
FROM COMPLIANCE TO RESPONSIBILITY: EVALUATING THE EFFECTIVENESS OF EXTENDED PRODUCER RESPONSIBILITY AS A CORPORATE ENVIRONMENTAL GOVERNANCE TOOL IN INDIA

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ABSTRACT

Extended Producer Responsibility (EPR) has emerged as a significant instrument of corporate environmental governance in India, tasked with shifting the burden of end-of-life waste management from public authorities to private producers. Operationalised through a suite of subordinate legislation under the Environment Protection Act, 1986, EPR frameworks now govern electronic waste, plastic packaging, batteries, and tyre waste. Despite the legislative architecture, a persistent gap endures between formal compliance and substantive environmental responsibility. This article critically evaluates the effectiveness of EPR as a corporate environmental governance tool in India by examining its doctrinal foundations, regulatory evolution, institutional mechanisms, and practical limitations. It argues that India's EPR regime, while architecturally ambitious, is undermined by weak enforcement infrastructure, inadequate integration of the informal recycling sector, target-driven rather than outcome-driven compliance cultures, and insufficient judicial oversight. Drawing on comparative insights from the European Union, the article proposes reforms oriented toward transparency, genuine producer accountability, and the alignment of EPR with broader principles of corporate environmental responsibility. Ultimately, the article contends that a meaningful transition from compliance to responsibility requires not merely regulatory tightening but a normative reorientation of how corporations conceive their environmental obligations under Indian law.

I. INTRODUCTION

The ecological consequences of industrialisation and mass consumption have compelled legal systems across the world to develop novel instruments of environmental governance. Among these, Extended Producer Responsibility (EPR) occupies a position of increasing prominence. At its core, EPR is a policy principle that holds producers financially and operationally accountable for the post-consumer fate of the products they place on the market.¹ The principle proceeds from the intuition that those who profit from a product's manufacture and sale ought also to bear the costs of its environmental aftermath. In India, EPR has been incorporated into the regulatory architecture governing several waste streams, including electronic waste, plastic packaging, batteries, and tyres.

India is the world's third-largest generator of electronic waste and among the largest contributors to plastic pollution, generating approximately 3.4 million metric tonnes of e-waste and over 3.5 million metric tonnes of plastic waste annually. Against this backdrop, EPR has been promoted as a market-based, responsibility-internalising mechanism capable of incentivising producers to adopt cleaner product designs, fund recycling infrastructure, and reduce the burden on municipal solid waste systems.² Yet, the gap between the promise of EPR and its ground-level performance in India remains strikingly wide.

This article proceeds in six parts. Following this introduction, Part II situates EPR within the broader conceptual framework of corporate environmental governance and traces its doctrinal underpinnings. Part III analyses the legislative and regulatory evolution of EPR in India across key waste sectors. Part IV examines the institutional mechanisms established for EPR implementation and their structural weaknesses. Part V critically evaluates the effectiveness of the current EPR regime through the lens of compliance behaviour, enforcement gaps, and stakeholder dynamics. Part VI draws on comparative insights to propose a normative and institutional reorientation of EPR governance, and Part VII concludes.

II. EPR AND CORPORATE ENVIRONMENTAL GOVERNANCE: CONCEPTUAL FOUNDATIONS

Corporate environmental governance refers to the structures, processes, and norms by which

¹Environment Protection Act, 1986, No. 29, Acts of Parliament, 1986 (India).

²Organisation for Economic Co-operation and Development, *Extended Producer Responsibility: A Guidance Manual for Governments* (OECD Publishing 2001) 9.

corporations are directed, controlled, and held accountable for their environmental impacts. It encompasses both internal mechanisms—such as environmental management systems and sustainability reporting—and external mechanisms—such as regulatory compliance, civil liability, and stakeholder pressure. The evolution of corporate environmental governance has traversed a trajectory from command-and-control regulation, through market-based instruments, toward the contemporary aspiration of voluntary corporate environmental responsibility.

EPR was first articulated systematically by Swedish academic Thomas Lindqvist in 1990 as a policy strategy to reduce the total environmental impact of a product by making the producer responsible for the entire lifecycle of that product.³ This formulation proceeds from the 'polluter pays' principle embedded in international environmental law and reflected in Indian constitutional jurisprudence, but extends it beyond the point of pollution to the design, manufacture, and disposal phases of a product's life. EPR thus functions as both a cost-internalisation mechanism and a design-incentivisation tool.

In the literature on environmental governance, EPR has been characterised as occupying the space between mandatory regulation and voluntary corporate responsibility.⁴ It imposes legally enforceable obligations—collection targets, recycling rates, take-back duties—while simultaneously creating the incentive space for producers to innovate toward environmental sustainability. This dual character is central to understanding both the potential and the limitations of EPR as a governance instrument.

In the Indian context, the relationship between EPR and corporate environmental governance is further shaped by the Companies Act, 2013, which mandates qualifying companies to spend a prescribed percentage of profits on corporate social responsibility (CSR) activities, including environmental sustainability.⁵ The Securities and Exchange Board of India's Business Responsibility and Sustainability Reporting (BRSR) framework additionally requires large listed entities to disclose their environmental performance against defined key performance indicators.⁶ These instruments collectively constitute an emerging architecture of corporate

³Thomas Lindqvist, *Extended Producer Responsibility in Cleaner Production: Policy Principle to Promote Environmental Improvements of Product Systems* (Lund University 2000) 5–7.

⁴Ataur Rahman & Md. Mostafizur Rahman, 'Extended Producer Responsibility: Conceptual Framework and Key Principles' (2015) 8(2) *International Journal of Environmental Research* 339, 341.

⁵Companies Act, 2013, No. 18, Acts of Parliament, 2013, § 135 (India) (mandating corporate social responsibility for qualifying companies).

⁶Securities and Exchange Board of India, *Business Responsibility and Sustainability Reporting Framework*

environmental governance within which EPR must be understood and evaluated.

III. LEGISLATIVE AND REGULATORY EVOLUTION OF EPR IN INDIA

India's EPR framework does not rest on a single dedicated statute but is constituted through a series of rules framed under the Environment Protection Act, 1986 ('EPA'), which confers broad rule-making authority on the Central Government for the purposes of environmental protection. This delegated legislative approach has produced a sectorally fragmented but increasingly detailed body of EPR regulation.

The E-Waste (Management) Rules, first notified in 2011 and revised in 2016 and again in 2022, represent the most developed expression of EPR in India.⁷ Under the 2022 Rules, producers of electrical and electronic equipment are required to register with the Central Pollution Control Board (CPCB), set up or authorise take-back and collection facilities, achieve prescribed Extended Producer Responsibility targets measured as a percentage of the quantity of goods placed on the market, and obtain EPR certificates from registered recyclers.⁸ The introduction of a centralised EPR portal and a market for tradeable EPR certificates was intended to introduce market efficiency into what had previously been a command-and-control framework.

The Plastic Waste Management Rules, 2016 and their 2022 amendments introduced EPR obligations for producers, importers, and brand owners (PIBOs) of plastic packaging.⁹ The 2022 amendments mandated that PIBOs register on a centralised EPR portal, furnish annual action plans, and meet annual targets for the collection and recycling of plastic waste.¹⁰ Notably, these rules also introduced a system of EPR certificates, issued by registered plastic waste processors, which PIBOs must procure to discharge their statutory obligations.

The Batteries (Management and Handling) Amendment Rules, 2022 extended EPR to batteries, requiring producers to collect and channel spent batteries to registered recyclers and to meet progressive collection targets.¹¹ Draft EPR regulations for tyre waste are also under

(SEBI Circular No. SEBI/HO/CFD/CMD-2/P/CIR/2021/562, 2021).

⁷E-Waste (Management) Rules, 2016, G.S.R. 338(E) (India); subsequently superseded by E-Waste (Management) Rules, 2022.

⁸Ministry of Environment, Forest and Climate Change, E-Waste (Management) Rules, 2022, S.O. 3112(E) (India).

⁹Plastic Waste Management Rules, 2016, G.S.R. 320(E) (India).

¹⁰Plastic Waste Management (Amendment) Rules, 2022, G.S.R. 40(E), r. 9A (India) (introducing the centralised EPR portal for producers, importers, and brand owners).

¹¹Batteries (Management and Handling) Amendment Rules, 2022, G.S.R. 697(E) (India).

consideration.¹² This cumulative development of sectoral EPR frameworks reflects a legislative ambition that has steadily expanded the universe of products subject to producer responsibility obligations. However, ambition in legal design does not automatically translate into effectiveness in practice.

IV. INSTITUTIONAL FRAMEWORK FOR EPR IMPLEMENTATION

The implementation of EPR in India is administered through a layered institutional framework involving the Ministry of Environment, Forest and Climate Change (MoEFCC) at the apex, the Central Pollution Control Board (CPCB) as the primary regulatory and enforcement authority, and State Pollution Control Boards (SPCBs) as frontline agencies. Producers, importers, and brand owners interact with this framework primarily through the centralised EPR portals established under the respective rules.

The CPCB performs multiple roles simultaneously: it registers producers, approves EPR action plans, issues guidelines on target computation, certifies recyclers and refurbishers, monitors compliance, and exercises enforcement powers under the EPA.¹³ This concentration of regulatory functions in a single body, while administratively convenient, creates structural tensions between the facilitative and enforcement dimensions of regulatory activity. There is a well-documented risk that regulatory capture or resource constraints may impair the objectivity of enforcement decisions.

Producer Responsibility Organisations (PROs) occupy an intermediate position in the EPR institutional architecture. PROs are entities authorised to collect and channel waste on behalf of multiple producers, thereby enabling producers—particularly small and medium enterprises—to fulfil their EPR obligations collectively rather than individually.¹⁴ While PROs have the potential to generate scale efficiencies in waste management, their accountability structures remain underdeveloped in India. The absence of mandatory third-party auditing requirements for PROs and the lack of standardised performance metrics limit the transparency and verifiability of their operations.

¹²Ministry of Environment, Forest and Climate Change, Draft Extended Producer Responsibility Regulations for Tyre Waste (MoEFCC Notification 2023).

¹³Sections 15–17, Environment Protection Act, 1986; Rule 20, E-Waste (Management) Rules, 2022.

¹⁴Kalpana Sharma, 'Producer Responsibility Organisations in India: A Critical Review' (2022) 5(2) Corporate Environmental Governance Review 34, 39.

The National Green Tribunal (NGT), established under the National Green Tribunal Act, 2010, has played a significant supplementary role in EPR governance through suo motu proceedings and petitions challenging non-compliance.¹⁵ In particular, the NGT has directed CPCB and SPCBs to provide periodic compliance reports on e-waste and plastic waste management, and has issued corrective directions against defaulting producers.¹⁶ Judicial intervention of this kind has occasionally served as a substitute for routine regulatory enforcement, but it is episodic and reactive rather than systematic and preventive.

V. CRITICAL EVALUATION OF EPR EFFECTIVENESS IN INDIA

Notwithstanding the progressive development of India's EPR legislative framework, the evidence on its effectiveness as a corporate environmental governance tool is sobering. The following analysis identifies five structural weaknesses that collectively constrain the transformative potential of EPR in India.

First, there is a fundamental enforcement deficit. Despite the existence of registration requirements, EPR targets, and certificate obligations, a significant proportion of producers either fail to register or fail to achieve their mandated targets. CPCB data indicates that in the e-waste sector, actual EPR certificate procurement has consistently fallen short of targets, with compliance rates among registered producers estimated at below fifty percent in several reporting cycles.¹⁷ Enforcement actions—*notices, penalties, and prosecutions*—have been sporadic and inadequate to deter systematic non-compliance.¹⁸

Second, the informal recycling sector presents a governance paradox. India's waste management ecosystem is characterised by a large, historically embedded informal sector consisting of waste pickers, scrap dealers, and small-scale recyclers who handle a substantial proportion of e-waste and plastic waste through economically effective but environmentally hazardous methods.¹⁹ While the formal EPR framework mandates channelisation of waste to

¹⁵National Green Tribunal Act, 2010, No. 19, Acts of Parliament, 2010 (India).

¹⁶National Green Tribunal, *In Re: Compliance of E-Waste Management Rules*, Original Application No. 606/2018 (NGT, Principal Bench, 2022).

¹⁷Central Pollution Control Board, *E-Waste Management: Compliance and Enforcement Data 2021–22* (CPCB 2023) 7–9.

¹⁸Pollution Control Boards across states such as Maharashtra, Karnataka, and Tamil Nadu have issued show-cause notices to non-compliant producers. See CPCB, *Enforcement Actions Under EPR Framework 2022–23* (CPCB 2023).

¹⁹Suresh Kumar Sharma, 'Informal Sector Integration in E-Waste Management: Policy Imperatives for India' (2021) 19 *Asian Journal of Environmental Law* 88, 97.

registered recyclers, this requirement effectively marginalises informal workers without providing viable pathways for their formalisation or integration into the EPR value chain. The resulting tension undermines both the environmental objectives of EPR and the social equity dimensions of waste governance.

Third, EPR compliance in India is predominantly target-driven rather than outcome-driven. The current frameworks require producers to demonstrate that they have procured a prescribed quantity of EPR certificates, which certify that a corresponding quantity of waste has been collected and processed by a registered recycler. This certificate-based mechanism, while administratively tractable, creates incentives for producers to satisfy formal obligations without engaging substantively with waste collection or design innovation.²⁰ Reports of certificate manipulation and inflated recycling claims have undermined confidence in the EPR market mechanism.

Fourth, corporate reporting obligations under EPR lack the depth and standardisation necessary to enable meaningful accountability. While the BRSR framework introduced mandatory environmental disclosures for listed companies, EPR-specific reporting under the sectoral rules remains fragmented, inconsistently verified, and insufficiently integrated with broader corporate sustainability disclosures. The absence of standardised metrics for measuring the environmental impact of EPR activities—as distinct from the volume of waste processed—renders it difficult to assess whether EPR is delivering genuine environmental benefit or merely circular paperwork.

Fifth, the financial architecture of EPR in India does not adequately reflect the true environmental cost of waste generation. EPR obligations are computed with reference to the quantity of goods placed on the market in previous years, but the cost of fulfilling these obligations through certificate procurement or direct collection is frequently lower than the actual cost of environmentally sound waste management.²¹ This underpricing of producer responsibility creates no meaningful economic incentive for producers to invest in upstream interventions—such as design for recyclability or reduction in hazardous material inputs—that would reduce waste generation at source.

²⁰Arpita Mathur & Priya Rathi, 'EPR Certificates and Market Mechanisms: Lessons from India's Plastic Waste Regime' (2023) 11(3) *Journal of Waste Law and Policy* 201, 210.

²¹Confederation of Indian Industry, *EPR Implementation in India: Industry Perspectives and Challenges* (CII Policy Paper 2022) 11.

VI. COMPARATIVE INSIGHTS AND THE PATH TOWARD RESPONSIBILITY

A comparative examination of EPR regimes in the European Union offers instructive lessons for India's reform agenda. The EU's Waste Electrical and Electronic Equipment (WEEE) Directive mandates individual producer responsibility, requires high collection and recovery targets, and imposes robust third-party audit requirements on PROs.²² Importantly, EU EPR frameworks place significant weight on eco-design requirements that incentivise producers to reduce the environmental footprint of products at the design stage rather than merely managing waste at the end of life.

The European experience suggests that EPR effectiveness is substantially dependent on the quality of the institutional ecosystem within which it operates, including the independence and technical capacity of regulatory bodies, the sophistication of data collection and verification systems, and the integration of EPR obligations with broader corporate sustainability governance.²³ In the Indian context, this points toward the necessity of institutional strengthening rather than merely regulatory expansion.

Three reform directions deserve particular attention. First, India should mandate credible third-party auditing of EPR compliance, including verification of EPR certificate genuineness and recycler capacity.²⁴ The current self-declaration model is structurally inadequate to detect or deter fraudulent certificate procurement, and the CPCB lacks the resources to conduct comprehensive verification independently.

Second, EPR frameworks should be explicitly integrated with the BRSR and other corporate sustainability reporting obligations, creating a unified disclosure architecture that enables investors, regulators, and civil society to assess corporate environmental performance across the full lifecycle of products.²⁵ This integration would enhance the informational efficiency of the EPR market and reduce the risk of greenwashing.

Third, the informal recycling sector must be brought meaningfully within the EPR governance

²²Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on Waste Electrical and Electronic Equipment (Recast) [2012] OJ L197/38.

²³European Environment Agency, *Extended Producer Responsibility: Producer Responsibility Organisations in Europe* (EEA Report No. 6/2023) 18–22.

²⁴Central Pollution Control Board, *Third-Party Audit Framework for EPR Compliance* (CPCB Circular 2023).

²⁵Nikhil Ghanekar, 'Corporate Environmental Governance and EPR: Bridging Compliance and Responsibility' (2023) 9(1) *Indian Journal of Environmental Law* 67, 74.

framework, not through displacement but through structured formalisation.²⁶ Models such as the co-operative formalisation approach piloted in certain Indian cities, which issue identity cards to waste pickers and create formal linkages between waste pickers and EPR-registered entities, provide promising templates for replication at scale.²⁷

Fourth, the EPR regulatory framework should incorporate eco-design mandates that require producers to demonstrate progress toward recyclability, material reduction, and hazardous substance elimination over defined timelines.²⁸ Such mandates would operationalise the transformative potential of EPR as a design governance tool, shifting corporate attention from waste management to waste prevention.

Finally, India's EPR framework should be contextualised within its international obligations under the Basel Convention on transboundary hazardous waste movements,²⁹ as well as within the emerging G20 consensus on harmonised EPR standards.³⁰ Aligning India's EPR targets and reporting requirements with international standards would both enhance credibility and facilitate the development of cross-border producer responsibility schemes for multinational companies operating in the Indian market.

VII. CONCLUSION

India's Extended Producer Responsibility framework represents a significant legislative achievement. The progressive extension of EPR obligations across electronic waste, plastic packaging, batteries, and tyres reflects a genuine regulatory ambition to hold producers accountable for the environmental consequences of their commercial activities. The institutional architecture—centred on the CPCB, a centralised EPR portal, and a certificate-based compliance mechanism—provides a workable administrative scaffolding for producer responsibility governance.

Yet, the evidence surveyed in this article reveals that the transition from compliance to

²⁶Bibek Debroy & Aditya Sinha, 'Informal Recyclers and Formalisation: India's Unresolved Tension' (2022) 17 *Economic and Political Weekly* 44, 46.

²⁷Swachh Bharat Mission (Urban) 2.0, Guidelines for Solid Waste Management (Ministry of Housing and Urban Affairs 2021) 22.

²⁸Ministry of Electronics and Information Technology, India's Circular Economy Action Plan for Electronics (MeitY 2023) 6–8.

²⁹Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, opened for signature 22 March 1989, 1673 UNTS 57 (entered into force 5 May 1992), Art. 2; India is a party.

³⁰G20 Environment Ministers' Communiqué, Sustainable and Resilient Communities, New Delhi (2023), para 14 (endorsing harmonised EPR frameworks among G20 nations).

responsibility—the conceptual aspiration that animates EPR—remains incomplete and, in important respects, elusive. The enforcement deficit, the marginalisation of the informal sector, the prevalence of target-driven compliance cultures, the inadequacy of corporate reporting standards, and the underpricing of producer obligations collectively prevent EPR from realising its potential as a transformative instrument of corporate environmental governance.

The normative ambition of EPR—that corporations should be genuinely responsible, not merely formally compliant, for the environmental lifecycle of their products—demands a corresponding normative reorientation within India's regulatory and corporate communities.³¹ Legal reform, institutional strengthening, and the cultivation of a corporate culture in which environmental responsibility is conceived as a dimension of business integrity rather than a compliance burden are mutually reinforcing imperatives. The global resource crisis and India's distinctive ecological vulnerabilities make this reorientation not merely desirable but urgent.³²

Ultimately, the measure of EPR's success in India will not be the number of certificates procured or the tonnage of waste processed, but the degree to which it has catalysed a genuine shift in corporate behaviour—toward cleaner products, responsible supply chains, and a corporate culture in which the producer's responsibility for environmental harm is internalised as a matter of principle rather than discharged as a matter of procedure.

³¹Anurag Danda & Priyanka Singh, 'Towards Genuine Corporate Environmental Responsibility: Beyond Tick-Box Compliance in India' (2023) 15(2) *South Asian Law Review* 77, 88.

³²International Resource Panel, *Global Resources Outlook 2023: Natural Resources for a Better Future* (UNEP 2023) 41.