

Extended Producer Responsibility (EPR) within tackling plastic pollution

Main messages

Extended producer responsibility (EPR):

- is where the polluter is responsible for managing and mitigating the costs of their products on the environment.
- focuses on assigning responsibility but does not provide guidance on improving design, life cycle analysis or financing mechanisms.
- requires careful planning, coordination, and collaboration between governments, producers and waste management entities in each country.
- can serve as a policy tool, within a broader framework, to promote sustainable practises and reduce the environmental, social and economic impacts of plastic waste.

Background

Extended Producer Responsibility (EPR) is a policy approach that incentivises and extends the responsibility of producers (including manufacturers, importers, distributors, brand-owners and retailers) to consider the impacts of their product(s) in the post-consumer phase.¹ EPR is based on the principle that the polluter should bear the costs of managing and mitigating the environmental impacts of their products. Over the last two decades, this approach has evolved to include considerations of sustainable resource-use, manufacturing processes and product design,² but there is no specific guidance on improving design, life cycle analysis or financing mechanisms. EPR schemes can be either mandatory or voluntary, and typically involve various forms of organisational responsibility, establishing

take-back or deposit-return systems, as well as financial mechanisms to fund waste management activities.^{3,4}

Incentives and responsibility in EPR

The goal of EPR is to incentivise producers to adopt more sustainable practises and products. However, it is important to note that EPR primarily focuses on assigning responsibility to the producers rather than providing specific guidance on design, life cycle analysis, or financing mechanisms. Local governments, waste management companies and Producer Responsibility Organisations (PROs) play important roles in supporting EPR initiatives. There is ongoing debate about whether the policy nature of EPR and involvement of stakeholders like PROs hinder incentives to improve product design.^{5,6} Therefore, it is crucial to design appropriate policies to achieve the goals of EPR effectively.⁷

Considerations for successful EPR systems

Overall, EPR can serve as a policy tool as an effort to promote sustainable practises and reduce the environmental, social and economic impacts of products, particularly in the context of plastic waste. However, developing effective EPR systems are complex and need to be adequately designed for each product,^{8,9,10} requiring careful planning, coordination, and collaboration between governments, producers and waste management entities. It is also important to consider aspects such as improving product design, funding mechanisms, transparent governance structures, stakeholder engagement, and continuous monitoring and evaluation of financial arrangements to ensure effectiveness and integrity of EPR programs.

Advantages

- EPR can encourage producers to take responsibility through various mechanisms and incentives, while helping provide a level regulatory playing field for producers.¹¹
- It engages stakeholders across the value chain under a structured framework to develop more sustainable strategies for a product's design and lifecycle.^{12,13} This collaboration fosters shared responsibility and knowledge sharing, potentially resulting in increased profits along the supply chain.¹⁴
- Effective policies can help drive a shift towards more sustainable design and production processes,¹⁵ achieving waste targets,¹⁶ improving recycling rates¹⁷ and reducing pollution.¹⁸
- If designed and managed effectively, EPR can provide a sustainable mechanism that helps shift some of the financial and administrative burden from governments and consumers to the producers,^{19,20} ensuring that those who profit from the production and sale of plastic products help bear the costs associated with their environmental impact. It can also help evolve the social responsibility of producers to support the transition of a just and inclusive informal waste sector through institutionalising and improving working conditions and livelihoods.²¹

Disadvantages

- EPR success relies on industry capacity and doesn't address over-consumption or supply chain issues.^{22,23,24} Designing and implementing effective EPR systems is complex, requiring significant coordination and potential regulatory frameworks, which require monitoring and enforcement.²⁵
- Governance, administrative roles and overarching goals can be unclear. In some cases, producers may prioritize meeting recycling targets over sustainable design. This can result in the creation of products that are technically recyclable but are challenging or economically unviable to recycle, leading to limited benefits.²⁶
- Implementing EPR systems can impose significant costs and administrative burdens on producers, particularly small and medium-sized enterprises (SMEs).²⁷ EPR can subsequently create costs that may be passed onto consumers through higher product prices,²⁸ which may impact consumer behaviour. Furthermore, developing appropriate collection and recycling infrastructure is particularly difficult in regions with limited resources.²⁹
- Defining and calculating the costs associated with the full life cycle of a product is also very challenging. Ring-fencing refers to the practice of allocating and segregating specific funds for a particular purpose or program. This can present challenges in EPR schemes such as insufficient funding, cost allocation disputes and lack of transparency, which can lead to fund misuse.³⁰ This can introduce additional monitoring and administrative burdens for both regulatory authorities and producers, increasing compliance costs and administrative complexities, which can lead to uncertainty regarding long-term financial sustainability.

The table below outlines alternative plastics and substitutes, specifically biodegradables, against the 13 options for elements as outlined in the Zero Draft of the Intergovernmental Negotiating Committee for a legal instrument to tackle plastic pollution, including in the marine environment.

Considerations for sustainability*

| | | Extended Producer Responsibility... |
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| Option 1 Primary plastic polymers | | <ul style="list-style-type: none"> ● can promote the polluter pays principle and reduce polymer use via incentives and other mechanisms. Producers share impact costs, fund sustainable practices, boost recycling, and enhance recyclable designs |
| Option 2 Chemicals & polymers of concern | | <ul style="list-style-type: none"> ● can implement incentives and mechanisms for safer chemical use, foster transparency, collaboration, and funding. Can promote green chemistry, innovative solutions for reducing concerning chemicals in plastics, set targets, and guidelines |
| Option 3 Problematic & avoidable plastic products | a. Problematic and avoidable plastic products, including short-lived and single-use plastic products | a. can employ incentives and mechanisms for unnecessary, avoidable and problematic plastic (UAPP) reduction. Guidelines, targets and dedicated financing can promote eco-friendly consumption. EPR can also foster collaboration for innovative solutions in plastics reduction |
| | b. Intentionally added microplastics | b. can establish incentives and mechanisms to restrict the use of intentionally added microplastics. It can set targets and guide against e.g. use of microbeads in cosmetics |
| Option 4 Exemptions available to a Party upon request | | <ul style="list-style-type: none"> ● does not apply to legal exemptions |
| Option 5 Product design, composition and performance | a. Product design and performance | a. can be designed to support and incentivise product design and performance |
| | b. Reduce, reuse, refill and repair of plastics and plastic products | b. can be designed to support and incentivise the reduction, reuse, refill and repair of plastic products, but a careful strategy design is needed to ensure better design, not just end-of-life management enhancement |
| | c. Use of recycled plastic contents | c. can support policy that encourages the use of recycled content |

Considerations for sustainability*

| | | Extended Producer Responsibility... |
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| | d. Alternative plastics and plastic products | d. can also be applied to encourage sustainable design and management of alternative plastics and products, promoting durability, repairability, reusable designs, and enhanced recyclability. |
| Option 6 Non-plastic substitutes | | <ul style="list-style-type: none"> can also be applied to ensure sustainable design and management of non-plastic substitutes, encouraging innovation and investment toward safe, sustainable alternatives and substitutes |
| Option 7 Extended Producer Responsibility (EPR) | | – |
| Option 8 Emissions and releases of plastic throughout its life cycle | | <ul style="list-style-type: none"> manufacturing and waste management plants are significant sources of chemical and microplastic release. EPR can help improve production and waste management processes, guide emissions monitoring and lifecycle analysis for a just scheme, considering material/product impact |
| Option 9 Waste management | a. Waste management | a. can provide incentives and mechanisms for better waste management. Shifts responsibility to producers, fosters collaboration, data reporting, recycling, and awareness. Integrated with other strategies, EPR enhances plastic waste's sustainable management. |
| | b. Fishing gear | b. can also provide incentives and mechanisms to improve the design, use and waste management of fishing gears |
| Option 10 Trade in chemicals, polymers and products, and in plastic waste | a. Trade in listed chemicals, polymers and products | a. can provide incentives and mechanisms to help transition towards improving the use of safe and sustainable chemicals and polymers in plastic products, while also helping improve the transparency of industry and the supply chain through improved design |
| | b. Transboundary movement of plastic waste | b. incentives and mechanisms can promote a reduction in the movement of transboundary waste by encouraging responsible management at source |
| Option 11 Existing plastic pollution, including in the marine environment | | <ul style="list-style-type: none"> can provide a mechanism to finance clean-ups of legacy plastic pollution through the polluter pays principle. For example, Ghana proposes a "Global Plastic Pollution Fee" which extends the responsibility to polymer producers for pollution costs |
| Option 12 Just transition | | <ul style="list-style-type: none"> can financially aid a just, inclusive transition via informal sector recognition, capacity building, formalization of sector, fair practices, and supporting livelihood improvement |
| Option 13 Transparency, tracking, monitoring and labelling | | <ul style="list-style-type: none"> mechanisms can encourage transparency throughout the plastic value chain by ensuring industries monitor, track and report products and product components. EPR can also provide a funding mechanism to support environmental monitoring and development of industry-led standards through improved design |

*Plastics will still fragment and form microplastics. However, associated collection and sorting of plastics should reduce plastic leakage into the environment, and so microplastics, through this source. EPR can establish incentives and mechanisms for less microplastic, fund spill clean-up via polluter pays principle. Yet, primary pellet spills and microplastic breakdown risks will remain.

*EPR can potentially provide a mechanism to finance research into human health impacts, as well as improving safe and sustainable design.

Case studies and resources

Case studies – Africa

Sierra Leone, Guinea and Nigeria's submissions for INC2 specifically support EPR systems as a core obligation for the Plastics Treaty. Sierra Leone and Guinea suggest using EPR to attribute positive credits for reducing and eliminating plastic waste, while Sierra Leone also suggests using EPR for technology development and transfer. Ghana proposes a 'Global Plastic Pollution Fee' (GPPF) for the elimination of legacy plastic pollution, which extends the responsibility to polymer producers for pollution costs, which could also encourage reduced plastic use and more sustainable production. <https://www.unep.org/inc-plastic-pollution/session-1/submissions>

South Africa implemented a waste management act in 2009 empowering the minister to require EPR schemes on a product-by-product basis. Most initiatives have been voluntarily established by industry, which in the case of a tyre recycling initiative became supported and enforced by the government: <https://www.mdpi.com/2079-9276/6/4/57>

Also in South Africa are PETCO, a registered PRO for polyethylene terephthalate (PET) that was initially established as a voluntary EPR organisation in 2004 to help self-regulate PET recycling. PETCO is financed by mandatory EPR fees from producer members based on products in the South African market and works with the entire value chain. Key objectives are to reduce environmental leakage, recycle packaging back into packaging and increase awareness and education. It is now mandatory for producers to register with the Department of Forestry, Fisheries and Environment (DFFE) and ensure identified products are covered by an EPR scheme. A toolkit and resources are available on their website: <https://petco.co.za/>

In 2014, the Federal Government of Nigeria adopted and provided guidelines for implementation of EPR in Nigeria through the national Environmental Standards and Regulations Enforcement Agency (NESREA): https://www.academia.edu/download/63529670/epr_in_nigeria_ajani_kunlere_201920200604-112720-13b63rs.pdf

Kenya is in the process of implementing new EPR schemes in some sectors and have plans to gradually extend them: http://erepository.uonbi.ac.ke/bitstream/handle/11295/155124/Onyango%20I_E-waste%20Management%20in%20Kenya-%20Challenges%20and%20Opportunities.pdf?sequence=1

A theoretical framework considering EPR for plastic water sachet waste has been proposed in Ghana: <https://www.mdpi.com/1660-4601/12/8/9907>

In Northern Africa and the Middle East, Jordan and Tunisia are developing legislation and Israel has already implemented a system: https://www.gov.il/en/departments/guides/extended_producer_responsibility

Case studies – Asia-Pacific

In Asia, Japan and Korea have well-developed systems and countries including China, India, Indonesia and Vietnam are also developing models: <https://www.unep.org/resources/report/korea-environmental-policy-bulletin-extended-producer-responsibility-epr>; https://read.oecd-ilibrary.org/environment/extended-producer-responsibility/the-epr-for-packaging-waste-in-japan_9789264256385-18-en#page1; <https://www.sciencedirect.com/science/article/abs/pii/S0301479721004679>

Successful models in Goa include initiatives with local dairies who pay residents a specific amount for returning

empty and washed plastic milk bags at local dairy stations, as well as initiative with Tetra Pak (company) for buyback of empty packaging: <https://archive.nyu.edu/bitstream/2451/42242/2/Plastic%20Waste%20Management%20in%20India.pdf>

In Oceania, Australia and New Zealand have various EPR schemes in place.

Case studies – Americas

In North America, Canada has some of the most well-established schemes for EPR in the packaging sector. In the USA, several states have also started to develop frameworks. In Latin America and the Caribbean (LAC), several countries have implemented EPR schemes, in particular for electronic waste.

Case studies – EU

Several EU directives refer to EPR as a recommended tool and include collection and recycling targets for packaging, batteries, end of life vehicles and waste electronic equipment, as well as complimentary eco-design policies.

A list of National successes offered by EPR for packaging in the EU is provided in the Annex (p12) of this EPR position paper for the Plastic's Treaty: https://apps.unep.org/resolutions/uploads/integrate_epr_within_the_international_treaty_on_plastics_pollution_1.pdf

Inter-government and multi-stakeholder resources:

OECD report on EPR challenges and opportunities: <https://www.oecd.org/environment/waste/Global%20Forum%20Tokyo%20Issues%20Paper%2030-5-2014.pdf>

OECD Working Paper on Policy approaches to incentivise sustainable plastic design: <https://www.oecd-ilibrary.org/docserver/233ac351-en.pdf?expires=1689000143&id=id&accname=guest&checksum=2EAC88642806A192D15A51C03BB07F0B>

The Prevent Waste Alliance is a multi-stakeholder platform initiated by the German Federal Ministry for Economic Cooperation and Development (BMZ). They have developed an EPR Toolbox to share internationally relevant information regarding packaging: <https://prevent-waste.net/en/epr-toolbox/>

Non-government resources:

WWF has a range of resources around EPR guidance and implementation: <https://www.wwf-akademie.de/catalog/view/course/id/215>

PREVENT Waste Alliance provide an EPR toolbox on the topic of packaging with country examples: <https://prevent-waste.net/en/epr-toolbox/>

The Product Stewardship Institute is a non-profit advisory organisation working together with stakeholders to develop EPR schemes and policies. <https://productstewardship.us>; <https://www.productstewardshipcouncil.net/member-profiles/extended-producer-responsibility-alliance-expra/>

The Extended Producer Responsibility Alliance (EXPRA) is an alliance for packaging, waste recovery and recycling systems spanning 28 countries. <https://www.expra.eu/>

The Ellen MacArthur Foundation: <https://ellenmacarthurfoundation.org/extended-producer-responsibility/epr-statement>