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MEASURING EFFECTIVENESS OF EXTENDED PRODUCER RESPONSIBILITY (EPR) IN RELATION TO PLASTIC PACKAGING

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Abstract

In recent times pollution by plastic waste is becoming a serious concern across the globe. The water bodies all over the world are drowning in plastic which is leading towards global crises. As per the recent report, yearly around 11 million tons of plastic waste enter the ocean, it also states that as per the current projections it is expected to quadruple from in 2050. In case no action is taken, the annual plastic flow into the ocean will be almost triple by 2040. At such an alarming situation various administrative body across the world have started many awareness programs one of them is Extended Producer Responsibility (EPR). It is an concept in which importers and producers are held responsible for managing end-of-life packaging and to promote plastic circularity. The system favorable opportunity to the producers/importers to create an ecosystem of division of the burden of managing plastic waste. The paper undertakes to measure the effectiveness of the Extended Producer Responsibility (EPR) over the current scenario. The dual initiatives of Extended Producer Responsibility (EPR) And Producer Responsibility Organization (PRO) can prove to be the key to success.

Keywords

Extended Producer Responsibility (EPR), Producer Responsibility Organization (PRO), Plastic Waste Management, Environmentally compatible, Organisation for Economic Co-operation and Development (OCED), World Wide Fund for Nature (WWF)

Introduction

In the early 1990s Extended producer responsibility (EPR) was introduced in Europe as concept to set off the burden in the hands of the producers and importers of product and their resulting waste to be handled properly through an assurance that it will not lead to any environmental harm. EPR is designed to create an obligation of the indirect environmental costs at the end of the life of the product (the waste management costs) from the local authorities, and in effect the taxpayer, back to those responsible for placing the products on the market. The prime impulsion for the application of EPR strategy to waste management was bipartite primarily to ease municipalities from the fiscal burden spent on plastic waste management along with the incentives and benefits to producers to lower down the usage of primary resources, alongside to promote the use of more secondary materials, and secondly to undertake changes on product design to reduce waste (OCED, 2001). Furthermore, EPR as a waste management measure was first implemented in Germany (1991), Austria, Belgium and France, introduced nation-based policies adopted as per the European Union (EU) legislation model.

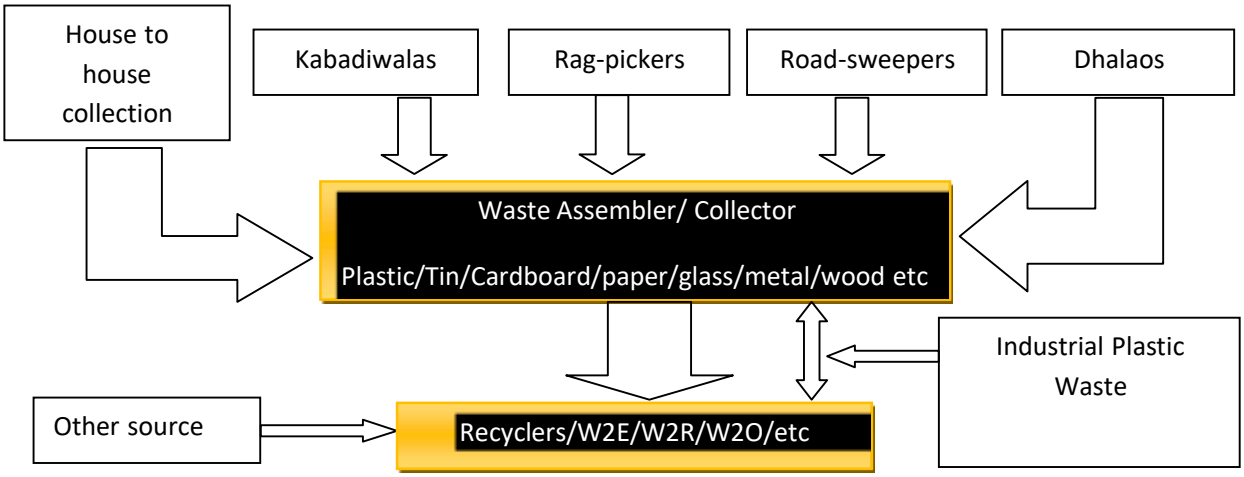
Plastic Packaging- A Global Issue: The diversity of product purchasing worldwide have increased in recent years. Products have reached to global level trading not limited to domestic markets. In order to match up the demand of the products the production capacity requires significant amounts of resources, alongside a large amount of littering is caused due to poor waste management practices. The most damaging portion of this litter consists plastic items. The ubiquitous presence of plastic litter has reached to remote shores, in polar waters and even in the ocean depth. Humans urgently need to take some

revolutionary and transformational moves on all the levels to face this challenge: to begin from the product design and ends at end-of -life packaging. Especially, food packaging here depicts a crucial challenge, due to the sole solutions for packaging involved and the functionality involved herewith, as storing and transportation requirement over long distances. Alongside, the packaging materials and the ways of solutions that combines them are just as diverse.

A sound organization and sufficient funding is required for waste management. However, in number of regions both requirements are insufficiently met, since waste management and disposal are often poorly organized and severely underfunded, especially in low- and middle-income countries. Consequently, the effectiveness to deal with the world's growing plastic waste management challenge, it makes a huge sense to check out the concept of Extended Producer Responsibility (EPR) and channelize the effectiveness of EPR through more and more of public awareness.

Fortuitously, a willingness to respond and act on this crucial issue is growing among the stakeholders, who wants to bring a huge change to the current practices followed by reducing the levels of waste residuals and subsequently following supreme steps for waste management. Industry along with the government and public authorities, agree on the need for action to be taken without much more delay. The sticking point is the lack of practicable ideas and concrete measures and actions.

Material Flow for Plastic



(Figure 1) Source: Ministry of Environment, Forest and Climate ChangeJune, 2020

EPR -a part of efficient waste management: The quantity of the overall waste quantities has risen in number of first world and second world countries especially for recyclable waste with fractions such as paper, plastic and metals. Thus, demand for prolonged waste management strategy to reuse the recyclable shares of cast-off products and packaging effectively by ensuring the reduction in environmental and human health threats they pose has grown subsequently. It has been observed in many countries the informal sector plays a major active and prominent role in waste management, which is limited in the hands of state or local municipality to move non-recyclable waste and ensuring landfill sites. Sticking to the goal of recycling, here only the informal sector separates and manages

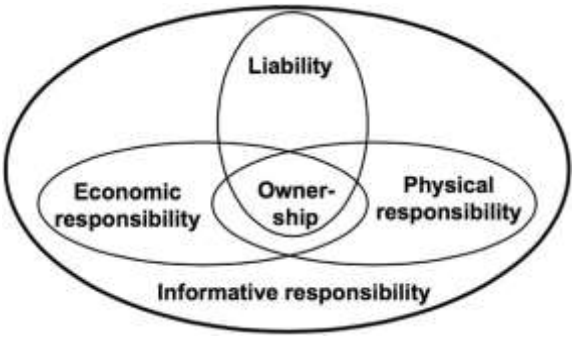
individual waste fractions.

These local bodies support themselves (outside formal employment)- through the collection, sorting and recycling of residual waste, as well as its trade aspects. In addition to high risk levels and uncertainty for the people involved in the practise, the possibilities of growing a sustainable waste management strategy remain severely limited. Effective implementation of this strategy must meet following criteria as a minimum:

- Regional Collection system covering entire nation
- Financial support of recycling infrastructure
- Environmentally compatible disposal
- Training, Communication & Consultancy services

In order to achieve these goals and objectives the need for a brave organization and reliable financing is required. However, a sustainable system must assure responsibilities without ambiguity and must differentiate mainly in two general areas:

- Waste directly linked to producer must assume responsibility for the disposal (packaging, electronic devices, automobiles, batteries etc.)
- Waste not directly linked to any producer (residual waste, bulk waste & organic waste)



(Figure 2): Models of Extended Producer Responsibility.

Description: This diagram presents the relationship among the different ways of interpreting EPR. Source: Lindhqvist (2000).

Table 1 mentioned below states an overview of an organizational design with sustainable funding for waste management. A clear distinction is made among firstly, recyclables for which an EPR system can be set up, secondly for which it is not possible to assign a responsible producer and must therefore be included in public waste management structures.

Table 1: According to current best practise an overview of a sustainable organization and financing of waste management

	(A) Recyclables, (Packaging, electronical equipment)	(B) Organic waste	(C) Harmful substances	(D) Residual waste
(1) Practice of handling fractions at present	Collection and recycling/recovery of material fractions. Creation of reliable market for secondary sources	Collect & Compost organic waste	Safety assurance-Collect, Transport, Store and Final disposal	No untreated landfills, more usage of recyclable materials, energies, treatment (Biological, Thermal and mechanical) giving sound disposal system for residues
(2) Steps for goal achievement	Develop structure-Collect, construct, sort, recycle plants. More public awareness for environmental education	Aware public at large for collecting, sorting, managing the organic waste	Develop a sound system to collect	Collect residual waste; more treatment plants: more public awareness
(3) Prime elements of waste management concept	Separate collection sites must be established for collecting recyclable , transport the materials to treatment plants, develop the channel of recycling across the region; communication and education	Different collection points/zones for organic waste; plants for composting at commercial level to generate commercialization of compost commercialization ofthe compost; Communicate & educate	Far away located separate points for collection harmful substances as they may cause damage at the treatment plants	More collection of residual waste at certain levels like household and company; treatment plants may depend on the demand: these are, biological plants, treatment plants e.g. cement industry and

				landfill for residues
(4) Cost Liability	Firms dealing in plastic packaging goods within a country (producers/importers/mediators) bear the cost to collect, treat and recycle	A certain portion of revenues generated in composting plants, remaining in the form of fee	Firms must use the possibility of financing through an EPR system	Cost incurred by the municipal bodies (Collection, treatment, landfill, admistration &logistics)can recover from citizens and firms involved

Source: Legal framework study on Extended Producers Responsibility (August 2019)

Table 2: Opportunities and Challenges faced while waste management

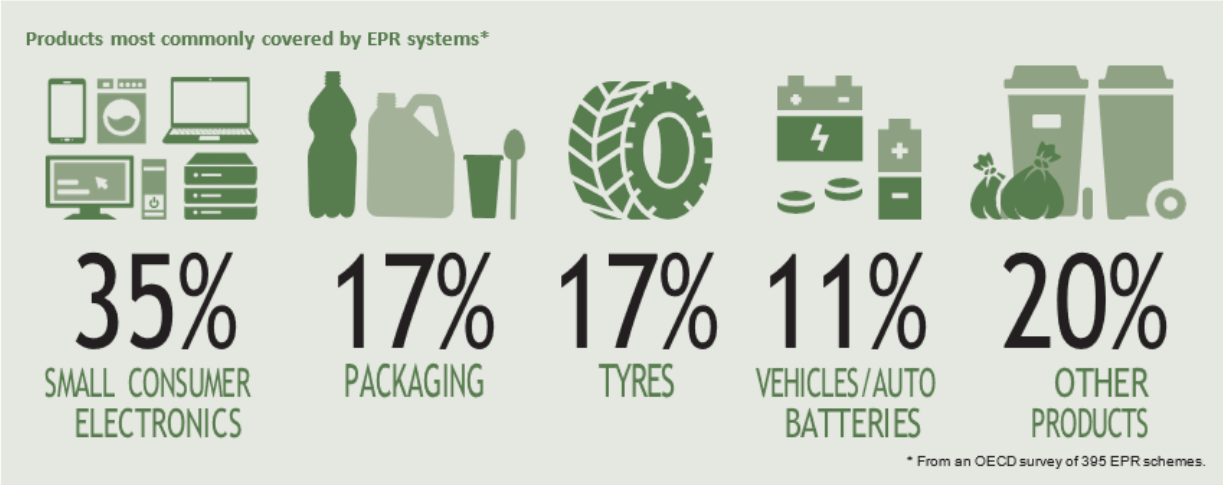
Waste Management- CHALLENGES	Waste Management- OPPORTUNITIES
Absence of political stability	Sound legal base establishment
Lack of suitable administrative policies and structures along with resources	Massive acknowledgement of the challenges by the officials
Lack of funds	Energy to channelize the willingness for developing unique system that comes up with new strategies to deal with
Challenging political dynamics	Supportive attitude from private sector to take financial & technical responsibility
Lack of experienced personnel	Experience gathered from previous projects
Deficient strategic planning, communication at administrative levels	Development of distinct authorities to deal in waste management

Poor awareness of professional opportunities inwaste management	Waste management now a professional option at major universities
Limited capacity to deal in the recycling of plastics and other related waste	Expanding collection and transport system across the cities, prime focus to enforce suitable system for separated collection
Source: Legal framework study on Extended Producers Responsibility (August 2019)	

(Figure 3): Benefits of implementing EPR SOURCE: WWF Institute for European Environmental Policy

Table 3: POTENTIAL STEPS FOR GOVERNMENTS AND BUSINESSES IN DEVELOPING COUNTRIES TO IMPLEMENT EPR

STEPS FOR GOVERNMENTS	STEPS FOR BUSINESSES
Promote research/feasibility educational courses covering benefits and opportunities of establishing EPR	
Generalize the key objectives and principles of EPR	
Start developing legislation to support the introduction of EPR	Open discussion sessions on what government bodies and companies can do to support the introduction of EPR
Start supporting the waste collection infrastructure	Creation of a network between enthusiastic businesses to participate in EPR
Must figure out how to support the markets for recycled material	Create a PRO, in cooperation with key stakeholders
Develop comprehend stability on EPR laws and enforce them to create a reliable legal framework	Encourage more participation in EPR schemes by reporting plastic quantities and characteristics, paying related fees and complying with additional EPR measures



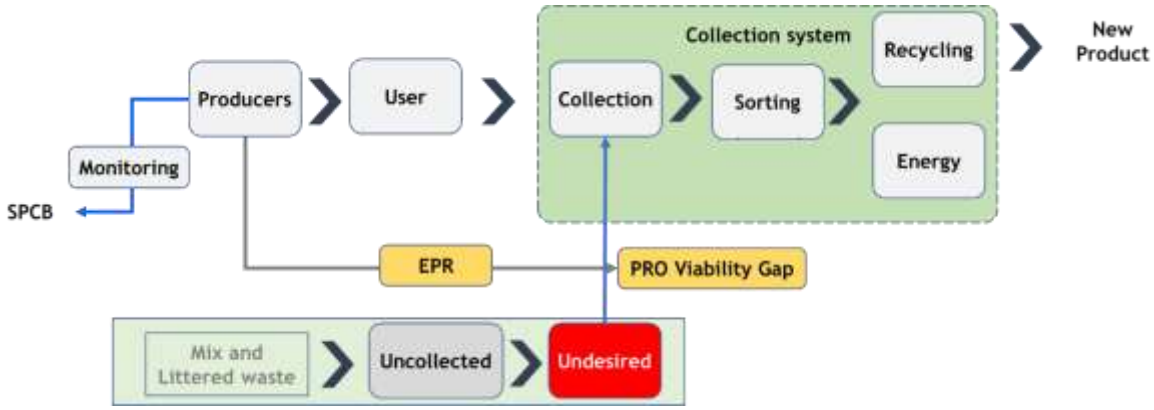
(Figure 4): Products covered under EPR systems SOURCE: WWF Institute for European Environmental Policy

Table 4: Examples of voluntary commitments by business

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

SOURCE: WWF International 2020

Supplementing exiting system by creating value for Non valued waste by EPR



(Figure 5):Source: Ministry of Environment, Forest and Climate ChangeJune, 2020

- To increase the efficiency stakeholders to come together to collaborate and ensure collective implementation of EPR mechanism.
- **Three major stakeholders** for enabling a comprehensive mechanism;
    - Producer, Brand Owners, Importers (PIBO)
    - Producer Responsibility Organisations
    - Regulators

Table 5: List of stakeholders and their roles played under EPR schemes to enhance the effectiveness of the entire system

STAKEHOLDER	ROLE(S)
NATIONAL GOVERNMENT	**Set up framework- Political and Legislative Levels:** ■ Define: Produces & Products involved ■ Describe actual producer's responsibilities: Quantify targets (take-back, collect & recycle waste) ■ Defining the **roles of others (**local municipalities, informal waste sector.) ■ **Accreditation and monitoring EPR schemes**, to ensure effectiveness and enforce compliance ■ Steps to combat **illegal imports** of packaging or packaging waste

LOCAL MUNICIPALITIES	Prime responsible for **waste collection** (households and businesses), readily accessible infrastructure Provision of public awareness
PRODUCERS/BUSINESS /IMPORTERS (INCLUDING MANUFACTURERS, CONSUMER GOODS COMPANIES AND RETAILERS/DISTRIBUTORS)	■ Create EPR Schemes, setting up non-profit or for-profit producer responsibility organizations (PROs) ■ Administer EPR schemes (setting registration and product fees, collecting fees), relationships with waste collectors/processors, reporting collection and recycling rates, and possibly take-back of waste packaging (retailers/distributors) ■ Providing information to producers and consumers on how to use EPR schemes
WASTE MANAGEMENT COMPANIES	Collect & manage waste, through contracts with either local municipalities, PROs or individual producers. To be funded by EPR schemes for packaging waste handling
INFORMAL SECTOR (E.G. WASTEPICKERS)	An opportunity to participate in EPR schemes, contribute to increase effectiveness of collecting recyclable waste
CONSUMERS/CITIZENS/ HOUSEHOLDS	Returning waste products at the end of their useful life, using the infrastructure provided

SOURCE: WWF Institute for European Environmental Policy

SCOPE FOR BUSINESSES TO IMPLEMENT EPR

Many actions can be figured out that businesses can take to begin the EPR implementation in the home and host countries. Following points suggests some potential immediate steps for businesses to consider:

Undertake research/feasibility studies, high lightening to make the most of it and grabbing the opportunities of establishing an EPR scheme, investigating examples of well- established EPR schemes in other countries, or drawingon experiences of EPR in other countries in which they operate.

- Generalize themselves with the **key objectives and** principles of EPR.
- **Discuss with national governments** what they can do to support the introduction of EPR.
- **Create a network or communication between like-minded businesses** who are keen to participate in EPR schemes.
- **Create a PRO**, in cooperation with other stakeholders including governments, waste management operators and, where appropriate, the informal sector.

Conclusion:

This paper highlighted the importance of EPR and its implementation by ensuring collective efforts from across the stakeholders involved. Clearly examined the procedure to be adopted for sustainable organization and funding involved in plastic waste management. It has been observed that there are numerous challenges and opportunities in relation to waste management

that same could be tackled by the collective support of national governments and business houses involve in plastic packaging. In the end it suggested that each stakeholder must fulfil the desired responsibilities to fulfil the requirements of ensuring overall goal accomplishments. National EPR systems can vary in design, in terms to act upon the pre-existing policy and systems, methods of achieving producer compliance (multiple or single collective schemes), fee structures, targets, waste stream prioritization and local authority involvement. Differing approaches are evident across all member states with respect to the role played by local authorities, responsibility apportioned to them, and the evolution of working relationships between obligated producers and municipalities. In order to ensure the effectiveness in the entire system the prime prevention of plastic waste is feasible by directing the industrial sector to eliminate or reduce the amount of harmful chemicals and materials involved in packaging materials. Moreover, we may educate and encourage people at large to buy reusable products, repair the broken items, say no to single use plastic and must follow recycle>reuse>compost strictly.

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