

On behalf of:



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for the Environment, Nature Conservation,  
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Zukunft  
Umwelt  
Gesellschaft

of the Federal Republic of Germany

## Policy Brief on Marine Litter | #2

# Navigating Extended Producer Responsibility (EPR) Systems

## Insights for Governments and Implementing Organisations

### Introduction – Key facts

Plastics play a vital role in modern life, serving various industries and consumers from packaging to construction (de Vargas Mores et al., 2018). However, they present significant challenges for waste management, as a large proportion ends up in landfills or incineration plants (Plastics Europe, 2018). Plastics are derived mainly from non-renewable fossil fuels, and recycling efforts are hindered by the complexity of plastic types and the low demand for recycled materials (Van Eygen et al., 2017; Dahlbo et al., 2018). Furthermore, inadequate waste management of land-based sources contributes to environmental pollution, especially in marine ecosystems, highlighting the urgency of effective strategies (Jahnke et al., 2017; GESAMP, 2016).

Ensuring the proper management of plastic waste, including collection, sorting, and treatment, is crucial for mitigating plastic pollution. However, financial constraints often hinder effective waste management efforts, which results in insufficient infrastructure and fragmented practices. Although recycling offers great opportunities, relying solely on material market value to cover all expenses is unfeasible (EMF, 2021). Without policy incentives for reduction, reuse, and recycling, society and future generations will bear the environmental costs (Renaud et al., 2018). Therefore, sustainable financing of circular economy systems is essential to effectively reduce plastic pollution, with Extended Producer Responsibility (EPR) being a key systemic approach.

*“An effective EPR system should be country-specific and supported by evidence-based knowledge, incentives, strong commitment and collaboration between private sector, government and consumers.”*

Jan Møller Hansen, International Portfolio Manager, Ministry of Environment, Denmark (World Bank, 2022)

This Policy Brief presents the most significant EPR experiences and practical EPR learnings from projects on marine litter prevention, funded by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety, and Consumer Protection.

**A transformation in the plastic cycle is needed**

One approach to transform society into a more circular and resource-efficient economy is Extended Producer Responsibility (EPR) systems. **While there is no template for a universal design of an EPR, this policy approach stems from the understanding that producers are the best-positioned stakeholders for enacting necessary changes. They are perceived as responsible for organising collection and recycling efforts to minimise the environmental impact of their products (IEEP, 2020).** Therefore, EPR aims to give producers the financial or organisational responsibility for the

environmental impact of their products throughout the entire product chain – from design to the post-consumer phase.

EPR holds significant **potential to achieve policy objectives** as it encompasses **both upstream (design) and downstream (collection, sorting, recycling) changes along the product life cycle** (PREVENT Waste Alliance, 2020). Moreover, through favourable contributions, **individual incentives for more sustainable waste management systems (WMS)**, such as improved recyclability or increased demand for recyclates, can be integrated into the EPR contributions. Consequently, implementing Eco-Fee-modulation requires a carefully adapted strategic approach. The planning, design, and execution of an EPR scheme must be customised to fit the existing WMS, domestic market conditions, and the unique political, socio-cultural, demographic, technological, and geographic context in which it operates.

## Benefits of EPR schemes for packaging

Source: IEEP 2020



Reduction of waste



Reuse and recycle



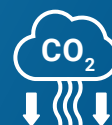
Use of recycled material



Generation of economic value



Less energy use



Reduction of CO<sub>2</sub> Emissions



Reduction of incineration

## EPR-Requirements Checklist

EPR systems require a clear underlying legal framework and comprehensive definitions. Despite variations, EPR legislation generally contains the following points (PREVENT Waste Alliance, 2020):

- ✔ Objectives
- ✔ Terms and definitions
- ✔ Mandatory PRO/system operator
- ✔ Obligated producers and importers
- ✔ Types of packaging covered by the EPR
- ✔ Scope of financing and financial calculations
- ✔ The collection system and collection targets
- ✔ Sorting, recycling and recovery targets
- ✔ Involvement of municipalities / local authorities
- ✔ Involvement of the informal sector
- ✔ Communications, provision of information and education measures
- ✔ The responsibilities and remits of relevant authorities and monitoring mechanisms
- ✔ Roles and responsibilities of any other stakeholders involved
- ✔ Incentives
- ✔ Penalties

# Different dimensions of EPR schemes

The term EPR sums up various schemes that might differ in practice. EPR schemes can be mandatory or voluntary, and they can pursue different strategies about individual or collective responsibility, as well as to their managerial approaches:

## Legal Framework

The legal framework forms the core of an EPR scheme.

**Mandatory schemes**, which legally oblige producers to manage product life cycles, offer benefits such as comprehensive nationwide WMS and reliable funding from all relevant companies.

Conversely, **voluntary schemes** offer companies autonomy but result in fewer participants, reduced funds, and less reliable support for WMS. Operating nationwide under voluntary schemes is challenging. However, such initiatives can provide valuable insights as a precursor to mandatory EPR schemes.

## Responsibility

Furthermore, the legal framework must specify whether the EPR scheme will be based on **collective or individual responsibility**. With collective responsibility, companies transfer full responsibility for waste management activities to a third party, typically a Producer Responsibility Organisation (PRO). This approach is advantageous for managing diverse waste types and reducing costs. On the other hand, schemes based on **individual responsibility** are more suitable if waste generation sources are known and waste can easily be collected, sorted, and processed.

## Management

The legal framework must specify **private or public management of the PRO**. Typically, private actors like producers or waste management companies run EPR schemes. Additionally, determining whether a **single non-profit or multiple for-profit PROs** will oversee the scheme is crucial. Many successful EPR schemes rely on a single non-profit PRO for higher transparency, better identification of free riders, and reduced monitoring efforts, which benefits the scheme's effectiveness in promoting a circular economy.

# Questions, answers and experiences

The following section presents common practical questions as well as selected learnings and experiences from projects on marine litter prevention. Ten projects were surveyed using open-ended questionnaires, allowing for a comprehensive examination of the challenges encountered and potential solutions:

## Targets and responsibilities

*How are producers persuaded to make a change in design?*

There are various instruments available. The first and simplest one is to charge EPR fees by weight to incentivise producers to use less material. There can be mandatory product design requirements, such as material/substance bans, reuse targets, and minimum recycled content. Modulated fees can encourage certain behaviours and dissuade others.

*What are the logistical challenges to recycling streams?*

The main challenge is the lack of collection and recycling infrastructure, which can impede collection efforts and lead to logistical trade-offs and risks along the take-back chain. Concepts like trade-in, give-back, and buyback programs for customers can be used to take counter-measures.

## How can the conditions of the informal sector be improved and effectively integrated into the EPR scheme?



Secondary Disposal Point, Khulna City; Source: G. Biastoch

Various initiatives can support informal sector integration. This includes policy advocacy campaigns to extend health insurance coverage through organisational structures, such as cooperatives or mutual-aid groups. Seeking the participation of local government bodies and sponsoring organisations are also important steps towards informal sector integration. Pilot initiatives, partnering with entities like social security, can help to explore local EPR needs and potentials. Simultaneously, enhancing communication and awareness within the informal sector to encourage participation is crucial. An effective approach to ensure informal sector inclusion is “price support”. Here, informal recyclers, NGOs, or local authorities are guaranteed a fixed price for the respective (recyclable) waste they collect. This creates an implicit take-back commitment, flowing through existing value chain channels, with junk shops and processors managing large volumes of waste, and charitable events stimulating direct purchases.

### Example 1 – The Awareness Centre in the SCIP project

In the SCIP project (Bangladesh) the EPR approach is a vehicle to improve general living, health, and safety conditions of waste workers and waste pickers in the study area of Khulna City. Insights gained from a survey have been used to develop measures aimed at improving work conditions and empowering waste workers and pickers, e.g. through the installation of restrooms and the offer of hygienic articles especially for women and their children. An awareness centre (AWC) has been set up, partly financed by payments into an EPR fund provided by producers.

 [You can find more details about this subject here.](#)

## Scope and Coverage

*To what extent can Deposit Refund Systems (DRS) be linked to mandatory EPR policy instruments in ODA countries to increase the quality and quantity of recycling, promote reuse systems, and promote eco-design?*

DRS improve the quality of collected waste through optimised segregation and reduced contamination. However, implementing and running these systems can be costly and challenging for ODA countries. In addition to the investment costs for the DRS technology, maintenance issues, such as unstable access to DRS infrastructure or the internet, may arise. While DRS can operate in a simpler, analogue mode, this may increase the risk of fraud. Nonetheless, selective testing of DRS in affluent urban areas, which typically produce more packaging waste, could be considered if initial investment funding is secured. However, careful consideration must be given to the informal sector’s response to DRS, as it may affect their income and pose a risk of sabotage. Conversely, DRS assigns value to beverage containers, potentially increasing income and incentivising their collection from the streets.

## How can major contributors be integrated or persuaded to pay certain taxes and support an EPR system?

Corporate social responsibility (CSR) is a business approach that, in addition to financial objectives, integrates social and environmental factors into decision-making processes. In the context of an EPR system, certificates and offset mechanisms can support companies to finance the collection of waste that could otherwise end up as marine litter. These offsetting certificates enable companies to improve CSR efforts within the EPR framework.

### Example 2 – The set-up of EPR in the TouMali project

As part of the TouMali project, the so-called TouMali Company was set up to foster EPR in the Egyptian city of Alexandria. In the pilot phase, this company reports directly to the Egyptian Ministry of the Environment (WMRA), but will later operate independently. EPR is focussing on the tourism sector, in particular hotels, restaurants, and cafés (HoReCa). In addition to the company, the stakeholders in the EPR system are the HoReCa, producers, waste operators, and consumers. Private households are also to be integrated at a later stage:

 [You can find more details on this subject here.](#)



Plastic waste on sandy soil;  
Source: © iStockPhoto / Andi Edwards

## Financial flows

### How are the producers' financial contributions calculated? How are the respective products defined and how is scoping advanced?

The financial contributions of producers are typically calculated based on various factors. These include the type and quantity of products they place on the market, the environmental impact of those products, and the costs associated with managing their post-consumer waste. This calculation may involve assessing the product's lifecycle, including its design, production, distribution, and end-of-life management.

Activity-based costing should be prioritised to ensure that each waste stream covers its expenses, minimising cross-subsidisation. For costs that cannot be directly assigned to a specific stream, a mutually agreed-upon allocation key is necessary.



Current situation in Alexandria due to a lack of waste management; **Source:** S. Altwater

## *How can EPR be used to finance waste management for plastic packaging, especially in low-income countries?*

The primary challenge with plastic waste is that not all of them have sufficient value to justify the effort of their collection. While PET bottles are commonly collected, bottle caps often litter beaches as their collection requires additional effort but offers less compensation. EPR can address this financial disparity by offering incentives to collect lower-value materials.

### **Example 3 – Financial contributions to the TouMali Company**

The financial contributions for the EPR system in the TouMali project (Egypt, Tunisia, Morocco) are staggered as follows:

Initially, part of the net costs were borne by the HoReCa sector in the Alexandria pilot area.

In a second step, the hotels in particular were responsible for paying for specific waste collection services and paid into the TouMali company's EPR fund.

In a final step, the costs for the company's service are shared among the producers and stakeholders from the HoReCa sector. The HoReCa will become fully involved in the EPR system by a) separating the materials collected by the PROs or b) ensuring their collection by the waste collection company contracted by the PROs.

International producers of plastic items offered and used in the HoReCa have been asked to cover part of the costs and pay into the EPR fund. If this is not accepted by producers, one idea is for hotels and hotel chains in Alexandria to use products of other companies.

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## **Monitoring and Enforcement**

### *How to deal with organisations that undermine the EPR system (free riders)?*

Addressing free-riding, particularly within informal value chains, presents a significant challenge. However, it can be tackled through a multifaceted approach, including the establishment of clear regulatory frameworks, effective enforcement mechanisms, collaboration among regulators and retailers, as well as leveraging peer pressure and public exposure. Additionally, reducing administrative burdens, especially for smaller producers, can be achieved through collective compliance facilitated by industry associations.

# EPR as a tool to tackle marine litter

Implementing a **mandatory Extended Producer Responsibility (EPR)** system for packaging involves various considerations beyond mere financing. EPR contributions from obligated companies ensure steady funding for **waste management activities, including infrastructure, education campaigns, and clean-up efforts**. Internally, EPR can lead to product designs being rethought to save costs and fit better into the circular economy.

Furthermore, well-designed EPR systems can **positively impact the informal sector** and ultimately **contribute to job creation**. By utilising incentives effectively, EPR systems can promote a **more sustainable product design while ensuring an economically fair transition**.

Despite their benefits, EPR systems are complex and time-consuming to establish due to legal and operational requirements. Effective management is essential for the ongoing operation of the system. This includes overseeing operations such as collection, sorting, and recycling, as well as monitoring and verifying recycling quotas and documenting volume flows.

Success depends on favourable country conditions, including political stability, existing waste management infrastructure, and regulatory frameworks. While these systems can contribute to a more circular and resource-efficient economy, EPR systems alone cannot be the sole solution and must always be combined with other suitable instruments to combat plastic pollution.

## The Triple Planetary Crisis and Germany's contribution to overcome it

Germany actively supports international agreements to combat plastic pollution, including in the marine environment, address climate change, and safeguard marine biodiversity at United Nations, G20 and G7 level. It is also taking a leading role in the negotiations of the international treaty to end global plastic pollution (UNEA 2024).

An ambitious agreement will lay the foundation for one of the most important environmental protection measures since the Paris Climate Agreement in 2015 and the Global Biodiversity Framework in 2022. At the national level and in line with EU policies and regulations, Germany has implemented the EU Single-Use-Plastic Directive into national law and has revised the Circular Economy Law.

## The Grant Programme against Marine Litter


The German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) has been supporting the engagement against marine litter with a Grant Programme since 2019:

 [www.z-u-g.org/en/marine-litter/info](http://www.z-u-g.org/en/marine-litter/info)

### Further information and contact

#### Grant Programme against Marine Litter

 [marine-litter@z-u-g.org](mailto:marine-litter@z-u-g.org)

 [www.z-u-g.org/en/marine-litter](http://www.z-u-g.org/en/marine-litter)

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