IJAMESC, Vol. 3 No. 6, December 2025
DOI: https://doi.org/10.61990/ijamesc.v3i6.647 e-ISSN 2986-8645

EXTENDED PRODUCER RESPONSIBILITY FOR PLASTIC WASTE: A STRATEGIC MANAGEMENT ACCOUNTING PERSPECTIVE IN INDONESIA

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Abstract
These studies aim for research Implementation of Extended Producer Responsibility (EPR) in the Consumer Goods Industry in Indonesia. Extended Producer Responsibility (EPR) is policies that require manufacturer for responsible answer to products produced in the phase post consumption including packaging. Application policy This expected can reduce embossed rubbish plastic and push practice sustainable business. Research This use Systematic Literature Review (SLR) method for various studies national and international related EPR implementation and role accountancy management strategic in context sustainability. Study results show that the implementation of EPR in Indonesia is still not optimal and new adopted by some companies that have commitment to sustainability in its business strategy. Findings this also confirms importance integration information cost environment in the planning and decision-making process decision managerial as part from accountancy management strategic. With Thus, accounting management strategic play a role important in support EPR implementation, improving efficiency source power, as well as strengthen responsible consumption and production answer in accordance with Sustainable Development Goals (SDG) 12.

Keywords: Extended Producer Responsibility, Accounting Management Strategy, SDG 12

1. Introduction

Change climate, exploitation source Power excessive nature, waste industry, as well as pattern consumption that is not efficient has cause crisis complex environmental and social issues. This No only impact on sustainability global ecosystem, but also threatens stability economy and welfare social term long. Answer challenge said, the Union Nations through the Sustainable Development Goals (SDGs) agenda, 17 goals are set development mutually sustainable integrated. One of the most crucial and relevant goals for sector industry is SDG 12: Responsible Consumption and Production, which emphasizes importance management source Power in a way efficient, reduction waste, and behavior consumption as well as sustainable production throughout chain supply.

Indonesia, as a developing country with an industrial base large manufacturing, holding role important in achievement of SDG 12. Manufacturing sector No only donate in a way significant to Product Domestic Gross Domestic Product (GDP), but it is also one of the contributors main to consumption energy, emissions carbon and pollution environment. Therefore that, transformation going to practice more production sustainable No can postponed. This is where accountancy management strategic Management Accounting) becomes very relevant as instrument managerial that can help company directing its business strategy to be in line with objective sustainability.

In Indonesia the problem rubbish plastic is A necessary polemics handled seriously. Because rubbish mixed plastic with rubbish organic the amount Keep going increase from year to year. Based on data from Haliza (2025) Indonesia every year produce rubbish plastic

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as many as 9.8 million, but only 11% can recycled repeat. This is can become threat Serious like existence pollution and damage environment if no quick handled by the Ministry of Environment Life will tighten rule about management rubbish plastic through Extended Producer Responsibility (EPR) policy, which is of a nature voluntary become must for perpetrator Industry. This step taken as effort government in handle problem rubbish plastic in Indonesia.

According to System data Information Management National Waste (SIPSN), generation rubbish national recorded around 38.6 million tones in 2023 (from 365 districts / cities) and can reach 64.6 million tons if all 514 districts / cities follow report. Proportion rubbish plastic is also significant and projected will Keep going increased. for example, the composition rubbish plastic in Indonesia amounted to 19.21% in 2023, it is estimated can go up to around 38.42% in 2050 if No There is effective intervention.

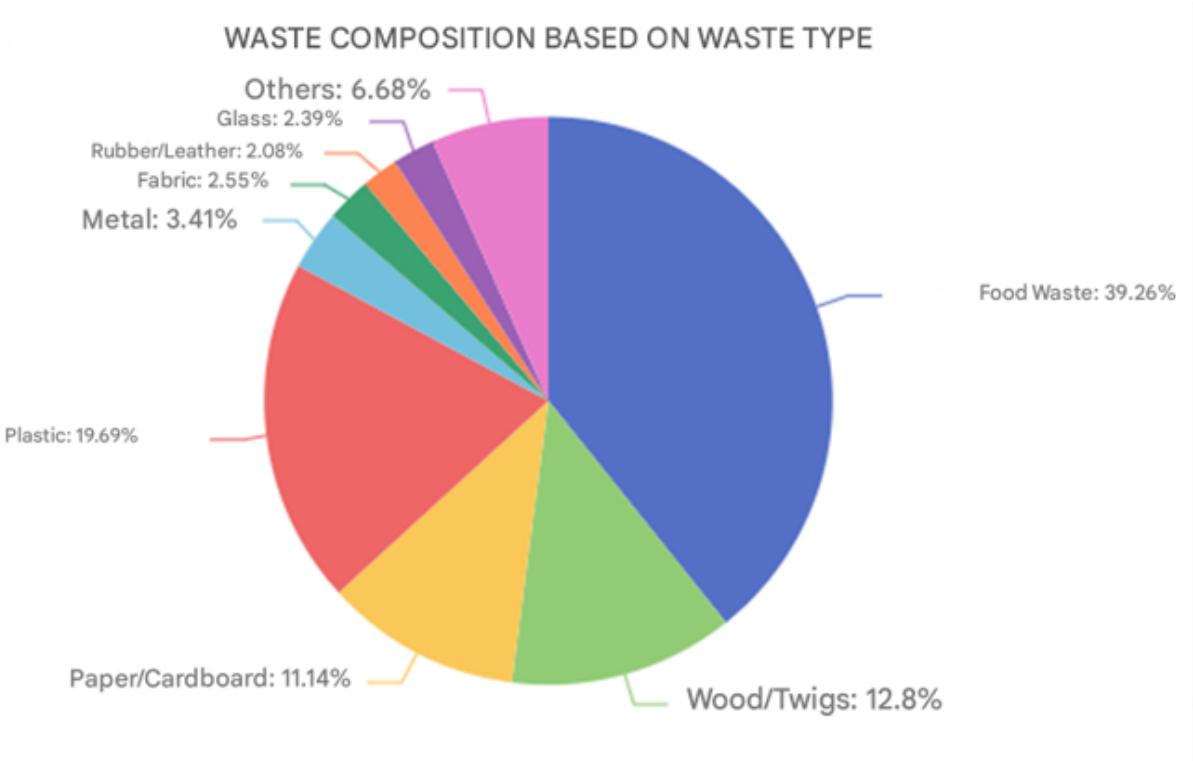

Figure 1. Graphic Image composition rubbish based on type rubbish 2024
(Source: SIPSN)

Rubbish plastic packaging be one of problem main, of the total waste plastic, lots packaging very use, AMDK (Drinking Water) packaging In Packaging), packaging food and beverages, and packaging goods consumption others who have contribution big. As for example, AMDK products contribute around 226 thousand tons of 3.2 million tons of waste plastic annually in Indonesia (7.06%) and from amount of which 20.3% is in the form of packaging glass plastic (DetikNews, 2022).

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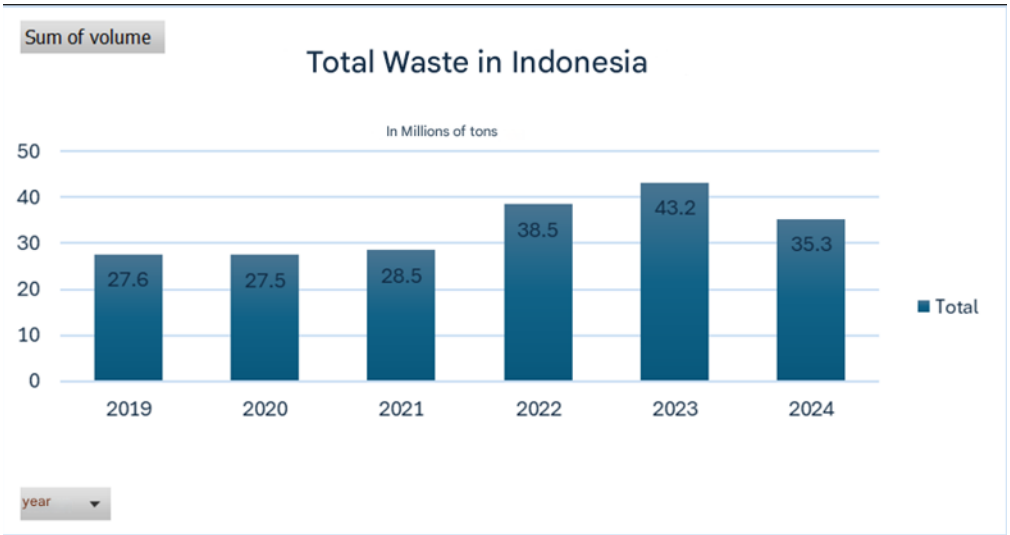

Figure 2. Graphic Emission Rubbish Annual (Source: SIPSN)

In Indonesia the EPR concept has arranged in Law No. 18 of 2008 Article 15 Concerning Management Garbage, which states that manufacturer responsible answer on disposal packaging and products that are not can composted or difficult for made into compost. In regulation legislation, Manufacturers required use material recycling repeat and take care of recycling repeat packaging. Law the give guidelines implementation of EPR especially obligation manufacturer in subtraction garbage. Government has arranged management rubbish House stairs and the like through Regulation Government Regulation No. 81 of 2012, including set not quite enough answer manufacturers. Furthermore, through Minister of Environment and forestry Regulation No. 75 of 2019, implemented Extended Producer Responsibility (EPR) policy which requires manufacturer responsible answer on all over cycle life its products, including management rubbish post-consumption. However, the implementation of EPR is still face challenges, such as compliance manufacturers who have not evenly distributed, regulations that have not been fully clear or firm, capacity limited supervision, incentives and sanctions that are not optimal, and lack of valid data related to achievements subtraction waste by producers.

Strategic Management Accounting is capable of provide framework information strategic financial and non- financial, for example analysis cost cycle life cycle costing, assessment risk environment, evaluation performance sustainability that can help company manufacturing optimize implementation of EPR and SCP practices in more effective. Accounting management strategic No only focused on information internal costs, but also consider factor external like market behavior, position competitive, as well as aspect environmental and social influences achievement objective term long company. Approach This allows management for formulate and evaluate strategies based on more data holistic and oriented to front, including measurement to efficiency source power, emissions carbon, management waste, as well as performance environmental and social other.

Activity production like processing, packaging, processing and distribution processes can cause impact to environment (Rabbi, 2025). When This Lots companies that have apply implementation to practice responsible production answer through reported CSR program development every year in the report sustainability company. The more many awareness from company about importance guard environment for sustainability. one of for example that is with existence implementation of recycling programs repeat a number of packaging product so that can process return become packaging product. thing This naturally is form step from not quite enough answer on sustainable consumption and production.

Moment these companies has utilize CSR programs in particular field management waste organic and non- organic for socialize behavior sustainable consumption and production in place activity business operating. Through the CSR program, the company can build cooperation with empowering public around for manage remainder rubbish in a way together. Besides that, this program can also give benefit social and economic for public around. Many companies in Indonesia have try holding an empowerment program public in management waste plastic. Some of these programs has assessed effective and can become example for other companies in hold a similar program. Therefore that, the writer will to explain some programs that have been done previously and assessed effective for help implementation of SDGs-12 through development public in the CSR program. In context implementation of SDG 12, implementation accountancy management strategic can help company in:

1. Identifying cost environment hidden environmental costs that are often not recorded in report finance conventional.
2. Integrate principle circular economy in the production and development process product.
3. Push innovation product friendly environment and efficiency of production processes through planning strategic data- based.
4. Develop indicator performance relevant sustainability for internal and external reporting.
5. Increase accountability and transparency towards relevant stakeholders' issues environmental and social.

However Thus, the reality on the ground show that understanding and application accountancy management strategic in the company Indonesian manufacturing is still very varied. Many companies are still focus system accounting in reporting finance and efficiency cost solely, without integrate aspect sustainability in a way strategic. Lack of binding regulations, limitations HR competencies, as well as low awareness to benefit term long from sustainability strategy become a number of obstacle main.

On the other hand, increasing pressure from consumers, investors, regulators, and institution international to practice responsible business answer give encouragement new for company for adopt a more approach strategic and sustainable in management his efforts. Therefore, that's important for evaluate to what extent accounting management strategic has play a role in push responsible consumption and production responsible, especially in the sector Indonesian manufacturing. Study This aim for fill in gap knowledge the with dig in a way in-depth:

1. How company manufacturing in Indonesia understands and implements accountancy management strategic.
2. What just challenges and obstacles faced in integrate SDG 12 principles in business strategy company manufacturing.
3. And how accountancy management strategic can optimized as tool for support taking sustainability - oriented decisions.

This article support study before - previously stated that implementation EPR policy can become strategic steps for push SDG goal 12. With Thus, research This expected can give contribution theoretical and practical to development knowledge accountancy management contextual strategic with challenge development sustainable, at the same time give recommendation policies and practices best for the industrial world and stakeholders interest other.

2. Theoretical Background

2.1 Strategic Management Accounting

Accountancy Management Strategic (AMS) is approach in accountancy integrated management information financial and non- financial for support taking decision strategic term long. Approach This focuses on how information accountancy used for support superiority competitive and sustainable companies, especially in face challenge external like pressure regulation, change climate, and demands consumers.

According to, Strategic Management Accounting is "the provision and analysis of management accounting data about a business and its competitors for use in developing and monitoring business strategy." Relevant Components and Techniques in AMS towards EPR and SDG 12:

1) Life Cycle Costing (LCC)
   Calculate the total cost product or service throughout cycle his life, from design until disposal. This is very important in EPR context because help manufacturer understand and manage cost post-consumption, including collection return, recycle repeat, and disposal packaging.
2) Environmental Management Accounting (EMA)
   Provide information financial and physical related with impact environment company. EMA helps identify and measure cost hidden environments, such as cost cleaning, recycling repeat, or fine on violation regulation. EMA also facilitates taking more decisions ecological.
3) Strategic Cost Management (SCM)
   Focus on control cost in a way strategic, for example through design repeat packaging to make it more efficient and friendly environment. This related close with subtraction costs incurred from EPR implementation.
4) Environmental and Sustainability Performance Benchmarking
   Involving comparison competitors in matter performance environment and sustainability. Manufacturers can compare EPR achievement and reporting sustainability with company similar, for increase performance.

The role of AMS in Supporting EPR and SDG 12. AMS provides information data -driven that helps manufacturer:

1) Analyze cost management waste.
2) Evaluate risk environment from design packaging.
3) Developing a reduction strategy rubbish in a way holistic.
4) Report EPR performance to regulators and stakeholder’s interest.

2.2. Extended Producer Responsibility (EPR) Theory

Extended Producer Responsibility (EPR) is draft policy expanding environment not quite enough answer manufacturer to all over cycle life product they, especially phase post-consumption and disposal. According to Lindhqvist (1990), the originator EPR concept, "EPR is an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle." A number of Basic Principles of EPR:

1) Financial and Physical Responsibility Manufacturer must bear costs and/ or logistics collection return, recycle repeat, or disposal product they after used.
2) EPR's Environmentally Friendly Product Design encourages manufacturer for make easy products and packaging recycled repeat or own age long.

3) Subtraction Waste at EPR Source aims to reduce waste since stage design and production.
4) Collaboration with Stakeholders Including government, industry recycling recycles, society, and consumers.

EPR Implementation Scheme

1) Mandatory EPR (Regulatory-based): Mandatory the law through regulation government.
2) Voluntary EPR: Initiative driven company and CSR.
3) Collective EPR: Producers form association or institution for handle EPR in a collective (Producer Responsibility Organization – PRO).

The relationship between EPR and SDG 12 has a specific target (Target 12.5): "By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse." EPR automatically direct contribute to the achievement of this target through system collection return and management responsible waste answer.

2.3. Institutional Theory

Institutional theory states that organization will adapt in practice for meet institutionalized norms, rules, and expectations in environment they. Application of EPR in company manufacturing Can So No Only Because internal desires, but also because:

1) Pressure regulatory (regulations government).
2) Pressure normative (industry norms, associations business).
3) Pressure mimetic (imitating) another successful company in EPR implementation).

3. Methods

3.1 Research Design

This study employs a Systematic Literature Review (SLR) methodology. The SLR approach is a purposeful and systematic process designed to identify, evaluate, and synthesize all relevant research on a specific topic. This method involves collecting data and information from research journal articles, books, and other previously vetted relevant materials. The primary aim is to analyze the role of strategic management accounting in the implementation of Extended Producer Responsibility (EPR). Data gathered from existing studies are systematically and critically analyzed to provide a deeper understanding of EPR implementation in Indonesia. Furthermore, this research also examines consumer goods companies listed on the Indonesia Stock Exchange (IDX) to gain an empirical perspective on the application of EPR within corporate sustainability accounting practices.

3.2 Data Source and Search Strategy

The literature search was conducted using prominent academic databases, including Scopus, Science Direct, Emerald Insight, ProQuest, Google Scholar, and SpringerLink. To ensure the research captures practical corporate initiatives, sustainability and CSR reports were also included to verify the implementation of Extended Producer Responsibility within the sustainability programs of consumer goods companies. The publication period for this study is set from 2022 to 2025 to identify the latest programs reflecting corporate participation in sustainability. The search strategy followed a multi-stage process:

1) Initial Identification: Screening of titles and abstracts based on predefined keywords.
2) Feasibility Evaluation: Conducting a full-text review of potentially relevant articles.
3) Final Selection: Applying inclusion and exclusion criteria to finalize the literature corpus.
4) Documentation: Managing and organizing selected literature using the Mendeley reference manager.

3.3 Inclusion and Exclusion Criteria

To ensure the relevance and quality of the studies reviewed, the following criteria were applied:

Criterion	Inclusion Criteria	Exclusion Criteria
Publication Year	Published between 2022 – 2025.	Published before 2022.
Research Focus	Focuses on the implementation of Extended Producer Responsibility.	Literature does not address Extended Producer Responsibility.
Content & Data	Contains empirical data or substantial theoretical analysis.	Opinion pieces or articles lacking empirical/theoretical data.
Document Type	Peer-reviewed journal articles, conference proceedings, sustainability reports.	Non-academic publications, unpublished manuscripts.

3.4 Data Collection and Screening Process (PRISMA Flow)

Adhering to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, the literature selection process consisted of four main phases:

1) Identification:
   a. The initial database search yielded 748 potential articles.
   b. An additional 36 articles were identified through scanning the reference lists of relevant studies.
   c. This resulted in a total of 784 articles identified for screening.
2) Screening:
   a. 158 duplicate articles were removed.
   b. The titles and abstracts of the remaining 626 articles were screened for relevance.
   c. 472 articles were excluded based on the initial screening criteria, leaving 154 articles for full-text assessment.
3) Eligibility:
   a. The full text of 154 articles was thoroughly assessed for eligibility.
   b. 100 articles were excluded based on a detailed evaluation against the inclusion/exclusion criteria, with reasons for exclusion documented.
4) Included:
   a. A final selection of 54 articles was made for in-depth review and synthesis.
   b. The entire selection process is documented in a PRISMA flow diagram.

3.5 Data Analysis and Synthesis

The results of the Systematic Literature Review (SLR) are presented in a narrative synthesis supported by tables. The analysis is designed to answer the research questions by focusing on:

1) Identifying publication trends and core focuses of existing studies.
2) Highlighting key research gaps in the literature.
3) Discussing conceptual and practical implications for developing strategic management accounting to support EPR policy.

3.6 Research Flow

The research flow for this systematic review was as follows:

1) Determining the research topic and problem formulation.
2) Compiling the SLR protocol.

3) Executing the literature search across selected databases.
4) Selecting and evaluating articles based on the established criteria.
5) Extracting and synthesizing data from the included studies.
6) Compiling the final report, including results and conclusions.

4. Results and Discussion

4.1 Results

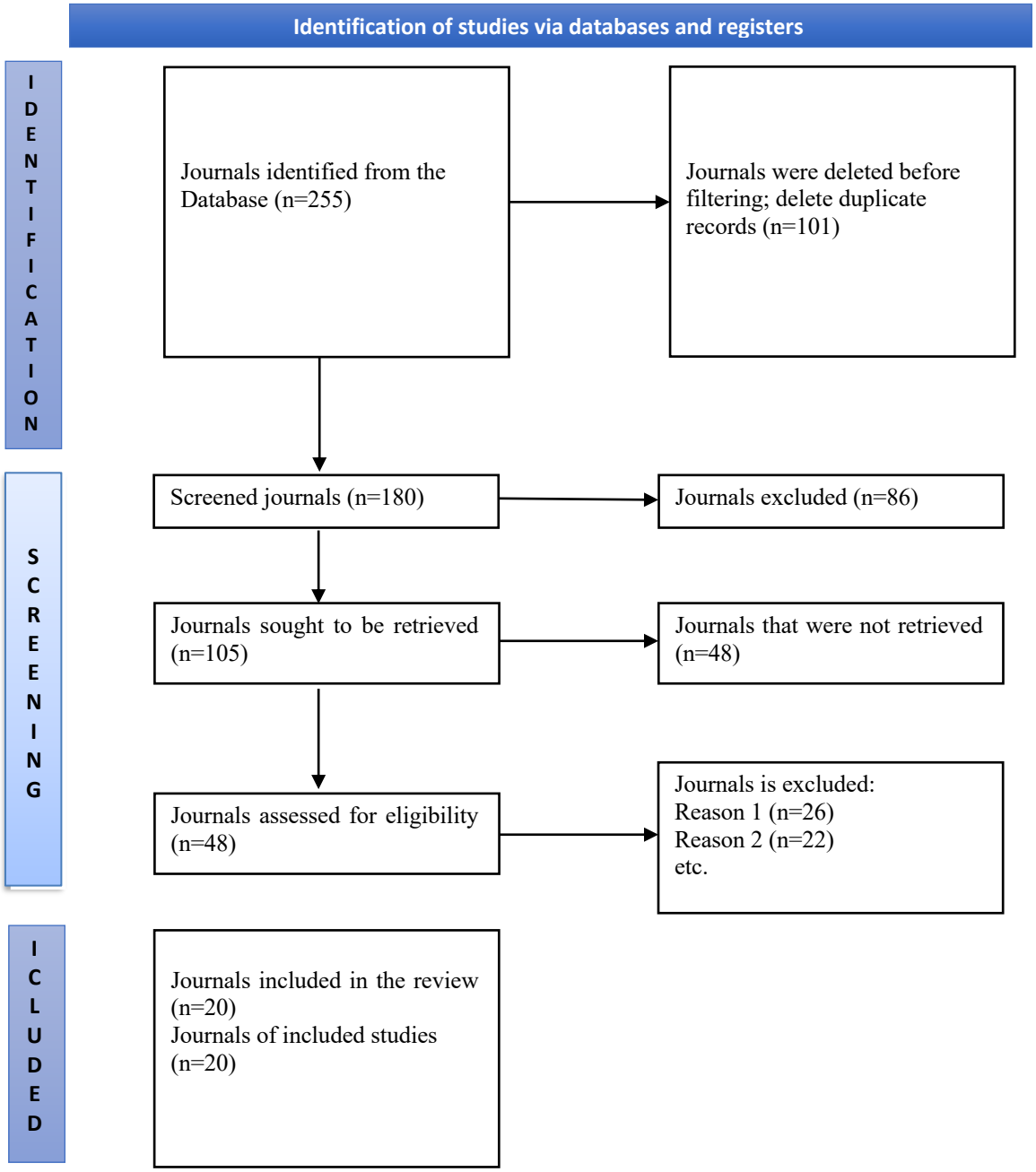

Figure 1. Prisma Flowchart

Based on from results synthesis collection related articles with implementation of EPR, as follows is summary from results research that has been conducted by researchers previous.

Table 1. Journal Synthesis

No	Researcher & Year	Title Study	Main Focus	Research result	Relevance
1	Wilson (2023)	Learning from the past to plan for the future: An historical review of the evolution of waste and resource management 1970–2020 and reflections on priorities 2020–2030	Evolution management global waste	Highlighting three priorities important: funding sustainable, recycling repeat friendly environment and responsibility answer manufacturer	Importance financing sustainable and responsible answer manufacturers in Indonesia
2	Lahl et al. (2025)	Third-generation biodegradable plastics – A complementary strategy to tackle the marine litter problem	Innovation material packaging	Biodegradable plastic can become solution addition for reduce rubbish sea	Push research and innovation packaging friendly environment
3	Tumu et al. (2023)	Global plastic waste recycling and extended producer responsibility laws	Global EPR regulations	Countries with EPR rules and landfill bans are more succeed in recycling repeat	Indonesia needs strengthen enforcement EPR regulations
4	Rabbi (2025)	Optimizing carbon emissions and SDG-12 performance in the EU food system	Sustainability and emissions performance carbon	There is difference big between countries Europe in emission carbon; Germany is the most efficient, Portugal and Hungary left behind	Benchmarking of EPR implementation between countries can implemented in Indonesia
5	Hammoud et al. (2025)	Exploring the feasibility of extended producer responsibility for efficient	Effectiveness EPR policy	Implementation of EPR is necessary Work The same between government,	Importance collaboration multi-stakeholder in Indonesia

No	Researcher & Year	Title Study	Main Focus	Research result	Relevance
		waste management in Lebanon		producers, and society as well as support strong law	
6	Tran et al. (2025)	Current Status and Compliance Management of EPR Regulations for Packaging Waste in Vietnam	Implementation of EPR in developing countries	Obstacle main: lack of data, weakness law, and costs tall for company	Indonesia needs strengthen mechanism EPR financing and sanctions
7	Tundiya, Hansraj (2024)	Sustainable Supply Chain Management for Plastic Manufacturing in SMEs	Sustainability industry plastic scale small	Need monitoring gradual and planning term long so that the industry plastic sustainable	Support policy for SMEs in the sector recycling repeat plastic
8	Keith et al. (2025)	Solvent-Based Recycling as a Waste Management Strategy for Fiber-Reinforced Polymers	Technology recycling repeat advanced	Cycle repeat based solvent produce material worth tall like fiber carbon, however need cost big	Required investment technology green in Indonesia
9	Tran (2025)	A Review on Extended Producer Responsibility Schemes for Packaging Waste Management and Research Gaps in the Field	Global EPR system review	EPR increases globally, but need transparency and incentives for manufacturer	Need system clear reporting and incentives
10	Dey & Ashok (2025)	Policy pathways using extended producer responsibility and eco-modulation frameworks for sustainable	Policy fiscal environment	EPR and eco-modulation can push manufacturer make packaging friendly environment	Can adapted for FMCG industry in Indonesia

No	Researcher & Year	Title Study	Main Focus	Research result	Relevance
		food packaging waste management in India			
11	Misopoulos & Bajiraj (2025)	Shared Producer Responsibility for Sustainable Packaging in FMCG	Not quite enough answer together manufacturer	Importance collaboration manufacturers and suppliers packaging in ESG reporting	Implementation of shared producer responsibility in the consumer goods sector
12	Raj et al. (2025)	Plastic waste management strategies: planning through a sustainable lens and way forward towards circular economy	Management strategy waste plastic	Emphasize importance innovation technology and solutions biological for economy circular	Push transition going to economy circular
13	Moteallemi et al. (2025)	A systematic review of plastic wastes as new adsorbents for dye removal in aqueous environments	Utilization waste plastic	Waste plastic Can used as material absorber water pollutants	Push research utilization waste plastic as material useful
14	Barca et al. (2024)	Managing packaging waste for a sustainable future: a strategic and efficiency analysis in the European context	Efficiency European EPR policy	Required policy integrated and partnership public-private	Relevant for policy national management packaging
15	Septianingrum et al. (2023)	Extended Producer Responsibility for Waste Management Policy	Implementation of EPR in Indonesia	3R principle has been implemented but part big rubbish Still to the landfill	Need integration not quite enough answer between government and producers

No	Researcher & Year	Title Study	Main Focus	Research result	Relevance
16	Goldáraz-Salamero & Blanc (2025)	From food loss and waste to feed: a systematic review of life cycle perspectives in livestock systems	Circular economy agriculture	Many studies focus on aspects environment, not yet economic and social	Required approach cross sectors in Indonesia
17	Chandra & Arnakim (2025)	ASEAN member states' efforts in achieving SDG 12.3 post-COVID	Comparison of Indonesia and the Philippines	Indonesia focuses on reduction waste food, Philippines at a loss food	Second approach Can integrated in Indonesia
18	Wang et al. (2025)	Exploring the adoption of climate smart agriculture in Saudi Arabia	Agriculture sustainable	CSA helps achievement of SDGs 2, 6, and 13	Can implemented for sector Indonesian agriculture
19	Manisha Raj et al. (2025)	Plastic waste management strategies: planning through a sustainable lens and way forward towards circular economy	Technology management waste plastic	IoT and blockchain can help management plastic	Potential digitalization system management waste in Indonesia
20	Varghese et al. (2025)	Performance Evaluation of Sand-Coated Recycled HDPE and E-Plastic Aggregates as Partial Replacements for Coarse Aggregate in Sustainable Concrete	Construction material innovation	Waste plastic can used as material strong concrete	Opportunity development technology green in Indonesia

Various study latest highlight importance implementation Extended Producer Responsibility (EPR) and innovation management waste in support sustainability global environment. Wilson (2023) through his study in Waste & Management Research emphasize three priorities important for policy management waste throughout the world, namely

funding sustainable, recycling repeat more efficient and responsible answer expanded producers. View similar reinforced by Tumu et al. (2023) who compare EPR policies in various countries and found that the country with strong EPR regulation as well as prohibition disposal tend to landfill own level recycling repeat more tall.

Temporary that, focus to material innovation and solutions technology also becomes attention main. Lahl et al. (2025) highlight potential next-generation biodegradable plastic third as a complementary strategy for overcome rubbish sea, especially Because plastic conventional difficult decompose and can pollute environment during centuries. Keith et al. (2025) add that method recycling repeat-based solvent can produce material worth tall like fiber carbon, although still face challenge cost and efficiency.

On the other hand, EPR policies and implementation in developing countries show challenge separately. Hammoud et al. (2025) explain that implementation of EPR in Lebanon requires coordination strong between government, producers, and society, with support clear laws. A study by Tran et al. (2025) in Vietnam found obstacle in the form of limited data, regulations that have not been ripe, and burden cost for company. In the same vein with Therefore, Septianingrum et al. (2023) evaluate that although the 3R principle has implemented in Indonesia, some big rubbish Still ended up in landfill because Not yet existence integration full between not quite enough answer government, society, and producers.

From the side policy innovative, Dey & Ashok. (2025) propose implementation mechanism eco-modulation, namely arrangement cost for manufacturer based on impact environment material the packaging, as incentive going to packaging sustainable. Misopoulos & Bajiraj (2025) also emphasize the importance of the Shared Producer Responsibility (SPR) model which combines not quite enough answer manufacturer goods consumption and producers packaging for strengthen transparency, ESG reporting, and involvement stakeholder's interest.

At the level macro, research by Barca et al. (2024) highlight importance harmonization policy management waste packaging in Europe, including investment technology recycling repeat innovative and collaborative public-private. Rabbi (2025) add dimensions socio-economic with show existence gap performance sustainability between European Union countries in system food, where Germany show performance highest while Portugal and Hungary Still left behind.

In addition to EPR, a number of research also expands focus on the economy circularity and innovation biological. Raj et al. (2025) emphasize the need development chain mark economy circular as well as implementation technology like Internet of Things (IoT) and blockchain in management waste plastic. Moteallemi et al. (2025) show that waste plastic can processed become material absorber effective water pollutant, contributing to subtraction pollution and savings costs. Varghese et al. (2025) even develop utilization waste plastic in construction concrete, producing a more durable material strong and friendly environment as well as support achievement of SDGs 11 and 12.

In the sector agriculture, Li et al. (2025) disclose that implementation Climate Smart Agriculture (CSA) in Saudi Arabia such as use varieties stand climate and systems irrigation save water contribute to achievement of SDGs 2, 6, and 13, as well increase resilience food national. Meanwhile the, Goldáraz-Salamero et al. (2025) find that utilization waste food become feed cattle Still more Lots reviewed from side environment compared to economy or social.

In Southeast Asian context, Chandra & Arnakim (2025) comparing the strategies of Indonesia and the Philippines in achieving SDG 12.3 post-pandemic. Indonesia tends to

focus on reduction waste food, while the Philippines is in handling lost food. Both assessed need balance approach to be more effective reach objective sustainability.

In a way overall, various study the show that management waste and responsibility answer manufacturer No can stand alone. Required integration between policy, innovation technology, as well as collaboration cross sector for realize system management source sustainable power. Approach such as EPR, eco-modulation, and implementation principal economy circular proven become direction global policies towards greater production and consumption responsible answer

4.2 Discussion

Based on results Systematic Literature Review show that the concept of Extended Producer Responsibility (EPR) has become approach important in management rubbish plastic, in particular in industry goods consumption. EPR emphasizes the expansion not quite enough answer manufacturer to all over cycle life products, including management waste post-consumption. In context accountancy management strategically, the implementation of EPR requires company for No only take into account internal costs and efficiencies, but also consider impact environmental impacts caused by its products. Accounting management used as tool for designing reduction strategies trash, measuring performance environment, as well as evaluate effectiveness of recycling programs repeat or innovation packaging. However Thus, the implementation of EPR in Indonesia is still not optimal.

4.2.1 Conditions Implementation and Compliance moment This

Most of the company big, especially those that have own commitment global sustainability, has start integrate EPR principles in its business strategy. On the other hand, the company medium and small Still face various obstacles, such as lack of understanding, limitations source power, as well as Not yet existence support adequate regulations. In addition, that, compliance to regulations Still varies, capacity government supervision Not yet maximum, and system reporting by manufacturers Not yet show consistency as well as adequate data validity. This shows the need repair comprehensive in system EPR implementation, both from internal side of the company and support external by stakeholder's interest related. for overcome problem mentioned, it is necessary a series of strategies that are systemic and integrated.

One of approach important is push company for integrate EPR principle to in system accountancy management strategic, so that management rubbish No Again considered as burden external, but rather as part from efficiency and responsibility answer corporations. The government also needs to do strengthening regulations, including revise policy like Minister of Environment and forestry Regulation No. 75 of 2019 to have instrument more sanctions and incentives firm as well as operational. On the other hand, the company need pushed for increase transparency reporting performance environment, for example through report sustainability validated ESG (Environmental, Social, and Governance) based in a way independent.

In context accountancy management strategic, implementation Extended Producer Responsibility (EPR) policy demands company for own system information that is not only efficiency - oriented costs, but also on sustainability term long. Strategic Management Accounting (SMA) can play a role as tool main in support EPR implementation through provision of cost data environmental cost data, analysis cycle life product (life cycle costing), as well as measurement performance sustainability. Through integration information financial and non- financial, high school helps management identify point critical in chain value that produces waste, evaluate effectiveness of recycling programs repeat, and estimate

impact economy from activity subtraction trash. With Thus, high school does not only function as tool reporting, but also as framework taking decision strategic support achievement SDG goal 12: Responsible Consumption and Production.

4.2.2 Challenges Implementation of EPR

In the application of EPR there are obstacles and challenges faced government, one of them like lack of awareness as well as compliance to regulation, understanding about importance management garbage, lack of innovation manufacturer in develop friendly products environment. Innovation in design easy products and packaging recycled repeat also becomes key in pressing embossed rubbish plastic, followed by with strengthening partnership between formal and informal sectors, including involving perpetrator recycling repeat local and scavengers in system collection and processing garbage. Besides that, incentive fiscal and technical from government, such as subtraction tax or help technology for investing companies in management waste, will become encouragement important for speed up transformation system management rubbish plastic national in a way sustainable.

4.2.3 Implications EPR Research

Based on various research that has been discussed, there are a number of implications important things that can made into reference for development policy, innovation technology and practice management waste sustainable in the future.

First, from side policy public, the implementation of Extended Producer Responsibility (EPR) has been proven become instrument effective for increase not quite enough answer manufacturer to cycle life products. Research Tran et al. (2025) show that success EPR implementation is highly dependent on support regulation, enforcement law, as well as involvement active various stakeholders interests. Therefore that, the government need strengthen framework law, clarify mechanism financing, and providing system incentive as well as proportional sanctions.

Second, from aspect technology and innovation, research by,, and Varghese et al. (2025) confirm importance investment in research and development (R&D) for create solution recycling repeat new start from biodegradable plastic, solvent-based recycling technology, to utilization waste plastic for material building. Technology the No only support subtraction waste, but also has the potential create mark economy new through utilization return previous material considered No useful.

Third, from dimensions economy and industry, the concept of eco-modulation and shared producer responsibility proposed by Dey & Ashok (2025) as well as Misopoulos & Bajiraj (2025) give direction new for financing fair environment. Producers pushed for designing more products friendly environment with consider cost environment in structure price and design. Approach This can increase efficiency chain supply and strengthen transparency reporting sustainability (ESG reporting).

Fourth, in context development sustainable and economic circular, research,, and Moteallemi et al. (2025) show that collaboration cross sector between government, industry, and society is essential for speed up transition going to system economy circular. Use digital technologies such as the Internet of Things (IoT) and blockchain in management waste can also be increase traceability and efficiency system.

Fifth, from side global social and environmental outcomes study,, as well Chandra & Arnakim (2025) show that sustainability No only related with management waste, but also includes resilience food, efficiency energy and change behavior community. Approach cross

integrating sectors agriculture, food, and management waste become key in reach Sustainable Development Goals (SDGs) especially SDGs 2, 11, 12, and 13.

In a way overall, implications main from gathering study This is the need transition systemic towards a responsible production and consumption model answer. Policies that support EPR, material innovation, and collaboration multi-stakeholder will strengthen the country's ability to reduce embossed waste, pressing emission carbon, and creates mark economy new through practice economy circular. With Thus, the results study This give base scientific and practical for government, industry, and society for together build system management source fair, efficient and sustainable power.

5. Conclusion

Based on results and Discussion From the systematic literature review, the implementation of EPR in Indonesia is still not optimal. The implementation of EPR in Indonesia is partly has implemented by companies that have committed to sustainability in its business strategy. However Still there are also many who haven't implementing EPR especially company scale medium and small businesses. Many challenges are faced company like lack of understanding, limitations source power, as well as Not yet existence awareness and compliance to regulations. In addition, that, supervision by the government Still Not yet maximum, and system reporting by manufacturers Not yet show consistency as well as adequate data validity.

In context accountancy management strategically, the implementation of EPR requires company for No only take into account cost and efficiency product, but also consider impact environmental impacts caused by their products. Many companies still focus system accounting in reporting finance and efficiency cost solely, without consider aspect sustainability towards its business strategy. In addition, strengthen aspect regulatory and collaborative, results study this also confirms importance role accountancy management strategic in support implementation of EPR in the sector industry goods consumption. Through integration information cost environment to in the planning and decision-making process decisions, companies can design a better strategy effective in reduce waste plastic and improve efficiency source power. With Thus, Accounting Management Strategic functioning as bridge between objective economy and responsibility answer environment, at the same time become instrument important in realize sustainable consumption and production in Indonesia.

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