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Summary

Extended Producer Responsibility (EPR) is a strategic concept aimed at enhancing the environmental accountability of producers, brand owners, and importers throughout the lifecycle of their products. This report explores the EPR framework within India, detailing its application to various waste streams including plastic, electronic, battery, and tyre waste. The Indian EPR system seeks to shift the responsibility for waste management from local governments to producers, promoting resource efficiency and sustainable practices. Despite its benefits, the implementation of EPR in India faces challenges such as low collection rates, inadequate infrastructure, and competition with the informal sector. The report provides recommendations for improving the EPR system in India, including adopting best practices from other countries and integrating the informal sector to enhance sustainability and compliance. Additionally, the report compares the Indian EPR framework with that of the European Union, highlighting similarities in objectives and stakeholder involvement but also differences in legal scope and regulatory enforcement. The insights and recommendations aim to strengthen India's EPR framework, contributing to a more sustainable and responsible approach to waste management.

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Global Product Compliance Group

Your Seamless extension in global regulatory compliance

Address: Ideon Beta 5, Scheelevägen 17, Lund, 22363; Sweden

Phone: +46 46 2114615

Email: compliance@gpcregulatory.com
Website: www.gpcregulatory.com
Organization No: 556757- 6367

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Abbreviations and Acronyms

ADF Advanced Disposal Fees

CIN Corporate identification number CPCB Central Pollution Control Board

DIC District Industries Centre

EEE electrical and electronic equipment
EPR Extended Producer Responsibility

GST Goods and service tax

IEC International Electrotechnical Commission

NGO's non-governmental organizations

OECD Organization for Economic Co-operation and Development

PAN Permanent account number

PIBOs Producers, Importers and Brand-Owners

SPCB/PCC State Pollution Control Boards

UCTS Upstream Combination Tax/Subsidy

1. WHAT IS EXTENDED PRODUCER RESPONSIBILITY (EPR)?

Extended Producer Responsibility (EPR) is a strategic concept aimed at enhancing the commitment of various stakeholders such as brand owners, producers, and importers towards the creation of environmentally friendly products. This approach involves managing all the costs associated with environmental waste and product production, spanning from the product's inception to market availability.

Key Aspects of EPR:

- Management of Post-Consumer Waste: EPR entails the assignment of responsibilities by governmental bodies for the effective management of waste generated by consumers. It is specifically applicable to brand owners, producers, and importers, who are legally obligated to comply with Extended Producer Responsibility guidelines issued by authorized entities such as the Central Pollution Control Board (CPCB).
- Promoting Sustainable Practices: EPR serves as an economic incentive for manufacturers to design products with a reduced environmental footprint. Manufacturers are responsible for the financial aspects of managing their products throughout their entire lifecycle, including disposal or the end-of-life phase.
- Departure from Traditional Product Management: In contrast to traditional product
 management that focuses primarily on record keeping, EPR aims to reduce the financial burden on local governments associated with managing specific high-priority
 products. This is achieved by requiring manufacturers to incorporate the cost of recycling and waste management in the price structure of the product.
- Empowerment of Manufacturers: EPR is based on the belief that manufacturers, particularly brand owners, have significant control over product design and marketing. Consequently, they have a substantial degree of influence and responsibility to reduce the toxicity and minimize the environmental waste stemming from their products. In essence, Extended Producer Responsibility is a proactive shift towards a more sustainable and accountable approach to manufacturing. By motivating manufacturers to adopt eco-friendly practices and assume responsibility for the environmental impact of their products, EPR contributes to a more ecologically sound and cleaner future.

2. BENEFITS OF EXTENDED PRODUCER RESPONSIBILITY

Here are the Benefits of Extended Producer Responsibility:

- Shared Responsibility for Waste Management: EPR in India effectively shifts the responsibility for managing various waste streams from government and local authorities to the private sector. This cooperative approach reduces the burden on public entities, encouraging producers and stakeholders to play a central role in waste management.
- Promoting Resource Efficiency and Circular Economy: One of the notable benefits of EPR
 is its contribution to promoting resource efficiency and the principles of circular economy.
 By incentivizing the reuse and recycling of materials over resorting to landfills or incineration, EPR promotes a sustainable approach to resource management.
- Catalyst for Innovation and Employment: The implementation of EPR models in India
 opens new avenues for both innovation and employment in the waste management sector. Collaboration between stakeholders such as producers, recyclers, and collectors spark
 innovative solutions while generating employment opportunities.
- Strengthening Consumer Participation: EPR significantly boosts consumer engagement in
 waste reduction and source segregation. By introducing incentives or disincentives linked
 to proper waste disposal, EPR encourages individuals to take proactive measures, leading
 to increased consumer awareness and responsible behavior.
- Protecting Public Health and Environment: The overarching benefit of EPR lies in its positive impact on public health and environmental preservation. By curbing the negative effects of waste on elements like soil, water, and air quality, EPR plays a pivotal role in safeguarding the well-being of communities and the ecosystem.

In summary, EPR represents a comprehensive approach that not only addresses waste management challenges but also generates a range of positive outcomes for India's sustainability journey. Its role in redistributing responsibilities, promoting resource efficiency, fostering innovation, and safeguarding public well-being underscores its significance in shaping a greener and more responsible future.

3. TYPES OF INDIAN EXTENDED PRODUCER RESPONSIBILITY

India has implemented several variations of the Extended Producer Responsibility (EPR) framework, each targeting specific waste categories managed by producers. These different types of EPR include:

- E-Waste Management EPR: This specific variant addresses producers, importers, and brand owners dealing with electrical and electronic equipment (EEE) like computers, mobile phones, TVs, and refrigerators. Compliance requires obtaining EPR authorization from the Central Pollution Control Board (CPCB) and overseeing the proper collection, transportation, storage, treatment, recycling, or disposal of e-waste in a manner that aligns with environmental standards.
- Plastic Waste Management EPR: Aimed at producers, importers, and brand owners
 of plastic packaging materials such as bottles, bags, and wrappers, this category requires registration through a centralized CPCB portal. The obligations include responsible management of plastic waste, including recycling, reuse, or adopting appropriate
 end-of-life disposal methods.
- Battery Waste Management EPR: This form of EPR applies to manufacturers, importers, and assemblers of lead-acid batteries, including those used in vehicles and inverters. Compliance requires obtaining CPCB registration and ensuring proper collection, transportation, storage, treatment, recycling, or disposal of battery waste, all in accordance with environmentally sound practices.
- Waste Tyre Management EPR: This EPR category applies to manufacturers and importers dealing in various types of tyres such as car and truck tyres. The required steps include obtaining CPCB registration and overseeing the responsible management of waste tyres, including collection, transportation, storage, treatment, recycling, or disposal in accordance with environmental standards.

These different types of EPR underline India's comprehensive approach to the sustainable management of a range of waste streams.

4. EPR PLASTIC WASTE

EPR TYPE	Description
Plastic	Regulation: "Plastic Waste Management (Amendment) Rules, 2022".
	Commencement: July 1 st 2022
	Extended Producer Responsibility is applied for:
	Category - I: Rigid Plastic Packaging
	Category - II: Flexible Plastic Packaging
	Category - III: Multi Layered Plastic Packaging
	Category - IV: Plastic sheets or carry bags which are compostable
	Entities involved:
	• Producers
	• Importers
	Brand Owners
	Plastic Waste Processors
	Portal Link for Registration:
	https://eprplastic.cpcb.gov.in/#/plastic/home
	General Responsibilities of Producers, Importers and Brand-Owners
	(PIBOs):
	EPR portal registration must be completed.
	Submit their action plan
	Must fulfil their obligations under the regulation.
	Application and Annual Processing Fee:
	• For PIBOs: Fee varies from 10000 to 50000 INR based on an-
	nual generation of plastic waste.
	Documents Required for Registration (PIBOs):
	PAN, GST, CIN, IEC (for importer) of the company
	Aadhar/ PAN of authorized person
	DIC Registration (only if the unit is registered with DIC)
	Process flow diagram (only for producers)

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 Consents issued by SPCB/ PCC (only if the unit has a produc-
tion facility)
Authorised persons signature copies.
Covering letter
Other documents.
Source:https://eprplastic.cpcb.gov.in/plastic/down-
loads/SOP%20PIBOS_0001.pdf
For any additional Information:
https://eprplastic.cpcb.gov.in/plastic/downloads/4th%20Amend-
ment%20(EPR%20guidelines)%20Feb%202022.pdf

5. EPR E - WASTE

EPR TYPE	Description
E - Waste	Regulation: "E-Waste (Management) Rules, 2022".
	Commencement: April 1 st 2023
	Extended Producer Responsibility is applied for: E-Waste, Electrical and
	Electronic Products mentioned under Schedule - I
	Entities involved:
	Manufacturers
	Producers
	Refurbishers
	Recyclers
	Portal Link for Registration:
	https://eprewastecpcb.in/
	General Responsibilities of Producers, Importers and Brand-Owners
	(PIBOs):
	EPR portal registration must be completed.
	Submission of annual and quarterly returns
	Documents Required for Registration (Producers):

- Company name
- Legal name
- Mobile number
- Official e-mail id
- Land line number (if available)
- CIN / Incorporation Certificate (if available)
- GST
- IEC (if available)
- PAN of company, (if available)
- PAN of authorized person
- Postal address (corporate office address same as in supporting documents)
- Authorized person's name and address, company e-mail id and telephone numbers
- List of EEE from the list of notified EEE along with their codes for which registration is required.

Source:https://eprewastecpcb.in/pdf/SOP_for_grant_Registration_on_the_Portal_under_ewaste_rules_2023.pdf

For any additional Information:

https://eprewastecpcb.in/pdf/e-waste_rules_2022.pdf

6. EPR BATTERY WASTE

EPR TYPE	Description
Battery Waste	Regulation: "Battery Waste Management Rules, 2022".
	Commencement: August 22 nd 2022
	Extended Producer Responsibility is applied for: All Batteries are in-
	cluded except batteries used in security instruments, military, and space
	equipment.
	Entities involved:
	Manufacturers
	Producers (Importers as per Rules)
	Refurbishers
	Recyclers
	Portal Link for Registration:
	http://www.eprbatterycpcb.in/
	General Responsibilities:
	EPR portal registration must be completed.
	Need to fill in Form 1 (A) based on the rules
	Documents Required for Registration (Producers):
	Company GST Certificate
	PAN card of the company
	Corporate Identification Number (CIN) document
	Consent issued by authorities
	Import Export Certificate
	District Industries Center (DIC)
	Source: http://www.eprbatterycpcb.in/upload/adminDoc/SOP.pdf
	For any additional Information:
	http://www.eprbatterycpcb.in/upload/adminDoc/Battery-
	WasteManagementRules-2022.pdf

7. EPR TYRE WASTE

EPR TYPE	Description
Tyre Waste	Regulation: "Hazardous and Other Wastes (Management and Trans-
	boundary Movement) Amendment Rules, 2022.".
	Commencement: July 21st 2022
	Extended Producer Responsibility is applied for: All tyres including new
	and used ones.
	Entities involved:
	Producers (importers as per Rules)
	Retreaders
	Recyclers
	Portal Link for Registration:
	https://www.eprtyrescpcb.in/
	General Responsibilities:
	EPR portal registration must be completed.
	Meet EPR obligations as per rules.
	Documents Required for Registration (Producers):
	Company name and address
	GST Certificate
	PAN Card of the company
	Corporate Identification Number (CIN) document
	Details of authorized person
	Source:https://www.eprtyrescpcb.in/rules/pdf/SoPforRegistration-
	ofProducersonTyrePortal.pdf
	For any additional Information:
	https://www.eprtyrescpcb.in/rules/pdf/amendment-Rules-2022.pdf

8. EPR INDIAN PERSPECTIVE

The Indian perspective on Extended Producer Responsibility (EPR) is that it represents a policy approach aimed at making producers responsible for the environmental impacts of their products throughout their entire life cycle, including their disposal by consumers. In India, EPR focuses primarily on addressing electronic waste (e-waste) and plastic waste, which are the two major sources of waste generation and pollution in the country.

Under the EPR framework in India, producers, importers, and brand owners (PIBOs) are required to register with either the Central Pollution Control Board (CPCB) or the State Pollution Control Boards (SPCBs). Additionally, they are required to establish collection centers or takeback systems for their products. This system also requires PIBOs to meet specific collection and recycling targets and to pay fees or penalties in case of non-compliance.

The primary objectives of EPR in India are to:

- Reduce the environmental and social impact of e-waste and plastic waste, which are estimated to be approximately 3.2 million tonnes and 9.4 million tonnes respectively per year.
- Promote the concept of a circular economy and generate green jobs by involving the
 informal sector. The informal sector includes waste pickers, collectors, traders, and
 recyclers who operate outside the formal waste management system. They play a crucial role in reducing waste going to landfill or incineration, increasing material recovery and recycling rates, providing livelihoods for marginalized individuals, and engaging consumers and communities in the EPR system.

Despite these positive intentions, EPR in India faces several challenges:

- Lack of awareness and capacity among PIBOs and consumers.
- Low collection and recycling rates.
- Inadequate infrastructure and technology.
- Weak enforcement and monitoring mechanisms.
- High cost and administrative burden.
- Competition and conflict with the informal sector.
- Lack of consistency and clarity of rules and regulations across different states and product categories.

To improve the implementation and effectiveness of EPR in India, it is imperative to adopt best practices from other countries, engage stakeholders, harmonize standards, prevent freeriding, ensure fair competition, and formalize the informal sector.

EPR was introduced in India for e-waste in 2012 and for plastic waste in 2016. While there has been progress in recent years, such as an increase in the number of registered PIBOs and the expansion of EPR policies, there is still room for improvement. India can benefit from learning from the best practices of other countries to further develop and strengthen its EPR framework.

Formalizing EPR: Empowering India's Informal Sector

Formalizing the Indian Extended Producer Responsibility (EPR) system involves integrating the informal sector into the EPR framework while improving their livelihoods and well-being. The informal sector plays a crucial role in the management of e-waste and plastic waste, but they face numerous challenges and risks. To address these issues and make the formalization process effective and equitable, the following strategies can be implemented, as suggested by the OECD:

• Create a Legal Framework:

- Recognition and Regulation: Develop a legal framework that officially recognizes and regulates the informal sector as a legitimate stakeholder in the EPR system. This may include issuing licenses, permits, or certificates to waste pickers, collectors, traders, and recyclers.
- Access to Resources: Ensure that the informal sector has access to financial resources, training programs, and technology upgrades. This support can help improve their capabilities and compliance with environmental and social standards.

• Transparent and Accountable Mechanism:

- Collaboration with Producers and Brand Owners: Establish a transparent and accountable mechanism for producers and brand owners to fulfil their EPR obligations by partnering with the informal sector.
- Collection Targets and Incentives: Set specific collection targets for producers and brand owners and offer incentives or impose fees to encourage them to support the informal sector.

- Traceability System: Implement a traceability system to monitor the flow of waste materials from their source to their final destination. This will ensure transparency and accountability in the waste management process.
- Verification and Auditing: Develop a system to verify and audit the quality and quantity of waste collected and recycled by the informal sector. This will ensure compliance with standards and maintain the integrity of the EPR system.

• Capacity Building and Competitiveness Enhancement:

- Technical Assistance: Provide technical assistance to the informal sector, including training programs and skills development, to enhance their capacity and efficiency in waste management.
- Infrastructure Support: Improve the infrastructure and facilities used by the informal sector for waste sorting and processing.
- Best Practices and Standards: Introduce best practices and standards for waste management, to ensure that the informal sector complies with environmental and safety norms.
- Market Linkages: Facilitate market linkages for the informal sector, connecting them with formal recyclers and end-users of recycled materials. This can help improve their income and market access.

By implementing these strategies, India can formalize its EPR system while improving the livelihoods and working conditions of those in the informal sector. This approach promotes sustainability, reduces environmental impacts, and fosters a more inclusive and equitable waste management ecosystem.

9. INSTRUMENTS BASED ON OECD CONTEXT

The Organization for Economic Co-operation and Development (OECD) has established four major types of Extended Producer Responsibility (EPR) instruments to promote environmental sustainability and proper management of products throughout their life cycle. These instruments aim to shift the responsibility for end-of-life management of products from consumers and local governments to manufacturers and producers. Here is a summary of each of the four types of EPR instruments:

- Product Take-Back: This EPR tool assigns the responsibility for managing a product at the end of its life on the manufacturers or distributors. This can be done in several ways:
 - Setting collection and recycling targets for a product.
 - o Producers can be required to participate in mandatory take-back programs.
 - Producers can choose voluntary take-back programs.
 - Producers can offer incentives to encourage consumers to return unwanted products to designated collection points or reputable distributors.
- Economic and Market-Based Instruments: These instruments provide financial incentives to encourage the implementation of EPR policies. They come in four different forms:
 - Deposit Refund: Consumers pay a deposit when purchasing a product, which
 is partially or fully refunded when they return the product to the producer or
 retailer at a designated location.
 - Advanced Disposal Fees (ADF): Consumers pay a fee at the time of purchase for specific items, with the fee amount determined by the expected cost of collection and treatment. These fees are collected by governmental or private bodies and are used to fund the post-consumer treatment of the items. Consumers may receive reimbursements for unused fees.
 - Material Tax: Manufacturers using virgin, difficult-to-recycle, or hazardous materials pay a tax to encourage them to use recycled or less harmful resources.
 The tax ideally covers the cost of treatment, and it is used to finance the collection, sorting, and treatment of post-consumer items.
 - Upstream Combination Tax/Subsidy (UCTS): This tax is levied on manufacturers and is used to finance waste treatment. It also provides incentives for companies to change their product designs and materials, along with a financing mechanism to promote recycling and treatment.
- Regulations and Performance Standards: Producers can be subject to regulations and
 performance standards that require them to use a minimum percentage of recycled
 materials in their products. These regulations can increase incentives for product redesign and encourage the take-back and recycling of end-of-life products. Industries

may establish their own performance criteria, which can be either mandatory or voluntary.

- Information-Based Instruments: These instruments aim to increase public awareness of EPR programs and indirectly support their implementation. Measures may include:
 - Labelling of products and components to indicate their environmental attributes.
 - Communicating with consumers about producer responsibility and waste separation.
 - Notifying recyclers about the materials used in products to facilitate proper recycling and treatment.

These EPR instruments play a crucial role in promoting sustainable consumption and production patterns, reducing waste and minimizing the environmental impact of products throughout their life cycle.

10.EPR COMPARISON BETWEEN INDIA AND EU

Extended Producer Responsibility (EPR) is a policy approach that holds producers accountable for the environmental impacts of their products throughout their life cycle, even after they have been discarded by consumers. EPR is implemented differently in India and Europe, and while there are some similarities, there are also notable differences between the two approaches.

Similarities:

- Reducing Environmental Impact: Both the Indian and European EPR systems share
 the common goal of reducing the environmental and social consequences of waste
 generation, with a particular focus on issues related to e-waste and plastic waste,
 which are significant sources of pollution and greenhouse gas emissions.
- Involvement of Multiple Stakeholders: In both India and Europe, EPR programs involve collaboration between various stakeholders, including producers, consumers, retailers, collectors, recyclers, local authorities, non-governmental organizations (NGOs), and others. This multi-stakeholder approach is essential to ensure the effective implementation of EPR.

Use of Regulatory and Economic Instruments: Both the Indian and European EPR systems use a combination of regulatory and economic measures to enforce the EPR principles. These include mandatory take-back schemes, the setting of collection and recycling targets, and the imposition of fees or penalties for non-compliance to encourage responsible product management.

Differences:

• Legal Framework:

- India: Limited scope of EPR, focusing on e-waste, plastic, battery and tyre waste.
- Europe: Comprehensive EPR framework covering multiple product categories, stricter implementation, and regular updates to align with environmental priorities.

• Responsibility and Registration:

- India: EPR in India requires producers, importers, and brand owners (PIBOs) to register with either the Central Pollution Control Board (CPCB) or State Pollution Control Boards (SPCBs) and establish collection centers or take-back systems for their products.
- Europe: In Europe, producers or collective schemes are responsible for financing and organizing the collection and recycling of their products at the end of their life cycle, but there is no requirement to register as a PIBO.

• Implementation Sector:

- India: EPR in India is mainly carried out by the informal sector, which includes waste pickers, collectors, traders, and recyclers operating outside the formal waste management system.
- Europe: EPR in Europe is mainly carried out by the formal sector which consists
 of registered and regulated producers or collective schemes operating in accordance with government authorities.

Awareness and Compliance:

 India: EPR in India currently faces challenges related to low levels of awareness and compliance among both producers and consumers. Europe: Conversely, EPR in Europe benefits from high levels of awareness and compliance among producers and consumers, which is facilitated by established regulations and greater public awareness.

In summary, while EPR in India and Europe share the overarching goal of reducing the environmental impact of products, they differ in their legal frameworks, registration requirements, implementation sectors, and levels of awareness and compliance. These differences reflect the unique socio-economic and regulatory contexts of each region.

11. RECOMMENDATIONS BASED ON THE ANALYSIS

- Broaden the Scope of EPR Policy: Expand the scope of the Extended Producer Responsibility (EPR) policies to include a wider range of materials and products, to ensure a more comprehensive approach to waste management.
- Set Explicit Goals and Time-Bound Milestones: Define precise objectives, a well-defined scope, and time-bound targets for the organized collection and responsible disposal of waste to promote a sustainable and accountable framework.
- Clarify Stakeholder Roles and Responsibilities: Clearly define the roles and responsibilities of all stakeholders, such as manufacturers, government entities, recyclers, and consumers, to create a harmonious and efficient system.
- Centralize Recycling and Recovery via Eco-Parks: Implement a centralized mechanism
 using Eco-parks to efficiently convert waste into reusable materials, to promote a circular economy and minimize environmental impact.
- Integrate Formal and Informal Sectors for Safe Recycling: Encourage collaboration between the formal and informal sectors to ensure that all recycling and recovery activities adhere to safety standards, thereby generating employment opportunities and reducing health risks for workers.
- Thorough Data Collection and Transparency: Establish a comprehensive data collection and tracking system to ensure transparency in reporting, monitoring, and enforcement. Reliable data will play a key role in making informed decisions and improving operational efficiency.
- Continuous Performance Assessment: Regularly evaluate the performance of the waste management system based on the collected data, with a commitment to make the necessary improvements to further optimize the process.

12.CONCLUSION

In conclusion, the implementation of Extended Producer Responsibility (EPR) in India represents a pivotal shift towards promoting sustainable waste management and fostering a circular economy. This multifaceted approach, which holds producers, importers, and brand owners responsible for the lifecycle of their products, not only encourages the development of environmentally friendly goods but also integrates waste management costs into product pricing.

India's journey towards formalizing EPR has been gradual and adaptive, with evolving rules and guidelines tailored to address different types of waste, such as plastics and batteries. This iterative process has allowed for fine-tuning and adaptation to the unique challenges and opportunities of the Indian landscape.

The introduction of a centralized EPR portal has brought a new level of transparency to the recycling cycle, instilling accountability and facilitating the exchange of EPR certificates. Moreover, these regulations have spurred entrepreneurship in the field of waste recovery, recycling, and refurbishment, leading to innovative solutions to address the growing waste crisis. However, it is important to recognize that the effectiveness of EPR in India depends on robust enforcement and unwavering compliance. The introduction of penalties for non-compliance is a crucial step, but its impact will depend on rigorous monitoring and consistent enforcement by government authorities.

In essence, while the formalization of EPR in India represents a commendable step towards sustainable waste management, its ultimate success will depend on the resolute commitment of producers, importers, and brand owners to comply with EPR regulations, coupled with diligent oversight and enforcement by government authorities. Only through this collaborative effort can India truly realize the potential of EPR to create a cleaner, more environmentally conscious future for all.



Contact Us

- GPC Group Headquarter



IDEON, Beta 5, Scheelevägen 17, 223 63 Lund, Sweden



+46 46 211 46 15



info@gpcregulatory.com



Corporate website: gpcregulatory.com



Regulatory Intelligence Portal: gpcgatway.com



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