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DEPARTMENT OF FORESTRY, FISHERIES AND THE ENVIRONMENT

NO. 5535 **11 November 2024**

NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008)

GUIDELINE AND TOOLKIT FOR THE DETERMINATION OF EXTENDED PRODUCER RESPONSIBILITY FEES

I, Dion Travers George, Minister of Forestry, Fisheries and the Environment, hereby publish the Guideline and Toolkit for the Determination of Extended Producer Responsibility Fees in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), as set out in the Schedule hereto.

The Guideline and Toolkit for the Determination of Extended Producer Responsibility Fees (EPR Guideline and Toolkit), provides direction for the implementation of regulations 7 and 7A of the Extended Producer Responsibility Regulations, 2020, which deal with financial arrangements. The purpose of the EPR Guideline and Toolkit is to provide producers and Producer Responsibility Organisations (PROs) with a realistic way of determining Extended Producer Responsibility (EPR) fees, utilising the criteria provided in regulations 7(3) or 7A(3) of the Extended Producer Responsibility Regulations, 2020. The goal of the EPR Guideline and Toolkit is to:

- Provide producers and PROs with guidance on determining EPR fees;
- Provide a consistent mechanism for determining EPR fees applicable to the identified products; and
- Ensure transparency, fairness, standardization, and universality in EPR fee determination.

A copy of the EPR Guideline and Toolkit can be accessed on the EPR web portal accessible through the South African Waste Information Centre (SAWIC) (https://sawic.dffe.gov.za/SAWIC/EPR)

DR DION TRAVERS GEORGE
MINISTER OF FORESTRY, FISHERIES AND THE ENVIRONMENT

SCHEDULE

forestry, fisheries & the environment

Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

GUIDELINE AND TOOLKIT FOR THE DETERMINATION OF EXTENDED PRODUCER RESPONSIBLITY FEES

2024

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Executive Summary

Extended Producer Responsibility (EPR) represents an environmental policy wherein a producer's obligation for their product extends to encompass its post-consumer phase within the product's lifecycle. EPR aims to ensure that producers bear responsibility for the entire lifecycle of the products they place on the market, encompassing design, production, and disposal phases. The primary objective of this document is to provide guidance to Producer Responsibility Organisations (PROs) and to producers implementing EPR schemes, for the determination of EPR Fees based on the criteria detailed in regulation 7 of the Extended Producer Responsibility Regulations, 2020 (EPR Regulations), promulgated in terms of section 69(1)(b), (g), (i), (I), (o), and (dd) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM: WA). The process of defining EPR fees adheres to the "Polluter Pays Principle" designed to incentivise sustainable waste management practices and to facilitate the shift from a linear “take-make-dispose” model, towards a resource efficient and circular economy.

Methods of determining EPR fees

This Guideline document presents four EPR fee determination methods with widespread international acceptance and implementation that are most applicable within the South African context. Guidance is provided on how the fee determining methods have previously been applied across several sectors and in other parts of the world. The aim is to guide the PROs and producers implementing EPR schemes in choosing the most appropriate fee determining method for their specific needs and stage of sector development. The method employed for calculating the EPR fee depends on several factors such as the sector's level of development and maturity, and the specific types of identified product categories and products. The table below presents an overview of the four EPR fee determination methods put forward in this Guideline document.

Flat fee approach	Modulated fee approach	Eco-modulated fee approach	Product take-back scheme approach
• Uniform rate applied to identified products as per the EPR Regulations sector Notices. • Fee is applied across the sector indiscriminately. • Typically applied to a developing EPR sector.	• Varying fees depending on product design. • Fees account for ease of reuse, repair and recycling. • Typically applied to a well-established EPR sector.	• Varying fees based on environmental impact of products. • Benefits and penalties issued based on environmental considerations. • Typically applied to a well-established EPR sector.	• Manufacturers and retailers reclaim products that have reached the post-consumer stage. • This is implemented as deposit refund or product return. • Typical application is seen in the beverage industry.

Calculation of the EPR fee

The existing EPR Regulations mandate that the EPR fee is established through nett cost recovery, involving a differentiated rate for identified products within a product class. The calculation formulae will vary according to the fee determination methods mentioned above and will take into account the criteria as specified in regulation 7 of the EPR Regulations. The application of these calculations is further unpacked in the provided Toolkit.

Conditions of fee adjustments

This Guideline document provides guidance on the conditions under which the EPR fees may be adjusted. The conditions put forward are based on consideration of international best practise as well as applicability within the South African context. To this end, three conditions are put forward and their pros and cons unpacked. These are:

1. **No adjustment:** when there are economies of scale and enhancements in waste management efficiency. Under these conditions, when waste volume rises and operational effectiveness improves, the costs per unit of waste management could naturally decrease.
2. **Annual inflationary adjustment:** is tied to Consumer Price Inflation (CPI). This adjustment period ensures that the fees remain aligned with the broader trend of price and cost escalation over time. Consequently, this approach ensures the fees' actual value and guarantees sufficient coverage for waste management expenses.
3. **Three and / or five-year adjustment:** permits the fees to be revised every three and / or five years, taking into account the progressive increases in the collection, recycling and other targets, and the DFFE's evaluation phase of EPR schemes, respectively. It also reduces the administrative burden of frequent re-evaluation of fees, provides price certainty to producers and assists PROs and producers with their planning and investment decisions over the short and medium term.

EPR fee determination Toolkit

Finally, a Toolkit is provided as an addendum to this Guideline document to provide guidance to the PROs and producer implementing EPR schemes, on how to use the fee determination methodologies for their respective EPR scheme. These take into account the criteria behind each method and provide simplified applicable formulae for the user. The toolkits are designed to be a plug and play solution while also allowing for modifications that capture the subtle nuanced difference that exist in the respective sectors. A short manual is also provided for a step-by-step application of the toolkits.

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Acronyms

CPI	Consumer Price Index
DFFE	Department of Forestry, Fisheries and the Environment
DRS	Deposit Refund Scheme
EEE	Electrical and Electronic Equipment
EoL	End of Life
EPR	Extended Producer Responsibility
EPR Regulations	Extended Producer Responsibility Regulations, 2020
HDPE	High Density Polyethylene
ILS	Israeli New Shekel
LDPE	Low Density Polyethylene
LE	Livre Égyptienne
NEC	National EPR Committee
NIS	New Israeli Shekel
NPO	Non-Profit Organisation
NEM: WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
OECD	Organisation for Economic Co-operation and Development
PE	Polyethylene
PET	Polyethylene Terephthalate
PMD	Plastics, Metal packaging, and Drink cartons
PP	Polypropylene
PROs	Producer Responsibility Organisations
PVC	Polyvinyl Chloride
SARS	South African Revenue Service
SDGs	Sustainable Development Goals
SPV	Sociedade Pontoverde
UK	United Kingdom
US	United States
WEEE	Waste Electrical and Electronic Equipment
WMRA	Waste Management Regulatory Authority

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Background

On 05 November 2020, the Minister of Forestry, Fisheries and the Environment, published the EPR Regulations in terms of section 69(1)(b), (g), (i), (I), (o), and (dd) of NEM: WA for implementation. The implementation of the EPR Regulations was subsequently postponed through an amendment to 05 May 2021.

EPR is an environmental management policy approach where a producer's responsibility for the product they place on the market is extended to the post-consumer stage of the product's life cycle. The approach was developed in response to increasing pressure on the public sector to better manage and recycle the growing volumes and complexities of waste.

Under EPR, producers can be held responsible in three distinct ways, namely:

- Physical responsibility, which includes taking back end of life (EOL) products.
- Responsibility to provide information on the attributes of products.
- Producers can be held financially liable for environmental damage and clean-up costs of EOL product dumping.

The goal of the EPR Regulations is to extend the producer's physical and financial responsibility for an identified product to the post-consumer stage of the product's life cycle. This allows for the end-of-life management costs to be borne by the producer. This provides an incentive for producers to take environmental considerations into account throughout the products' life from the design phase to their end-of-life. The EPR Regulations enable the management and minimisation of waste according to high environmental standards.[1]

The implementation of well-designed EPR schemes can advance the circular economy, promote efficient resource use and recovery, and contribute towards pollution prevention. It will have significant environmental, economic and social benefits including:

- *Reduced demand for virgin materials through appropriate fees that internalise the costs of waste management and targets* for product reuse, recycling and use of recycled content. The substitution of virgin material with recovered and recycled waste will ensure sufficient resource availability for current and future generations and mitigate greenhouse gas and other emissions into the atmosphere. It will also promote efficient water use and reduce biodiversity loss and land degradation due to resource extraction.
- *The establishment of critical waste collection systems and recycling infrastructure* will promote waste diversion from landfills and support economic development in South Africa. It will also promote the emergence of new green industries, markets for recycled materials and green entrepreneurship opportunities.
- *EPR can promote innovative and sustainable business models* for waste management, product design for reuse and recyclability, and alternative materials. Importantly, it can also promote the competitiveness of local businesses and job creation and livelihood opportunities for many.

It is therefore in line with this background that this Guideline document has been developed. The Guideline document will provide guidance on the determination of EPR fees to PROs and producers implementing their own EPR schemes.

This Guideline document sets out the following:

[1] Monier V., Hestin M., Cavé J., Laureysens I., Watkins E., Reisinger H. (2014). Development of Guidance on Extended Producer Responsibility (EPR). Available at: https://ec.europa.eu/environment/pdf/waste/target_review/Guidance%20on%20EPR%20-%20Final%20Report.pdf [Accessed 22 August 2023].

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- EPR fee determination methods applicable within the South African context;
- International examples of EPR schemes, product coverage and fee design considerations;
- Key principles, criteria and other factors to be considered when setting fees;
- Conditions and options for fee adjustments; and
- A Toolkit is provided to aid and simplify the calculations.

Introduction

1.1 Why was the Guideline document developed?

As set out in the EPR Regulations, PROs together with its producer members and producers implementing their own EPR scheme, must determine the EPR fees for their schemes. This Guideline document was developed to provide guidance for the implementation of regulation 7 of the EPR Regulations, which covers financial arrangements. This Guideline document aims to present PROs and producers with a practical approach of how to determine the EPR fees using the criteria outlined in regulations 7(3) and 7A(3) of the EPR Regulations.

1.2 Purpose of the Guideline document

The purpose of the Guideline document is to:

- Guide PROs and producers implementing their own EPR schemes on determining EPR fees;
- Provide a consistent mechanism for determining the EPR fees applicable to identified products; and
- Ensure transparency, fairness, standardisation, and universality in EPR fee determination.

1.3 Who is the target audience as identified by regulation 7 of the EPR Regulations?

Regulation 7 stipulates the producers and the PROs as the responsible parties to determine EPR fees. This Guideline document is therefore aimed at supporting these parties in this process. It seeks to provide a clear approach for producers and PROs to fulfil their obligations in the most efficient and effective way, and to meet collection and recycling targets set by national government.

Key legislation and strategies that inform the determination of EPR fees

1.4 Context

South Africa is a developing economy with over 60 million people, making it the fifth largest country in sub-Saharan Africa. Endowed with natural resources, it continues to face the triple challenge of unemployment, poverty, and inequality, which is aggravated among others by low levels of economic growth. While the global demand for finite resources remains strong, being a resource-extractive economy with limited local beneficiation puts the country at risk of resource depletion or over-exploitation. The high carbon intensity nature of the economy coupled with the electricity supply

challenges and water scarcity in some of its regions further jeopardise the ability to achieve the recovery and development, necessary to reverse the negative socio-economic trends observed in the past few years.

The persistent challenges facing the country demand a fresh look at resource use. The introduction of more efficient and effective means of deriving value from waste would benefit both the current and future generations. Globally, the circular economy has been recognised as one of the new development paradigms that can unlock opportunities for growth and employment. South Africa, while also being a signatory of the Sustainable Development Goals (SDGs) and the Paris Agreement on climate change, is well positioned to pursue these opportunities.

A cornerstone tool for a transition towards a circular economy is EPR. The implementation of EPR obligations is done by the PROs on behalf of producers or by the producers themselves. To provide sufficient funds to fulfil producers' obligations, PROs and producers implementing EPR schemes need to determine the fees that producers should pay. The following sections discuss the legislation and strategies that drive the determination of such fees in South Africa.

1.5 Key legislation that informs the determination of EPR fees

This section introduces the framework of legislation and strategies that inform EPR fee determination. The critical components of the legislation that have a direct bearing on the determination of EPR fees have been cited for the user's attention.

Key legislation that informs EPR fee determination	Critical components that impact EPR fee determination
NEM: WA	• To reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; • To provide for institutional arrangements and planning matters; • To provide for national Norms and Standards for regulating the management of waste by all spheres of government; • To provide for specific waste management measures; to provide for the licensing and control of waste management activities; to provide for the remediation of contaminated land; • To provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith.
EPR Regulations	• To provide the framework for the development, implementation, monitoring and evaluation of extended producer responsibility schemes by producers identified in terms of section 18 of NEM: WA; • To ensure the effective and efficient management of the identified end-of-life products; and • To encourage and enable the implementation of the circular economy initiatives
Regulation 7 of the EPR Regulations: Financial arrangements	1) EPR fee proposals must be submitted to the Minister of Forestry, Fisheries, and the Environment (Minister) together with a motivation and any other relevant information. The Minister must obtain concurrence on the EPR fee proposals from the Minister of Finance.

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Key legislation that informs EPR fee determination	Critical components that impact EPR fee determination
	2) The fee must be based on a differentiated rate per item category, dependent on weight and recyclability of each item, which must be paid by producers (the obligated industry) to fund EPR schemes. 3) The producer must submit a financial plan and a budget for the duration of the registration in which, inter alia, the following information is mentioned: a) Estimated revenue from the various product streams; b) The way in which the contributions shall be calculated and assessed, the total amount of the contributions that cover the full cost of the obligations incumbent on the producer applying for registration, and the collection methods for each material; c) Methodology for allocating and disbursing revenue for implementation to reflect changes in the obligations incumbent on the registered producer under the EPR Regulations; and methods for allocating revenue for operating the extended producer responsibility schemes amongst collection, waste minimisation, recycling and waste reuse. 4) The administration fee of the PRO must not exceed: • 20% of the revenue collected in the first year of implementation; • 15% of the revenue collected in the second year of implementation; and • 12% of the revenue collected in the third year of implementation. The administration fee will be reviewed in the 3rd year of implementation and annually thereafter.
The National Pricing Strategy for Waste Management (NPSWM) (2016)	The NPSWM is established in terms of section 13(B) of NEM: WA and provides the guiding methodologies for the setting of waste management charges for the re-use recycling and recovery of waste. The NPSWM states that "*correcting market failures through pricing in such a way as to 'internalise' these externalities would therefore change the relative prices of landfilling as compared to other options, thereby creating incentives for moving up the waste management hierarchy".* It outlines the different economic instruments (EIs) including EPR fees, advanced disposal fees, product taxes, material input taxes and deposit refund schemes that can be used to promote solid waste management. The NPSWM notes that EPR schemes are typically funded through the implementation of various economic instruments, levied either directly by the obligated industry, or by government. • EPR fees are levied on identified industries (typically producers and importers) per product unit, weight, or market share.

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Key legislation that informs EPR fee determination	Critical components that impact EPR fee determination
	• The main purpose of EPR fees (and hence the basis for their calculation) is to provide funding to cover the costs of establishing and implementing systems for collection, sorting and other treatment required prior to the sale of materials to recyclers; or the provision of incentives, subsidies, infrastructure and /or information to consumers, collectors and /or processors; to increase the supply of recyclables. The NPSWM sets out the following considerations on the financial arrangements for an EPR scheme: • Determination of the most appropriate economic instruments to be applied within scheme to best achieve objectives. • What the EPR scheme will fund, e.g., partial or full contribution to product collection /takeback and recycling? • Whether the waste management charges are likely to affect adjoining policy areas including competition law.

1.6 Cost recovery: a guiding principle for EPR fee determination in South Africa

The polluter pays principle has been an instrumental principle used for environmental protection in South Africa. In terms of the EPR Regulations, this principle has been adapted to “Producer must Pay” with the aim to promote sustainable waste management. The operational and financial responsibility lies with the producers that must bear the cost to manage the waste of products that are being placed in the market. The fees are aimed at achieving nett cost recovery and should be calculated in a transparent manner and well justified on any deviations from the minimum criteria outlined in regulation 7 of the EPR Regulations.

Section 18(1) of NEM: WA states the following:

“18. Extended producer responsibility
(1) The Minister after consultation with the Minister of Trade and Industry may, in order to give effect to the objects of this Act, by notice in the Gazette—

(a) identify a product or class of products in respect of which extended producer responsibility applies;
(b) specify the extended producer responsibility measures that must be taken in respect of that product or class of products; and
(c) identify the person or category of persons who must implement the extended producer responsibility measures….”.

Regulations 7 and 7A of the EPR Regulations stipulate, in the relevant part, that:

" Financial arrangements for an extended producer responsibility scheme
7(1) The producer responsibility organisation that establishes and implements an extended producer responsibility scheme must, together with its members, determine the proposed extended producer responsibility fee and apply the extended producer fee proportionally to all members based on the identified products placed on the market. ",
"(2) The proposed extended producer responsibility fee must be submitted electronically to the Minister, including the motivation, justification and any other relevant information, who must obtain concurrence

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on the proposed extended producer responsibility fee from the Minister responsible for finance within 60 days of submission. "

"7A (1) The producer that establishes and implements their own scheme must determine and allocate appropriate extended producer responsibility funding, which will hereafter be referred to as an extended producer responsibility fee, and resources to ensure an effective extended producer responsibility scheme.
"(2) The proposed extended producer responsibility fee, including the motivation, justification and any other relevant information, must be submitted electronically to the Minister who may obtain concurrence on the proposed extended producer responsibility fee from the Minister responsible for finance within 60 days of submission."

EPR fee determination

1.7 Methods for EPR fee determination

This section provides information on the applicable methods of fee determination, including its criteria, strengths, and limitations. It also includes lessons learned from others who have implemented such methods, followed by a brief case study of how each method was successfully applied and the learnings from the case. For each method presented, a calculation approach with a well-defined equation and parameters is provided for further guidance and ease of application by the user.

To conclude, an overview is provided on the application of the method by sectors, including the waste category, the specific approach used for determining the fees, and the countries where it has been applied. This information can be used as a decision-making tool to determine the most appropriate fee approach for a specific scheme. Additionally, the section discusses the specific types of materials that each method has successfully worked for under each approach, allowing for a more robust approach to selecting the most appropriate method for determining fees.

1.7.1 Flat fee approach

1.7.1.1 Overview of the approach (criteria, strengths, and limitations)

In a flat/ base EPR fee structure, a fixed rate is applied to a product category. This does not account for any differentiation based on the actual management costs associated with the differences in the products themselves (e.g., lower-impact materials, recyclability, etc.).[2]

Once the category that the flat fee will be applied to is identified, the following steps are taken in determining the fees:

- defining of criteria that will be used;
- setting up of units fees; and
- establishing an appropriate formula to use based on the criteria and unit fees that have been defined.

This fee structure has been widely accepted and applied globally. Its implementation has been seen in countries such as Austria, Japan, and South Korea, particularly to the packaging sector. The table below presents the key considerations in the implementation of a flat fee structure including the criteria, strengths and limitations, as well as lessons.

[2] Benabidès P., Dubois SE., & Peter Hargreave P. (2020). In Our Opinion: How EPR program design impacts costs. Available at: https://resource-recycling.com/recycling/2020/10/20/in-our-opinion-how-epr-program-design-impacts-costs/ [Accessed 01 August 2023].

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Table 0-1 Key considerations in the implementation of a flat fee structure

Criteria:	**Strengths:**	**Limitations:**
• Type of packaging • Packaging weight/quantity	• Promotes the reduction of packaging waste. • Covers a variety of packaging materials. • Reduces administration burden on producers. • Promotes sustainable packaging	• Limited incentives to promote innovation and eco-design. • System may not be effective due to lack of, or inaccurate, reporting. • Does not reflect the actual costs of recycling different packaging materials. • Potential to raise concerns about fairness among producers.
Lessons: The flat/base fee structure offers a simple and predictable method for gathering funds from PROs. This approach lessens the administrative burden on producers while concurrently fosters higher recycling rates. Nevertheless, this approach lacks adequate incentives to motivate producers toward the design of environmentally friendly materials.		

Case study: WEEE EPR in Egypt

Application: Determination of the EPR fee for the electrical and electronic equipment (EEE) sector in Egypt was spearheaded by the National EPR Committee (NEC), and collected by the Waste Management Regulatory Authority (WMRA). In determining the fee, the net costs of collection, transportation, recycling and disposal was assessed. It was noted that costs for waste management included indirect costs for services such as public awareness and administrative costs for managing the EPR scheme which typically ranges from 5 to 10% of the total fees collected.[3] The flat fee structure was used to implement the EPR fee. The fee is given for a range of product categories based on the assessment and benchmarking of EPR fees from other countries from collectors and recyclers.[4] This was used to effectively obligate producers to pay a fee based on their market share. The flat fee varied depending on the product category and was given in Livre Égyptienne per unit (LE/unit). The categories included mobile devices, PCs and laptops, routers and servers.

Case learnings: The EPR flat fee structure for the EEE sector is a relatively recent development, introduced in 2021. Benchmarking of flat fees from various countries was used as a guide to give an indication of the fee range. The flat fee system approach gave a simple solution, making all producers and brand owners responsible for paying the same fees, promoting transparency and fairness.

1.7.1.2 Calculations for EPR fee determination

EPR Fee = Total costs / weight (or volume or number of units)

Total costs: administration costs, costs of establishing collection system.

[3] OECD Extended Producer Responsibility Policy Highlights, Guidance for Efficient Waste Management, 2019 (www.oecd.org)
[4] An EPR Scheme for WEEE in Egypt Options for implementation. (2021). Available at: https://www.sustainable-recycling.org/wp-content/uploads/2021/12/2021_EPR-Scheme-for-WEEE-in-Egypt.pdf [Accessed 11 Aug. 2023].

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1.7.2 Modulated fee approach

1.7.2.1 Overview of the approach (criteria, strengths, and limitations)

In the modulated fee structure, fees paid by producers vary depending on the product design.[5] Products that can be easily reused, recycled, and repaired incur lower costs when compared to those that are difficult to reuse, recycle or repair.

The application of a modulated fee structure requires details on the categories and subcategories of products. Once these have been ascertained, the following steps are followed:

- setting clear objectives;
- defining criteria and indicators to assess product characteristics that are harmful to the environment; and
- formulating a fee calculation based on the prescribed criteria and indicators.

The modulated fee structure has garnered widespread adoption on a global scale, particularly within the packaging sector. This fee structure has found practical and effective implementation across various nations, with notable examples including Belgium, Spain, France, Germany, and the United Kingdom. In these countries, the modulated fee structure is based on Green Dot rates, a system that promotes environmental responsibility and sustainable practices. By linking the fee structure to Green Dot rates, these nations are actively fostering a more ecologically conscious approach to packaging production and disposal.

The table below presents the key considerations in the implementation of a modulated fee structure including the criteria, strengths and limitations, as well as lessons.

Table 0-2 Key considerations in the implementation of a modulated fee structure

Criteria:	**Strengths:**	**Limitations:**
• Type of packaging • Weight or quantity • Recyclability	• Reduction in packaging waste. • Encourage the use of recyclable materials. • Promotes awareness raising on recycling. • Promote circular economy principles	• Focuses only on packaging waste • Excludes industrial and commercial packaging waste. • Relies on accurate reporting
Lesson: A structured modulated fee system guarantees equitable charges for producers, reflecting the environmental costs associated with their products in the market. This approach incentivises producers to reevaluate their design strategies to minimise adverse environmental effects. However, the fees alone may not be adequate to effectively promote behavioural changes in both consumers and producers.		

Case Study: EKO-KOM

Application: EKO-KOM is an EPR scheme operating in the Czech Republic, focused on managing packaging waste originating from households and industry. This encompasses a variety of materials such as paper, cardboard, ferrous metals, aluminium, glass, plastic, wood, and composite packaging. The program employs a modulated fee structure for plastic, considering factors like container size,

[5] Hogg, D., Sherrington C., PapineschiJ, Hilton M., Massie A., Jones P. (2020), Study to Support Preparation of the Commission ' s Guidance for Extended Producer Responsibility Schemes, Eunomia Research & Consulting. Available at: https://op.europa.eu/en/publication-detail/-/publication/08a892b7-9330-11ea-aac4-01aa75ed71a1/language-en [Accessed 01 August 2023].

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rigidity, transparency, and coloration, particularly emphasizing the recyclability aspect for PET[6]. For other plastic fractions, a uniform fee system is employed. Notably, this initiative promotes sustainability by exempting reusable packaging from fees, provided they are reused to 70%[7,8].

Case learnings: Implementing modulated fees based on the type of plastics serves as a motivation for manufacturers to design items that are both readily recyclable and can be reused. This approach effectively prompts companies to reevaluate their product design, aiming to minimize their fee obligations through more sustainable product development approaches.

1.7.2.2 Calculations for EPR fee determination

Note: The modulated fee structure is supplemented by the following differentiating variables:
material type
product category
ease of recycling

1.7.3 Eco-modulated fee approach

1.7.3.1 Overview of the approach (criteria, strengths, and limitations)

Eco-modulated fees are applied to provide incentives to encourage producers in designing products that have minimal impacts to the environment.**Error! Bookmark not defined.** The use of environmentally sustainable materials is rewarded while the use of materials that are harmful is penalised. Higher fees are charged on materials that are difficult to recycle.[9]

The application of an eco-modulated fee structure requires details on the categories and subcategories of products. Once these have been ascertained, the following steps are followed:

- establishing specific objectives;
- defining environmental criteria and indicators; and
- formulating the fee structure based on these criteria and indicators.

The implementation of eco-modulated fees is applied in countries such as France, Spain, Sweden, Italy, Belgium, and the Netherlands for different product categories such as WEEE, batteries, and packaging.

The table below presents the key considerations in the implementation of an eco-modulated fee structure including the criteria, strengths and limitations, as well as lessons.

[6] ETC/WMGE. 2022. Early warning assessment related to the 2025 targets for municipal waste and packaging waste: Czechia. Available at: https://www.eea.europa.eu/publications/many-eu-member-states/czechia/view [Accessed 24 August 2023].

[7] EKO-KOM. 2023. Remuneration structure for ensuring compliance with the obligation to take-back and recovery of packaging waste through the EKO-KOM. Available at: https://www.ekokom.cz/wp-content/uploads/2023/05/EKOKOM_fees_valid_from_1_7_2023.pdf [Accessed 24 August 2023].

[8] Watkins, E., Gionfra, S. 2020. How to implement Extended Producer Responsibility (EPR): A briefing for governments and businesses. Available at: https://wwfint.awsassets.panda.org/downloads/how_to_implement_epr___briefing_for_government_and_business.pdf [Accessed 24 August 2023].

[9] Heffernan M. (2023). Lessons from France: Eco-modulated fees not used effectively. Available at: https://resource-recycling.com/recycling/2023/05/30/lessons-from-france-eco-modulated-fees-are-ineffective/ [Accessed 01 August 2023].

Table 0-3 Key considerations in the implementation of an eco-modulated fee structure

Criteria:	**Strengths:**	**Limitations:**
• Recyclability • Repairability • Availability of spare parts and availability of technical documentation • Post-consumer recycled plastic content • Lack of hazardous substances (any brominated flame retardants) • Lack of coatings that can impede recycling • LED sources only	• Incentivises environmentally conscious design. • Reduces end-of-life costs. • High recycling rates. • Promotes environmental awareness.	• Reaching an agreement on the criteria can be challenging. • Implementation can be complex and challenging for producers. • Complexity can result in free riding. • Necessitates extra decisions within EPR governance.
Lessons: Eco-modulated fees primarily emphasise recycling rather than waste reduction. This approach incentivises producers to create environmentally friendly products, leading to a considerable portion of the eco-modulated funding being allocated to bonuses, while the utilisation of penalties remains relatively limited. This leads to imbalances between the incentives and penalties. The implementation of the eco-modulated fee structure is complex and necessitates a well-coordinated framework to ensure equitable treatment of all producers involved.		

Case study: Portuguese scheme Sociedade Pontoverde (SPV)

Application: The Portuguese scheme Sociedade Pontoverde (SPV), introduced penalty fees in 2019 for three types of packaging that 'disrupts the recycling process': PET bottles with a metal cap; glass bottles with non-removable stoppers; and PET bottles with PVC labels. Fees for all the materials contained in this type of packaging is subject to an increased fee, with the aim of encouraging producers to move to more easily recycled product designs.[10]

Case learnings: Having penalties for mixed packaging that discourages/ hinders recycling, forces producers to reconsider the design of their packaging. In this sense eco-modulation fosters innovation in product design as producers now seek to pay lesser fees to the PROs.[11]

1.7.3.2 Calculations for EPR fee determination

Note:

The eco-modulation criteria should reflect the product characteristics and its circular economy performance, which is supplemented by a penalty for example bonus or malus to give incentive to producers to shift to sustainable packaging (percentage is applied).

One way to specify the difference between the modulated and eco-modulated approach is as follows:

[10] Lorax EPI, March 2020. Eco-modulation - what is it, and where is it being used? [online]. Available at: https://www.enviro-pac.com/blog/env/2020/03/06/Eco-modulation_-_what_is_it_and_where_is_it_being_used.html [Accessed 11 August 2023].
[11] Sociedade Ponto Verde and Beta-i join forces to drive innovation in waste recycling [online]. Available at: https://www.pontoverde.pt/noticias_detalhe.php?id=626&pagina=1 [Accessed 11 August 2023].

- *Modulated fees* consider the differences in the cost of waste management and more granulated product categories; and
- *Eco-modulated fees* considers the environmental implications of waste treatment (it may be cheaper to incinerate than to recycle a material or product however the introduction of recyclability as an eco-modulation criterion can address this aspect in the EPR fee).

1.7.4 Product take-back scheme approach

1.7.4.1 Overview of the approach (criteria, strengths, and limitations)

Take-back is the idea that manufacturers and sellers "take back" the products that are at the end of their lives. Take-back is aimed to reduce business' environmental impacts and increase its efficiency, while lowering costs for business models. The implementation of product take-back takes place in two forms, namely:

- Deposit refund schemes
- Product return schemes

1.7.4.1.1 Deposit refund schemes (DRS)

These are initiatives where consumers are required to pay an upfront fee when purchasing beverages in single-use containers. Thereafter, the fee is refunded upon the return of the beverage containers. DRSs are typically used by major beverage producers to reclaim glass and plastic beverage bottles. This is to ensure the safe disposal of beverage containers and promotes the recovery and recycling of such products.

The implementation of DRS includes the following steps:

- determining the type and size of containers eligible for the scheme;
- determining the deposit fee amount to be charged;
- establishing collection points such as through retailers or return vending machines;and
- establishing infrastructure for the processing of the collected containers should also be considered to ensure that the returned materials do not end up in landfills.

The DRS fee structure has widespread global acceptance and implementation, with notable examples from countries such as Australia, Canada, Chile, Denmark, Ecuador, Germany, Hungary, Iceland, Israel, Italy, Mexico, Norway, Spain, Sweden, Turkey, and the US. This practice is also widely applied by the beverage industry in South Africa.

The table below presents the key considerations in the implementation of a DRS fee structure including the criteria, strengths and limitations, as well as lessons.

Table 0-4 Key considerations in the implementation of a DRS

Criteria:	**Strengths**:	**Limitations**:
• Type and size of containers • Cost of recycling • Environmental impact	• Improved recycling rates for beverage containers. • Promotes consumer awareness. • Reduces littering. • Increased consumer participation.	• Supermarkets are limited on the number of containers they should take back each day. • Limited availability of vending machines may delay the process. • Does not cover other waste streams.

Lessons: DRS can only be viable if producers also play their part in ensuring that containers produced are designed to enable the recycling. The benefits and procedure of returning containers should be well communicated with consumers to enhance consumer participation. The availability of infrastructure to serve as collection points also plays a crucial role in ensuring the effectiveness of the scheme. Engaging and collaborating with businesses that sell beverage containers eligible for DRS can be useful in solving the issue of limited collection points.

Case study: Israel DRS

Application: DRS represent structured initiatives aimed at offering financial incentives to consumers in order to encourage the return of used beverage containers for recycling or reuse. At the point of sale, consumers are charged a deposit fee, which is subsequently reimbursed upon container return. Israel initially introduced DRS for glass and plastic bottles below 1.5 litres in 2001, and in 2020, they expanded the program to encompass bottles up to 5 litres[12]. The deposit fee for containers under 1.5 litres stands at ILS 0.25, while larger bottles carry a deposit fee of NIS 0.30[13]. Consumers can either return the containers to stores or supermarkets or through the reverse vending machines. Through the implementation of the DRS, the effective collection, reuse, and recycling of beverage containers are actively promoted. Simultaneously, consumers are encouraged to diminish littering while contributing to increased recycling rates.

Case learnings: The DRS in Israel restrict retailers from taking back plastic and glass bottles above 60 per day. This results in a decrease in the number of containers collected. The availability of reverse vending machines plays a key role in improving collection rates. Financial incentives play an important role in enhancing consumer participation, which is essential for the success of this initiative. Monitoring and evaluation is necessary in identifying areas that require improvement to ensure the effectiveness of the scheme.

1.7.4.1.2 Product return schemes

Product return schemes are initiatives where consumers are allowed to return products to the retail or producer for reuse, repair, recycling, or safe disposal. These initiatives are typically arranged by retailers or producers to take back products. This has wide applicability across a wide spectrum of sectors such as clothing and textiles; electrical and electronic equipment; furniture; tyres etc.

The implementation of such schemes follows these fundamental steps:

- determining the type of products eligible for return;
- setting up criteria; and
- establishing collection points to be used where products are returned.

This approach has seen widespread adoption and implementation including in South Africa and other countries such as Australia, Canada, Denmark, France, Germany, Norway, Sweden, the UK, and the US. The table below presents the criteria, strengths, limitations and lessons learned in the implementation of product return schemes.

Table 0-5 Key considerations in the implementation of a product return scheme

Criteria:	**Strengths**:	**Limitations**:
• Type of material		

[12] Aco Recycling. (2021). Deposit Return Scheme. Available at: https://www.acorecycling.com/blog/deposit-return-scheme/ [Accessed 31 July 2023].
[13] Surkes S. (2021). Supermarkets ill-prepared for expanded bottle deposit law. Available at: https://www.timesofisrael.com/supermarkets-ill-prepared-for-expanded-bottle-deposit-law/ [Accessed 31 July 2023].

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• Condition of the material • Type of brands/retailers	• Incentivises the return of unwanted clothing/textiles • Promotes consumer awareness of the recycling of clothing materials • Reduces costs and resources needed to make new clothing	• Recycling costs can be expensive • There's a potential that materials may end up in landfills • Volume of returned clothing during peak seasons may be overwhelming to handle
Lessons: Take-back schemes play a key role in facilitating the collection of used products/waste, further ensuring proper disposal. Through these schemes, production costs are reduced, products are kept in use for as long as possible, and further contributing to reduced EPR fees. The success of take-back schemes lies in consumer awareness and proper infrastructure to enable the collection and processing of collected materials. Incentivising take-back schemes also play a huge role in enhancing participation.		

Case study: Fashion take-back schemes

Application: These are initiatives organised by renowned brands and retailers to solicit used clothes and textiles back from consumers with the intent of repairing, reselling, reusing, and recycling. The primary objective behind these endeavours is to mitigate fashion waste. Brands such as H&M, Zara, Levi's, MUD Jeans, and Patagonia are among those offering such take-back schemes[14]. In 2013, H&M initiated a global garment collecting programme wherein they accept unwanted clothes or textiles from any brand, regardless of condition[15]. As a token of appreciation, consumers are granted vouchers for contributing their used clothing materials. Subsequently, the collected clothes or textiles are sorted into three categories, depending on their condition, and are then either sold as second-hand items, reused, or subjected to recycling processes.

Case learnings: Setting up specific criteria plays a key role in determining the success of fashion return schemes. The condition of returned clothing or textile can often result in high recycling costs which in turn also contribute negative environmental impacts. The availability of recycling infrastructure is also important in driving these schemes in order to avoid materials ending up in landfills. Awareness raising is necessary in order to enhance consumer participation, which is essential in driving the success of fashion return schemes.

Case study: IKEA buy-back and resell program

Application: IKEA is a renowned retail company specialising in furniture design and sales. The majority of IKEA's retail stores are situated in Europe. The company launched an innovative buy-back and resell initiative, which centres on purchasing pre-owned IKEA furniture from consumers[16]. Under this program, consumers have the opportunity to exchange their unwanted old furniture for store credit in the form of a refund card. Subsequently, the collected furniture items are refurbished and resold as old furniture.

[14] Rauturier S. (2022). 13 Brands Using Take-Back Schemes to Recycle Waste Responsibly. Available at: https://goodonyou.eco/brands-take-back-schemes/ [Accessed 31 July 2023].
[15] H&M. (n.d). Let's close the loop. Available at: https://www2.hm.com/en_gb/sustainability-at-hm/our-work/close-the-loop.html [Accessed 31 July 2023].
[16] IKEA. (n.d). Buy-back and resell. Available at: https://www.ikea.com/us/en/customer-service/services/buyback-pubfeb6cc00 [Accessed 01 August 2023].

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Case learnings: The program provides valuable insights into the viability of the circular economy approach. The refurbishment of furniture can be effective in reducing waste going to landfills and promotes the adoption of sustainable practices. The effectiveness of the program relies on consumer awareness and consumer participation. Maintaining the quality of the items also plays a key role in driving this initiative, to ensure that the quality is not degraded to drive the initiative of selling second hand goods.

1.7.4.2 Calculations for EPR fee determination

Note:
The costing of this scheme would be determined by the producer who is operating the take back scheme. This section will be further developed to include the variables used in calculating the fee and the formula on how this is calculated based on feedback from producers.

1.8 Recommendations for application of fee determination methods

It should be noted that there are different products within different sectors, and many different variables to be considered, therefore there will not be a one size fits all formula for the fee determination. A hybrid approach of all methodologies can be applied.

For example, the flat fee approach could be considered the base fee approach for all EPR schemes if the other variables / factors applicable to the modulated fee, eco-modulated, and product take back scheme approaches are irrelevant for an identified product or a class of products. Therefore, the default fee is likely to be the flat fee approach.

The main controlling factor for the approach taken to determine the EPR fee is the maturity of the sector and the stage of development it is at. In a mature sector, companies can focus on everything from product design, percentage of recycled content, ease of repairs and recycling to collection, transportation, and storage and not just on recycling. On the other hand, a fledgling sector may primarily focus on collection. Therefore, an approach for a mature sector will differ from an approach suitable for a sector that has not yet placed the needed systems in place.

Further to the above, the EPR fee determination needs to consider the objectives that the policy aims to pursue. The best practice suggests starting with one single objective. This allows refinement of the instrument to the level that successfully delivers on that objective before expanding it to deliver on multiple objectives.

Note: Every country has its own approach which is applicable to its political landscape, environmental, social, technological advancement and legal conditions. *Based on the outlined conditions, (external costs) will be internalised in the product price.*

The summary table below provides a decision-making tool for specific schemes to choose their approach taking into account international examples where these methods have been used, the sectors they are applicable to, and specific examples provided. This can help schemes declare their fees and the applicable approach to DFFE.

The review of the application of the four methodologies discussed in the previous section revealed that different approaches are used throughout the world, as indicated in Table 4-6.

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Table 0-6: Examples of countries using selected methodologies, by category

Waste category	Flat fee approach	Modulated fee	Eco-modulated fees	Take-back scheme
Paper and packaging	Austria, Macedonia, Malta, Netherlands, Norway, Bosnia and Herzegovina, Bulgaria, Estonia, Germany, Greece, Ireland, Lavia	Belgium, Netherlands, Croatia, Cyprus, Czech Republic, Spain, France, Hungary, Israel, Lithuania, Luxembourg	France, Portugal Italy, Netherlands, Norway	Finland, Germany, Belgium, Austria, Netherlands, Norway
WEEE	Malta, Canada, China, Japan, Korea	-	France, Taiwan, Italy, Canada, United Kingdom	Finland, Ireland, Latia, Denmark, Sweden, Australia
Lighting	Korea	-	-	
Portable batteries	Malta, Korea	-	France	Austria, Switzerland, Belgium, Netherlands, Denmark, France
Pesticides	-	-	-	Canada
Lubricant oils	Korea	-	-	Belgium, Germany, Spain, Italy, Portugal, Greece, Poland
Vehicles	China, Netherlands, Korea	-	France	Slovak Republic, Germany, Finland
Furniture and textiles	Austria	Croatia	France	Belgium
Household chemicals	-	-	France	Belgium

Although not exhaustive, the information contained in the above table points to the following trends:

- One country can have different methodologies used to define EPR fees for the same waste category. This suggests that the decision to use a specific methodology lies with the PRO.
- While different methodologies may be present in the same country for the same range of products, this appears to be most common for the paper and packaging waste category. This could be rationalised by paper and packing being the most common waste category for which the EPR fees have been applied thus far.
- No one methodology is widely applied to suit all waste categories. This suggests that the nature of waste – particularly regarding its material uniformity and other characteristics – plays an important role in selecting the suitable methodology for EPR fee determination.

Note:
More detailed information on EPR implementation globally is available online in a recently published EPR Technical document developed under the G20 Presidency of India entitled***: Knowledge exchange on EPR for Circular Economy,*** Presidency Document, Technical Document Developed for the G20, July 2023. This document addresses emerging EPR policy design issues, highlights some of the key challenges and lessons learnt from EPR implementation and presents case studies from developing and developed economies.

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The following table further expands on the type of products that are subjected to the various fee determination methodologies. It shows that the ranges of products that are usually included under paper and packaging and WEEE waste categories for which EPR fees are applied, tend to be relatively detailed. This could be explained by the considerably wide variety of waste that these two categories cover compared to the other waste categories.

Table 0-7: Examples of products subjected to selected methodologies, by category

Waste category	Flat fee approach	Modulated fee	Eco-modulated fees	Take-back scheme
Paper and packaging	• Glass • Plastic (PET, PE, PP, PVC, LDPE, HDPE, PP &ESP) • Paper • Cardboard • Wood • Ferrous metals • Aluminium cans • Non-recycled plastic packaging • Composite plastic • Non-recycled composite plastic • Organic materials • Ceramics • Multilayered packaging • Contaminated packaging • Drink cartons • Foil • Wood	• Glass • Paper • Cardboard • Steel • Aluminium cans • FE cans • Beverage cartons • Rigid and flexible plastics • Valorised and non-valorised plastics • Standard plastic packaging • Plastic (PET, PE, PP, PVC, LDPE, HDPE, PP &ESP) • Non-recyclable plastic • Multilayered packaging • Other polymeric materials • Corrugated carton • Composite plastic • Combustible packaging • Wood • Cork	• 1.5-litre water bottles • Plastic packaging • Aluminium cans • Steel cans • PET bottles with a metal cap • Glass bottles with non-removable stoppers • PET bottles with PVC labels	• Plastic bottles • Plastics packaging • Glass, metal, and cardboard • Paper • Household, commercial, and industrial packaging

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Waste category	Flat fee approach	Modulated fee	Eco-modulated fees	Take-back scheme
WEEE	• Printer • Fax machine • Copier • Smartphones • Audio and visual equipment • Laptops • Air conditioner • Washing machine • Refrigerator • Desktop PC • Non-cellular phones • Display devices •		• Smartphones • Refrigerators • Freezers • Electronic displays • Desktop PC • Printer • Laptop and tablet • Audio-visual equipment • IT equipment • Dishwashers • Washing machines and dryers • Microwaves • Speakers • Ovens • Electric motors • Fans • Power supplies • Set-top boxes • Transformers • Ventilation units • Water pumps • Heating and cooling appliances • Vacuum cleaners • Welding equipment	• Electronics • Electrical appliances • General WEEE
Lighting	• Fluorescent lamp	-	-	-
Portable batteries	• Batteries (variety)	-	• Batteries	• Batteries
Pesticides	-	-	-	-
Lubricant oils	• Lubricant oil	-	-	• Lubricant oil (mineral and synthetic)

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Waste category	Flat fee approach	Modulated fee	Eco-modulated fees	Take-back scheme
				• Motor oil • Gearbox oil • Hydraulic oil • Lubricant oil
Vehicles	• Tyres	• -	• Car tyres • End-of-life boats	• End-of-life vehicles • Car tyres
Other	• Furniture • Mattress • Textile fibres • Wood	• Wood • Textile	• Textiles • Furniture • Unused medicine	-
Household chemicals	-	-	• Household chemical	• Household oils

1.9 Key criteria outlined in regulation 7 of the EPR Regulations

In general, the climate of EPR spending in South Africa is focused on establishing systems and boosting collection. This is especially true with newly established PROs, who are spending EPR fees on developing their sectors to enable circularity. The more established PROs are able to focus their EPR spend on the end of the value chain, which includes design for the environment and initiatives to scale up the collection in under-serviced areas.

1.9.1 EPR Fee Criteria

The fee criteria define the basis on which the fees are calculated, and it determines which products or activities are subject to the EPR fees.

- **Product Categories**: The EPR fee base starts by defining the specific product categories or classes of products that fall under the EPR scheme. For example, it could include plastic packaging, electronic devices, batteries, etc.
- **Weight or Volume**: The fee base can be based on the weight or volume of the products placed on the market. This means that the fees are calculated based on the total weight or volume of products covered by the EPR scheme that are sold or distributed.
- **Number of Units**: Alternatively, the fees can be calculated based on the number of units or items of a specific product category placed on the market. For example, a fee may be applied per unit of electronic device or per item of plastic packaging.
- **Material Composition**: In some cases, the EPR fee base may take into account the material composition of the products. For instance, fees for plastic packaging could be differentiated based on the type of plastic used (e.g., PET, HDPE, LDPE).
- **Environmental Impact**: The fee base might consider the environmental impact of the products. Products with higher environmental impact or hard-to-recycle materials could be subject to higher fees to incentivize producers to improve the environmental performance of their products.

The EPR Regulations require that the EPR fee be based on nett cost recovery including a differentiated rate per item category, of each product or class of products. These fees must be paid by a producer to fund schemes and they are dependent on criteria (a) - (i), listed in Table 4-8 below.

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Table 0-8 Key criteria outlined in regulation 7 of the EPR Regulations

Section 7(3) requirements	Interpretation of EPR Fee Criteria	EPR Fee Determination
a) weight of product	The weight of each product or class of products is a factor in determining the EPR fee. Heavier products contribute more to the waste stream, requiring more resources and costs for their collection, transportation, and recycling or disposal. The EPR fee is charged per weight of product or recycled product used for packaging and placed on the market. Weight of the product or volume or number of units.	• Weight as base. • Weighted average method: weights applied over a number of units, where the units have a differentiating factor on the weight.
b) ease of recyclability	Products that are more easily recyclable and have higher recycling rates may qualify for lower fees, as they impose lower waste management costs. Products that are easily recyclable and have well-established recycling processes incur lower waste management costs. Products that are more easily recyclable and have higher recycling rates may qualify for lower fees, as they impose lower waste management costs. Limited recycling opportunities for most products exist currently and need to be developed, therefore these fees can be considerably higher. There will be investment required in research and development (R&D) specifically to address and grow recycling opportunities. The EPR fees obligated businesses must pay will increase or decrease depending on the recyclability of the packaging they place onto the market. Those using difficult-to-recycle, not recycled, or unrecyclable packaging, will likely see higher costs associated with complying with the reformed Packaging Waste Notice. This informs eco-modulation of fees. Factors affecting ease of recyclability: 1. Material composition (modulated fees) 2. Environmental impact (Eco-modulated fees)	Let's consider two types of plastic packaging materials covered by the EPR scheme - PET bottles and multi-layered flexible packaging. PET bottles are highly recyclable and have established recycling infrastructure, making their recycling costs relatively lower. On the other hand, multi-layered flexible packaging is challenging to recycle due to its complex structure, leading to higher recycling costs. Thus, the EPR fee for PET bottles may be lower compared to multi-layered flexible packaging. A differentiated rate will apply.
c) current demand for the material for	The demand for recycled materials can influence the EPR fee structure. Materials	Let's consider aluminium cans covered under the EPR

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Section 7(3) requirements	Interpretation of EPR Fee Criteria	EPR Fee Determination
recycling purposes	with higher demand in recycling markets may have a positive economic value, potentially offsetting some of the waste management costs. This will be determined by the sales on i)	scheme. Aluminium has a high recycling demand and value, making it economically attractive for recyclers. Due to its high recycling potential, the EPR fee for aluminium cans might be lower than that for other materials with lower recycling demand.
d) costs for establishing a collection system for the identified products	Certain products may require separate waste collection systems due to their unique characteristics or potential environmental impact. The costs of establishing and operating such specialized collection systems can impact the EPR fees. All costs necessary to bring the collection system to its intended use.	Direct financial cost – Full cost
e) collection, transport, storage and treatment costs for separately collected waste;	The fee should factor in the full logistics of these costs and specifically to the point of collection and sorting where the budget spend is combined for all materials. This will include the development of Hubs.	Direct financial cost – Full cost
f) administrative costs	This covers staff costs(salaries), building of systems, office overheads (rentals and IT costs, office consumables), marketing, and governance as per the EPR Regulations.	Direct financial cost – Full cost
g) costs for public communication and awareness raising (on waste prevention, litter reduction, separate collection, etc.)	This should be based on budgeted costs for public communication and awareness raising. Public communication and awareness raising aim to inform, educate, and raise awareness about specific issues, causes, or topics of public interest. The primary goal is to create understanding, change attitudes, and promote behaviour change for the betterment of society.	Direct financial cost – Full cost
h) costs for the appropriate surveillance of the system (including auditing)	Monitoring costs	Direct financial cost – Full cost
i) less revenues from recycled material sales	This should be factored in terms of ease of recyclability and market in terms of demand for material. Where there is no market, a higher EPR fee should be placed. **NB**: This encourages secondary markets of recycled materials. For example, as technologies are developed, the volume and value of secondary materials that are	Direct income from secondary markets Nett cost: the full cost less the revenue from the sales of the collected material. Where there is no market for recycled material, the nett cost will be the full cost less zero.

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Section 7(3) requirements	Interpretation of EPR Fee Criteria	EPR Fee Determination
	recovered from electrical and electronic waste has increased significantly. To still reflect the actual cost of treatment less revenue from secondary materials, the fee has dropped accordingly.	

Note: The manner in which the EPR fee is calculated

The total amount of the contributions (EPR fees) that cover the nett cost of the obligations mandatory on the producer

1.9.2 Calculations for EPR fee determination

EPR Fee = (**Total costs** *less* **Revenue from Recycled material) / weight (or weighted average on units) or volume) x differentiated rate**

- *Total costs: admin costs, costs of establishing collection system.*
- *Weighted average =total weight / no. of units*
- *Weight: In tonnes*
- *Volume: in litres*
- *Differentiated rate: ease of recyclability rate if applicable for the product*

1.10 Other key considerations

1.10.1 Administration and practical feasibility of fees

Administration:

- Clear guidelines and regulations: A well-defined regulatory framework with clear guidelines and regulations is essential for effective administration of EPR fees. This includes defining the scope of products covered, fee calculation methods, reporting requirements, and enforcement mechanisms.
- Efficient collection and tracking systems: Establishing efficient systems for collecting fees from producers and tracking their compliance is crucial. This may involve collaboration between government agencies, industry associations, and third-party organisations.
- Transparent reporting and auditing: Regular reporting and auditing of EPR fee collection and utilisation help ensure transparency and accountability. This can involve independent audits, public disclosure of financial statements, and stakeholder engagement.

Practical Feasibility:

- Stakeholder collaboration: Successful implementation of EPR fees requires collaboration among various stakeholders, including government departments, producers, EPR Schemes, and environmental organisations. Engaging stakeholders in the design and implementation process can enhance practical feasibility.
- Adequate resources and expertise: Sufficient resources, including funding and skilled personnel, are necessary for effective administration of EPR fees. This includes expertise in fee calculation methodologies, monitoring systems, and enforcement mechanisms.
- Industry readiness and capacity: The practical feasibility of EPR fees depends on the readiness and capacity of industries to comply with the EPR Regulations. This may involve providing support,

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guidance, and incentives to help businesses adapt their operations and implement sustainable practices.

1.10.2 Impacts on industry competitiveness

Positive impacts:

- Encourages innovation: EPR fees can incentivize businesses to invest in R&D to develop more environmentally friendly products and processes. This can lead to innovation and a competitive advantage for companies that embrace sustainable practices.
- Market differentiation: Companies that proactively manage their environmental impact and effectively implement EPR programs can differentiate themselves in the market, attracting environmentally conscious consumers and gaining a competitive edge.

Negative impacts:

- Increased costs: EPR fees can add to the overall costs of doing business, especially for industries that produce large quantities of waste or have complex supply chains. This can put pressure on profit margins and potentially impact competitiveness, particularly for smaller businesses.
- Potential for unequal impact: Depending on the design of EPR programs, certain industries or businesses may bear a disproportionate burden of the fees, potentially affecting their competitiveness compared to others and free riders who benefit without paying EPR fees. The fee is passed on from companies and charged to consumers, whereas the companies should be held partially liable for a percentage of the fee.

Non-EPR member producers:

- Mapping and identification of producers: All producers, such as manufacturers, importers and distributors operating in the country are required to register with DFFE as mandated by regulation 4 of the EPR Regulations. This database needs to be compared against the existing EPR schemes to allow for enforcement of the EPR Regulations. This can be achieved in collaboration with the Department of Trade, Industry and Competition and the South African Revenue Service (SARS) as well as the National Treasury.
- Enforcement and penalties: A penalty must be imposed on the non-compliant producers as stipulated in regulation 13 of the EPR Regulations. This will ensure that the EPR fees are fairly applied and achieve the maximum desired outcomes.

1.10.3 Impacts on consumers

Direct impacts:

- Cost implications: EPR fees are passed on to consumers as part of the product's price. This can result in higher prices for goods and services that are subject to EPR Regulations.
- Affordability: Increased product prices due to EPR fees may affect the affordability of certain goods, particularly for lower-income consumers.
- Consumer behaviour: Higher prices may influence consumer purchasing decisions, potentially leading to changes in consumption patterns or preferences.

Indirect impacts:

- Environmental benefits: EPR fees incentivise manufacturers and producers to design products that are more environmentally friendly and easier to recycle. This can lead to a reduction in waste and environmental and human health impacts, benefiting consumers in the long run.
- Product availability: EPR Regulations may encourage the development and availability of more sustainable products, giving consumers a wider range of environmentally friendly options to choose from.

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- Consumer awareness: EPR programs often raise awareness about the environmental impact of products and the importance of recycling. This can lead to increased consumer consciousness and engagement in sustainable practices.

Conditions for fee adjustment

This chapter focuses on the adjustment of fees by PROs and presents three options for fee adjustments deemed most applicable within the South African context. These take into consideration the developmental phase EPR is at currently, economic factors such as inflation, as well as other determinants such as capital investment and economies of scale.

1.11 Allowance for Increases

Whether increases beyond a certain percentage should be allowed depends on the specific circumstances and objectives of the EPR scheme. In some cases, large increases might be justified to address significant challenges or to meet ambitious waste management targets.

In cases where substantial fee increases are proposed, it is essential to consider additional factors and conduct impact assessments. This includes assessing the socioeconomic impacts and considering potential adverse effects on industry competitiveness, as well as the impact on poor and low-income households. These assessments help to ensure that fee adjustments are balanced and fair, taking into account the broader societal implications and potential hardships.

The need for fee adjustments, the factors considered, and the magnitude of adjustments should be carefully evaluated in line with the specific objectives, environmental goals, and socioeconomic considerations of the EPR scheme. Regular monitoring, stakeholder engagement, and impact assessments can contribute to effective fee adjustment decisions.

1.12 Adjustment options that fit the South African context

1.12.1 No Adjustments

One option for fee adjustments is to not make any changes, particularly if there are economies of scale and efficiency improvements in the waste management system. In such cases, as the volume of waste increases and operational efficiencies are achieved, the costs per unit of waste management might naturally decrease. This could lead to a situation where existing fees are sufficient to cover the costs, and no adjustments are necessary.

Advantages	Disadvantages
Simplicity: Without adjustments, the fee structure remains straightforward and easy to understand for businesses and consumers.	**Lack of flexibility**: Fixed EPR fees may not account for changes in market conditions, product complexity, or environmental impact, potentially leading to underfunding or overcharging.
Stability: Fixed EPR fees provide a predictable cost structure, allowing businesses to plan their budgets more effectively.	**Inequity**: Without adjustments, the burden of EPR fees may not be distributed fairly among different stakeholders, potentially placing a disproportionate financial burden on certain businesses or consumers.

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Incentives for efficiency: Without adjustments, businesses may be motivated to optimize their operations and reduce waste to minimize EPR fees.	**Limited responsiveness**: Fixed fees may not incentivize continuous improvement or adaptation to evolving environmental standards and Regulations.

1.12.2 Annual Inflationary Adjustments

Another option is to consider annual inflationary adjustments to the fees (CPI). This allows for the fees to keep up with the general increase in prices and costs over time. By applying inflationary adjustments, the fees can maintain their real value and ensure that the costs of waste management services are adequately covered.

Advantages	Disadvantages
Flexibility: Annual adjustments allow for the fees to be responsive to changes in market conditions, product complexity, or environmental impact. This ensures that the fees remain relevant and reflective of the actual costs associated with EPR.	**Uncertainty**: Annual adjustments may introduce uncertainty for businesses, as they need to anticipate and plan for potential changes in EPR fees each year.
Fairness: Adjusting fees annually can help distribute the financial burden more equitably among different stakeholders, ensuring that each party pays their fair share based on their environmental impact.	**Administrative burden**: Frequent adjustments require administrative efforts to assess and implement the changes, which can be time-consuming and resource-intensive for both businesses and regulatory authorities.
Incentives for improvement: Annual adjustments can incentivize businesses to continuously improve their environmental performance and reduce their waste generation, as lower fees can be achieved through better practices.	**Potential for overcharging**: Annual adjustments may lead to overcharging if the methodology used to determine the fee adjustments is flawed or if the fees are not accurately aligned with the actual costs of EPR.

1.12.3 Three year & Five-year adjustment option

As stipulated in the EPR Regulations, DFFE is required to evaluate the performance of the EPR scheme at the end of a five-year period. This evaluation can conveniently coincide with the option to make adjustments to the fees at three- year and / or five-year intervals during the review phase. The fees set for the next interval can consider a conservative inflation for each year.

Advantages	Disadvantages
Flexibility: Adjusting EPR fees every 3 and / or 5 years allows for the incorporation of changing market conditions, technological advancements, and environmental considerations.	**Uncertainty**: Frequent adjustments may introduce uncertainty for businesses, making it challenging to plan budgets and long-term strategies.
Fairness: Regular adjustments can help ensure that the financial burden of EPR fees is distributed more equitably among businesses and consumers, reflecting their respective impacts on the environment.	**Administrative complexity**: Implementing and managing the process of adjusting EPR fees every 3 year and / or 5 years can be administratively burdensome, requiring careful analysis and stakeholder engagement.

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Advantages	Disadvantages
Incentives for improvement: Periodic adjustments provide incentives for businesses to innovate, improve product design, and adopt more sustainable practices to reduce their EPR fees.	**Potential for underfunding**: If the adjustments are not adequately calculated or fail to keep pace with environmental costs, there is a risk of underfunding EPR programs, which could undermine their effectiveness.

Recommendation:

EPR fee adjustments can be done in a 3 and / or 5-year cycle. This will take into account the progressive increases in the collection, recycling and other targets and additional investments required, and the DFFE's evaluation phase of EPR schemes. It also reduces the administrative burden of frequent re-evaluation of fees, provides price certainty to producers and assists PROs and producers implementing their own schemes with their planning and investment decisions over the short to medium term.

Complementary to the 3 and / or 5-year periodic adjustments, annual inflationary adjustments of EPR fees is recommended to maintain their real value and ensure that the costs of waste management services are adequately covered.

Toolkit and Supplementary Information

The Toolkit provided is based on this EPR fee Guideline document. It provides calculations for each step of the fee costing process, for the fee calculation methods themselves, and with a sector-specific approach. The tool is arranged and defined in categories and sub-categories for the applicable products. The Toolkit has been developed in a manner that will assist PROs and producers in selecting the most appropriate method and approach for calculating EPR fees. A description of each tool in the Toolkit and how to use it, has been provided. The tool is organised according to the steps on the determination of EPR Fee process as discussed in this Guideline document. The Toolkit is provided as a spreadsheet.

1.13 Toolkit inventory

Tool 1: Flat fee calculation
Tool 2: Modulated fee calculation
Tool 3: Eco-modulated Fees
Tool 4: Product take-back Scheme
Tool 5: (i) Paper and packaging
(ii) Electronics & Electrical Equipment’s
(iii) Pesticides
(iv) Portable Batteries
(v) Lubricant oils
(vi) Lightning

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1.14 Supplementary Information

The supporting addenda provide in-depth information for the respective sectors to which this Guideline document is applicable.

- Addendum A: Making use of the EPR fee determination Toolkit (Toolkit user manual)
- Addendum B: Waste categories and materials covered by the EPR Regulations
- Addendum C: Monitoring and Evaluation
- Addendum D: International best practice of EPR schemes by sector

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Addendum A: Toolkit User Manual

This user manual is a supporting document to the excel Toolkit for calculating the EPR Fees under different approach models per product class and waste stream. The excel Toolkit is composed of 5 sheets and its development started in July 2023 and it is still being developed.

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Flat Fees

Inputs:

Step 1

- Insert the specific code for differentiation.
- Insert Product Category name and description details.

Step 2

- Insert costs from A to F.
- Insert the total revenue earned from sales of recycled material (G) if applicable.
- Insert the weight of the products in tonnes or volume in litres or the weighted average on units (variable I)

Output:

Step 3

- Variable H will automatically calculate the Nett Cost.

Step 4

- The EPR Fee will be generated automatically after taking into consideration steps 1-3.
- EPR Fee = H/I

Modulated Fees

Follow step 1-4 from flat fees approach.

Step 5:

- Calculation of ease of recyclability (variable J): The modulation factor is calculated by taking into consideration the extent to which the product can be recycled, material composition differentiation rate is applied.
- Integration with base fee: The modulation factor is then integrated with a base fee, which represents the standard fee for the product or industry (EPR Fee base multiplied by the differentiation rate)

Eco-modulated Fees

Follow step 1-4 from flat fees approach.

Step 5:

- Identification of environmental factors: The first step is to identify the relevant environmental factors that should be considered in the fee calculation. This can include factors such as the environmental impact of the product, its recyclability, the use of hazardous materials, or the carbon footprint associated with its production and disposal.

- Weighting of environmental factors: Each environmental factor is assigned a weight or importance based on its significance in terms of environmental impact. This weighting can be determined through scientific research, stakeholder consultation, or regulatory guidelines.

- Calculation of eco-modulation factor: The eco-modulation factor is calculated by multiplying the weight of each environmental factor by its corresponding measurement or indicator. This can involve quantifying the environmental impact of the product or its lifecycle stages, such as energy consumption, waste generation, or emissions.

- Integration with base fee: The eco-modulation factor is then integrated with a base fee, which represents the standard fee for the product or industry.

- Fee adjustment: The final EPR fee is calculated by adding the eco-modulation factor to the base fee. This adjusted fee reflects the environmental impact of the product and incentivizes more sustainable practices, such as eco-design, waste reduction, or the use of environmentally friendly materials.

Take-back Scheme

A general overview of how EPR fees are calculated within a take-back scheme:

1. Determining the cost components: The first step is to identify the various cost components associated with the take-back scheme. This may include collection, transportation, sorting, recycling, and disposal costs.

2. Allocating costs: Once the cost components are identified, the next step is to allocate these costs among the obligated producers or businesses participating in the take-back scheme. This allocation can be based on factors such as market share, sales volume, or product type.

3. Weight-based or unit-based approach: EPR fees can be calculated based on the weight of the products placed on the market or the number of units sold. The specific approach depends on the nature of the products and the goals of the EPR program.

4. Cost per unit or cost per weight: The allocated costs are then divided by the total units or weight of the products covered by the take-back scheme to determine the cost per unit or cost per weight.

5. Adjustments and factors: Adjustments or factors may be applied to account for factors such as product complexity, environmental impact, or recycling efficiency.

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Addendum B: Waste categories and materials covered by the EPR Regulations

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Paper, packaging and plastics

Paper, packaging and plastics make up one of the biggest markets for recyclables. The majority of the industrial sector comprises of the food and beverage industry which largely utilises paper packaging as the material of choice. Since 2003, the paper and packaging industry diverted more than 20 million tonnes of paper and paper packaging from landfill, saving 62 million cubic meters of landfill space.[1] The market size of the South African paper, packaging and plastics in 2023 is estimated at USD 2.16 billion, at a compound annual growth rate (CAGR) of 5.98% during the forecast period (2023-2028).[2] The average recycling rate in the last five years was 70% of paper recovered and 46% of plastic.[3] The EPR scheme for paper, packaging and plastics was gazetted on 5 November 2020. The EPR scheme aims for recycling, reuse, recovery and increase collection of products in the post-consumer stage.

Category	Material
Paper and paper packaging material	• Liquid board packaging – filled and unfilled • Paper packaging • Paper packaging boards – unprinted • Paper packaging boards – printed • Paper – corrugated base materials • Paper, including but not limited to cardboard • Laminated, printing and writing paper • Plastic coated paper • Labels • Paper sack
Plastic packaging	• Type 2,4,5 polyolefin – rigid • Type 2,4,5 polyolefin – flexible • Polyethylene terephthalate (PET) – rigid • Polyethylene terephthalate (PET) – flexible/strapping • Polystyrene (incl. expanded polystyrene protective packaging and high impact polystyrene packaging) • Polyvinyl chloride (PVC) – resin code 3 • Vinyl's (rigid and flexible) • Other (multilayer plastic packaging incl. resin code 7)
Biodegradable and compostable plastic packaging	• Any approved compostable raw materials complying with the relevant SABS and/or ISO standards 17088
Single use plastic products	• Films/flexibles: agricultural mulch films, garbage bags, pellet wrap • Injection moulded products: cups, tubs, cutlery (knives, forks, spoons), stirrers • Blow moulded products: bottles, containers, jars • Extruded products: straws, sheets • Thermoformed products: trays, punnets, cups, various packaging
Single use compostable plastic products	• Compostable films/Flexibles: agricultural mulch films, garbage bags, pallet wrap • Compostable injection moulded products: cups, tubs, cutlery (knives, forks, spoons), stirrers • Compostable blow moulded products: bottles, containers, jars • Compostable extruded products: straws, sheets • Compostable products: trays, punnets, cups, various packaging

Single use biodegradable plastic products	• Biodegradable films/Flexibles: agricultural mulch films, garbage bags, pallet wrap • Biodegradable injection moulded products: cups, tubs, cutlery (knives, forks, spoons), stirrers • Biodegradable blow moulded products: bottles, containers, jars • Biodegradable extruded products: straws, sheets • Compostable products: trays, punnets, cups, various packaging
Glass packaging	• Bottles • Jars
Metal packaging containers	• Steel products • Tinplate products • Aluminium products

EEE

South Africa has a diverse EEE sector that comprises of electrical machinery, household appliances, telecommunication devices and consumer electronics. The country manufactures approximately R 90 billion worth of EEE annually which contributes 4% towards Soth Africa's manufacturing output.[4] The revenue of the sector is projected to reach USD 2.11 billion by the end of 2023 with a CAGR of 14.59% in the period of 2023-2027.[5] The number of users in the electronics market is expected to reach 21.42 million users by 2027. Waste EEE (WEEE) is one of the fastest growing waste streams due to rapidly advancing technology however, the waste stream experiences a low level of recycling, only 6-12% of the total volume of WEEE placed in the market is recycled which is approximately 360 000 tonnes/year.[6] The EPR scheme for EEE was gazetted on 5 November 2020 and amended on 5 May 2021. The scheme covers electrical goods, electronic consumer goods, electronic industrial goods and batteries. These are then classified as large, medium and small EEE. The scheme excludes portable batteries and lighting equipment. The EPR scheme set a target to increase collection and recycling by 30% per annum.

Materials:
- Electrical equipment
- Electronic consumer goods
- Electronic industrial goods
- Batteries

The above is further categorised:
- Large equipment (any external dimension more than 100 cm)
- Medium equipment (any external dimension between 50 and 100 cm)
- Small equipment (no external dimension more than 50 cm)

Lighting

The lighting sector entails the manufacturing, sale and installation of lighting equipment for commercial and household use. South African lighting exports are expected to reach USD 53 million by 2026, an increase from USD 46 million in 2021. The average growth rate of the country's lighting exports is 7% on a year-to-year basis since 2005. Whereas South African imports are estimated to reach USD 121 million by 2026.[7] The EPR scheme for the lighting sector was gazetted on 5 November 2020. The purpose of the EPR is to increase reuse, recycling and recovery of lighting equipment in the post-consumer stage. The scheme proposes a mandatory take-back schemes with a target of reaching 70% collection and up to 95% recovery and recycling by year 5 of the EOR implementation.

Materials:

- Gas discharge lighting
  - Low pressure discharge (fluorescent – compact, linear and nonlinear and nonfluorescent – low pressure sodium, low pressure mercury vapor)
  - high intensity discharge lighting (high pressure sodium, low pressure sodium, metal halide, high pressure mercury vapour and xenon)
  - Lighting for special purposes
- All light emitting diode (LED) lighting sources and types
- Signal/signage lighting as well as associated equipment
- Luminaries and lighting equipment fixtures or modules or associated electrical components
- Laser, pixel and ultraviolet irradiation (UVI) or ultraviolet germicide irradiation (UVGI) lighting
- Automotive lighting and luminaries
- Incandescent (filament) light bulbs and halogen
- Off grid solar powered lighting

Portable batteries

Portable batteries refer to any battery or battery pack that is sealed and can be hand-held by an individual, neither an automotive nor industrial battery. There is a wide range of portable batteries on the market to satisfy consumer needs, segmented by capacity, technology and user application. The portable battery market in South Africa is projected to grow at a CAGR of 15% in the period of 2023 to 2028. It is noted that the market demand of portable batteries is increasing due to the energy crisis in South Africa.[8] The value of the portable battery sector is approximately ZAR 13 million in 2023. Currently, the recycling rates of portable batteries are low. South Africa recovered only 6-10 tonnes of Li-ion battery waste in 2019.[9] Only 20-40% of portable batteries from consumer products are being recovered. The EPR scheme for portable batteries was gazetted on 23 March 2023, promoting the collection, recovery and recycling of portable batteries in the post-consumer stage. The EPR scheme set a target of 76.68% collection, recovery and recycling by year 5 of the EPR implementation.

Materials:

- Alkaline/Zinc carbon batteries
- Primary (single use) lithium batteries
- Nickel metal hydride batteries
- Silver oxide batteries
- Zinc air batteries/Air depolarised batteries

Pesticides

Pesticides are widely used in the agricultural industry to maintain agricultural productivity and human health. South Africa has more than 500 registered pesticides and is one of the largest importers of pesticides in Sub-Saharan Africa. The exact market size of the pesticide sector is not known as it is a segment of the agrochemical industry however, the crop protection market is expected to reach an estimated value of ZAR 6.8 billion in revenue. South Africa does not have a robust pesticide waste management system.[10] The EPR scheme for pesticides was gazetted on 23 March 2023 and aims to promote sustainable waste management of pesticides and increase treatment, collection and recycling.

Materials:

- Pesticides
- Pesticide co-formulants
- Related containers of pesticides

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Lubricant oils

Lubricant oil is defined as virgin and re-refined mineral and synthetically based lubricants, with or without additives used for heat transfer, load transfer or any other application and can be recovered after use. The South African lubricant market is estimated to produce 360 000 to 400 000 tonnes per annum of lubricant oils, making up 1% of the global volume.[11] The lubricant market produced an estimated 382 tonnes in 2021 and is projected to reach 447 tonnes a year by 2026 with a CAGR of 3.16%.[12] The current recovery rate of lubricant oils in South Africa is 70%.[13] The EPR scheme for lubricant oils was gazetted on 23 March 2023 to promote recovery, recycling and collection of lubricant oils at the post-consumer stage. A collection target of 65% by year 3 was set in the EPR scheme.

Materials:
- Lubricant oils

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Addendum C: Monitoring and Evaluation

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1 Critical components of an EPR Monitoring & Evaluation framework

A monitoring and evaluation (M&E) system is required to be well-structured, including key components, namely: clear objectives, well-defined indicators, reliable data, regular reporting and continuous improvement through evaluation. A well-structured M&E system allows the system to function effectively and efficiently to achieve the desired results of the EPR scheme[17] therefore, EPR M&E is an essential aspect to consider for the successful implementation of EPR schemes. The schemes put forth various regulations and targets that supports sustainability and reduction of waste however, compliance needs to be monitored to determine the effectiveness of the scheme and evaluated to improve the scheme and make implementation more convenient. It also ensures accountability of stakeholders.[18]

Clear objectives: Each EPR scheme must be reviewed to determine the specific needs, targets and Regulations that apply to each scheme. The objectives of M&E may be tailored to the objectives and targets of the EPR schemes. The main aims of the scheme, what the scheme is required to achieve, and the expected results are considered to develop the objectives of the EPR M&E system. The objections must also consider the various implications of the scheme, costs associated with the implementation and associated EPR fees. It must be clear and concise to convey the aims and purpose of M&E, such as:

- Review monthly quantities of materials put into the market;
- Track types of materials;
- Account of EPR fees;
- Track registration with PROs over time; and
- Track compliance.

Well-defined indicators: The indicators of the M&E refer to the quantifiable and traceable factors that can be reported on to the regulatory body. The indicators are reported on by obliged producers and brand owners and monitored. Reports on the indicators are used to measure the performance of the EPR scheme and the effectiveness of its implementation. Examples of indicators include:

- Collection rate.
- Recycling rate.
- Environmental impact.
- Preparation for reuse rate.
- Recovery rate.
- Recyclability of products placed on market.

Reliable data: An effective and efficient EPR M&E system must have reliable data that is collected in a consistent and systematic manner. This heavily relies on a robust and efficient reporting system. Data from producers and brand owners must be timeously submitted to PROs they are registered to for review and evaluation. Tracking of data over time provides insight on the EPR scheme and its effectiveness. Reliable data depends on the inputs from producers and brand owners and can be obtained in the following methods:

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[17] Martin Otundo Richard and Martin Richard Otundo (2019). The 12 key components of M&E systems. [online] ResearchGate. Available at: https://www.researchgate.net/publication/337740321_THE_12_KEY_COMPONENTS_OF_ME_SYSTEMS [Accessed 2 Aug. 2023].

[18] Evalcommunity.com. (2023). Importance of Monitoring and Evaluation - EVALCOMMUNITY. [online] Available at: https://www.evalcommunity.com/career-center/importance-of-monitoring-and-evaluation/#:~:text=Monitoring%20and%20Evaluation%20are%20critical,other%20responsible%20for%20achieving%20goals. [Accessed 2 Aug. 2023].

- Manual reports – this refers to the reporting system in which producers and brand owners submit written reports to PROs pertaining the predetermined indicators they have committed to reporting on such as the collection, recycling and recovery rates.
- Automated reports – this refers to a database or online system that is created whereby producers and brand owners are able to log in with unique member details and log in their data which can easily be accessed by the PROs instead of submitted declaration forms and written reports.

Regular reporting: The EPR scheme is monitored using the indicators and data submitted by the producers and brand owners. Evaluation of the system generally occurs quarterly or annually. Upon evaluation, the M&E system producers regular reports that assess the performance of the EPR scheme. The reports are used to identify how EPR fees are being used, schemes that are working well or have gaps in the implementation plan which requires improvement and thereafter put forward recommendations.

Continuous improvement: The system needs to be iterative and continuously improve the performance of the EPR scheme. Gaps and areas for improvement are identified through the evaluation and reporting process. Continuous improvement ensures the system and scheme remains effective throughout the EPR implementation.

2 Reporting

3 DFFE

Regular reporting is an essential factor for effectively communicating matters pertaining to EPR fees, obliging members of PROs and how the fees are subsequently spent by PROs to the regulatory body. At the end of a predetermined timeframe, PROs are required to compile and submit a report to DFFE, detailing the cumulative amount of EPR fees, the members that are paying the fees, those who are not and how the fees collected are spent. Typically, the reports are submitted through an online system or via email. This will allow for transparency and accountability among the stakeholders. DFFE is responsible for consolidating the data and information on fees received through reports from PROs and their members. EPR fee spending should be revised and updated quarterly. The reports are collectively used to gain insight on the EPR implementation and progress of the schemes regarding recycling rates and environmental impact of products. In conjunction to regular reporting, DFFE may hold consultations with the relevant stakeholders regarding the performance of the scheme, make recommendations for improving the implementation of the scheme and gain inputs from the stakeholders on how the scheme is faring.

4 Members of the EPR scheme

Members registered to PROs are required to submit monthly reports or declarations to the PRO which should include information regarding EPR fees that have been collected and costs encountered for collection and recycling. The reports should also include quantities of products and material types placed on the market and quantities of waste material that is collected and recycled in the reporting month. These reports are directly submitted to the PRO. The PRO then consolidates the information received from their members and collectively reports it to its board of directors and DFFE. The submissions are typically done directly or via an automated system on the PROs website. PROs must also keep members of the EPR scheme informed on the fees required, changes to the structure of the EPR scheme and hold consultations with members during the revision of EPR fees. Efficient

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communication between the members and PROs is crucial for effective implementation of the EPR scheme and EPR fee collection.

5 Consumers

Consumers must stay informed on the implementation and progress of the EPR scheme as they play an active role in waste management. One of the roles of PROs, is to publish information on the EPR scheme for the public domain. Consumers can receive information on the EPR via various means and platforms such as online and print media. Publications of reports pertaining to the progress of the EPR scheme and current EPR fees are published on PRO websites where it can easily to located by consumers, producers and brand owners alike. Producers, retailers and brand owners can also put out publications on their role in complying with the EPR scheme, giving consumers insight on the businesses they support and its drive to support EPR implementation and sustainability.

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Addendum D: International Best Practice of EPR Schemes by Sector

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1 Paper and packaging, and plastics

The German Packaging Act requires all companies that puts packaging in the German market into circulation with its products to register on a web-based public platform known as Zentrale Stelle Verpackungs register (ZSVR), in order to allow for data monitoring and compliance as per the federal packaging law[19]. Packaging materials include plastic wraps, cardboard boxes, and glass bottles. Producers are required to declare the name of their dual system and packaging quantities on the public platform to ensure transparency[20]. A distribution ban is issued along with penalty charges to producers who are not registered on ZSVR. Therefore, this has resulted in reduced free ridership in the German packaging industry. In addition, the ZSVR creates packaging minimum standards such as recyclability which is useful to PROs for Eco modulation of fees.

The Japanese Packaging Recycling Act states that if a municipality provides recyclers with a high-quality well-sorted packaging waste, the EPR fees due are reduced by 50%. Therefore, this incentivises municipalities to properly sort their packaging waste to ensure that they only pay 50% of the estimated costs, thereby reducing the overall recycling costs for recyclers[21].

Altstoff Recycling Austria (ARA)
Application: ARA is a non-profit organisation (NPO) that collects, recovers, and manages waste packaging materials in Austria. ARA implemented the flat rate system specifically for small packaging, wherein members placing less than 1,500 kg of household and commercial packaging on the market are obligated to pay a fixed annual fee[22]. The actual fee amount varies based on the member's turnover and packaging volume, with producers charged a minimum of 90 Euros, a flat fee of 150 Euros, or a standard fee of 3,000 Euros per year[23]. Members falling under this scheme are exempt from submitting packaging reports and only need to pay the flat fee once annually.

Case learnings: The flat rate scheme offers significant observations regarding the significance of a straightforward and transparent approach in fostering adherence to EPR regulations. By providing fixed fees, it motivates producers to embrace environmentally responsible methods. The precise reporting of the quantity of packaging materials placed on the market by producers is crucial for upholding the system's efficacy.

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[19] Sachdeva, A., Araujo, A. and Hirschnitz-Garbers, M. (2021). *Ecologic Institute Extended Producer Responsibility and Ecomodulation of Fees Opportunity: Ecomodulation of Fees as a Way Forward for Waste Prevention Extended Producer Responsibility and Ecomodulation of Fees -Report*. [online] Available at: https://www.ecologic.eu/sites/default/files/publication/2021/50052-Extended-Producer-Responsibility-and-ecomodulation-of-fees-web.pdf.
[20] Lizenzero Packaging Licensing. (n.d.). *Lizenzero Packaging Licensing*. [online] Available at: https://www.lizenzero.de/en [Accessed 24 Jul. 2023].
[21] The State of Play on Extended Producer Responsibility (EPR): Opportunities and Challenges Global Forum on Environment: Promoting Sustainable Materials Management through Extended Producer Responsibility (EPR) Ministry of the Environment Global Forum on Environment: Promoting Sustainable Materials Management through Extended Producer Responsibility (EPR). (n.d.). Available at: https://www.oecd.org/environment/waste/Global%20Forum%20Tokyo%20Issues%20Paper%2030-5-2014.pdf.
[22] Altstoff Recycling Austria (ARA). (n.d). Licensing service for packaging. Available at: https://www.ara.at/en/licencing-service-for-packaging#legally-binding-declarations [Accessed 28 July 2023].
[23]Altstoff Recycling Austria (ARA). (2023). List of tariff rates 2023. Available at: https://www.ara.at/uploads/Dokumente/Tarifbl%C3%A4tter/ARA-tariff-rates-2023.pdf [Accessed 28 July 2023].

2 EEE (Electrical Electronic Equipment)

In 2012, China introduced the **Chines E-waste disposal fund scheme** for the collection and administration of the funds for the recovery and disposal of Waste of Electrical Electronic Equipment (WEEE). The scheme requires producers and importers of EEE to pay a fee for each unit they put in the market via the tax and custom authority. The collected funds are then provided to WEEE certified recyclers as subsidies to support the development of the formal recycling industry under the condition that they provide their proof of recycled and/or disposed WEEE. Failure to adhere to the EPR regulations results in prosecution. This scheme incentives EEE producers to establish their own recycling programs. The government supports them by relaxing the minimum requirements for the establishment and certification of WEEE recycling operations. In over a year, 64 recycling companies were successfully certified and a high number of these companies have started to publicly declare their WEEE recycling data for supervision and monitoring. In 2013, it was reported that a total of 9 020 491 WEEE units were declared. It was however learned that collection was mainly focused on television sets, despite the fund being sourced from other additional EEE product groups. Therefore, the scheme had to be revised in order to ensure that there is a balance between the cost and the revenues generated by a group of EEE. The polluter pays principle was also introduced to combat this.[24,25]

France eco-modulated system for EEE

Application: The eco-modulated system for Electrical and Electronic Equipment (EEE) was introduced in 2010 in France.[26] This system incorporates bonuses and/ or penalties that are determined according to specific environmental criteria.[27] Producers who offer easily recyclable products are rewarded with bonuses, while a penalty, known as a malus, is applied to products containing materials that hinder the recycling process.[28] The criteria used to determine eco-modulated fees vary depending on the category of product in question.

Case learnings: The system fosters the inclination of producers towards designing products that are more recyclable and have minimal environmental consequences. Nevertheless, the complexity and implementation challenges necessitate its integration with an established EPR system for WEEE. To achieve optimal efficacy, it is imperative to establish clear and standardised criteria. Additionally, the significance of diligent monitoring for ensuring compliance and appropriate utilisation of eco-modulated fees has been underscored, providing valuable insights for its successful implementation.

[24] How Does the Chinese E-waste Disposal Fund Scheme Work 1. (n.d.). Available at: https://www.oecd.org/environment/waste/China%20case%20study%20final.pdf.
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3 Portable batteries

BatteryBack is the largest battery producer compliance scheme operated by Wastecare in the United Kingdom (UK) responsible for the collection and recycling of portable batteries since 2008. The scheme collects portable batteries for its members from retailers, schools and local authorities for a low compliance cost of 0.01 British Pound (R0.23) per battery placed on the market[29]. By 2016, BatteryBack had already established over 30 000 collection points in the UK[30]. Through the EPR fees, the scheme managed to develop the first UK's recycling plant for portable batteries with a 25 000 tonnes capacity, which eliminates the need to ship batteries abroad for processing and thus reduces the costs of recycling[31]. In addition, BatteryBack promotes increased battery recycling awareness by partnering with big companies in the UK to run battery recycling programmes in schools. An initiative known as *Big Battery Hunt* was established to provide schools with collection boxes along with prizes for schools with a high amount of collected batteries.[29]

4 Pesticides

CleanFARMS is a non-profit organisation based in Canada that runs and funds a program for the collection of obsolete and unwanted pesticides for safe disposal[32]. Users of pesticides are required to remove caps and labels, and triple rinse their empty containers before they can return them to relevant retail stores or waste collection sites for free, where CleanFARMS bulk collects them every fall. In 2022, two special collection events were held in several regions of Canada and about 323 500 kgs of pesticides were successfully collected. This is an increase by 51% compared to the total pesticides collected in the previous year in the same regions[33]. Collected containers are shredded, cleaned, and recycled into various products, mostly field drainage tiles. The program is funded through a fee collected for each container sold from CleanFARM's manufacturer members who have committed to an 80% recovery rate of containers placed on the market. By 2015, a total return of 4.66 million empty pesticides and fertiliser containers was achieved, which represents 60% of the total sold.[34]

Follow 3 steps to ensure that unwanted pesticides & old livestock/equine medications can be returned in the fall:
Gather – Collect your unwanted pesticides & old livestock/animal medications.
Place – All items need to be placed in a sealable or spill-proof container.

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Return – Check to find when this program is taking place in your area then return items to your local collection site.

Crop Life SA is an organisation that serves manufacturers, suppliers and distributors of agrochemicals including pesticides to protect crops and human health. A voluntary membership is offered which includes a commitment to abide by the association's code of conduct. Crop Life SA offers pesticide container management in alignment with the EPR regulations. The waste container management system is operated with collectors and recyclers that have been vetted and approved as reliable. Empty pesticide containers are collected, rinsed a number of times then bundled and sent for processing where it is processed such that the plastic can be accepted by plastic recyclers. More than 76% of empty containers are collected and recycled through the services of the Crop Life SA approved collectors and recyclers.[35]

5 Lubricant oils

The ROSE foundation is a voluntarily established EPR scheme to ensure the responsible collection and recycling of used oil generated in South Africa. The initiative was founded by the leading companies in the sector after the government withdrew support for the re-refining of used oil[36]. Since then, the foundation supports the collection, storage and recycling of used oil in South Africa by ensuring that oil collectors and processors are accredited, abide by the law and well trained to deliver responsible services. Currently, over 1.5 billion litres of used oil have been successfully collected and recycled as a result of the initiative and about 21 of leading companies in the oil sector are now members of the foundation[37]. Members are required to pay a contribution fee of 10c per litre of new oil sold in the market in order to fund the operations of the foundation. Additionally, the collected fees are used to support oil collectors and processors with an incentive scheme, training and equipment.[38]

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