plastic waste and pollution at source. The targets in the commitment include 100% of plastic packaging being easily and safely reused, recycled or composted by 2025.⁷⁴

Other examples of individual voluntary commitments are outlined in Table 5 over the page.

Table 5: Examples of voluntary commitments by business⁷⁵

FIRM(S)	COMMITMENTS
IKEA	All plastics used in IKEA products are 100% renewable and/or recyclable by August 2020
LEGO	Use only sustainable materials in LEGO products by 2030
UNILEVER	All plastic packaging is designed to be reusable, recyclable or compostable by 2025
MCDONALDS	Source 100% of packaging from renewable, recycled or certified sources by 2025
NESTLÉ & DANONE	Develop a 100% bio-based plastic bottle

Voluntary commitments from industry indicate growing interest and acceptance from both businesses and consumers to take into consideration concerns on environmental sustainability. However, while in principle these commitments represent a step forward in the transition to a circular economy, their potential role should not be overestimated. The strongest case for the transition to a circular economy is made by the introduction of a policy mix which includes regulatory and mandatory measures alongside the voluntary commitments, as well as binding targets, market-based instruments and adequate investment and financing plans.

POTENTIAL NEXT STEPS FOR BUSINESSES TO IMPLEMENT EPR

A number of initial actions can be identified that businesses can take to begin the implementation of EPR schemes in the countries in which they operate. The following list suggests some potential immediate steps for businesses to consider:

- **Undertake research/feasibility studies**, including on the benefits and opportunities of establishing an EPR scheme, including investigating examples of well-established EPR schemes in other countries, or drawing on their experiences of EPR in other countries in which they operate.
- Familiarize themselves with the **key objectives and principles of EPR**.
- **Discuss with national governments** what they can do to support the introduction of EPR.
- **Create a network or communication between like-minded businesses** who are keen to participate in EPR schemes.
- **Create a PRO**, in cooperation with other stakeholders including governments, waste management operators and, where appropriate, the informal sector.

ANNEX 1 ADDITIONAL DETAIL ON PACKAGING EPR FEES IN THE EU

Table 6: Fees charged to producers in selected packaging EPR schemes in the EU (€/tonne)

PACKAGING TYPE	BELGIUM ⁷⁶	FRANCE ⁷⁷	ITALY ⁷⁸	NETHERLANDS ⁷⁹	SPAIN ⁸⁰
PAPER	€22.30	€162.80	€20	€22	€68
GLASS	€31.10	€14	€27	€56	€22.80 (plus a unit charge)
BEVERAGE CARTONS	€354.10	€249.70	€40	€380	€323
PLASTIC BOTTLES	€346.30	€346.30	-	-	-
ALL (OTHER) PLASTICS	€510.30	€346.30	€150 - €263	Easily recyclable: €380 Other: €640	PET/HDPE: €377 Other: €472
NON-RECYCLABLE PLASTICS	-	€692.60	€369	-	-
STEEL	€52.90	€45.60	€3	€20	€85
ALUMINIUM	€33.90	€110.40	€15	€20	€102

The fees charged to producers for a specific packaging material vary between countries. There can be different reasons for this. Differences in fees may be a reflection of the actual net cost for the collection and/or treatment of waste, taking into account factors such as the available waste management infrastructure in each country, population density or geography. In some EPR schemes, the fees cover a greater proportion of the waste collection and treatment costs than in others.

Certain types of recycled material may have a higher market value in some countries, which may be factored in to the fees charged to producers. Finally, since EPR is only one of several possible waste policy instruments, the presence of other complementary instruments (e.g. pay-as-you-throw schemes or waste disposal taxes) may also lead to differences in the fees charged, reflecting a country's overall approach to waste management.⁸¹



BOX 3: COMPARISON OF FEES AND FEE MODULATION IN CITEO (FRANCE) AND CONAI (ITALY)⁸²

CITEO is the collective EPR scheme for household packaging waste in France. CONAI is the Italian scheme covering both household and commercial/industrial packaging. They are amongst the more advanced schemes with regards to fee modulation; their approaches are described below.

Table 7: Comparison of fee modulation in CITEO and CONAI schemes

	CITEO	CONAI
BASIC FEE MODULATION	<p>Based on weight and type of packaging material: plastic, glass, paper/cardboard, steel, aluminium, cartons, and other materials. + fee based on number of packaging unitsⁱ</p>	<p>Based on weight and type of packaging material: plastic, glass, paper/ cardboard, steel, aluminium, wood, and glass.</p>
ECO-MODULATION	<p>Bonus/malus system for all packaging: Total fee = (weight fee + units fee) x bonus/malus</p> <p>Bonus: fee can be reduced by between 4% and 24%; and 50% for PE packaging with at least 50% recycled material content</p> <p>Malus: fee can be increased by between 10% and 100%</p>	<p>Differentiated fees for plastic packaging:</p> <p>A. Sortable/recyclable commercial/ industrial: €150/t</p> <p>B1. Household, with established sorting/ recycling infrastructure: €208/t</p> <p>B2. Other sortable/recyclable: €263/t</p> <p>C. Non-sortable/recyclable: €369/t</p>

CITEO applies eco-modulation to all packaging materials. Reductions in fees (bonus) are provided for efforts to reduce packaging (8-12%), increase packaging recyclability and sortability (8-12%), include 50% or more recycled material in polyethylene (PE) packaging (50%), and/or provide guidance and awareness-raising on material sorting (4-12%). Fees are increased (malus) for packaging that disrupts recycling by reducing the quality of recycled material (50%), cannot be recycled/recovered (100%), or for certain opaque PET plastic (100%). From 2020, a malus will also apply for paper/cardboard packaging that uses mineral oil inks (10%).

CONAI first introduced differentiated fees for plastic packaging in 2018. Fees vary depending on whether the packaging is from households or commerce/industry, its recyclability and sortability, and whether there are established technologies and recycling chains for the packaging.

ⁱ E.g. A four-pack of yogurts counts as one 'UVC' (unité de vente consommateur, i.e. unit as sold to the consumer) but may be comprised of nine packaging units: four pots, four lids and one carton.

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